Better Buildings
Neighborhood Program

Business Models Guide

June 19, 2012

Table of Contents

List of Figures

Key Terminology and Definitions

Actors: The businesses that provide products and services in each segment of a value chain.

Assets and infrastructure: A business model element that characterizes the investments and enabling environment required for a firm to operate.

Benefit Cost Test (BCT): A test used by utility program administrators to determine whether an energy efficiency program will be more cost-effective than new generation or transmission capacity.

Cash flow: An organization's net inflow or net outflow of cash resulting from basic operating activities over a given period of time.

Cost of debt: The interest that a business must pay on borrowed funds to lenders such as credit card companies or banks.

Cost of equity: Represents the compensation, or rate of return, that an investor requires in exchange for bearing the risk of ownership.

Cost of goods (and services) sold: The direct costs attributable to the production of the goods sold by a company. This amount includes the cost of the materials used in creating the good along with the direct labor costs used to produce the good. It excludes indirect expenses such as distribution costs and sales costs, which are **variable costs.**

Cost-recovery mechanisms: Tools that allow an organization to recover the up-front cost of an investment.

Customers and customer acquisition: A business model element that characterizes who a firm's target market is and how they are reached.

Decoupling: Refers to a situation in which a utility's profits are not dependent upon the quantity of energy it sells to customers. By decoupling energy usage from service charges, a utility separates the amount charged to customers from the number of kilowatt-hours consumed. In other words, even if customers' energy consumption decreases, they see no change in their utility bill.

Demand side management (DSM): Programs that temporarily shift and balance the electrical load on the grid to reduce peak electricity demand. This helps control costs both to the utility and the ratepayer through reduced fuel usage and operation and maintenance requirements.

Deregulated investor-owned utility (IOU): A provider of gas or electric service that is owned by private shareholders and operates in competitive markets.

Do-it-yourself: Term used to characterize a homeowner who constructs and/or repairs things him- or herself.

Earnings before interest and tax: An indicator of a company's profitability, calculated as revenue minus expenses, excluding interest and tax.

Enabling environment/market enablers: The factors that influence the incentives and decisions of each actor in a value chain. These enabling factors are often shaped or influenced by program administrators and include financing, financial incentives, information providers, regulatory framework, and transport and logistics.

Financial incentives: Financial programs, discounts, rebates, or tax credits that lower the high up-front costs of purchasing home energy upgrades available to the consumer.

Financial model or structure: A business model element that characterizes how a firm raises capital for startup or expansion and sets performance targets.

Financing: The act of providing funds for business activities, making purchase, or investing (e.g., loans, equity, and cash).

Gigawatt (GW): A unit of power equal to one billion watts; often used for large power plants or power grids.

Governance: A business model element that characterizes how a firm makes decisions in the market.

Gross margin: The difference between sales revenues and production costs, excluding costs associated with overhead, payroll, interest and taxes. It is generally used to determine the incremental value of sales.

Home energy assessment: The evaluation of a home's energy efficiency. It is used to identify the best ways to improve energy efficiency in heating and cooling the house.

Home energy upgrade: The installation of new, more energy-efficient equipment into an existing home.

Home improvement market: A term used to characterize the broader market for home renovations and remodeling projects. It is not specific to improving energy efficiency.

Home performance contractor: A company whose primary business is to deliver the full suite of home energy upgrade services directly to the consumer.

Hurdle rate: The minimum rate of return that a firm requires to consider an investment opportunity.

HVAC contractor: A specialized contractor whose core business is to install and/or maintain heating, ventilation, and air conditioning equipment.

Information providers: The education and marketing provided by government, non-governmental organizations, communities, and news media.

Installation: The act of installing a new system or piece of equipment to improve a home's energy efficiency.

Interest expense: The amount reported by a company or individual as an expense for borrowed money.

Kilowatt (kW): A unit of power equal to 1,000 watts.

Kilowatt-hour (kWh): A unit of energy equivalent to 1,000 watts expended for one hour of time.

Life cycle: The stages a business experiences including seed, start-up, growth, established, expansion, and decline/exit.

Line of credit: An arrangement between a financial institution and a customer that establishes a maximum loan balance that the bank will permit the borrower to maintain. The borrower can draw down on the line of credit at any time, as long as he or she does not exceed the maximum set in the agreement.

Marketing channels: Approaches and strategies through which businesses promote and deliver products and services to the consumer.

Net profit: The total amount a firm makes after all expenses have been accounted for. Long-term positive net profit is a key indicator of the viability of a business or line of business.

Non-utility program administrator: An organization (e.g., government, non-governmental organization, or private contractor) that manages a residential or commercial energy efficiency program.

Overhead: The operating expenses of a business which cannot be attributed to any one specific business activity, but which are still necessary for a business to function (also known as **fixed costs**).

Products/services: The end product delivered to the consumer in a value chain.

Pro forma: Refers to the forecasted financial statements to show future revenues. Pro forma may differ from traditional financial statements in the sense that they are not audited and may not be computed according to Generally Accepted Accounting Principles (GAAP).

Quality assurance: The assessment of home energy upgrades to ensure that equipment was installed according to standards and is working properly.

Rate of return: The gain or loss on an investment over a specified period, expressed as a percentage increase over the initial investment cost.

Ratepayer: One who pays for a utility service according to established rates.

Regulated investor-owned utility (IOU): A provider of gas or electric service owned by private shareholders and whose service rates are defined by an external regulator.

Regulatory framework: The certifications and standards that govern the home energy upgrade process.

Remodeler: A company whose core business is to provide the full array of home improvements.

Residential energy efficiency market: The niche market for home energy upgrades.

Retailer: A private company that sells goods and services directly to consumers and contractors and may provide energy efficiency services to homeowners.

Revenue: The total amount of money received by a company for goods sold or services provided during a certain time period.

Risk premium: The minimum amount of money by which the expected return on a risky asset must exceed the return on a risk-free asset.

Selling, general and administrative expense (SG&A): The sum of all direct and indirect selling expenses and all general and administrative expenses of a company. Direct selling expenses are expenses that can be directly linked to the sale of a specific unit such as credit, warranty, and advertising expenses. Indirect selling expenses are expenses that cannot be directly linked to the sale of a specific unit but are proportionally allocated to all units sold during a certain period, such as telephone, interest, and postal charges.

Service offering: A business model element that characterizes what goods and services a firm markets and sells.

Sole proprietorship: An unincorporated business with one owner who pays personal income tax on profits from the business.

Stakeholder: A party that has an interest in an enterprise or project. Examples of stakeholders include investors, employees, customers, suppliers, the community, and government.

Third-party implementer: A private or nonprofit contractor hired by a program administrator or utility program administrator to implement a residential or commercial energy efficiency program on its behalf.

Total Resource Cost (TRC): A Benefit Cost Test most commonly used by utility program administrators.

Transport and logistics: The shipment and delivery of energy efficiency products and services.

Utility program administrator: A publicly owned or investor-owned utility that manages a residential or commercial energy efficiency program.

Value chain: A representation of a market composed of distinct segments or phases that highlight all key participants and how they interact with one another.

Value chain segment: The distinct segments or phases in which value is created in an industry. The five segments described in this *Business Models Guide* are manufacturing and product development, equipment supply, energy efficiency home energy upgrade design and consultation, energy efficiency home energy upgrade installation, and the final consumer.

Acknowledgements

The U.S. Department of Energy's (DOE's) Better Buildings Neighborhood Program would like to thank the many contractors, retailers, program administrators, and financial professionals who played a critical role in the development of this guide. They generously shared their experiences through surveys and industry interviews, which were analyzed and aggregated by consulting firm Booz Allen Hamilton. Without their time, effort, and insights this guide would not be possible.

DOE thanks the following organizations and individuals who contributed to this guide, as they are helping pave the way toward a sustainable residential energy efficiency market:

- Advantage Capital—Doug Beekman
- Alameda County—Wendy Sommers
- APS (Arizona)—Gavin Hastings
- Bartholomew Heating and Cooling—Brad Bartholomew
- Best Buy—Kris Bowring
- BetterBuildings for Michigan—Mary Templeton
- NeighborWorks of Western Vermont—Ludy Biddle
- Booz Allen Hamilton
- Building Science Academy—Sam Flanery
- Burlington Electric Department—Chris Burns
- California Center for Sustainable Energy—Jeremy Hutman
- Case Design/Remodeling—Bruce Case
- Claremont Creek Ventures—Paul Straub
- Conservation Services Group—Mark Dyen
- Dominion Electric—Edmund Hall and Mandy Pignato
- Efficiency.org—Rick Gerardi
- Efficiency Vermont—Emily Levin
- Electric and Gas Industries Association—Stephen Self
- Electric Cooperatives of South Carolina—Mike Smith, Lindsey Smith
- Every Watt Matters—Devon Hartman
- Gilmore Home Center—Jeff Larson
- Greater Cincinnati Energy Alliance—Andy Holzhauser and Al Gaspari
- Green Depot—Sarah Beatty
- GreenHomes America—Mike Rogers
- Hand Energy Services—Thomas Hand
- Heshong Mahone Group—Julieann Summerford
- Lowe's—Jay Rebello
- McCullough Heating and Air Conditioning—Al d'Andrea
- Merrick Design and Build Inc.—David Merrick
- MidSouth Building Supply—Kevin Hale
- Mountain Association for Community Economic Development—Jeff Fugate and Kristin Tracz
- New York State Energy Research and Development Authority—Karen Hamilton
- Next Step Living—Geoff Chapin, Clayton Schuller
- Pacific Gas & Electric—Jane Kruse and Jeff Gleeson
- Paladin Capital Group—Colin Bryant
- Power Home Remodeling Group—Bennett Andelman
- Recurve—Matt Golden
- Redding Electric Utility—Bryan Cope
- Sheet Metal and Air Conditioning Contractors' National Association—Tom Soles
- Solsaa Energy Solutions—Eric Solsaa
- Structural Energy Conservation—Jared Moats
- The Avenue Builders—Chris Bellanca
- The Levine Group—Jerry Levine
- Small Town Energy Program for University Park (STEP-UP), University Park, Maryland—Chuck Wilson
- Warm Thoughts—Blaine Fox
- Weatherization Works—Bill Morrissey

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	▪ Represent the majority of the home improvement market	▪ Represent a small segment of the general remodeler market	▪ Represent a large portion of the home improvement market	▪ Represent a small segment of the home improvement market	▪ Primary seller of goods to "do-it-yourself" consumers
Service Offering	▪ Offer standard range of home improvement services	▪ Offer services that integrate architects, remodelers, and project managers	▪ Offer specialized products and services such as HVAC and windows	▪ Specialize in energy efficiency services and provide "one-stop shop" for home energy upgrades	▪ Provide goods and services either directly to the consumer or indirectly through network of qualified contractors that operate under the retailer brand
Implications	▪ 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	▪ 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	▪ 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	▪ 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	▪ 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	■ 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.	■ 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	■ 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.	■ 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	■ 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).	■ 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	■ 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.	■ 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	■ 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.	■ 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	■ 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.	■ 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	■ 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.	■ 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	■ Firms in the remodeling industry tend to have a lean decision-making structure and are highly responsive to customer demand	■ 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**
	at the point of sale. ▪ 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.	may require assistance in conducting long-term strategic planning to do so. ▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ 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	▪ 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**
	represents only 8 percent of the total home improvement market. ▪ 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.	homes, and, typically, higher levels of education. This illustrates the strategic opportunity for remodelers to expand their services to include home energy upgrades. ▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ Direct interaction with customers through repeat service visits is the primary means of generating revenue for HVAC contractors.	▪ 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	■ HVAC contractors are considered experts in "home comfort," health, and safety by consumers because they can moderate air temperatures.	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	■ 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).	■ 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	■ 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.	■ 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	■ 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	■ 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**
	demand for their services.	understanding of market demand and leverage partnership opportunities to reach their target revenue threshold and achieve sustainability for the business. ■ 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	■ 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.	■ A primary asset for overhead cost control is CRM, job tracking, and reporting software.
Service Offering	■ 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.	■ 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	■ 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	■ 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	■ 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.	■ Because big box retailers cannot grow though 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	■ 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.	■ 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	■ Big box and wholesale/distributor/franchiser	■ Big box retailers will seek similar profit margins

Summary of Retailer Insights		
	Observations	**Impact on Potential Expansion into Energy Efficiency**
Model or Structure	retailers have high profitability requirements, with a typical gross margin target of 35 percent. ▪ 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.	for home energy upgrades as with their traditional services. ▪ 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	▪ 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.	▪ 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	▪ Retailers provide goods and services directly to consumers and small contractors. These include: – 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.	▪ 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	▪ 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	▪ 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**
	afford to invest in a whole-home energy upgrade, but prefer instead to make smaller home investments over time. ▪ Contractors represent a large and vocal segment of the retailer customer base.	▪ 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.3 INTRODUCTION 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	▪ Completely government-owned (federal, state, or local) ▪ Typically program funder and administrator; may be implementer as well	▪ 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	▪ 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	▪ Products and services limited by government regulations and community needs ▪ Profit motive not as influential as with other market actors ▪ Extensive reporting requirements	▪ 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)	▪ 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	■ 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.	■ 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	■ 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.	■ 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	■ 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.	■ 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	■ Each program type has different assets that give it a competitive advantage in delivering services to the customer.	■ 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	■ 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.	■ 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	■ Both program types are ultimately trying to reach the same group of consumers, but have different advantages in doing so.	■ 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	■ 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.	■ 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	■ Program administrator's governance models include the following: – 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.	■ 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	■ 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	■ 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	■ 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.	■ 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	■ The program administrator's services include: – 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.	■ 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	■ 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.	■ 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	▪ 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]	▪ 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	▪ Utilities can be divided into three categories: – **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.	▪ 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	■ 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.	■ 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	■ 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.	■ 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	■ The services for residential customers in the energy efficiency market may include the following: – 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.	■ 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	■ 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.	■ 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.)

1 Introduction

The U.S. Department of Energy's (DOE's) Better Buildings Neighborhood Program is focused on creating self-sustaining markets for building energy efficiency that result in 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. In translating publicly funded innovations into sustainable models and expanding the residential energy efficiency marketplace, the private sector will be a necessary and important partner and/or driver.

The ***Better Buildings Neighborhood Program Business Models Guide*** combines early lessons learned from Better Buildings 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. In the future, DOE will incorporate additional information from Better Buildings grant recipients and partner businesses, as well as from other DOE programs, based on their experience implementing residential energy efficiency programs over the years of their grant.

1.1 HOW TO USE THIS GUIDE

This guide was developed to help Better Buildings Neighborhood Program grant recipients, program administrators, contractors, and retail companies expand their services into the residential energy efficiency market.

This version of the guide focuses on helping non-utility program administrators understand key market actors and their perspectives and business drivers. 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. For example, the utility program administrator chapter provides information for non-utility program administrators about partnership opportunities with utilities.

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. For example, a contractor can use this guide to shape their business plan, benchmark a business relative to a national sample, and find tips to be more successful in the home energy efficiency market.

Note that the insights in this guide focus on common themes and benchmarks at a national level. While the findings hold true across many locales, it is critical to factor in the local/regional conditions and dynamics when applying these insights to a specific market.

DOE is continuously developing tools and resources to assist organizations and individuals seeking to promote energy efficiency. Future versions of this guide will incorporate additional information from Better Buildings Neighborhood Program grant recipients, partner businesses, and other market actors, as well as from other DOE programs, based on their experience implementing residential energy efficiency programs.

1.2 GUIDE DEVELOPMENT AND METHODOLOGY

To identify business models that may help organizations expand and become sustainable in the residential energy efficiency market, the Better Buildings Neighborhood Program studied the market and its key players, with the assistance of the individuals listed on page xii, “Acknowledgements.” The approach for this study included:

- Identifying key actors in the residential energy efficiency value chain through collaboration with Better Buildings Neighborhood Program stakeholders.
- Classifying the common elements of a business strategy using best management practices.
- Identifying potential market interviewees in each of the key actor industries through the DOE Better Buildings Neighborhood Program, Building America, Home Performance with ENERGY STAR, and other industry partner connections.
- Conducting phone interviews with target industry representatives to get a firsthand perspective on current market practices, benchmarks, and goals relating to each of the business model elements. These stakeholders were chosen because they could offer insight into their successes and challenges in entering and operating in the residential energy efficiency market. This allowed for the identification of best practices, as well as critical barriers that could prevent an organization from operating effectively in that market.
- Reviewing research reports and publicly reported financial information to obtain insight into high-level market trends and performance to date.
- Aggregating and analyzing the data to highlight common themes across each key actor’s industry using the business model framework for evaluation and comparison.
- Identifying insights that inform critical market players seeking to expand their services in and into the residential energy efficiency market.
- Identifying potential points of collaboration between the various actors in the market, along with the specific steps necessary to implement strategic partnerships.
- Validating initial findings with key market stakeholders, including Better Buildings grant recipients, private industry participants, and partner trade associations during fall 2011, culminating at the Better Buildings “Business of Energy Efficiency” Workshop held in Burlington, Vermont, on October 24–26, 2011.
- Providing a 60-day comment period for additional stakeholder feedback and review during November and December 2011.

Note that all stakeholder interview data in the guide are anonymous to protect privacy. The information referenced as “industry interview” is data from real programs and private firms that were aggregated and normalized to prevent identification of the source.

The study’s results provide the reader with a comprehensive view of the residential energy efficiency market, including:

- The energy efficiency value chain that characterizes the actors and services in the market
- A business model framework for comparison across the different actors identified in the value chain
- Business model profiles for the six actors deemed critical to the development of a sustainable market for residential energy efficiency
- A detailed look at key financial, operational, and market-related decision-making criteria relevant to the six actors
- Program practices and benchmarks that can assist the market as it evolves toward providing home energy efficiency services
- Key points of interaction among market participants and key opportunities for collaboration

The insights highlighted in this guide are focused on providing common themes and benchmarks at a national level. While the findings hold true across many locales, it is critical to factor in the local/regional conditions and dynamics when applying these lessons learned to a specific market. Insights on specific local/regional markets were beyond the current scope of this study.

1.3 ENERGY EFFICIENCY VALUE CHAIN

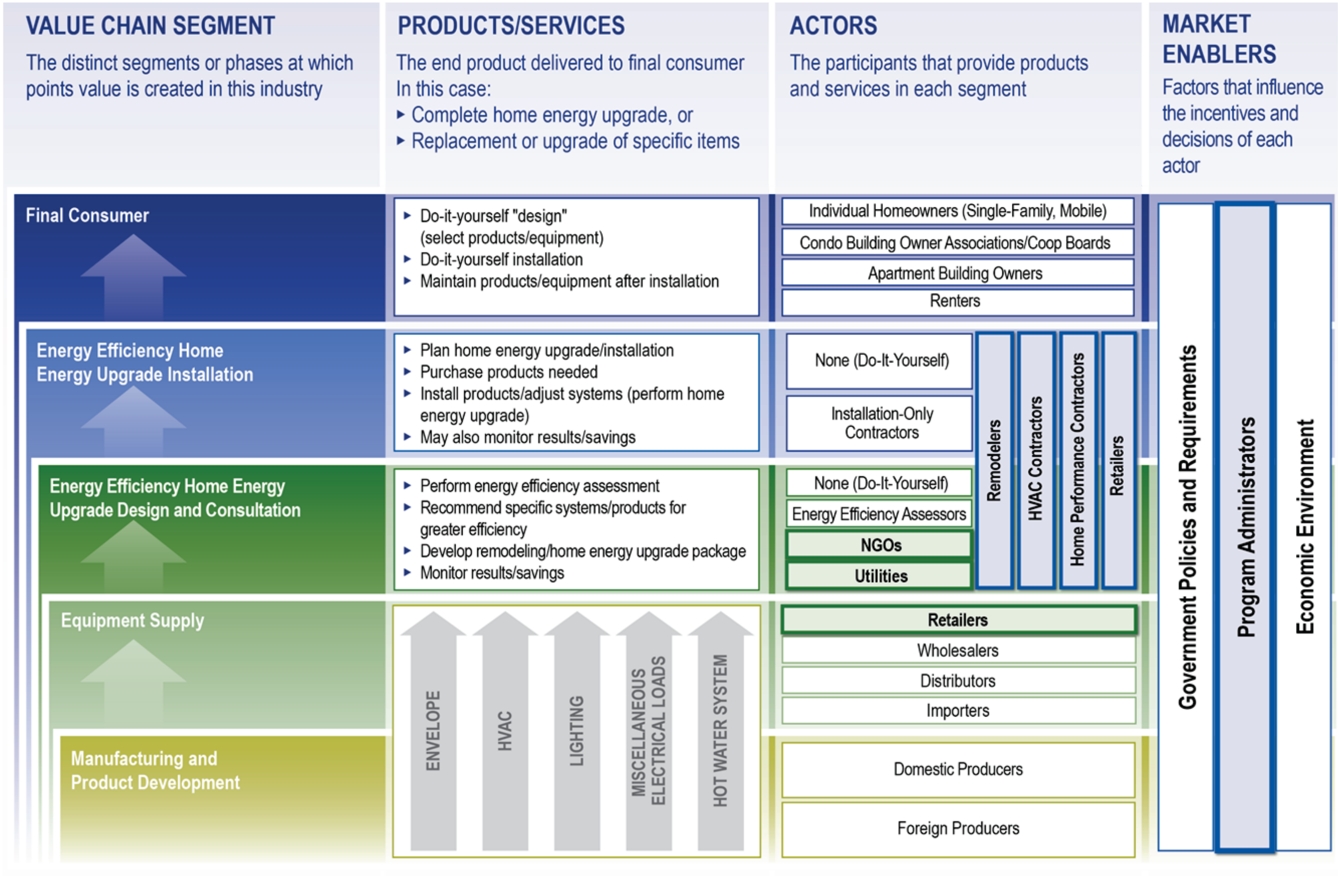
> A **value chain** is a representation of a market that highlights all key participants and how they interact with one another, each providing value that ultimately reaches the homeowner.

The complex industry in which the residential energy efficiency market resides currently represents only a small share of the overall home improvement market. In 2009, the home improvement market was a $290 billion industry, while the residential energy efficiency market represented just $40 billion of that total.[9] These figures demonstrate that the residential energy efficiency market has substantial opportunity for growth. To better understand the actors and business activities that can influence growth, the Better Buildings Neighborhood Program examined the residential energy efficiency **value chain** (Figure 1-1). The examination showed the complexity of the market and highlighted the types of interactions between key participants. Key components of the energy efficiency value chain include:

- **Value chain segments**—the distinct segments or phases at which value is created in the industry
- **Products/services**—the end product delivered to the consumer (in this case, home energy upgrades and their component parts)
- **Actors**—the participants who provide products and services in each segment
- **Market enablers**—factors that influence the incentives and decisions of each actor

The sum total of these components gives the viewer a complete picture of the complex elements that form the basis of the home energy upgrade market, highlighting where value is added along the way to delivering a final product to the consumer.

[9] 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.



Source: Booz Allen research

Figure 1-1: Residential Energy Efficiency Value Chain

1.3.1 Value Chain Segment

The Better Buildings Neighborhood Program defined the products and services, actors, and market enablers across five segments of the value chain:

- Manufacturing and product development
- Equipment supply
- Energy efficiency home energy upgrade design and consultation
- Energy efficiency home energy upgrade installation
- Final consumer

Each segment is critical to delivering the value of energy efficiency services to the final consumer, who is typically a homeowner. The segments represent the various stages at which additional value is created (and, correspondingly, cost is added) to create a final product for consumption. Analyzing the value chain in segments allows the reviewer to see the critical transaction points and cost drivers that ultimately shape the price and delivery of the good or service to the consumer. Where value is added to a particular segment, a corresponding profit margin is charged, increasing the final price to the consumer. Demonstrating where value is created and where costs are incurred is a central focus of the business models in this guide.

1.3.2 Products/Services

The residential energy efficiency market includes a variety of products and services that create value in each of these five segments. From developing a heating, ventilation, and air conditioning (HVAC) product to performing an energy efficiency assessment, these products and services can range from a simple building assessment to a complete home energy upgrade. Each of the contractor/retailer models evaluated in this guide focuses on a range of different products or services that are ultimately delivered to the consumer and shapes how contractors and retailers view the market and make a profit.

1.3.3 Actors

The energy efficiency value chain is complex, with multiple actors from the private, public, and nonprofit sectors providing overlapping services to the market.

Upon 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, particularly at the local level: three types of building contractors, retailers, and two types of energy efficiency program administrators.

- **Remodeler**—a company whose core business is to provide the full array of home improvements
- **HVAC contractor**—a specialized contractor whose core business is to install and/or maintain HVAC equipment
- **Home performance contractor**—a company whose primary business is to deliver the full suite of home energy upgrade services directly to the consumer
- **Retailer**—a private company that sells goods and services directly to consumers and contractors and may be interested in selling energy efficiency services to homeowners
- **Non-utility program administrator**—an organization (e.g., government, non-governmental organization [NGO], or private contractor) that manages a residential or commercial energy efficiency program.
- **Utility program administrator**—an energy efficiency program run by a public or investor-owned entity that is in the business of generating and disseminating energy to a range of customers.

The Better Buildings Neighborhood Program evaluated multiple contractor models (remodeler, HVAC contractor, and home performance contractor) because each can either grow its existing energy upgrade services or expand into the residential energy efficiency market if they do not currently offer these services. These contractors can provide significant partnership opportunities for program administrators, as they are ultimately needed to deliver home energy upgrade services to consumers.

The six key market actors discussed here may also partner or interact with home energy auditors or raters, building science experts who perform quality assurance, building code inspectors, and others who may be part of the home energy upgrade service chain in different localities. Those individuals and business types are not specifically covered in DOE's analysis, but could play an important role in safely and effectively delivering energy efficiency services.

1.3.4 Enabling Environment

Each of these actors faces an enabling environment that influences how it behaves in the residential energy efficiency market. These enabling factors are often shaped or influenced by program administrators and include:

- **Financing**—access to financing and the terms associated with the financing (e.g., loans, equity, and cash)
- **Financial incentives**—the availability of rebates, grants, and tax credits to overcome the up-front cost of upgrades
- **Regulatory framework**—the certifications, standards, and requirements that govern the home energy upgrade process
- **Information providers**—the education and marketing provided by government, NGOs, communities, and news media
- **Transport and logistics**—the shipment and delivery of energy efficiency products and services
- **Energy prices and seasonality**—the impact of variation in energy price on the attractiveness of energy efficiency savings

1.4 BUSINESS MODEL ELEMENTS

There are many frameworks for deconstructing how organizations operate within a market. This guide uses a business model framework with five core elements, outlined in the table below. These elements are critical indicators—useful to both business owners/operators and external observers—of how and why a firm makes decisions regarding its products, services, and customers. While each actor within the energy efficiency value chain uses a distinct business model characterized by its own market and internal dynamics, all businesses can be analyzed according to these five elements.

Business Model Elements

Element	Relevance	Key Metrics	Questions for Consideration
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	▪ Priority objectives ▪ Market trend and policy responses ▪ Relevant stakeholders	▪ Who are the stakeholders involved in investment decisions in your organization? In partner organizations? ▪ Once an investment is made, who has responsibility for its oversight? ▪ Are there external regulations that may influence the decision-making process?
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	▪ Revenues ▪ Costs of goods (or services) sold ▪ Required margins ▪ Sources of funding and cost of funding	▪ What are the costs and revenues for the business? ▪ What are the key factors that influence changes in revenues or costs? ▪ How does the business finance investments?
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	▪ Fixed assets (e.g. buildings) ▪ Inventory ▪ Equipment ▪ Brand value ▪ Trainings/certifications	▪ What type of investment (e.g., buildings, machinery, equipment) is needed? How costly is it, and are economies of scale a factor? ▪ How important are non-physical assets (e.g., brand, certifications) to the success of the business?

Business Model Elements			
Element	**Relevance**	**Key Metrics**	**Questions for Consideration**
Service Offering: What goods and services a firm markets and sells	■ Examining existing service offering 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	■ Range of service offering an organization provides and how well they align to its strengths ■ Required margins on an average service offering ■ Level of demand in market for each service offered	■ What are my organization's key strengths and service offering? ■ Are there alternatives/ competitors to these services in the market? ■ Can a strategic partnership help my organization expand its service offering or control its costs?
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 offering	■ Marketing and lead generation efforts ■ Cost per lead ■ Customer demographics ■ Key partnerships	■ Who are the target customers to be served? ■ What is the estimated overall demand for each service being provided? ■ Can a strategic partnership help me capture a larger share of the market?

A unique mix of these business model elements determines how each actor will be affected by various financial incentives, regulations, and fluctuations in the market. This business model analysis provides some insights into possible opportunities for increased energy efficiency services in the market.

1.5 COMMON FINANCIAL TERMINOLOGY AND DEFINITIONS

In addition to the business model elements, this guide uses financial terminology to further discuss the residential energy efficiency market business models. Some of the most common financial terms are listed and defined below.

- **Cash flow**—an organization's net inflow or net outflow of cash resulting from basic operating activities over a given period.
- **Cost of debt**—the interest that contractors must pay on borrowed funds to lenders such as credit card companies or banks.
- **Cost of equity**—represents the compensation, or rate of return, that an investor requires in exchange for bearing the risk of ownership. The cost of equity includes a **risk premium,** which is the amount of funds needed to cover any unexpected costs that may arise.
- **Earnings before interest and tax**—an indicator of a company's profitability, calculated as revenue minus expenses, excluding interest and tax.
- **Financing**—the act of providing funds for business activities, making purchase, or investing (e.g., loans, equity, and cash).
- **Hurdle rate**—the minimum rate of return that a firm requires to consider an investment opportunity. The hurdle rate is equal to the combined cost of debt and cost of equity.
- **Interest expense**—the amount reported by a company or individual as an expense for borrowed money.
- **Life cycle**—the stages a business experiences, including seed, startup, growth, established, expansion, and decline/exit.

- **Line of credit**—an arrangement between a financial institution and a customer that establishes a maximum loan balance that the bank will permit the borrower to maintain. The borrower can draw down on the line of credit at any time, as long as he or she does not exceed the maximum credit limit.
- **Rate of return**—the gain or loss on an investment over a specified period, expressed as a percentage increase over the initial investment cost.
- **Selling, general, and administrative expense (SG&A)**—the sum of all direct and indirect selling expenses and all general and administrative expenses of a company. Direct selling expenses are expenses that can be directly linked to the sale of a specific unit, such as credit, warranty, and advertising expenses. Indirect selling expenses are expenses that cannot be directly linked to the sale of a specific unit but are proportionally allocated to all units sold during a certain period, such as telephone, interest, and postal charges.

Income statements are also a common discussion topic; financial terms associated with these statements are noted in Figure 1-2. An additional detailed list of home improvement and residential energy efficiency market, business model, and financial terms can be found at the beginning of this guide, on page vi.

Revenue is the total amount of money received by the company for goods sold or services provided during a certain time period.

Program Examples: Interest paid by customers on loans, fees paid by contractors for training

Cost of Goods (and Services) Sold are the direct costs attributable to the production of the goods sold by a company. This amount includes the cost of the materials used in creating the good along with the direct labor costs used to produce the good. It excludes indirect expenses such as distribution costs and sales force costs. (also known as **variable costs**).

Program Examples: Cost of loan buy-down, contractor training material development

Gross Margin is the difference between sales revenues and production costs, excluding costs associated with overhead, payroll, interest, and taxes. It is generally used to determine the incremental value of sales.

Program Use: Measure of what services are most profitable

Overhead is the operating expenses of a business which cannot be attributed to any one specific business activity, but which are still necessary for a business to function (also known as **fixed costs**)

Program Examples: Reporting administration, rent, utilities

Net Profit is the total amount a firm makes after all expenses have been accounted for. Positive net profit is critical for a business to stay viable over time.

Program Use: Measure long-term sustainability

Sample Income Statement

REVENUE	2010	2011	2012 (Forecast)	Total
Software Usage Fees	$115,000	$117,300	$119,646	$351,946
Quality Assurance Fees	$265,938	$271,256	$276,681	$813,875
Lead Sales	$265,938	$271,256	$276,681	$813,875
Total Revenues	$646,875	$659,813	$673,009	$1,979,696
COST OF GOODS SOLD (COGS)				
Quality Assurance Labor	$(231,250)	$(235,875)	$(240,593)	$(707,718)
Software Licensing Fees	$(100,000)	$(102,000)	$(104,040)	$(306,040)
Education and Outreach Materials	$(231,250)	$(235,875)	$(240,593)	$(707,718)
Total COGS	**$(562,500)**	**$(573,750)**	**$(585,225)**	**$(1,721,475)**
GROSS Margin (Total Revenue – COGS)	**$84,375**	**$86,063**	**$87,784**	**$258,221**
OVERHEAD COSTS				
Program Admin	$(43,750)	$(44,625)	$(45,518)	$(133,893)
Rent and Utilities	$(18,750)	$(19,125)	$(19,508)	$(57,383)
Total Overhead Cost	**$(62,500)**	**$(63,750)**	**$(65,025)**	**$(191,275)**
NET MARGIN (Total Revenue – Total Cost)	**$21,875**	**$22,313**	**$22,759**	**$66,946**

Figure 1-2: Common Financial Terms in Income Statements

2 Contractor/Retailer Business Models

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 (heating, ventilation, and air conditioning) contractors, home performance contractors, or retailers; other actors are present in the sector (such as window installers and insulators), but this analysis focuses on these four main categories. Figure 2-1 provides an overview and description of contractors/retailers. (In the remainder of this report, "contractors" is used to refer to the collective group of contractors and 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	▪ Represent the majority of the home improvement market	▪ Represent a small segment of the general remodeler market	▪ Represent a large portion of the home improvement market	▪ Represent a small segment of the home improvement market	▪ Primary seller of goods to "do-it-yourself" consumers
Service Offering	▪ Offer standard range of home improvement services	▪ Offer services that integrate architects, remodelers, and project managers	▪ Offer specialized products and services such as HVAC and windows	▪ Specialize in energy efficiency services and provide "one-stop shop" for home energy upgrades	▪ Provide goods and services either directly to the consumer or indirectly through network of qualified contractors that operate under the retailer brand
Implications	▪ 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	▪ 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	▪ 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	▪ 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	▪ 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 2-1: Description of Contractors/Retailers

- The **remodeler** business model focuses on the remodeler's operating environment within 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 home energy upgrades. It illustrates both the 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 long-standing 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. Consequently, retailers may sell contractor services under their brand name or sell energy efficiency products to "do-it-yourself" consumers directly.

2.1.1 Contractor Comparison

The business model analysis highlights the five critical components 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 market, life cycle, hurdle rate, and sources of funds.

2.1.1.1 Market

- **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** are primarily focused 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 frequently operate in their respective silos in the home improvement and energy efficiency markets. However, there are many opportunities for collaboration with each other and with other actors such as program administrators.
  - **Remodelers** and **HVAC contractors** may hire other specialists, such as insulation contractors, as subcontractors on large jobs. **Remodelers** also often subcontract to **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 offering in their market.
  - **Retailers** may partner with **utility program administrators** by offering to market their rebates in-store.

2.1.1.2 The Life Cycle

Remodeler, HVAC contractor, home performance contractor, and retailer businesses experience similar general start-up and growth patterns over time. These patterns can be characterized by a life cycle that includes seed, start-up, growth, established, expansion, and decline/exit stages of a business. Figure 2-2 summarizes the average life cycle of a contractor.

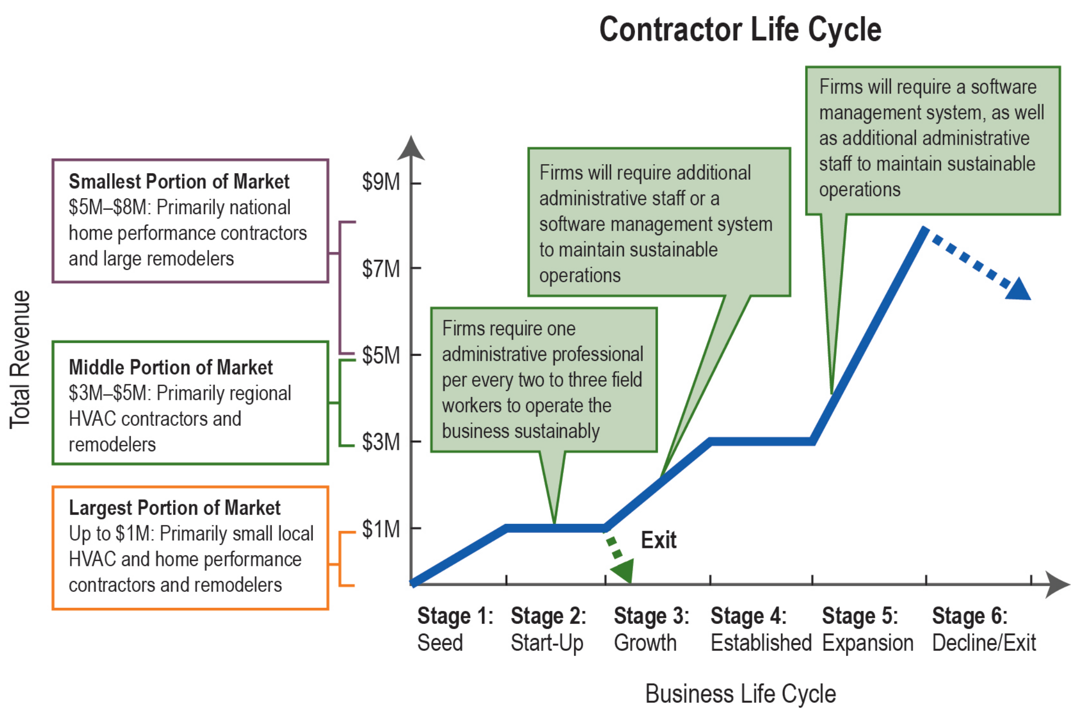


Figure 2-2: Contractor Life Cycle

This life cycle figure highlights the specific areas where potential future expansion is a strategic decision. The key decision points for most contractors revolve around their strategy for growth and the related overhead investment necessary to facilitate this growth. These points occur during the seed, growth, and expansion stages. For example, the growth phase for a remodeler involves the owner moving from the field into the office, establishing a staff member to lead production, and building an effective sales and back office team. In the stages where the life cycle plateaus, firms can remain in the market as successful businesses as long as they control costs and deliver their services efficiently. These points occur during the start-up and established stages. A business with increasing revenue will not always be able to operate sustainably. If costs rise faster than revenues, the firm will be forced to exit the market. Firms must effectively manage investment in new overhead, such as administrative and sales support for field workers, to grow beyond the start-up or established phases into a wider region or market.

A firm's governance structure influences this decision to grow beyond the local market or to expand service offerings within the market. In order to grow, decision-makers must be willing to adjust their own roles within a company and reinvest in their business, as in the remodeler example described in the paragraph above. This will determine where and when decision-makers invest in additional overhead. Expansion is not mandatory for success, but it is a particularly relevant topic for those businesses seeking to enter the residential energy efficiency market. On average, it takes a year to complete the expansion from an existing contractor business into home performance services, taking into account the time to develop a business plan, source financing, train employees, acquire a client base, and generate a significant amount of work. Another year is necessary to determine whether the new services are profitable and thus a viable part of the business.

2.1.1.3 Hurdle Rate

When evaluating a potential investment, such as expanding into the residential energy efficiency market, all contractors use a common methodology: profitability analysis. Of all the common elements of the various contractor models, profitability is arguably the most critical. The key metric used by many contractors to evaluate profitability of an investment is the **hurdle rate:** as contractors invest money into their businesses, they must achieve a rate of return at least equivalent to their respective cost of capital on those investments in order to sustain their businesses in the long run.

The hurdle rate has three components: the contractor's **cost of equity,** the **risk premium** (actually part of the cost of equity), and the **cost of debt,** as noted in Figure 2-3.

In essence, to be profitable and stay solvent, a business must make enough revenue to cover its cost of equity and debt, including a suitable risk premium. The hurdle rate will be high for new businesses, which have limited experience managing an energy upgrade services business. If it is not, one of two things is likely true:

1. If the owner is contributing most of the start-up funding as equity, the owner has significantly underestimated the potential risk of operating the business (usually due to limited prior experience with the business model in question).
2. If the owner is borrowing funds from a lender, the lender does not perceive the risk in funding the business to be high (would primarily occur

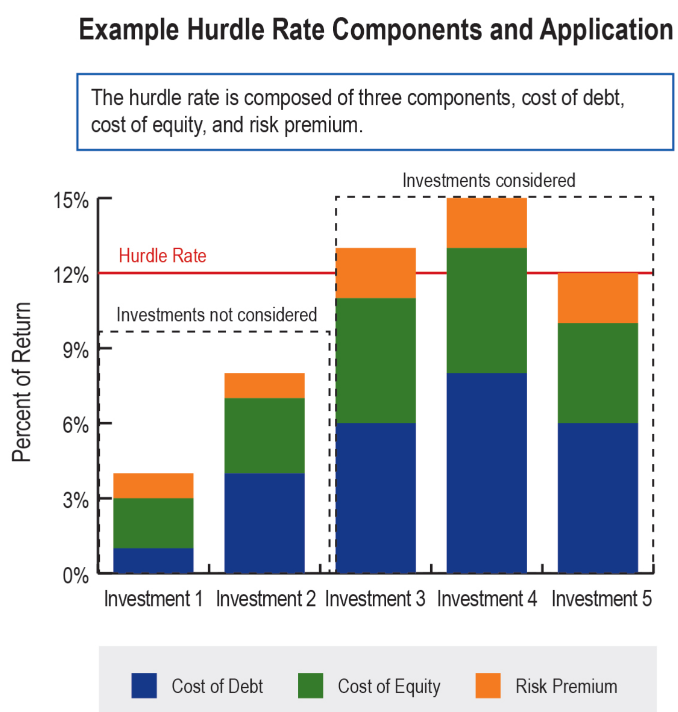
The **hurdle rate** is the minimum rate of return that a firm requires to consider an investment opportunity. For example, if a company requires a 12 percent minimum rate of return, it will consider all investments with rates of return equal to or greater than 12 percent. All investments with rates of return less than 12 percent will not be considered.

The **cost of debt** is the interest that contractors must pay on borrowed funds to lenders such as credit card companies or banks.

The **cost of equity** represents the compensation, or rate of return, that an investor requires in exchange for bearing the risk of ownership. In the case of contractors, the investor is typically the owner contributing personal funds to start up the business.

The cost of equity includes a **risk premium,** which is the amount of funds needed to cover any unexpected costs that may arise. Risk premiums are set and vary by company.

Lenders also use the concept of the risk premium to set the potential rate on a loan to a contractor. The risk premium represents the bank's estimation of the relative risk of lending money to a specific company in the market.



Source: Booz Allen research

Figure 2-3: Example Hurdle Rate Components and Application

with large retailers or borrowers who have an excellent track record in starting and running small businesses, or who have put up significant collateral to secure low-cost funding).

For contractors with other lines of business besides home energy upgrades, the hurdle rate is likely to be equal to or greater than the rate of return realized on existing lines of business. This takes into account the concept of the opportunity cost of capital. If a contractor can make more money in another line of business than in home energy upgrades, he or she is unlikely to consider investing in home energy upgrades.

In the scenario outlined in Figure 2-3, only investments 3, 4, and 5 would be potentially viable, as they exceed the business owner's hurdle rate. Those seeking to engage any of the contractor types to promote home energy upgrade services would need to evaluate the potential returns of such services in their local market to determine where they may be able to improve returns or lower costs to contractors to help them reach the rate of return necessary to exceed their hurdle rate threshold.

The contractor descriptions above, along with the hurdle rate concept, lay the foundation for the remodeler, HVAC contractor, home performance contractor, and retailer business model analysis in the following sections.

2.1.1.4 Sources of Funds

As noted above, a primary driver of the hurdle rate for contractors is the cost they incur in securing funding to start or expand their business. There are many options available for businesses to secure capital, outlined in Figure 2-4.

These sources of funds are frequently expensive or difficult to secure. The cheapest and easiest way for many contractors to obtain financing is to use their home as a source of collateral to obtain a loan. This option is more cost-effective than personal credit and easier to secure than Small Business Administration (SBA) or venture capital funding from firms that specifically target contractors. It is also risky, however, because it puts the business owner's personal assets up as security for the performance of the business. A less risky financing option for a small business owner is the creation of a business line of credit. This option is slightly more costly than a home equity line of credit, but it is secured by only the business's assets and revenues and protects the business owner from personal liability.

Larger retailers may be able to secure more traditional debt funding or raise shareholder equity to finance expansion, which differentiates them significantly from their small business competition. This option, correspondingly, is not reflected in Figure 2-4.

Contractor Sources of Funds

Difficulty to Obtain: Low → High

Most Common → Least Common

Sources of Funds	Use of Funds	Avg. Rates	Risks	Benefits
Personal Credit Cards	▪ Limited amount and expensive source of financing	▪ 10.8% to 16.2%	▪ High: Credit is tied to personal finances	▪ Ease of use creates instant equity in firm through purchase of materials
Home Equity Loans	▪ Potentially cheaper source of funding than credit card, but greater risk as the home is the collateral	▪ 4.7% to 7.4%	▪ High: Credit is collateralized by home; potential for loss of personal assets if business fails	▪ Potentially allows for a greater amount to be borrowed than a credit card ▪ Allows for a tax shield, thus reducing the cost of debt
Business Credit	▪ Similar to personal credit, but credit established with a Data University Numbering System (DUNS) number	▪ 7.9% to 22.9%	▪ Medium: Limited downside risk, as business finances and personal finances are separated	▪ Allows for a tax shield, thus reducing the cost of debt
SBA Loans	▪ Offers loans to small business for capital expansion ▪ Normally requires business plan and pro forma statements (difficult for a startup)	▪ Tied to the prime rate plus or minus a certain percentage	▪ Medium: Borrowings are normally secured by a source of collateral; collateral is potentially lost if business fails ▪ Difficult to obtain typically	▪ Offers a variety of small business loans such as micro loans (up to $50k) to long-term fixed rate financing ($1.5M+)
Venture Capital Firms	▪ Tends to offer both debt and equity financing ▪ May invest in specific project and not whole firm ▪ Mostly results in partial ownership of the firm	▪ 6% to 10% (based on industry interviews)	▪ Low: May take partial ownership in a firm instead of a form of collateral, thereby sharing potential losses	▪ For amounts less than $1M, emphasis is more focused on vision than standard business plan and pro forma statements

Source: Booz Allen research and industry interviews

Figure 2-4: Contractor Sources of Funds

2.1.2 Conclusion: Summary of Contractor/Retailer Insights

Contractors have a unique opportunity to capture a significant share of the overall residential energy efficiency market. In addition, retailers can be valuable partners in building a sustainable local energy efficiency market. The summary below details important observations on contractors/retailers and those observations' impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help contractors, program administrators, and other actors create and/or sustain a business that promotes energy efficiency.

Summary of Contractor/Retailer Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	■ 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.	■ 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.
Governance	■ 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.	■ 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	■ 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).	■ 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	■ 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.	■ 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.

Summary of Contractor/Retailer Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Service Offering	▪ 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.	▪ 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.
Customers and Customer Acquisition	▪ 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.	▪ 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.).

2.2 REMODELER BUSINESS MODEL

2.2.1 Introduction

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 may also provide home energy upgrade services, but those services typically are not a core part of a remodeler's business. Remodelers compete with and often employ more specialized contractors as subcontractors, including window, insulation, and HVAC contractors. Remodelers may also provide design and construction services. The following table provides a brief overview of the characteristics of a remodeler.

Summary of Remodeler Characteristics	
Size	Typically small, with 1 to15 employees, but can range upwards of 1,000 employees
Market Role	Provide general home improvement services, including: ▪ Single feature replacement: upgrading windows and replacing a hardwood floor ▪ Single room remodel: remodeling a kitchen or bathroom ▪ House expansion: building an addition to an existing building ▪ Whole-home remodel: improving and renovating an entire house
Operating Environment	Operate in a market impacted by: ▪ Regulations associated with building codes and health and safety issues (e.g., lead abatement, asbestos removal), as well as those affiliated with the claiming of energy efficiency program incentives ▪ An increased interest in energy efficiency from consumers ▪ Low barriers to entry nationwide, but high rates of failure keep companies small overall ▪ Ease of access to contractor licenses in most states, requiring only an up-front payment (some states, such as Florida, require proof of previous experience before the contractor can obtain a license)
Competitive Landscape	Compete with other actors in the market, primarily in the area of system installation, including: ▪ Home performance contractors, retailers, and specialized installation contractors ▪ Commercial and new construction companies moving into the remodelers' sector due to the economic downturn and decrease in new construction
Collaborative Landscape	Collaborate with the following firms in the market: ▪ Efficiency program administrators (both utility and non-utility), as qualified HVAC contractors through subcontracts

2.2.2 Remodeler Market

As of 2007, 650,000 firms were in the remodeler industry, but only 30 percent of those generated more than $100,000 a year in revenues, and only 15 percent generated more than $1 million.[10] These figures highlight just how strongly the remodeler market is dominated by small companies (i.e., those with 1 to 15 employees and less than $100,000 in annual revenues). Firms enter and exit the market with ease, leading to a lack of a large number of medium- to large-sized firms. Competition is strong, with new firms attempting to establish themselves and build customer bases by undercutting one another on a price basis. Only 20 percent of remodelers currently offer any type of home energy upgrade services, although an additional 40 percent are considering doing so.[11] It is significant that 60 percent of remodelers are considering development of energy efficiency service offerings to help differentiate within a crowded market characterized by increasing customer interest in efficiency.

Remodelers' entry into the residential energy efficiency market can be characterized by three types of approaches: early adopters, the early majority, and later adopters. To date, early adopters consist of the largest remodelers, those making revenues greater than $3 million annually. These remodelers are interested in expanding their services to differentiate themselves in a highly competitive market characterized by increasing customer interest. They represent the smallest share of the overall remodeler market. Late adopters consist of many smaller remodelers, or those making annual revenues below $1 million. They tend to be less well established and lack the resources to add new services or to risk entering a new market. The early majority remodelers, with annual revenues between $1 million and $3 million, are currently monitoring the success of the market leaders in selling home energy upgrade services but are well positioned to move into the market, especially those with access to capital that can help them expand.

Key Insights

Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	▪ 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.	▪ 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 market 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.

[10] Harvard University, The Joint Center for Housing Studies. *A New Decade of Growth for Remodeling.* (2011). http://www.jchs.harvard.edu/research/publications/new-decade-growth-remodeling.

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

2.2.3 Remodeler Business Model

The remodeler business model focuses on the remodeler's operating environment within the general home improvement market and highlights opportunities for expansion into the residential energy efficiency market.

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.

2.2.3.1 Governance

Remodeler governance structures include stakeholder-owned entities, franchises, and sole proprietorships. The vast majority of the firms in the market consist of sole proprietorships. A sole proprietorship has little internal bureaucracy, and its employees typically include the owner and a few other staff members. Consequently, the remodeler's management is typically free to form partnerships, set prices, and enter and exit new markets.

The remodeler's management is often directly engaged in the day-to-day work. Management may, in fact, be more focused on completing remodel jobs than managing the strategic direction of the business. The addition of energy efficiency service offerings is feasible if it does not cause a company to expand beyond the owner's capacity and desires. Traditionally, most remodeling firms continue to grow until they reach a point at which the owner's capacity and desire to expand precludes further growth. This tipping point can occur in the early stage of a company's growth or when it reaches a more established point in its life cycle where the owner may be content to stay at a fixed size (see 2.1.1, "Contractor Comparison").

The leap from sole proprietorship to taking on additional investors, partners, or franchises is difficult for most remodelers, which is why so few have done so to date. Program administrators hoping to entice remodelers into moving into the residential energy efficiency market may need to provide them with technical and business guidance. Such guidance includes how to perform new work as well as how to expand their business into new areas without over-taxing existing management structures.

As firms move into the larger stakeholder-owned and stakeholder-controlled structure and generate more revenue, their strategic decisions tend to be more focused on their product and service mix, which is affected by equity, shareholder interests, and community needs. Determination of a clear demand for services or potential profit from the sale of a product is the most influential factor in the evaluation of expansion options.

Key Insights

Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Governance	■ Firms in the remodeling industry tend to have a lean decision-making structure and are highly responsive to customer demand at the point of sale. ■ 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.	■ Small companies, such as remodelers, have the decision-making ability to expand into new service offerings relatively quickly. However, they may require assistance in conducting long-term strategic planning to do so. ■ Investment decisions regarding expansion of services (such as into home energy upgrade services) depend both on the owners' willingness to grow their businesses on a broader scale and on homeowner demand trends.

2.2.3.2 Financial Model or Structure

As noted in the introductory section to the contractor market, there may be multiple places in a company's life cycle where growth demands additional investment. Many remodelers operate sustainably below $1 million in annual revenues and are content to remain at this level in their local markets. The average sustainable remodeler operates at around 45 percent gross profit (10 percent net of costs).[12] However, the low barrier to entry into the market facilitates high levels of competition, putting many businesses at risk of closure while the demand for their services fluctuates from year to year. Firms in this segment of the market are generally concerned with establishing their businesses and generating job revenue quickly to keep their business afloat. Firms with established customer bases operating above approximately $1 million in annual revenues may have sufficient resources in place to consider longer-term growth strategies, such as adding energy efficiency service offerings (see Section 2.1.1, "Contractor Comparison").

The financial benefit to the general remodeler considering home energy upgrades is in the differentiation in the market, potential for significant growth in sales, and by extension, revenues and profits. Home energy upgrade services offer new revenue opportunities to assist businesses operating between the start-up and growth phases of the business life cycle in generating work that can sustain them over the long term.

Key Insights

Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Financial Model or Structure	■ 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.	■ 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.

[12] Source: Industry interviews during Better Buildings "Business of Energy Efficiency" workshop, October 24–26, 2011.

2.2.3.3 Assets and Infrastructure

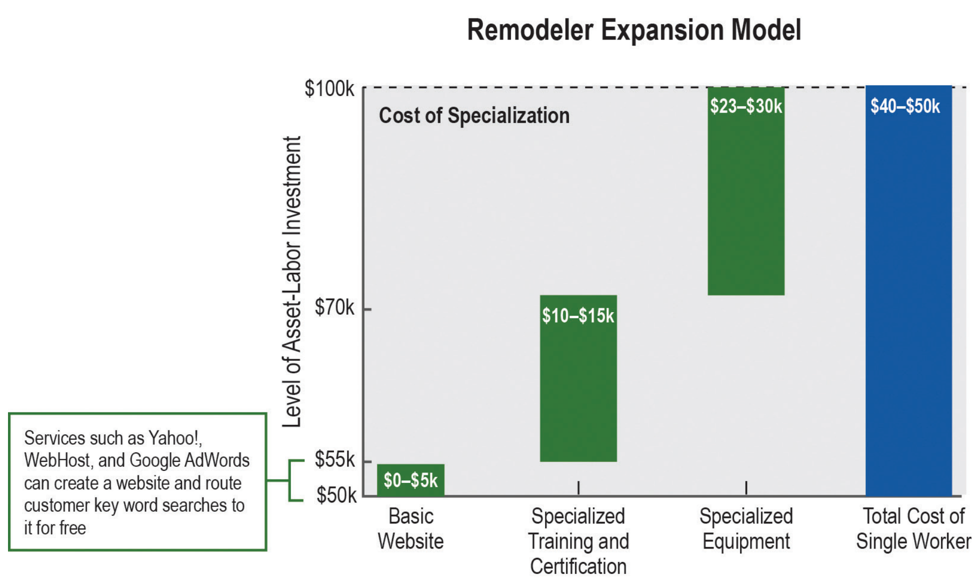
Assets and infrastructure include physical assets, software, and training. The up-front investment necessary to become a remodeler in the residential energy efficiency market is similar to the investment required to become a home performance contractor. Remodelers seeking to expand into the market need:

- A basic website to advertise energy efficiency services and communicate with consumers
- Specialized technical training and certification, such as certification by the Building Performance Institute (BPI) or Residential Energy Services Network (RESNET)
- Sales and marketing training
- Specialized equipment, such as an upgraded truck to hold energy efficiency-related equipment and materials, diagnostic equipment, and installation equipment (similar to the equipment listed for HVAC contractor expansion, Section 2.3.3.3).

Figure 2-5 shows the additional costs of these assets. (Note that the marginal cost of an additional worker will be $10,000 to $15,000.)

If a remodeler is starting a remodeling business from scratch, making energy efficiency services available in addition to offering traditional remodeling services can almost double the start-up costs. However, there are economies of scale for existing remodelers to expand their service offerings to include energy efficiency services because many of the capital and labor requirements are the same. Many of the basic pieces of equipment necessary to start up or expand the business can be leased as well. This strategy lowers the up-front cost to the business, but requires a steady source of sales to cover annualized costs. It is also worth noting that the assets of a general remodeler are similar to those required to run a home performance contracting business, giving the remodeler an advantage over firms new to the industry.

During the start-up phase, remodelers generally have few employees to complete project work. In addition to investing in a training program (e.g., paying for a certification preparation course), remodelers must invest time and resources in on-the-job training. Companies typically require a new employee to shadow an experienced employee for a specified period of time—ideally three months—to ensure that the employee



Source: Industry interviews and Booz Allen research

Figure 2-5: Remodeler Expansion Model

has a firm grasp of home energy upgrade services.[13] However, an employee functioning in an observational role, rather than an active role, during this training period will reduce the number of energy efficiency jobs a remodeler can complete during the employee's training period and, thus, will impact the firm's revenues. This situation represents an opportunity cost, as measured by the salary paid to the employee during his or her training phase.

Given the level of additional training and re-organization that goes into expanding an existing business, the best time for remodelers to develop energy efficiency service offerings may be before they have firmly established themselves in the market. Programs seeking to enable smaller remodeler firms' moves into the residential energy efficiency market should help them build energy efficiency into their core service line early in the life cycle and work with them to build their initial brands as home performance contractors. This approach provides an opportunity for remodelers to take training into account and to design a sound business plan before becoming fully absorbed in the day-to-day aspects of running a business. Reaching remodelers after they establish a business strategy may require re-branding and updates to business models, as well as additional time, labor, and funding—all of which are assets smaller firms generally do not have to spare.

2.2.3.3.1 Software

As a remodeler enters the growth stage of business development, it typically requires additional funding to cover the increased costs of overhead associated with the growth of the firm. Those overhead costs typically consist of costs associated with increased administrative staff to manage job reporting and tracking, as well as paperwork related to financial incentives, staff training, and marketing efforts. As a firm grows, the need for more efficient and sophisticated back-office functions will, in turn, create the need for additional support infrastructure, such as additional space and office equipment.

Many back-office functions can be streamlined through the use of customer relationship management (CRM) software and job-reporting software that lessen the need for dedicated administrative staff. Implementation of such software can be costly up front, but it can reduce costs in the long run and end up paying for itself. Figure 2-6 lists the software suites that are available and the implications associated with each software package.

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

Software Options

Firm Size/Sophistication	Standard Software Types	Implications
Small/Unsophisticated (Generally $<500K in Revenues/Year)	Basic accounting software and basic website (optional)	Many of these firms do not use software at all, and must be forced to automate externally (e.g., via manufacturer requirements)
Medium/Growing (Generally $500K-4M in Revenues/Year)	Basic accounting software, established website, customer relationship management software, job estimation software	Firms at this stage have realized the value of streamlining back office and job functions, and may be open to using program software services
Large/Sophisticated (Generally >$4M in Revenues/Year)	Advanced accounting software, established website (although no customer interface), customer relationship management software, job estimation software	Firms at this stage are not only capable of expanding into new lines of business, but would be open to purchasing software that would allow customers to track jobs online; to date, few firms have taken this step in areas where programs have not developed this solution for them

Source: Booz Allen research

Figure 2-6: Software Options

Contractors value a program administrator's understanding of their information technology and data needs. Efficiency programs can centralize sophisticated software capabilities for home energy upgrades, thus reducing the need for a remodeler to invest in these tools up front. Examples of these capabilities include providing an interface for remodelers and customers to track job status, creating a website where consumers can learn about energy efficiency and program incentives, developing a system to input energy modeling results and/or the results of quality assurance tests, and creating a portal to manage incentive requirements.

2.2.3.3.2 Training

Remodelers can access training courses and achieve certification through various programs, including industry and manufacturer training programs, as shown in Figure 2-7.

Remodeler Training Options

Industry Certifications	Manufacturer Training
▪ Advantages – Neutral third-party service provider – Established standards in energy efficiency industry ▪ Disadvantages – High cost to contractor makes it relatively uncompetitive vs. manufacturers – Not well known in renovation industry	▪ Advantages – Free to contractors – Sustainable in nature (e.g., established part of manufacturer business plan) – Highly used in industry ▪ Disadvantages – May not always train to most energy efficient standards – Not technology-neutral – May push to sell "units" over providing optimal energy solution

Source: Industry interviews

Figure 2-7: Remodeler Training Options

While industry certification programs have established standards for performing energy efficiency services, manufacturer and distributor training is the most prevalent form of training in the remodeling industry.

Manufacturers typically visit the remodeler's headquarters to deliver such training, which is often provided free of charge. This free training makes manufacturers particularly valuable to smaller firms that do not have the funding to devote to training and certification for their employees.

Understanding the range of manufacturer training is critical to the success of programs seeking to offer training to remodelers, either directly or in conjunction with third-party industry specialists. Manufacturer training is free and often convenient to remodelers in that it does not require much diversion of staff hours away from job sites as manufacturers frequently conduct their trainings at remodeler sites. As the cost to the business posed by the revenues lost through diversion of staff resources often exceeds the cost of the training itself, programs offering trainings in markets with strong manufacturer presence will need to be sure that such service offerings are no- to low-cost, and are convenient in how they are deployed to their local remodeler base.

Key Insights

Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Assets and Infrastructure	▪ 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.	▪ 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 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.

2.2.3.4 Service Offering

Remodelers typically offer design and implementation of home improvement jobs. They may offer a range of services, including job design, home repairs, single room or single feature remodeling, whole-home remodel, and, more rarely, energy efficiency services, as illustrated in Figure 2-8.

Remodeler Service Offerings

	Job Design	Single Home Repair	Single Room/ Feature Remodel	Whole-Home Improvement/ Addition	Residential Energy Efficiency Services (Potential Expansion)
Service Definition	▪ Architectural analysis and design work for a remodeling or a whole-home improvement/ addition job	▪ A small, one-time job to repair a single feature of a house, such as a window or a plumbing fixture, or to patch a leak in the envelope	▪ Remodeling includes items such as upgrading all the windows, faucets, or light fixtures in a house ▪ This can also be a job focused on a specific room in the house, such as a kitchen or bathroom	▪ The rebuilding of a building's interior while keeping the building shell intact ▪ Additions onto existing buildings	▪ Whole-home energy upgrades ▪ Partial home energy upgrades conducted by specialized service providers (e.g., insulation, air sealing, windows)
Implications to the Business Model	▪ Offer the remodeler the opportunity to influence energy performance at the design level as well as through a direct appliance or product swap-out	▪ Do not offer a significant opportunity to implement energy efficiency measures for remodeler, as homeowners often call utility companies or vendors to deal with most energy-intensive equipment	▪ Offer a sales platform for future energy efficiency sales	▪ Offer the best opportunity for energy efficiency, as a holistic strategy can be employed ▪ Also the most costly option	▪ Offer a potentially excellent source of revenue for remodelers during new construction bust ▪ Many remodelers would not consider doing this if new construction jobs were available
Total Share of Renovator Business	▪ A growing trend in the marketplace, particularly among the more sophisticated, well-established firms	▪ The majority of remodeler jobs (~50%) are single home repairs	▪ The vast majority of the remaining jobs done by the average remodeler are single room or feature renovations (~49%)	▪ Only a tiny fraction of the total jobs done by remodelers are either a whole-home improvement or an addition (~1%)	▪ Only 20% of remodelers currently are performing these service offerings ▪ Another 40% are currently considering offering these services

Source: Industry interviews

Figure 2-8: Remodeler Service Offerings

Approximately 50 percent of remodeler jobs are single "one-off" jobs or simple repairs. The vast majority of remaining jobs (approximately 49 percent of the total) consist of either single-room or feature remodels. Only 1 percent of total jobs are whole-home remodels.

Firms in the remodeler industry tend to be highly responsive to customer demand at the point of sale, because most jobs are customized for the end user's home. Thus, the level of local homeowner awareness of the value of energy efficiency is critical to a remodeler's decision on whether to enter the energy efficiency market. Increasing homeowner awareness will lead to greater demand and greater market participation by remodelers.

Remodelers are responsible for a wide variety of service offerings in addition to standard **installations**. Those that focus on energy efficiency in particular include **energy assessments** and **quality assurance**. Although business models built around only providing assessment services have not typically been found viable to date, new models are being explored—in particular, those centered around contractors establishing relationships with known and trusted third-party assessment firms.

Additionally, **customer financing and incentives** are often made available to consumers to encourage their participation in the residential energy efficiency market.

While most remodelers already have the skills that form the basis of the home energy upgrade package, such as the ability to install insulation or replace windows and appliances, a comprehensive home energy upgrade service offering is currently a very small part of the home improvement market. As a general rule, home energy upgrades are a different type of job than standard remodeling projects. Home energy upgrades tend to be smaller and quicker to complete than core remodeler service offerings such as kitchen or bathroom remodels but more complicated than simple repair jobs. As such, adding these service offerings to the remodeler's core skill set requires additional training and assistance. Helping remodelers make the leap toward offering these services should be one of the most critical functions for a program administrator, as general remodelers have a very broad skill set that could allow them to transition into the home energy upgrade market far more easily than someone with limited industry experience.

An **energy assessment** is the evaluation of the energy efficiency of a home used to identify the best ways to improve energy efficiency in heating and cooling.

Customer financing and incentives are financial programs, discounts, rebates, or tax credits that lower the high up-front costs of purchasing home energy upgrades available to the consumer.

Installation is the act of installing a new system or piece of equipment to improve a home's energy efficiency.

Quality assurance is an assessment of home energy upgrades to ensure that equipment has been installed according to standards and is working properly.

Many medium- to large-sized remodeler firms with the resources and ability to make this transition hesitate to do so out of concern for demand sustainability and job profitability. By collaborating with the most successful remodelers in its local market, a program can help mitigate many of these concerns by better targeting home energy upgrade services to the market and generating demand. By effectively demonstrating the local potential of the residential energy efficiency market, programs can help entice many firms in the "early majority" of adopters into providing home energy upgrades, thus building the capacity of the private sector to deliver these services to the market.

Firms that offer home energy upgrades can gain an advantage over their competitors. These firms have a clear means of differentiating themselves from their rivals, an advantage that can often prove critical in the highly competitive remodeler market. Given the low barriers to entry into the remodeler market, having a source of competitive advantage is critical. This is particularly true for firms seeking to grow and move up the life cycle chain to become firmly entrenched in the market.

Key Insights

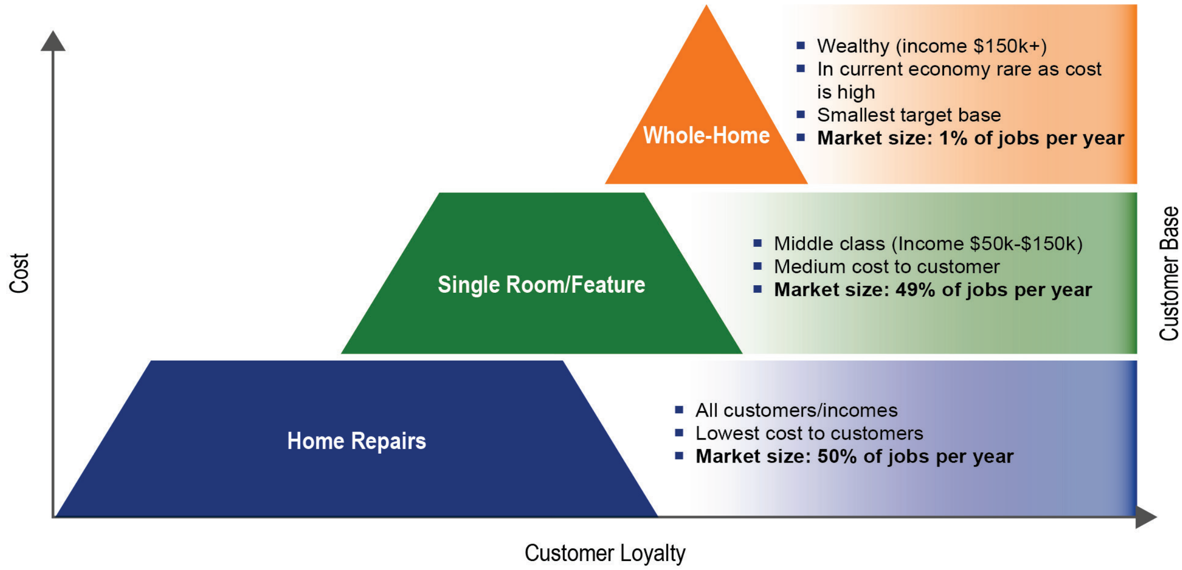
Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Service Offering	■ Remodelers provide general home improvement services that can span many different types of measures. Most jobs are customized to the home. ■ Approximately 50 percent of remodeler 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 simple repairs, but smaller and easier to navigate than standard room remodel jobs.	■ 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 offering 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.

2.2.3.5 Customers and Customer Acquisition

The general remodeler's target customer base is also the primary target group of the majority of private contractor firms in the market. A customer in this group earns at least $60,000 per year and owns a home built between 1960 and 1990 that is 1,500 to 3,000 square feet in size. This customer base represents 8 percent of the total home improvement market. These customers are highly sought after because they have high household incomes and own homes that are generally in need of upgrades, but are small enough that remodels are relatively straightforward and not overly complex.

As shown in Figure 2-9, one-off repairs are the most common type of remodeler service offering, as the majority of homeowners lack the disposable income to invest in upgrading a whole room or remodeling an entire system, and prefer to patch up existing systems over time. These jobs tend to be small in scale and do not noticeably alter the appearance or comfort of the home. As such, they tend to be overlooked and generate the lowest amount of loyalty among customers.

Customer Demographics



Source: Booz Allen research

Figure 2-9: Customer Demographics

Single-room and single-feature services tend to have a customer demographic close to the industry target referenced above: mid- to upper incomes, small- to medium-sized homes, and high levels of education. These services tend to be more cost-effective than conducting a whole-home remodel, which results in a much larger volume of work. In numeric terms, the interviewed remodelers indicated 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 (as noted in the "Service Offering" section, these jobs are more complex than simple repairs, but are smaller and more streamlined than an average room remodel). The average cost of a lead for a standard remodeler is estimated to be approximately $200.[14]

Particularly in times of slow economic growth, homeowners will defer major upgrades and look to complete projects in stages to spread the cost over several years. Consequently, general remodelers must develop customer loyalty and continually drive repeat sales among their customers to be successful. Demonstrating excellent work on a particular room or building system creates opportunities for follow-on work. This model is the primary means of driving the sale of home energy upgrade services in the market. Expanding their services into home energy upgrades could provide an opportunity for remodelers to generate additional sales of this type.

In contrast, whole-home remodeling jobs are exceedingly rare, as few customers have the disposable income to implement an overhaul of their home in one sitting. While implementing such a job successfully would generate the maximum possible amount of customer loyalty, these jobs are so rare that it is difficult for a remodeler to base its entire customer sales strategy around this type of job.

[14] Source: Industry interviews during Better Buildings "Business of Energy Efficiency" workshop, October 24–26, 2011.

2.2.3.5.1 Marketing

In terms of initial outreach to customers, remodelers have significant access to the homeowner, and are trusted experts in most matters relating to home upgrades. While their marketing budgets are small, these companies (most of which are sole proprietorships) have sales skills acquired from years of practice and have many solid marketing channels at their disposal. Some of the more effective marketing channels used by remodelers include customer referrals, community outreach, direct mailing, discounts/rebates, customer upselling, and limited duration offers. The marketing techniques deemed critical to the success of a remodeler are highlighted in Figure 2-10.

Remodeler Marketing Channels

Stage	Strategies Employed	E	C	S
Awareness/ Demand Creation (Marketing Campaigns)	**Customer Referrals**	Highly Favorable	Highly Favorable	Highly Favorable
	Community Outreach (e.g., hold events with local community groups)	Highly Favorable	Average	Average
	Internet Search Engine Optimization (e.g., keyword searches)	Average	Average	Highly Favorable
	Public Relations (e.g., write-ups in local newspapers)	Favorable	Highly Favorable	Average
	Advertising (e.g., radio, television, print)	Average	Unfavorable	Unfavorable
	Direct Mailing (e.g., through utility bills)	Average	Average	Favorable
	Discount/Rebate (e.g., price energy assessment below market value)	Average	Average	Unfavorable
	Third-Party Referrals/Leads (e.g., retailers and program administrator referrals)	Favorable	Highly Favorable	Highly Favorable
Engagement (Direct Interaction)	**Trusted Source (e.g., establish customer relationship during energy audit)**	Highly Favorable	Favorable	Highly Favorable
	Customer Education (e.g., seminars)	Highly Favorable	Favorable	Highly Favorable
	Customer Follow-on Sales	Highly Favorable	Highly Favorable	Highly Favorable
Conversion (Closing the Sale)	Limited Duration Offers (e.g., incentive expiring)	Average	Average	Highly Favorable
	Third-Party Validation (e.g., customer reviews)	Favorable	Highly Favorable	Highly Favorable

KEY

E **Effectiveness** – Successfulness in generating revenues and traffic
C **Cost Effectiveness** – Cost per sale generated
S **Sustainability** – Creation of longer-term revenue generation

Highly Unfavorable · Unfavorable · Average · Favorable · Highly Favorable

Highlighted for discussion

Source: Booz Allen research

Figure 2-10: Remodeler Marketing Channels

Customer referrals and word of mouth generate new and follow-on business for remodelers. As a general rule, these lead generation techniques represent the majority of the remodeler's business, with many remodelers using home shows and other innovative ideas to help recent customers showcase their home upgrades to their neighbors. However, **third-party leads** from retailers and program administrators have become popular new sources of revenue where such partnerships and programs exist, as they shift much of the demand generation burden away from the remodeler and let them spend more time doing the installation work itself.

Customer engagement is critical to remodelers' being able to achieve repeat sales each year. Direct interaction with customers through such **customer educational** activities as home assessments or educational seminars enables the remodeler to build relationships with homeowners outside of impersonal advertising channels. Additionally, these activities give remodelers the chance to demonstrate their flexibility by offering standard repair and remodel work in addition to energy efficiency services (which is the primary service offering of home performance contractors). This approach requires little in the way of marketing budget, but does require some of the personal attention of the firm's management.

In some cases, more technically focused remodelers are not comfortable acting in a sales role in front of customers. To credibly sell new services or products with which they are not intimately familiar, such as home energy upgrades, remodelers may need to change how they approach sales calls; they may also need additional training and educational materials to help validate their skills in conducting home energy upgrades. Program administrators are uniquely positioned to provide both sales training and independent validation for remodelers within their local markets. For their part, program administrators can benefit greatly from collaborating with remodelers, using their credibility with established customer bases and wide array of general remodeling skills to drive the sale of additional home energy upgrades.

Remodelers can come to be seen as **trusted sources** by walking their customers through the energy assessment process, which allows the customer to see firsthand the inefficiencies present in their homes and foster belief in the cost and energy savings that can result from implementation of energy efficiency measures. For example, thermal camera pictures can be used to show homeowners leaks in window seals and roofing, illustrating the real potential for savings available around their homes. As a general rule, companies that include the customer in the energy assessment process experience greater sales over time than companies that conduct assessments outside of the homeowner's immediate sight. The presence of a dedicated salesperson who is trained in residential energy efficiency as part of the assessment walkthrough process can help contribute to **customer follow-on sales,** or "upsells," which occur when a customer decides to purchase a larger piece of work than originally anticipated. General remodeler management will likely experience a swift learning curve in this sales role, given their flexible skill set and prior sales experience.

Key Insights

Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Customers and Customer Acquisition	■ 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 represents only 8 percent of the total home improvement market. ■ 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.	■ 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 homes, and, typically, higher levels of education. This illustrates the strategic opportunity for remodelers to expand their services to include home energy upgrades. ■ Referrals from program administrators could be a new source of leads for firms trying to establish themselves in the residential

Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
	■ 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.	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.

2.2.4 Conclusion: Summary of Remodeler Insights

Remodelers have a unique opportunity to capture a significant share of the overall energy efficiency market. The summary below details important observations on remodelers and those observations' impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help remodelers, program administrators, and other actors create and/or sustain a business that promotes energy efficiency.

Summary of Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	▪ 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.	▪ 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 market 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	▪ Firms in the remodeling industry tend to have a lean decision-making structure and are highly responsive to customer demand at the point of sale. ▪ 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.	▪ Small companies, such as remodelers, have the decision-making ability to expand into new service offerings relatively quickly. However, they may require assistance in conducting long-term strategic planning to do so. ▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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 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.

Summary of Remodeler Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Service Offering	■ 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.	■ 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	■ 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 represents only 8 percent of the total home improvement market. ■ 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.	■ 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 homes, and, typically, higher levels of education. This illustrates the strategic opportunity for remodelers to expand their services to include home energy upgrades. ■ 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.

2.3 HVAC CONTRACTOR BUSINESS MODEL

2.3.1 Introduction

The HVAC contractor is a specialized contractor whose core business is to install and maintain heating, ventilation, and air-conditioning equipment. HVAC contractors typically offer at least some energy-efficient equipment, because HVAC equipment is the largest energy user in a residential setting. HVAC equipment accounts for 54 percent of total residential site electricity use.[15] The following table provides a brief overview of the characteristics of an HVAC contractor.

Summary of HVAC Contractor Characteristics	
Size	Typically small, with 1 to 15 employees, but can range upwards of 1,000 employees
Market Role	Provide specialized services, such as: ▪ Installing heating and cooling equipment, such as central air conditioning units, furnaces, and hot water heaters ▪ Equipment maintenance and repairs ▪ Duct cleaning ▪ Plumbing and electrical work associated with cooling and heating equipment ▪ Energy efficiency audits and retrofits, including thermostat installation
Operating Environment	Operate in a market impacted by: ▪ Regional and seasonal nature of industry (e.g., 80 percent of homes in the southern United States have air conditioning but only 30 percent in the Northeast have air conditioning) ▪ Technically complex equipment in the home requiring specialized training ▪ Relationships with equipment providers as authorized dealers, which helps marketing and revenue for smaller contractors ▪ Some exposure to energy efficiency through their products ▪ Ongoing relationships with customers for maintenance, which can be key to generating additional revenue
Competitive Landscape	▪ They are often subcontracted by general remodelers and retailers due to the specialized nature of equipment ▪ There are two types of HVAC contractors: – HVAC contractors that only provide HVAC services, and are not in competition with other types of contractors – HVAC contractors that have expanded into the energy efficiency market, which compete with home performance contractors, remodelers, utility program administrators, and retailers, primarily in the area of system installation
Collaborative Landscape	Collaborate with the following firms in the market: ▪ Retailers (through retailer service networks) ▪ Efficiency program administrators (both utility and non-utility), as qualified contractors

[15] U.S. Department of Energy. "Residential Sector Energy Consumption." In *Buildings Energy Data Book*. (2011). http://buildingsdatabook.eere.energy.gov/TableView.aspx?table=2.1.5.

2.3.2 HVAC Contractor Market

While several large HVAC contractors operate within the home improvement market, the majority of firms in the industry are small businesses that are family-owned or sole proprietorships. Small firms are typically owner-operated, with fewer than five employees and less than $1 million in revenue per year. Like smaller remodelers, these firms may have difficulty in financing a transition from their core model into a home performance contractor-based model. Medium-sized firms typically have between 10 and 30 technicians in addition to support staff. These firms account for the second largest segment of the market, and represent the largest potential opportunity for expansion into the wider home performance contractor model. These medium-sized firms' assets, capital, and customer base can help to smooth the transition. Typically, large firms are marketers, such as retailers or large chains of HVAC contractors. These large firms could significantly impact the home improvement market should they collectively decide to expand their service offerings to include home energy upgrades.

HVAC contractors offer installation, replacement, and maintenance of HVAC units in existing homes and installation of new units in new construction. The Service Roundtable reports a high failure rate for HVAC contractors: 20 percent of HVAC contractors across the industry eventually fail, and 70 percent of new HVAC businesses fail in their first year of operation.[16] Some of these failures can be attributed to the overall economic environment—i.e., the shrinking of the home improvement market in the wake of the U.S. economic downturn. Other factors include a lack of business skills and/or planning that prevents HVAC contractors from developing a large enough base of customers to remain in business.

The HVAC contractor market is seasonal and regional in nature, with some extremely hot or cold regions experiencing longer "high" seasons and holding a much larger share of the market than more temperate climates. The national average HVAC repair and replacement season is approximately seven months per year, which has a profound impact on how these firms manage their business and generate revenues.

Key Insights

HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	▪ 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.	▪ 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.

[16] First Research. *Industry: Plumbing & HVAC Contractors.* (2011). http://www.firstresearch.com/Industry-Research/Plumbing-and-HVAC-Contractors.html.

2.3.3 HVAC Contractor Business Model

The HVAC contractor model reviews the operating environment for contractors whose primary service offering is HVAC installation and repair. The model also highlights their advantages over general remodelers in expanding their service offerings into the residential energy efficiency market.

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.

2.3.3.1 Governance

HVAC contractors typically are small, private companies with clear lines of decision-making authority, as shown in Figure 2-11. The few large, established contractors in the marketplace are completely stakeholder-owned entities or have multiple investors beyond the owner and immediate family members. Consequently, governance is not a significant constraint on an HVAC contractor's ability to develop new business strategies.

HVAC Contractor Governance Models

	Completely Stakeholder-Owned Entity	*Privately-Owned Entity*	*Sole Proprietorship (Half of Current Industry)*
Description	Entity is owned by a group of equity holders	Entity is privately-owned (single owner or small group of shareholders)	Entity owned by individual
Stakeholders Involved in Decisions	Equity holders, board of directors, shareholders (if public)	Owners, management	Owner
Implications	Product and service mix affected by equity or shareholder interests and community needs; profit motive is influential	Free to form partnerships and set prices; profit motive is influential in key business decisions	Ability to make decisions easily, but very limited resources

Source: Booz Allen research

Figure 2-11: HVAC Contractor Governance Models

Key Insights

HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Governance	▪ 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.	▪ 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.

2.3.3.2 Financial Model or Structure

Understanding the financial structure of an HVAC contractor's company, particularly the key profit drivers, is an important step toward developing sustainable relationships between a program administrator and HVAC contractors.

Small, start-up HVAC contractors generally are funded through personal finance, while more established contractors typically are funded through business lines of credit (see "Contractor Sources of Funds," Figure 2-4, Section 2.1.1.4). As the largest components of the equipment that is necessary to start an HVAC contractor business (e.g., trucks) can be leased, large amounts of debt are not immediately necessary, so most contractors prefer to use their own savings to start up the business. More established contractors can also reinvest profits into their business to improve their equipment or to expand their business.

Due to the seasonality of the HVAC business, with the prime HVAC replacement and maintenance season lasting only seven months in many climates, HVAC contractors rely on lines of credit to cover their cash shortfalls. This includes the cash needed to make lease payments on vehicles and pay technicians' salaries. To maintain profitability, despite the seasonality of the industry, HVAC contractors rely on a pricing system for their jobs that builds in a high gross profit margin on equipment and that limits labor. The gross profit margin (i.e., revenues minus the cost of goods sold, divided by total revenues) on equipment is approximately 45 percent, but the gross profit margin on labor is much lower. While material costs for a given type of job tend to be relatively consistent, labor costs are highly variable and drive down the overall profit margin on a job. Therefore, it is in the HVAC contractor's business model to generally limit the amount of labor hours on a job, focus on quickly completing the project, and move on to the next job. An HVAC contractor's key metric is the "gross margin per man day." This metric, which is calculated by dividing the gross profit margin by the average number of hours worked per day, allows contractors to measure how much profit the firm has realized against the time spent by technicians on a given job. As a result, HVAC contractors generally avoid labor-intensive jobs, which lower their overall profitability.

Sample Income Statement HVAC Contractor Year End 2011, $ Thousands		
REVENUES		
Sales	$2,000	
Total Revenues	2,000	
COST OF GOODS SOLD (COGS)		
Labor	220	Variable costs that can be most influenced
Materials	740	
Subcontractors	40	
Others (Permits, etc.)	36	
TOTAL COGS	**1,036**	
GROSS PROFIT	**964**	
OPERATING EXPENSES		
Marketing and Advertising	576	
General and Administrative	144	
Total Operating Expenses	720	
OPERATING INCOME	**244**	
OTHER EXPENSES		
Interest Expense	10	
Total Other Expenses	10	
NET INCOME BEFORE TAXES	**$234**	

- Common profitability measure is gross margin per man-day: (revenue – COGS) ÷ average labor hours per day
- Target operating income/revenue is ~12% for general HVAC

Source: Industry interviews

Figure 2-12: Sample HVAC Contractor Income Statement

Figure 2-12 presents a sample income statement for an HVAC contractor. The target operating income is approximately 12 percent for an HVAC contractor; this metric is calculated by dividing earnings before interest and tax by total revenues. Generally, 12 percent is a solid, average target that HVAC contractors will use as a measure of profitability when evaluating business opportunities.

In comparing the HVAC contractor business model to that of a home performance contractor, the disparity in how labor is valued is the core difference between the two models. In general, HVAC contractors see home energy upgrade jobs as being more labor-intensive than traditional HVAC jobs and, therefore, less profitable. However, this thinking does not take seasonality into account. Home energy upgrade jobs can be done year-round, which could enable HVAC contractors to generate revenue and avoid using lines of credit to fund payroll and other fixed costs. Offering home energy upgrade jobs would also increase the number of times per year the HVAC contractor is in a home, in turn increasing the opportunities to pitch additional HVAC work to the customer. Appropriately pricing home energy upgrade jobs to reflect higher labor and lower equipment costs would increase the profitability of these jobs on a per-man-day basis. This step, however, would require a change in business focus and a separate pricing method for home energy upgrade jobs.[17]

Figure 2-13 shows how adding home energy upgrade services can allow an HVAC contractor to maintain its 12 percent target operating income margin while minimizing seasonality issues. The calculations are notional and assume a well-established contractor with a solid base of HVAC customers. While the cost of training additional staff is not included here, it is more than offset by potential increases in HVAC revenue from additional sales due to expanding home performance sales visits (a trend that has been shown to exist in several HVAC contractors to date).[18]

Sample Job Profitability Analysis

	Conventional HVAC Projects	Energy Efficiency Add-on Projects	Integrated Services
Jobs Performed	670	60	730
Operable Months	7	12	12
Total Revenue	$2,000,000	$240,000	$2,240,000
Total Expense	$1,760,000	$220,800	$1,971,200
Operating Income	$240,000	$19,200	$268,800
Operating Margin	12%	8%	12%

Source: Booz Allen research

Figure 2-13: Sample Job Profitability Analysis

In addition to conducting whole-home upgrades year round, some HVAC contractors work with their customers to defer work, other than an HVAC replacement, to the slow season (when outside temperatures are comfortable). This can help even out the flow of work for the HVAC contractor and the cost for the customer. One challenge with this approach is when a program limits the availability period for incentives such that they do not coincide with the slow season. The slow season is also the best time of year to engage HVAC contractors in the program and to provide training.

[17] Source: Industry interviews. (See “Acknowledgements” for a complete list of industry representatives interviewed.)
[18] Source: Industry interviews. (See “Acknowledgements” for a complete list of industry representatives interviewed.)

Key Insights

HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Financial Model or Structure	■ 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.[19] 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.	■ 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.

2.3.3.3 Assets and Infrastructure

Starting up an HVAC contractor business can cost up to $100,000, assuming that all the business assets are purchased up front. However, trucks can be leased and many tools can be acquired secondhand at a significantly lower cost, which minimizes cost as a main barrier to entry into the HVAC industry.

As shown in Figure 2-14, an HVAC contractor business general expands into the residential energy efficiency market in two phases. The first phase generally centers on taking advantage of manufacturer trainings focused on basic equipment efficiency, and on acquiring specialized equipment that would allow the contractor to specialize in efficient installation specifically. Many HVAC contractors in the market have already reached phase one as part of their core service offerings, with costs for a standard HVAC business plus basic energy efficiency services.

[19] Gross profit is revenues minus cost of goods sold.

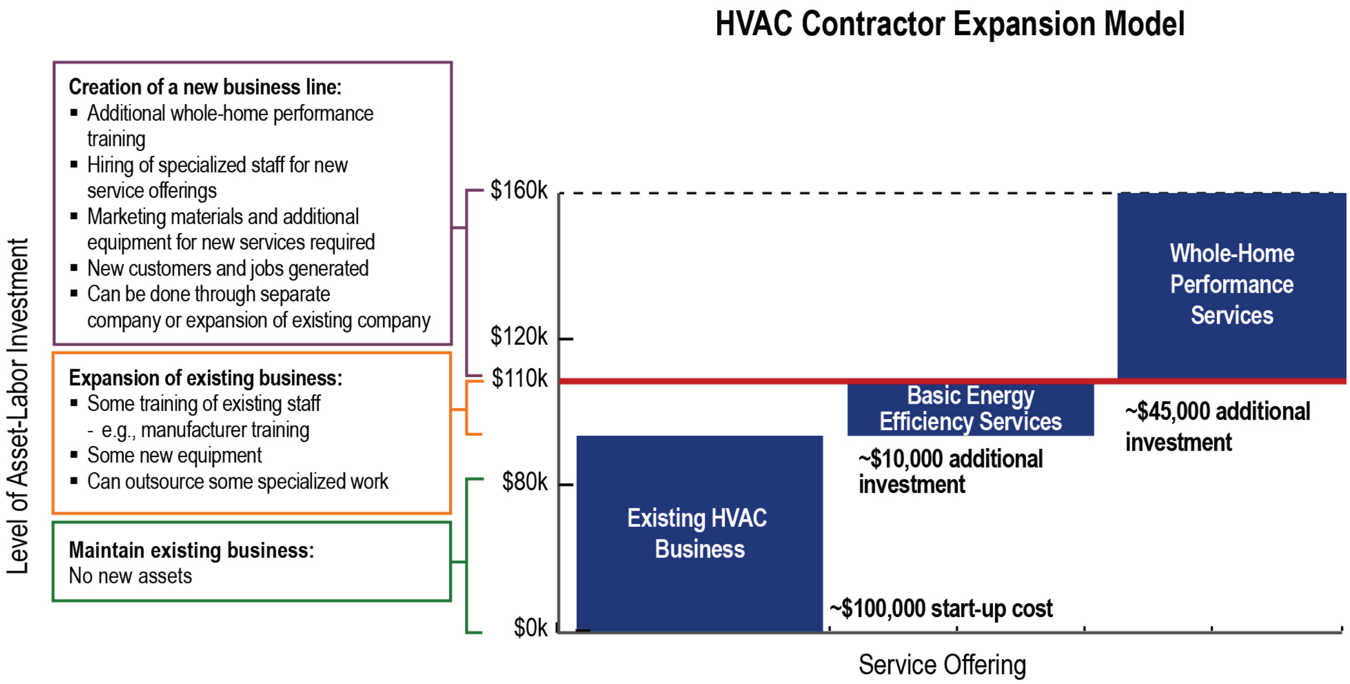


Figure 2-14: HVAC Contractor Expansion Model

Phase two involves setting up a dedicated line of business that allows for a separate business strategy for whole-home performance services. To enter phase two, HVAC contractors need to hire specialized staff, purchase additional equipment, and develop new marketing materials to advertise their new service offering. Specialized tools, such as a blower door, are also necessary to provide simple home energy upgrade services. The basic assets of an HVAC contractor closely align with those of a home performance contractor, so there may be cost efficiencies in the HVAC model that limit the cost barrier of entering into the residential energy efficiency market beyond those of a remodeler or a home performance contractor. Additionally, the most specialized services, such as insulation installation, can be outsourced to other contractors if the HVAC contractor does not wish to completely expand its in-house service model. This would also limit the types of assets required by the HVAC contractor during expansion.

The respective costs of each phase are presented in the business expansion model (Figure 2-14). The additional investment required for an HVAC contractor to expand its business into the whole-home performance market is about $45,000, if the contractor already offers basic energy efficiency services. This estimate includes:[20]

- Training costs: $1,000
- Certification costs: $500
- Licenses and registrations: $600
- Diagnostic equipment: $3,000
- Installation equipment (per crew): $5,000
- Vehicles (per vehicle): $30,000

[20] California Center for Sustainable Energy. *Contractor Blueprint: Getting from HVAC to Home Performance.* (n.d.). http://energycenter.org/index.php/incentive-programs/self-generation-incentive-program/sgip-documents/doc_download/1091-contractor-blueprint.

- Computer (IT) equipment: $1,000
- Software: $500

These costs do not include salary for additional trained staff. Note that the estimated expansion cost to the HVAC contractor is the maximum likely cost to the contractor, should it not have any of the necessary equipment at hand already, and wish to provide the full array of home performance services in-house rather than subcontracting them out.

2.3.3.3.1 Training

Training HVAC contractor employees in home energy upgrade concepts is the first step toward HVAC contractors being able to expand their services. HVAC contractors generally are not true franchises of a manufacturer, although smaller contractors can be affiliated with a specific brand. Larger contractors are more likely to carry multiple brands and choose which equipment to install. Manufacturers offer training as an incentive for contractors to install their equipment. Manufacturer-supplied training is attractive to smaller businesses, because that training is free and conducted at the HVAC contractor's site. However, such training is not as complete as certification preparation training. Larger contractors are more willing to pay for certification training, which is more technology-neutral and more comprehensive than manufacturer-supplied training. However, even for medium-size contractors, the time spent on acquiring and maintaining certifications can be a barrier to service expansion.

Key Insights

HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Assets and Infrastructure	▪ 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.	▪ 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.

2.3.3.4 Service Offering

HVAC contractors provide specialized services, focusing on the installation of heating and cooling equipment, including central air conditioning units, furnaces, and hot water heaters. Proper installation is critical for ensuring that heating and cooling equipment performs to its advertised capacity and efficiency. Correct installation requires expertise in proper sizing of equipment, duct sealing, optimizing of air flow, and proper refrigerant charge for central air conditioners and heat pumps.

Homeowners associate HVAC contractors with making their homes more comfortable, which is a primary benefit they cite as a reason for having home energy upgrades. This places HVAC contractors in a solid position to provide home energy upgrade services.

Additionally, in a traditional HVAC contractor model, the primary drivers of revenue for HVAC contractors are maintenance contracts. HVAC contractors indicated that they consider a portfolio of 500 service contracts to be a reasonable threshold to ensure the sustainability of an HVAC business.[21] Service contracts lead to revenue, partly from annual maintenance visits, but mostly from repairs to and replacement of units sold during those visits, which can be used to drive the sales of home energy upgrades as well as standard HVAC equipment. Annual maintenance visits represent another key advantage HVAC contractors have in transitioning to a home performance contractor model.

While the assets and service delivery model of HVAC contractors are both geared to a home performance expansion model, the transition from an equipment- to a service-based model represents a key difficulty. To expand their services from traditional HVAC services to home energy upgrades, contractors need to change their business focus from the sale of equipment to the sale of services. As a result, technicians who traditionally have been asked to install and repair HVAC units in homes will now be asked to expand their focus, becoming sales consultants able to demonstrate the value of home energy upgrades to customers. Additional sales training from program administrators or manufacturers may be needed. This change of mindset can be particularly challenging for smaller contractors who, to close sales with customers, rely more heavily on their association with the brand of equipment they are selling than on their own service offerings. The key differences between the traditional HVAC service model and the home performance contractor model are highlighted in Figure 2-15.

HVAC Contractor Service Offering Expansion

	Traditional HVAC Contractor	Home Performance Contractor
Customer Base	~10,000 for mid-size firm	~20% of total (2,000 for mid-size firm)
Services Provided	HVAC installation and maintenance	Energy assessments, insulation, air-sealing and lighting
Frequency of Sale	Service visits once or twice/year	Specialized sales pitch necessary to drive sales; can be one-time
Seasonality	Sales occur only seven months/year on average	Stable business year-round: - Through successful marketing of services to their customers, home performance contractors will have the ability to grow their business sustainably - An HVAC contractor's business becomes sustainable when it reaches approximately $2 million in annual revenues
Training	High base levels of technical training	Additional specialized training such as lighting
Profit Driver	Key driver is equipment sales	Key driver is sale of services

Source: Industry interviews

Figure 2-15: HVAC Contractor Service Offering Expansion

Shifting from traditional HVAC contracting to home energy upgrades requires an expansion into more labor-intensive areas. If the HVAC contractor does not wish to develop its staff in-house, it can expand through subcontracts with specialists in insulation installation and other contractors. Ultimately, the HVAC contractor will have to broaden the focus of its primary sales and operational strategies to successfully incorporate energy efficiency into its business model.

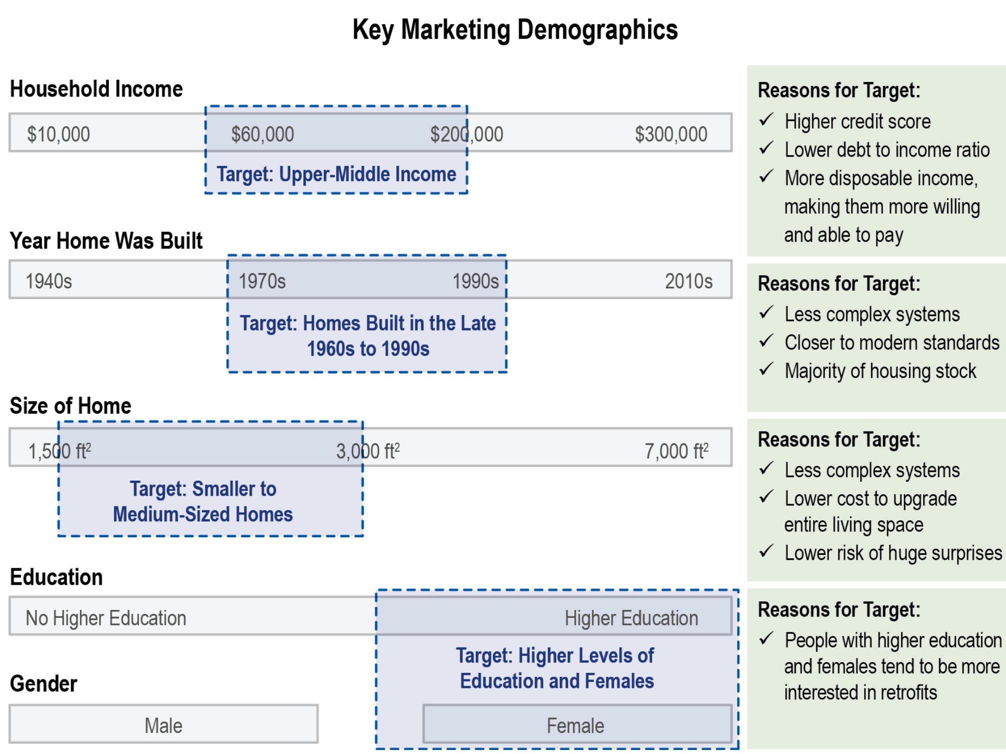
[21] Source: Industry interviews. (See "Acknowledgements" for a complete list of industry representatives interviewed.)

Key Insights

HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Service Offering	■ 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.	■ 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.

2.3.3.4.1 Customers and Customer Acquisition

As shown in Figure 2-16, HVAC contractors generally take a similar approach to the market as home performance contractors, focusing on a target upper-middle income class that has sufficient annual income to purchase a new HVAC unit instead of implementing minor repairs.



Source: Industry interviews

Figure 2-16: Key Marketing Demographics

However, much like remodelers, HVAC contractors benefit from a steady stream of repair jobs to help them maintain consistent revenues, the largest of which take the form of dedicated service contracts that recommend annual visits for unit evaluation and maintenance.

In addition to sales made through these service visits, HVAC contractors use a wide range of marketing techniques and channels to reach their customers. Acquiring customers through marketing can represent a significant expense for HVAC contractors. Industry sources estimated that acquiring a single customer costs an HVAC contractor between $200 and $300. These marketing channels include radio and television advertising, mailers, newsletters, and partnerships with utilities to advertise energy-efficient HVAC units. The most important of these marketing efforts are highlighted in Figure 2-17, below.

HVAC Contractor Marketing Channels

Stage	Strategies Employed	E	C	S
Awareness/ Demand Creation (Marketing Campaigns)	**Customer Referrals**	●	●	●
	Community Outreach (e.g., hold events with local community groups)	◑	◑	◑
	Internet Search Engine Optimization (e.g., keyword searches)	◕	◕	●
	Public Relations (e.g., write-ups in local newspapers)	◔	◔	◔
	Advertising (e.g., radio, television, print)	◑	◔	◔
	Direct Mailing (e.g., through utility bills)	◑	◑	◕
	Discount/Rebate (e.g., special offers)	◑	◑	◔
	Third-Party Referrals/Leads (e.g., retailers and program administrator referrals)	◑	◑	◑
Engagement (Direct Interaction)	**Trusted Source (e.g., establish customer relationship during service)**	●	◕	●
	Customer Education (e.g., seminars)	●	◕	●
	Customer Follow-on Sales	●	●	●
Conversion (Closing the Sale)	Limited Duration Offers (e.g., incentive expiring)	◑	◑	●
	Third-Party Validation (e.g., customer reviews)	◕	●	●

KEY

E **Effectiveness** – Successfulness in generating revenues and traffic

C **Cost Effectiveness** – Cost per sale generated

S **Sustainability** – Creation of longer-term revenue generation

(boxed) Highlighted for discussion

○ Highly Unfavorable; ◔ Unfavorable; ◑ Average; ◕ Favorable; ● Highly Favorable

Source: Booz Allen research

Figure 2-17: HVAC Contractor Marketing Channels

Residential customers generally consider HVAC contractors a **trusted source** for home comfort and health and safety—the primary drivers of sales according to the HVAC contractors interviewed. However, the American Home Comfort Study ranks "cost savings" as the primary reason why customers consider switching to a more efficient HVAC unit. [22] The disconnection between these two perspectives is interesting. It suggests that HVAC customers view cost as a primary driver of home upgrades, but actually choose to invest in home improvements that materially improve the comfort of their home—even if those improvements

[22] Decision Analyst. *American Home Comfort Study: Strategic Intelligence on Energy Efficiency, Home Comfort, and HVAC.* (2008). http://www.decisionanalyst.com/Syndicated/HomeComfort.dai.

come with a slightly higher price tag. This is especially true of home energy upgrades, which are relatively expensive and whose primary demographic group for sales is upper-middle-class families for whom cost is much less of a consideration than it is for the majority of those included in the study. According to one contractor interviewed, homeowners chose 90 percent of the time to invest in home energy upgrades to improve comfort or safety in their home rather than to create future energy savings.[23]

Annual service and maintenance checks are the primary means by which HVAC contractors drive **follow-on sales.** These routine visits to customers give HVAC contractors a key competitive advantage over general remodelers or specialized home performance contractors. HVAC contractors can build on the existing trust of their customers to offer additional home energy upgrade services. Face-to-face interactions that **educate customers** are therefore the most effective marketing technique for HVAC contractors. Once a sale is made, quality work is the best way to generate additional **customer referrals,** the other primary source of HVAC contractor leads. Third-party validation from customer reviews is another important source of new business, because it helps build the image of trusted service provider.

Summary of HVAC Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Customers and Customer Acquisition	■ Direct interaction with customers through repeat service visits is the primary means of generating revenue for HVAC contractors. ■ HVAC contractors are considered experts in "home comfort," health, and safety by consumers because they can moderate air temperatures.	■ Service contract touch points provide HVAC contractors with an optimal means of providing energy assessment services, helping to drive 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.

[23] Source: Industry interviews during Better Buildings "Business of Energy Efficiency" workshop, October 24–26, 2011.

2.3.4 Conclusion: Summary of HVAC Contractor Insights

The HVAC contractor has many unique advantages for expanding into the residential energy efficiency market. The summary below details important observations on HVAC contractors and those observations' impacts on potential expansion into the residential energy efficiency market. Understanding these impacts can help HVAC contractors, program administrators, and other actors create and/or sustain a business that promotes energy efficiency.

Summary of HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	▪ 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.	▪ 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	▪ 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.	▪ 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.
Financial Model or Structure	▪ 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.[24] 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.	▪ 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	▪ 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.	▪ 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.

[24] Gross profit is revenues minus cost of goods sold.

Summary of HVAC Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
	■ Dedicating a line of business to home energy upgrades requires HVAC contractors to hire specialized staff, purchase additional equipment, and develop marketing materials.	■ 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	■ 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.	■ 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 Acquisition	■ Direct interaction with customers through repeat service visits is the primary means of generating revenue for HVAC contractors. ■ HVAC contractors are considered experts in "home comfort," health, and safety by consumers because they can moderate air temperatures.	■ Service contract touch points provide HVAC contractors with an optimal means of providing energy assessment services, helping to drive 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.

2.4 HOME PERFORMANCE CONTRACTOR BUSINESS MODEL

2.4.1 Introduction

The home performance contractor is a firm whose business is to deliver customized and complete home energy upgrade solutions directly to consumers. This is a relatively new contractor model; it addresses companies that provide services from the energy assessment stage of the home energy upgrade process through the installation and quality assurance stages. The following table provides a brief overview of the characteristics of a home performance contractor.

Summary of Home Performance Contractor Characteristics	
Size	Typically small, with 1 to 15 employees, but a few large franchises operate on a national level
Market Role	Provide services across the value chain, including: ▪ Direct education to homeowners through targeted marketing ▪ Energy efficiency assessments ▪ Support with financing and incentives, typically from program administrators and partner financial organizations ▪ Installation of equipment and materials ▪ Installation of other home improvement features not directly associated with energy savings ▪ Quality assurance to verify performance
Operating Environment	Operate in a market impacted by: ▪ Financial or incentive programs for energy efficiency, regulations, and health and safety codes ▪ A specialized skill requirement that necessitates additional trainings and certifications from organizations
Competitive Landscape	Compete with other actors in the market across a range of service offerings, including: ▪ Energy assessments with competitors, such as retailers, utilities, and program administrators ▪ Installation of home performance measures with competitors, such as remodelers, retailers, and program administrators ▪ Quality assurance with competitors, such as remodelers, program administrators, and retailers
Collaborative Landscape	Collaborate with the following firms in the market: ▪ Retailers (through new service pilot programs) ▪ Energy efficiency program administrators (both utility and non-utility), as qualified contractors

2.4.2 Home Performance Contractor Market

The energy efficiency market was $38.3 billion in 2009, of which $8.1 billion was spent on home energy assessments.[25] There are several large home performance contractor firms, but the majority of firms in the industry are small startups and businesses that have transitioned into the home improvement market from a competing type of business (e.g., remodelers, HVAC contractors). Home performance contractors typically serve as a single point of contact to provide a wide range of improvements for homeowners, from energy assessments to quality assurance.

Key Insights

Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Market	■ As the energy efficiency market is relatively new, a large number of home performance contractor firms in the market are small start-ups, with a few large franchises that expanded into the market from other business types (e.g., remodelers, HVAC contactors).	■ 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.

[25] Harvard University, The Joint Center for Housing Studies. *A New Decade of Growth for Remodeling.* (2011). http://www.jchs.harvard.edu/research/publications/new-decade-growth-remodeling.

2.4.3 Home Performance Contractor Business Model

The **home performance contractor** model walks through the "one-stop-shop" model for home energy upgrades. It illustrates both the opportunities and barriers for starting as a home performance contractor company from the beginning**,** rather than expanding from an existing model, such as a remodeler.

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.

2.4.3.1 Governance

Home performance contractors typically are small, private companies with only the company owners engaged in decision-making, as shown in Figure 2-18. A few large, established home performance contractors are completely stakeholder-owned entities or franchises. Many home performance contractors have lean governance structures, enabling quick and agile decision-making. To keep overhead costs down and maintain a sustainable home energy upgrade business, they will need to navigate the incentive landscape without taking on too much of the administrative burden. When the home performance contractor partners with an efficiency program, external reporting regulations will provide all decision-making.

Home Performance Contractor Governance Models

	Completely Stakeholder-Owned Entity	Franchise	Sole Proprietorship (Majority of Current Industry)
Description	Entity is owned by a group of equity holders	Firms are privately owned; larger company grants the right to use branded solutions to attract clients (e.g., "canned business")	Entity owned by individual or shareholders
Stakeholders Involved in Decisions	Equity holders, board of directors, shareholders (if public)	Owners, franchisees, shareholders (if public), franchise rules and guidelines	Owners
Implications	Product and service mix affected by equity or shareholder interests and community needs; profit motive is influential	Delivery of products and services aligned with larger company branding; may be free to form partnerships and set prices	Free to form partnerships and set prices; easy to enter and exit new markets

Source: Booz Allen research

Figure 2-18: Home Performance Contractor Governance Models

Key Insights

Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Governance	■ 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,	■ 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

Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
	decision-making will be influenced by external reporting regulations associated with the capture of incentives, on behalf of both the firm and the customer.	without taking on too much of the administrative burden is critical to keeping overhead costs down and maintaining a sustainable home energy upgrade business.

2.4.3.2 Financial Model or Structure

The home performance contractor's financial structure plays an influential role in its sustainability within the energy efficiency market. Small home performance contractors are funded primarily through personal finance. These contractors are typically small startups, where the owners use personal savings or "sweat equity" to build their businesses. Most of them also must borrow funds to start their business. These funds come primarily from credit cards, bank loans, or, more rarely, outside funding sources such as venture capital firms (see Figure 2-4, Section 2.1.1.4 for more information on venture capital firms). To remain profitable, a contractor must bring in enough revenues to cover the cost of equity (including the risk premium) and the cost of debt, which together form the hurdle rate as discussed in Section 2.1.1.3.

The life cycle of the home performance contractor differs slightly from those of remodelers and HVAC contractors. A home performance contractor life cycle typically is a newer and less-established business type. Therefore, sources of funding may be available to a home performance contractor that would not be available to a firm in a well-established industry, such as HVAC contractors. Venture capital firms banking on future growth in the demand for home performance services, or even retailers seeking to get into a specific local market, may be sources of funding as a home performance firm matures. The availability of these sources of funding will be tied closely to a home performance contractor's understanding of its market and ability to demonstrate future demand for its services. Additionally, the availability of funding depends on the presence of a sound strategic plan for the business and qualified management. The home performance contractor's ability to grow beyond the $1 million in annual revenue range will hinge on the owner's ability to raise additional funding to support the business, either from internal profits or outside sources (see Figure 2-1 in Section 2.1.1.2).

Key Insights

Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Energy Efficiency**
Financial Model or Structure	■ 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 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 demand for their services.	■ 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 understanding of market demand and leverage partnership opportunities to reach their target revenue threshold and achieve sustainability for the business.

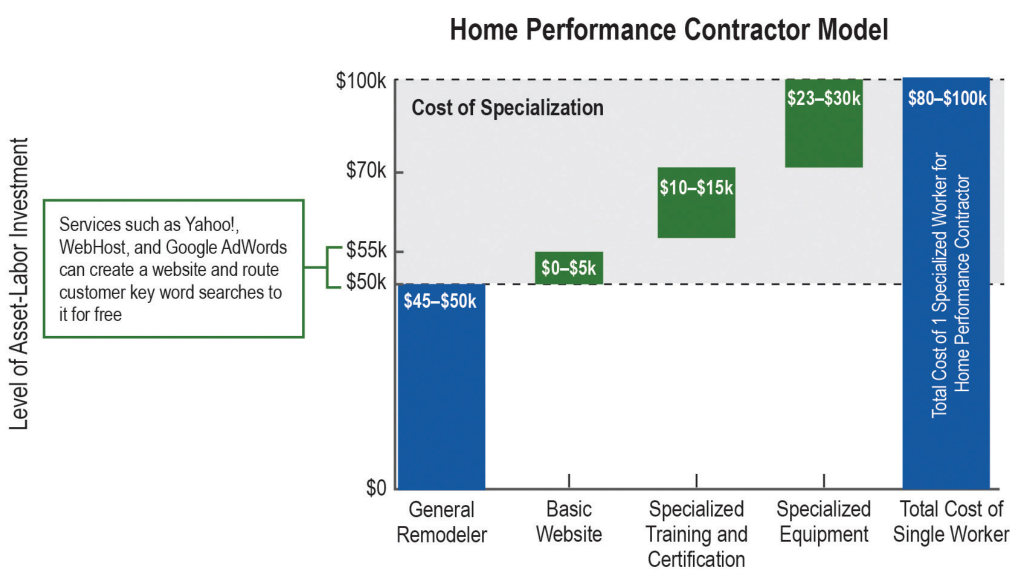
Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Energy Efficiency**
		■ Seeking additional external funding to grow the business is critical. Home performance contractors must develop a sound business plan and demonstrate that there is sufficient market demand for home energy upgrades to secure external financing, establish key partnerships, and become sustainable.

2.4.3.3 Assets and Infrastructure

Assets and infrastructure include physical assets, software, and training. An examination of the up-front investment necessary to start a home performance business reveals that new home performance contractors require the same basic assets as a more established general contractor, including the following:

- Basic contracting materials
- Basic website to advertise services and communicate with consumers
- Sales and marketing training

However, home performance contractors also need specialized energy efficiency equipment and training, which result in additional costs (Figure 2-19), similar to what HVAC contractors need for expansion as listed in Section 2.3.3.3. The required costs to expand a home performance contractor's service offering to include energy efficiency upgrades may be twice the costs required for general contractor services. However, many of the basic pieces of equipment necessary to start up or expand the business can be leased. Leasing lowers the up-front cost to the business, but requires a steady source of sales to cover annualized costs. In order to run a home performance contracting business, all of the same assets of a general remodeler are required, which gives the remodeler an advantage in transitioning into the home performance market over a brand-new contracting business with less experience.



Source: Industry interviews and Booz Allen

Figure 2-19: Home Performance Contractor Model

2.4.3.3.1 Software

As a firm grows, the need for increased back office functionality will require a larger support infrastructure, such as additional office space and equipment. Many back office functions can be streamlined through the use of CRM software and/or job reporting software to lessen the need for dedicated administrative staff to handle paperwork. A software system can be used to control administrative costs, track sales leads, develop project cost estimates, and conduct market analysis. Home performance contractors typically lease a software system, rather than design one in-house; the cost of leasing a software system can range from $100,000 to $250,000.[26] Figure 2-20 lists the various software types available and the implications of these for firms at various growth stages. Implementation of such software can be costly up front, but it can eventually pay for itself over the long term.

Software Options

Firm Size/Sophistication	Standard Software Types	Implications
Small/Unsophisticated (Generally $<500K in Revenues/Year)	Basic accounting software and basic website (optional)	Many of these firms do not use software at all, and must be forced to automate externally (e.g., via manufacturer requirements)
Medium/Growing (Generally $500K-4M in Revenues/Year)	Basic accounting software, established website, customer relationship management software, job estimation software	Firms at this stage have realized the value of streamlining back office and job functions, and may be open to using program software services
Large/Sophisticated (Generally >$4M in Revenues/Year)	Advanced accounting software, established website (although no customer interface), customer relationship management software, job estimation software	Firms at this stage are not only capable of expanding into new lines of business, but would be open to purchasing software that would allow customers to track jobs online; to date, few firms have taken this step in areas where programs have not developed this solution for them

Source: Booz Allen research

Figure 2-20: Software Options

2.4.3.3.2 Training

Training staff is a particularly high-cost item. In addition to investing in the cost of a training program, home performance contractors must invest time and resources in on-the-job training. They typically require a new employee to shadow an experienced employee for three months. Not only will the business need to cover the cost of the new employee's training and salary during that period, but on-the-job training also limits the number of energy efficiency projects that trainees can complete during this time. This opportunity cost may be easily overlooked by program administrators seeking to build contractor capacity within their local markets.

Key Insights

Home Performance Contractor Insights

	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
Assets and Infrastructure	▪ 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.	▪ A primary asset to invest in for overhead cost control purposes is CRM, job tracking, and reporting software.

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

2.4.3.4 Service Offering

Home performance contractors provide four broad categories of services: energy assessments, customer financing and incentives, installation, and quality assurance, as shown in Figure 2-21.

Home Performance Contractor Service Offerings

	Energy Assessment	Customer Financing and Incentives	Installation Core Offering	Quality Assurance
Services Offered	▪ Trained auditors to conduct energy assessments ▪ 2-3 hour assessment of home performance plus suggestions for improvement	▪ Access to capital and special offers via partnership with financial organizations ▪ Incentive money through available incentive programs	▪ Energy efficient upgrades beyond standard remodeling, such as duct sealing, blow-in insulation, on-demand water heaters	▪ Inspection of installation quality and energy performance conducted; inspection necessary to claim relevant energy efficiency incentives
Implications to the Business Model	▪ Critical tool for marketing efforts, provides best toehold ▪ Requires certified staff (e.g., BPI, RESNET) and on the job training (~3 months)	▪ Helps lower risk to consumer and is a primary selling point ▪ Requires understanding of financial offerings and programs	▪ One-stop shop more convenient and economical for consumers ▪ Requires skilled staff ▪ Prime target for incentives	▪ Understanding of best practices and incentive requirements helps do quality work, and capture incentives to lower costs ▪ Advantageous in generating referrals
Cost Implications	▪ Often subsidized in order to attract customers and increase sale size (e.g., $500 value offered for $100) ▪ Cost of training per employee is ~$15K	▪ High investment in personnel managing paperwork (e.g., 10 projects/week, 500 projects per year requires 2-2.5 FTE)	▪ Specialized assets required up front ▪ Additional training and certification for staff	▪ Additional labor cost – also typically requires additional specialized training and equipment if not already offering energy assessments

Source: Industry interviews

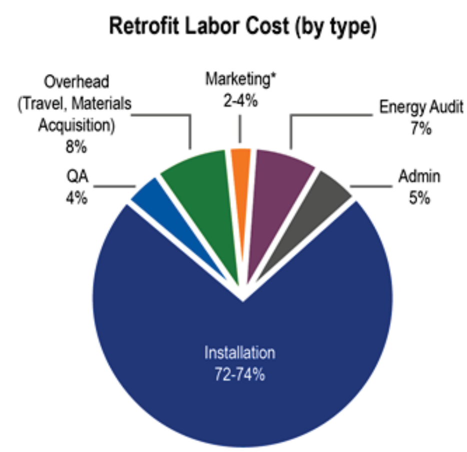
Figure 2-21: Home Performance Contractor Service Offerings

Energy assessments are critically important tools for marketing and messaging efforts because they provide the best opportunity to educate customers on the merits of efficiency, assuming the customer is home during the assessment. Consequently, energy assessments are often subsidized to attract customers and increase sale size (e.g., an energy assessment valued at $500 may be offered for $100). Energy assessments require certified staff (e.g., with BPI certification) and on-the-job training (generally, for a period of three months at an average cost of $15,000). Because the misdiagnosis of a health or safety issue can present significant legal risk to the contractor, the majority of contractors prefer to do the home energy assessment themselves. Most contractors prefer to conduct all phases of the home energy upgrade from start (assessment) to finish (quality assurance) because of their ability to control their risk and deliver their message directly (although many contractors are comfortable with outsourcing quality assurance services to save on labor costs). Thus, business models built around only providing assessment services have not typically been found viable to date, although new models are being explored. Customer financing and incentives help to lower the high up-front costs to consumers purchasing home energy upgrades and may be an important selling point. Understanding and managing financial offerings and financial incentive programs requires a sizable investment in personnel. Industry sources indicated that management of 500 projects per year required 2.0 to 2.5 full-time equivalents with the primary function of processing paperwork associated with customer incentives.

While the aggregation of program incentives service offerings may be costly in terms of administrative labor hours, it is one of the key means by which home performance contractors can differentiate their businesses from remodelers and other contractors not familiar with the market for home energy upgrades. Financing options and incentive programs can motivate consumers to invest in home performance services, or can drive the cost of a more expensive home energy upgrade below the cost bid for more standard work by a home performance contractor's competition. Therefore, understanding the full range of these options and incentives and communicating the details on these options to homeowners can help home performance contractors close sales. Home performance contractors interviewed indicated that incentives can drive up to 50 percent of their business in certain markets. While these incentives provide contractors with opportunities, they also present a significant risk to these companies. Should they disappear, their service offering models may no longer be viable. Thus, home performance contractors should consider building core marketing services and other capabilities that could drive sales in an unsubsidized market when leveraging market incentives.

Irrespective of incentives, the primary service offering for the home performance contractor is the installation of energy-efficient products. This is an area where the specialized home performance contractor can truly differentiate itself from remodelers and other competitors. Installation requires specialized assets, additional training, and certification for technicians. By offering a one-stop shop for home performance, specialized contractors can capitalize on the convenience offered to customers as well as sell customers on their certification and skills. Quality assurance is often required for customers to be able to claim incentives. An understanding of the best practices and requirements for specific incentives, paired with a quality assurance process, improves the likelihood that quality work will be performed well and that repeat business can be generated from customers. Good quality assurance practices also help to limit labor costs, although up-front costs are typically required to obtain training and certifications that would qualify a worker or firm to conduct quality assurance.

In addition to acquiring assets to better manage the business, home performance contractors must continually examine their service offerings to identify ways to reduce associated labor costs and maximize their profit for each component of a home energy upgrade job. Figure 2-22 breaks down the allocation of costs for a sample home energy upgrade job for a home performance contractor. While installation accounts for the largest portion of labor costs, a home performance contractor's attempt to reduce labor costs could result in a sacrifice of overall job quality if not closely monitored. Additionally, home performance contractors place significant value on building positive customer relationships, as customer referrals are a primary source of future revenues (see "Customers and Customer Acquisition" below). Any cost-cutting measures that could sacrifice quality for reduced labor cost could significantly impact a home performance contractor's core business model. Consequently, home performance contractors often find the best way to control costs is by focusing on streamlining other aspects of the home energy upgrade job,



Note: Labor hours assumed equivalent to % labor costs. $10,000 retrofit, building size 2,500 square feet

*Marketing costs for half of grantee respondents are subsidized through program administrator efforts.

NOTE: All costs (in this figure) are variable (e.g., costs per job) in nature, and exclude fixed costs necessary for business operation, such as basic tools and equipment and marketing material development. These fixed costs represent a large portion of overhead cost, as well as materials directly used for installation.

Source: Booz Allen research

Figure 2-22: Retrofit Labor Cost

such as marketing, administration, and energy assessments.

In addition to labor, materials represent the other major cost driver for a standard job. The exact ratio of materials to labor will vary widely depending on the region and climate zone. In general, materials cost is outside the immediate control of the home performance contractor. Most home performance contractors typically get the cheapest possible rate on their materials by buying them in bulk through a wholesaler or distributor.[27]

Key Insights

Summary of Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Service Offering	■ 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.	■ 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 business 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.

2.4.3.5 Customers and Customer Acquisition

Currently, 90 percent of a home performance contractor's work is for customers that self-identify a need for home improvement. As shown in Figure 2-23, these customers typically are well-educated, upper-middle-income homeowners with disposable income and the willingness to pay for energy efficiency upgrades. Their homes are typically small to medium-sized, built between the 1960s and the 1990s. This business accounts for only 8 percent of the total home improvement market.

[27] While control of materials cost is outside the scope of this analysis. A separate Department of Energy program, "Building America," has made this topic a primary area of study. Details can be found at http://www1.eere.energy.gov/buildings/building_america/.

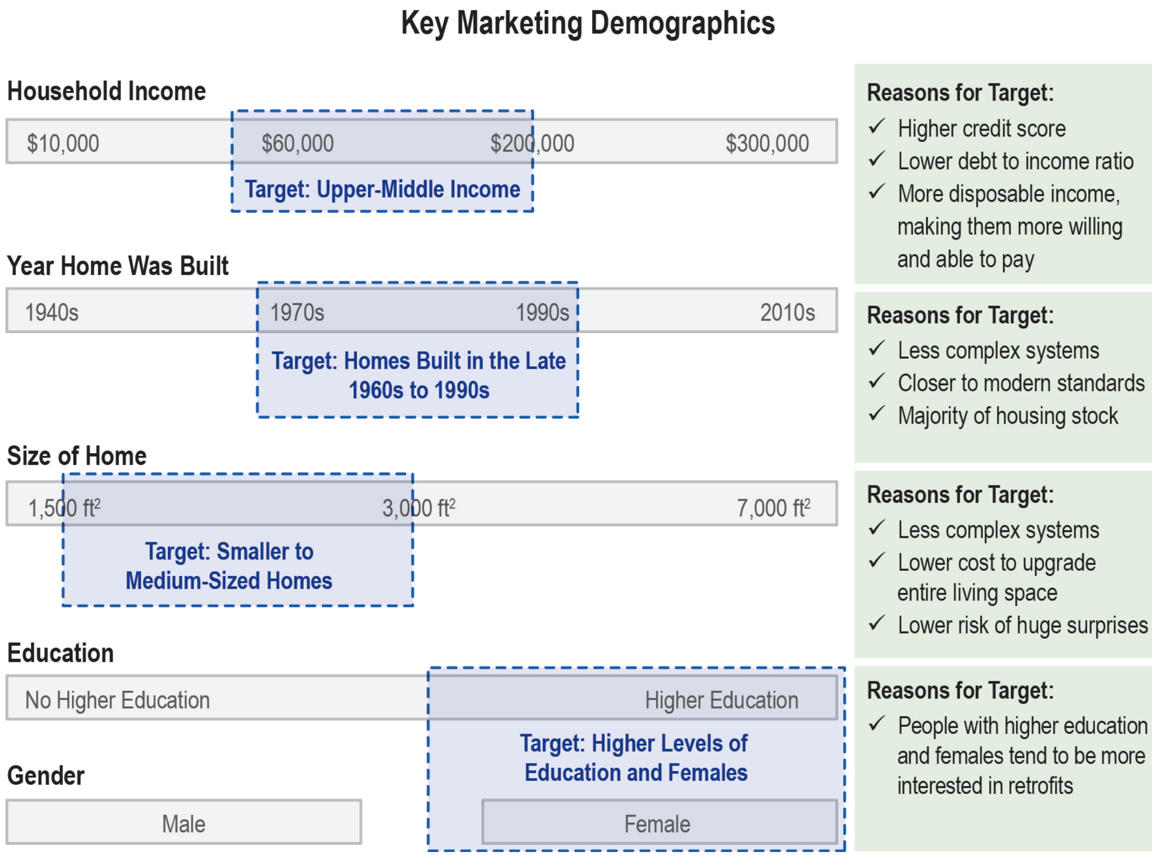


Figure 2-23: Key Marketing Demographics

Home performance contractors use a wide range of marketing techniques and channels to reach customers, as shown in Figure 2-24. Some of the more effective marketing channels include customer referrals, community outreach, direct mailing, discounts/rebates, customer upselling, and limited duration offers.

Home Performance Contractor Marketing Channels

Stage	Strategies Employed	E	C	S
Awareness/ Demand Creation (Marketing Campaigns)	Customer Referrals	●	●	●
	Community Outreach (e.g., hold events with local community groups)	●	◕	●
	Internet Search Engine Optimization (e.g., keyword searches)	◑	◑	●
	Purchased Leads (e.g., Energy Savvy, Clean Energy Experts)	◑	◕	◑
	Public Relations (e.g., write-ups in local newspapers)	◕	●	◔
	Advertising (e.g., radio, television, print)	◑	○	○
	Direct Mailing (e.g., through utility bills)	◕	●	◕
	Discount/Rebate (e.g., price energy audit below market value)	◕	●	●
	Third-Party Referrals (e.g., program administrator referrals)	◔	◕	○
Engagement (Direct Interaction)	Trusted Source (e.g., establish customer relationship during energy audit)	●	◔	◑
	Customer Education (e.g., seminars)	◑	◑	◑
	Customer Up-selling	◑	●	●
Conversion (Closing the Sale)	Limited Duration Offers (e.g., incentive expiring)	◕	●	●
	Third-Party Validation (e.g., consumer reviews)	◔	●	●

KEY

E **Effectiveness** – Successfulness in generating revenues and traffic

C **Cost Effectiveness** – Cost per sale generated

S **Sustainability** – Creation of longer-term revenue generation

Highlighted for discussion

○ **Highly Unfavorable** ◔ **Unfavorable** ◑ **Average** ◕ **Favorable** ● **Highly Favorable**

Source: Booz Allen research

Figure 2-24: Home Performance Contractor Marketing Channels

Advertising, such as that presented during radio broadcasts, provides the opportunity to educate a broad audience on energy efficiency benefits and available services. However, such advertising often is prohibitively expensive, and is not an effective use of funds for home performance contractors. Home performance contractors that wish to maximize the effectiveness of any funding they put toward mass marketing may benefit from a partnership with other organizations, such as program administrators, who often have dedicated budgets for customer education. In general, homeowners are more likely to trust a neutral **third-party source** touting the benefits of energy efficiency than a contractor that has a vested interest in selling a service. In sample markets where program administrators ran ads promoting home performance, home performance contractors that placed their ads in the advertising slot immediately next to the program's slot saw an immediate uptick in sales of home performance services.

In general, given the large expense of mass-media advertising, the most effective way for home performance contractors to generate home energy upgrade business is through the energy assessment process (with the customer at home during the assessment process) or **customer upselling of services**. While the process is time-intensive and costly, it helps to engage and educate homeowners on possible home energy upgrades and helps the contractor build relationships that will eventually translate to follow-on sales. This makes the sales aspect of the assessment, in addition to the technical aspects, critical to the contractor. Technical assessors are often not trained in or unable to effectively explain the process and the value of home performance to the homeowner, which limits their ability to sell the full home energy upgrade on top of the assessment itself. To increase the "conversion rate" or percentage of jobs generated by the average assessment, home performance contractors should consider sending not only a contractor to the audit but also a trained salesperson who can better communicate with the customer.

Key Insights

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

2.4.4 Conclusion: Summary of Home Performance Contractor Insights

Starting a new business as a dedicated home performance contractor provides several advantages over a business expansion model, although start-up businesses are also riskier. 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. The summary below details important observations on home performance contractors and those observations' impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help home performance contractors, program administrators, and other actors create and/or sustain a business that promotes energy efficiency.

Summary of Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Market	■ 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).	■ 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	■ 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.	■ 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	■ 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 demand for their services.	■ 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 understanding of market demand and leverage partnership opportunities to reach their target revenue threshold and achieve sustainability for the business. ■ 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	■ 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	■ A primary asset for overhead cost control is CRM, job tracking, and reporting software.

Summary of Home Performance Contractor Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
	manage job reporting and tracking, incentive paperwork, staff training, and marketing efforts.	
Service Offering	■ 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.	■ 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	■ 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 better than those with only technical training.	■ 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 private financial institution or arranged through a local efficiency program) in their sales pitches to help with the closing of sales.

2.5 RETAILER BUSINESS MODEL

2.5.1 Introduction

The retailer is a firm whose business focuses on the sale of goods and services directly to consumers and contractors. Examples of retailer companies include Home Depot, Lowe's, Menards, Ace Hardware, and Green Depot. Energy efficiency products and home energy upgrades typically are just two of the many types of offerings a retailer provides to the market. Retailers typically operate out of physical stores, although increasingly they are providing shopping services over the Internet as well. The following table provides a brief overview of the characteristics of a retailer.

Summary of Retailer Characteristics	
Size	Range from small, local businesses with 1 to 15 employees to large, national corporations with over 300,000 employees[28]
Market Role	Provide goods and services directly to consumers and small contractors, including: ■ 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
Operating Environment	Operate in a market impacted by: ■ Revenues highly correlated to consumer demand and local brand recognition ■ Large "big box" and franchise retailers squeezing out the local small company competition through acquisitions and/or mergers ■ High internal profit requirements, particularly if the company is publicly traded ■ Near saturation with stores in the United States; one additional growth opportunity being evaluated currently is the provision of additional services (such as energy efficiency) to compensate for the retailer's inability to achieve corporate growth through expansion
Competitive Landscape	Compete in two main areas: ■ Traditional offerings of direct product sales to consumers and contractors, which is in direct competition with wholesalers and distributors ■ New service offerings of installation and other services (called "do-it-for-me" vs. "do-it-yourself" consumers) are in direct competition with remodelers, HVAC contractors, home performance contractors, utilities, and other program administrators, but the market penetration of these new services remains limited
Collaborative Landscape	Collaborate with the following firms in the market: ■ Utilities or HVAC contractors (which provide home improvement services under their brand name) ■ Home performance contractors (via pilot programs or strategic acquisitions of new service lines) ■ Utility program administrators (e.g., market rebates for high-efficiency products, such as compact fluorescent light bulbs) ■ Non-utility programs (e.g., consumer education and outreach)

[28] Source: Booz Allen research.

2.5.2 Retailer Market

The retailer market is generally dominated by large, big box companies (e.g., Home Depot, Lowe's) that hold 82 percent of the market share, as shown in Figure 2-25. The overall market generates $150 billion in annual revenues and includes approximately 20,000 stores and 700,000 employees nationwide. Generally, retailers primarily make a profit through the sale of goods rather than services. However, as the market becomes more saturated with stores, retailers are more open to expansion through the addition of service lines and increased product sales. However, these service lines are often subcontracted out to specialist partners rather than conducted in-house by retailer staff. The retailer market consists of the following participants:

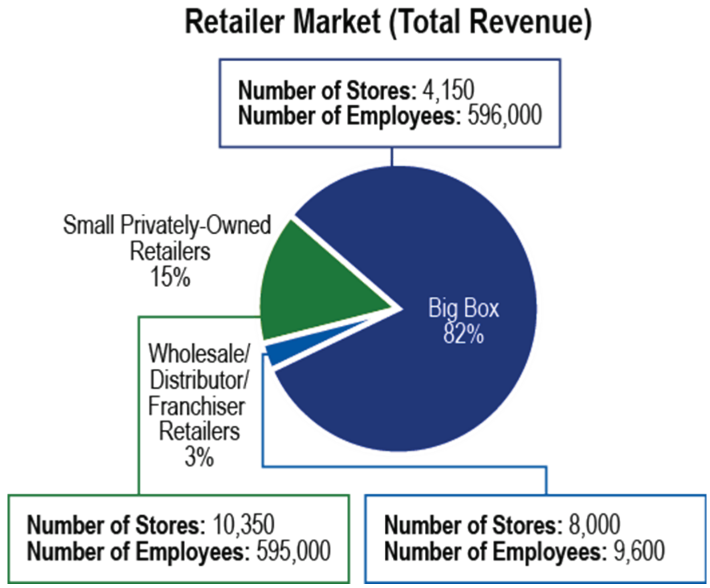


Figure 2-25: Retailer Market

- **Big box retailers**—these retailers typically are large publicly traded companies with strong brand identities and presences in both global and local markets. This type of retailer offers an entire value chain of products and services. Big box retailers such as Home Depot, Lowe's, and Menards focus on the "do-it-yourself" market. They have been increasing market share recently by acquiring smaller, privately owned chains. In addition, department stores such as Sears and Best Buy provide a large range of products and services that may include energy efficiency products**.**
- **Wholesale/distributor/franchiser retailers**—these retailers offer brand-name services and products through a locally owned retail outlet. The wholesale/distributor/franchiser retailer has greater access to resources, products, and services than do the small privately owned retailers. The wholesale/distributor/franchiser retailer can achieve greater profit margins than small local companies. Examples of wholesale/distributor/franchiser retailers include True Value and Ace Hardware.
- **Small privately owned retailers**—these retailers typically are small companies owned by an individual who has personal capital invested in the business. The small retailer has a presence in the local market. While these companies have smaller service and product offerings, they may have closer relationships with the local community, because they often are regarded as being part of the community, rather than a national chain. Examples of small privately owned retailers include Green Depot and the National Home Centers.

Key Insights

Retailer Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Market	■ 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	■ 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

Retailer Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
	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.	the service itself.

2.5.3 Retailer Business Model

The following sections focus on the five core components of a retailer's business model. These sections highlight the critical means by which a retailer functions within the market and how other organizations within the market can best collaborate with a retailer.

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.

2.5.3.1 Governance

Retailers are private-sector companies that have a range of governance models. These can impact how a retailer makes decisions with regard to its business strategy, service offerings, and financial structure, including partnering with other market actors. The retailer governance models are described in Figure 2-26.

Retailer Governance Models

	Big Box Retailers	Wholesale/Distributor/Franchiser Retailers	Small Privately-Owned Retailers
Description	▪ Publically traded ▪ National chain of retail outlets	▪ Privately held local operations with public parent ▪ Franchises are dealer owned	▪ Privately held ▪ Regionally/locally focused ▪ Owned by individual or investors
Key Decision-Makers	▪ Shareholders ▪ Board of directors ▪ Management	▪ Owners ▪ Parent's shareholders based on franchise rules and guidelines	▪ Owners
Financial Structure	▪ Offer entire product and service value chain ▪ High bargaining power with suppliers ▪ Successful growth occurs through acquisition and organic expansion	▪ Cooperative structures are common ▪ Growth depends on local opportunities for expansion ▪ Local management manages operations and is responsible for revenue generation ▪ Local management has limited input into strategies at the franchise level	▪ Small number of stores ▪ Successful firms will consolidate to gain a larger footprint ▪ Smaller firms find niches to stay viable

Source: Booz Allen research

Figure 2-26: Retailer Governance Models

Big box retailers typically are publicly traded companies with multiple layers of decision-makers that determine corporate strategy, service offerings, and partnering opportunities. In this type of organization, the decision-making process can be difficult to navigate for those within a company seeking to expand its service offerings into the energy efficiency market and those outside the company seeking to work alongside it. Identifying the right personnel within the big box retailer's chain of command who can speak on behalf of the company becomes critically important in seeking approval for a new project. As a general rule, a big box retailer's store manager has significant discretion over the store's promotions. If the store manager is amenable, it may not be necessary to forge a partnership with corporate management. Where store managers are not amenable, or for programs seeking to partner with more than one store, it is essential to engage corporate management to get their support and buy-in while negotiating partnership options. For small box or franchise retailers, this process is much simpler. The store owner has unlimited discretion to engage in partnerships that he/she deems best for his/her company. Due to the highly competitive nature of the retail market, both store managers and corporate representatives are very sensitive to their competition. As such, a partnership or promotion endorsed by one retailer will be strongly considered by its competitors.

Big box retailers and other investor-owned firms have very specific profit targets that must be reached to meet corporate and investor requirements. A good understanding of an investor-owned retailer's sales, costs, and potential profits is critical to the ability to approach in approaching the retailer about long-term partnership opportunities. Program administrators must identify the right person within the big box retailer's chain of command. This person is typically the vice president of business development or their equivalent, as they are authorized to develop new product or service lines on behalf of the company. Wholesaler, distributor, and franchiser retailers are difficult to influence on a national or regional level because there is little centralized control over store operations outside of branding. However, individuals seeking to engage with these retailers find success with specific individual stores that exercise greater control over what service offerings they wish to provide and partnerships they wish to form.

Small privately owned retailers may be easier to collaborate with than larger companies from a decision-making standpoint. However, these small companies typically have difficulty operating at scale and may face competitive pressures from big box retailers in their region.

Key Insights

Retailer Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Governance	▪ 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.	▪ 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.

2.5.3.2 Financial Model or Structure

Understanding a retailer's financial model or structure is critical to being able to engage with that retailer. A retailer's financial model or structure is highly focused on profit. Entry into the home performance retail market typically does not require a heavy up-front investment. Consequently, profits are largely driven by variable factors, such as revenues from sales and cost of goods sold (COGS).

Investors evaluate a big box retailer on its ability to maintain its gross profit margin (approximately 35 percent), which is a function of revenues and COGS.[29] While this profit margin is important for corporate management and shareholders, long-term revenues ultimately are the primary concern of the individual store managers. Long-term revenues give them some flexibility in setting their product and service mix because it allows them to stock lower-margin goods (or provide lower-margin services) as long as they serve as gateways to future customer purchases (hopefully of more profitable or larger-ticket items). Where a retailer is willing to sacrifice on profit margin, the goal is often to increase the overall store customer traffic, build positive customer relationships, and ensure that they return to purchase additional goods or services at the store in the future. In this manner, individual big box store managers are very similar to franchises or small box store owners who have high flexibility in setting their target profit margins and determining their service offerings.

On account of this, the need to identify new sources of sales is critical to all retailers' operational models. Up until recent years, new sources of sales largely were acquired through the addition of new stores in untapped locations. However, given the rapid expansion of big box retailers, options for the addition of new stores have diminished. Consequently, retailers need to look for new product and service offerings—such as home energy upgrades—that could drive growth within their existing locations. If a program administrator or private contractor wishes to partner with a retailer to drive the sales of home energy upgrades, the administrator or contractor must understand, and establish for the retailer, that a large enough local demand exists for home energy upgrades and that these upgrades can prove to be a significant driver of sales.

While sales are the primary driver of revenues, the types of goods and services offered are the primary drivers of the COGS. For example, while insulation is typically a low-cost product, the labor cost to install may be high. This could reduce a retailer's profit margin if it must provide insulation installation as a service. Instead, many retailers sell insulation to contractors and "do-it-yourself" (DIY) consumers rather than install the insulation themselves. An understanding of the COGS that lower profit margins represents an opportunity for potential partners who can add value.

Key Insights

Retailer Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Financial Model or Structure	■ Big box and wholesale/distributor/franchiser retailers have high profitability targets, with a typical gross margin target of 35 percent. ■ 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.	■ Big box retailers may seek similar profit margins for home energy upgrades as with their traditional services. ■ 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.

[29] Source: Booz Allen research.

2.5.3.3 Assets and Infrastructure

While an understanding of a retailer's financial model is key to the ability to engage with that retailer, understanding a retailer's assets is critical to identifying how the retailer can influence a market. Brand identity, inventory, real estate, and other assets, such as cash and account receivables, all constitute a retailer's assets.

A retailer's brand can account for 70 to 90 percent of its market value, due to its ability to drive future revenue through repeat sales. Customer loyalty tracked through same-store sales revenues is a key aspect of a brand's value and can be leveraged to develop sustained interest in home energy efficiency over time. To program administrators and private companies seeking to partner with retailers, this is a valuable tool. A customer's comfort with the retailer selling the goods and services can drive energy efficiency market sales. Retailers possess a unique ability to leverage their established brand names to build consumer confidence in what they are offering. For example, a name-brand product may cost more, but consumers will buy it because they are familiar with its general level of quality. This tendency to gravitate toward comfort could easily apply to home energy upgrades, but only if the retailer is confident that the work being done under its name is up to its standard of quality. Consequently, the retailer might opt to partner with established contractors whose management has a proven track record of success rather than with newly created home performance contractors.

A retailer's real estate, or physical location, can provide partners with a steady source of leads for new work and a means of interacting with consumers in person. A centrally located piece of real estate can be valuable in terms of generating new walk-in business, and also in building consumer confidence that customer assistance is readily available if needed. This effect on consumer confidence is, in large part, the reason why retailers have sought the widest possible range of physical locations in their expansion efforts. Thus, the ability to leverage a retailer's prime location is another reason why remodelers, home performance contractors, and others might seek to engage a retailer in a partnership.

Finally, retailers use a metric known as "inventory turnover" to evaluate how well specific goods are selling. A shorter average time on shelves indicates a high sales rate. Goods that spend longer periods on shelves are costly to retailers. The average inventory turnover for a retailer is 75 days.[30] A partner that can demonstrate an ability to reduce this turnover period (i.e., drive sales) can add value to the retailer.

Key Insights

Retailer Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Assets and Infrastructure	▪ 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	▪ 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.

[30] Source: Booz Allen research.

Retailer Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
	why retailers have raced to reach the widest possible range of physical locations in their initial expansion efforts.	

2.5.3.4 Service Offering

Retailers offer various products and services for their customers, depending on the type of retailer. The full range of these service offerings is listed in Figure 2-27.

Retailer Service Offering

		Big Box Retailer	Wholesale/Franchise	Small Private Company
Products	Building Materials	✔	✔	✔
	Appliances	✔	✔	✔
	Heating and Cooling	✔	✔	
	Computers and Electronics	✔	✔	
	Lighting and Fans	✔	✔	✔
	Plumbing	✔		✔
	Paint and Flooring	✔		✔
	Technology Systems	✔	✔	
	Lumber and Millwork	✔		✔
Financing and Incentives	Consumer Credit Cards	✔	✔	
	Contractor Credit Cards	✔		
	Contractor Lending Services		✔	
	Contractor Bonding and Insurance		✔	
Services	Online Services and Resources	✔	✔	
	Installation and Services	✔	✔	✔
	In-store Technical Advice	✔	✔	✔
	Specialty Orders and Services	✔		
	Energy Efficiency Specific Offerings	✔	✔	

Source: Booz Allen research

Figure 2-27: Retailer Service Offering

As a general rule, retailers generate the majority of their revenue through the sale of products to homeowners and contractors. Due to this heavy reliance on product sales, manufacturers have a very strong influence over the goods a retailer stocks. However, heavy customer or contractor demand can help shape a retailers product mix as well. This has implications for energy-efficient products, which are a relatively new niche of potential product sales. Most services provided under the brand of the retailer are subcontracted out to private firms, with the retailer handling only the sales aspect of the transaction.

A retailer's service offerings tend to become more comprehensive as it increases in size. For example, big box retailers typically offer a wide range of products for various market segments that are common across geographies. They also offer consumer credit and contractor credit options in-house or through a partner financial institution.

Small privately owned retailers, including local hardware stores, have the advantage of consumer familiarity and strong local networks, but they may provide more limited products and services than larger retailers. These smaller retailers may be willing to expand into energy efficiency goods and services if the demand for those goods and services is adequately demonstrated.

Specialty retailers are increasing their "footprint" through new lines of energy efficiency products (e.g., Sears and Best Buy energy-efficient appliances and home control systems) and through sustainable products (e.g., Green Depot's focus on environmentally friendly and energy-efficient products and services).

2.5.3.4.1 Partnerships

Partnerships can provide an opportunity for a retailer to expand its service offerings. Retailers offer various partnership opportunities for other diverse entities such as remodelers, contractors, home performance contractors, and program administrators. To date, these partnerships have been mostly in the form of pilot programs, but opportunities exist for longer-term partnerships if a strong business case can be made.

A program administrator seeking to develop a partnership with a retailer should be prepared to present a business plan based on more than just short-term incentives that will regularly expire or change. The program administrator should also demonstrate how the collaboration will drive retail sales and, ultimately, increase revenues. Given that retailers primarily consider themselves to be sellers of goods, rather than services, program administrators should also understand the basic pathways a retailer uses to deliver goods and services to its customers to ensure the partnership proposal is reasonable. For example, a big box retailer generally trains its staff to sell its goods and service packages but subcontracts out the actual service work to partner contractors. In this type of service model, the contractor has no means of selling to the customer but simply executes work that is defined by the retailer and customer beforehand. Thus, a partnership focused on training the contractors to conduct home energy upgrades is very unlikely to gain traction. In this case, the store also would need to train its sales staff to sell home energy upgrades in addition to its standard services. This training alteration would need to be made at a corporate level and would be costly, limiting the benefit of such a partnership to the retailer. Figure 2-28 presents a retailer's partnership screening criteria for remodelers, HVAC contractors, and home performance contractors. Figure 2-29 presents a retailer's partnership screening criteria for program administrators.

Retailer Partnership Criteria for Industry Partners

Pool of Industry Partner Candidates:
Remodelers HVAC Contractors Home Performance Contractors

Step 1: Identify Partners with Basic Value Proposition Alignment

- Partners have matching **target customer** groups
- Partners have **specific expertise or technology solution** that retailer does not have in-house and whose sale exceeds retailer profit margin requirements
- Partners are willing to **use retailer products**

Do not partner with:

- Partners whose service offerings are redundant or do not meet basic profit margin requirements
- Partners focused on non-optimal customers

Step 2: Conduct a Background Check

- Partner has **established and proven management** that will make partnership more likely to succeed
- Partner has **clean legal background**
- Partner has **established body of work** in their respective industry
- In case of home performance contractor, **a more expansive cost/benefit analysis** would need to be done to vet their business model

Do not partner with:

- Partners who do not have established governance and management
- Partners who do not have clean legal backgrounds
- Partners who do not have proven track records

Source: Booz Allen research

Figure 2-28: Retailer Partnership Criteria for Industry Partners

Retailer Partnership Criteria for Program Administrators

Pool of Program Partner Candidates
Federal, State, and Local Government Utilities Trade Associations/NGOs

Screen 1: Basic Value Proposition Alignment

- **Partners have a well-thought-out business case,** with defined hypotheses for testing, clear customer demand for the service and returns for both partners
- Partners have matching **target customer** groups
- Proposition is **sustainable beyond the life of short term incentives**
- **Proposition can be replicated nationally** if proven successful

Do not partner with:

- Programs with no clear business plan
- Programs focused on non-optimal customers
- Programs focused on short-term success

Screen 2: Cost/Benefit Analysis

- Program does not materially increase **administrative costs to retailer** (e.g., increased data collection and reporting burden)
- Service offering **meets basic retailer profit margin requirements**
- Program materially **increases consumer purchasing**
- Program has **established and proven management** that will make partnership more likely to succeed

Do not partner with:

- Programs without clear governance chains
- Programs with labor intensive/costly reporting requirements
- Programs that do not have a focus on increasing sales

Source: Booz Allen research

Figure 2-29: Retailer Partnership Criteria for Program Administrators

Partnerships with retailers and private companies generally consist of the partners working under the retailer's brand name to deliver home energy upgrades. However, as noted in Figure 2-29 above, established big box retailers will often use specific criteria in screening potential private-sector partners, including the following:

- A common customer demographic
- A well-established track record of performance in the industry
- Proven management, especially in the case of the home performance contractor
- A well-thought-out business plan that demonstrates the viability of a sustainable home performance practice in the local market (most retailers are very familiar with remodeler and HVAC contractor service viability already, but home performance contractors, as a relatively non-established niche of the market, may need to demonstrate their value as a potential partner)

Many benefits are associated with forming a partnership with retailers, although partnerships are still in their early stages. A home performance contractor that chooses to work with a retailer could receive a steady source of leads generated through the retailer's physical location and online presence. These contractors can also benefit from having their work quality validated through the retailer's brand name. However, if the contractor accepts the retailer's brand name, then quality assurance standards will be imposed by the retailer, possibly resulting in the loss of control over job selection and management of quality-related complaints.

Examples of successful partnerships that retailers have executed in conjunction with program administrators include:

- **Small-scale store demonstrations** to highlight the value of energy efficiency and market program services (note: these are most effective on weekends from May to October when retailer store traffic is highest).
- **Cross-promotion between programs and retailers** to refer customers for each. This could include:
  - Discounts for energy-efficient products (valid only at partner retail stores) to customers that join the program. (This can be coordinated with bulk purchasing strategies.)
  - Program logo usage in retailer marketing materials for energy-efficient products (excluding product packaging).
  - Coupons for energy-efficient products (e.g., appliances) upon redemption of program energy efficiency rebates.
  - Advertising for program services on retailer receipts.

Some options that have not proven successful include:

- **Centralizing energy-efficient products** in one location within the store (there are just too many varieties to organize them in a manner that makes sense to the consumer).
- **Upselling customers at the store level.** Most retail customers typically already know what they want prior to entering the store and are not going to make large impulse buys.
- **Training store staff to sell energy-efficient services directly to consumers.** Retailers generally find that the additional training costs do not result in a large increase in home energy upgrade service sales, as customers largely make their purchasing decisions before entering the store. However, retailers have

indicated that they are comfortable training staff to refer customers to partner programs for further information on home energy upgrade services should the customer show an interest.

2.5.3.4.2 Pilots

Organizations seeking to collaborate with a retailer on a long-term basis should understand how the retailer manages its pilot program and testing process for new partnerships and service offerings. For example, many retailers have defined schedules for when to start and how long to operate specific pilot projects. Entering into a partnership midway through an established pilot will make it much more difficult to demonstrate the viability of the partnership model, thus limiting its chance of being sustained or replicated.

Most retailers will want to test a new partnership or service offering for six months before formally establishing the partnership or before rolling out the service offering. The retailer will run a cost-benefit analysis to measure the pilot's performance. If the performance is good, the retailer may seek to extend the life of the pilot to apply it to a longer-term service line. If the pilot does not produce the expected returns, the retailer may forgo the partnership entirely.

Key Insights

Retailer Insights		
	Observations	**Impact on Potential Expansion into Energy Efficiency**
Service Offering	▪ Retailers provide goods and services directly to consumers and small contractors. These include: – 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.	▪ 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 a strong track record and 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.

2.5.3.5 Customers and Customer Acquisition

2.5.3.5.1 Customer Breakdown

Retailers expend a significant amount of resources evaluating their customer base and aligning their service offerings to customer demand in a manner that will result in the greatest amount of sales, revenues, and profits. While many smaller retailers do not collect customer purchase data, larger firms track purchases at the point of sale to determine market trends that will help them manage their inventories. Generally, this information is not made public for legal reasons. However, tracking purchases gives the retailer excellent insight into their local and regional customer interests. While partnership strategies that require a high degree of customer data can be difficult to implement, there are many ways in which retailers can use these data to assist program partners indirectly (e.g., by providing overall market information or allowing a program to track the number of customers that redeem coupons for energy-efficient goods at retailer locations). This type of market research has helped retailers to segment their customer base into three fundamental customer types: professional contractors, DIY consumers, and a new growing segment of "do-it-for-me" (DIFM) consumers. Figure 2-30 highlights the rough distribution of these groups and their fundamental characteristics.

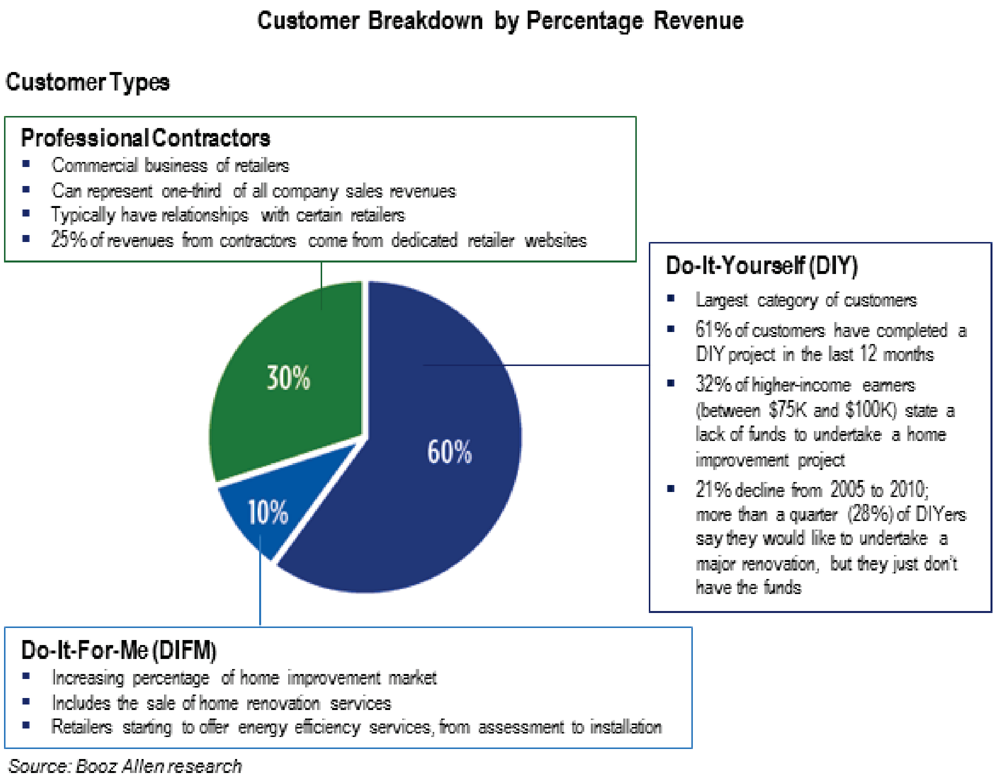


Figure 2-30: Customer Breakdown by Percentage Revenue

A recent study showed that 28 percent of DIY-ers would like to undertake a major remodel, but do not have the funds to do so.[31] In this economic environment, those seeking to sell home performance products and services to homeowners must be flexible in adapting marketing and sales strategies to consumers who can afford only one or two home improvement projects per year. The ability to work with homeowners to make systematic investments in home performance (e.g., one improvement per year) is critical to retailers being able to maintain a stable, profitable customer base.

In confirmation of this trend, a major retailer detailed its overall customer purchasing patterns and explained that the majority of DIY-ers and DIFM-ers do not have the funds for whole-home remodels. Instead, they undertake individual projects over a longer period (e.g., countertops one year, lights the next year, and HVAC the following year). The best means for a retailer to market its products and services is through follow-on sales over the course of this process.

[31] Mintel Oxygen Reports. *Consumers Have the Motivation—But Lack the Money for Home Improvement.* (2011). http://www.mintel.com/press-centre/press-releases/683/consumers-have-the-motivationbut-lack-the-money-for-home-improvement.

While contractors generally represent the second largest percentage of total sales, they are also the most active in requesting specific goods and services from retailers. This gives contractors influence over a retailer's product mix (but only second to a product manufacturer's influence). When working with a retailer, it is critical that the local contractor base be engaged not just as a potential service provider but as a potential retailer customer.

Key Insights

Retailer Insights		
	Observations	**Impact on Potential Expansion into Energy Efficiency**
Customers and Customer Acquisition	■ A retailer's brand and physical locations are its primary drivers of customer sales. ■ Retailers reach a wide range of consumers, including both DIY-ers and customers who prefer access to a one-stop-shop for home upgrades (DIFM-ers). ■ Customers visiting retailers typically cannot afford to invest in a whole-home energy upgrade, but prefer instead to make smaller home investments over time. ■ Contractors represent a large and vocal segment of the retailer customer base.	■ 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. ■ Working with contractors to help influence a retailer's product and service mix is one way to help build a local energy efficiency marketplace.

2.5.3.5.2 Marketing

In terms of initial outreach to customers, many solid marketing methods are employed by retailers. These methods are focused primarily on the retailers leveraging their established brand names (in the case of big box retailers) or local presence and customer relationships to promote their goods and services. Advertising plays a key role in creating demand for services and promoting customer awareness. Some examples of advertising strategies employed by grantees include social media, radio, television, and print ads. Retailers also leverage partnerships with local entities, such as contractors, utilities, and program administrators, to expand their customer base within a local market, regardless of whether the partner organization is a new entrant to the marketplace. The responses from several retailers on the effectiveness, cost, and sustainability of various marketing channels are summarized in Figure 2-31.

Retailer Marketing Channels

Stage	Strategies Employed	E	C	S
Awareness/ Demand Creation (Marketing Campaigns)	**Word of Mouth – Customer Referrals**	Highly Favorable	Highly Favorable	Highly Favorable
	Location and Geographic Presence	Highly Favorable	Unfavorable	Highly Favorable
	Brand Awareness	Highly Favorable	Unfavorable	Highly Favorable
	Public Relations (e.g., write-ups in local newspapers)	Highly Favorable	Average	Highly Favorable
	Advertising (e.g., radio, television, print)	Highly Favorable	Unfavorable	Favorable
	Direct Mailing (e.g., through utility bills, newspaper inserts)	Average	Average	Unfavorable
	Discount/Rebate (e.g., price energy audit below market value)	Unfavorable	Average	Unfavorable
	Internet Search Engine Optimization (e.g., keyword searches)	Average	Favorable	Average
	Third-Party Referrals (e.g., program administrators, home performance contractors)	Highly Favorable	Favorable	Highly Favorable
Engagement (Direct Interaction)	In-store Kiosks and Events	Unfavorable	Average	Unfavorable
	Point of Sale Marketing	Unfavorable	Highly Favorable	Unfavorable
	Customer Up-selling	Favorable	Highly Favorable	Average
Conversion (Closing the Sale)	Limited Duration Offers (e.g., incentive expiring)	Unfavorable	Average	Unfavorable
	Follow-on Sales through Network	Highly Favorable	Highly Favorable	Highly Favorable

KEY

E **Effectiveness** – Successfulness in generating revenues and traffic

C **Cost Effectiveness** – Cost per sale generated

S **Sustainability** – Creation of longer-term revenue generation

Highlighted for discussion

Highly Unfavorable · Unfavorable · Average · Favorable · Highly Favorable

Source: Booz Allen research

Figure 2-31: Retailer Marketing Channels

Many of these methods revolve around the effectiveness of retailers in leveraging their established brand names (in the case of big box retailers) or local presence and customer relationships to promote their goods and services. **Brand awareness** is very useful in building customer trust, and generating **customer referrals,** which are a highly cost-effective way of creating new sales. Having a **local and geographic presence** in the community is also an excellent means of generating "walk-in" sales (i.e., customers who enter the store as they are passing by, rather than making a dedicated trip to the store), as well as building a positive reputation in the community. **Advertising** plays a key role in creating demand for services and promoting customer awareness for retailers. Some examples of advertising strategies employed by retailers include: social media, radio, television, and print ads. Large retailers have an incredible advantage in their ability to mass-market their services; many smaller firms cannot afford to support a marketing team and paying for ad space on a regular basis. Retailers may also leverage partnerships with local entities, such as contractors, utilities, and program administrators to expand their customer base within a local market.

2.5.4 Conclusion: Summary of Retailer Insights

Retailers can be valuable partners in building a sustainable local 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. The summary below details important observations on retailers and those observations' impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help program administrators and other actors create and/or sustain a business that promotes energy efficiency.

Summary of Retailer Insights		
	Observations	**Impact on Potential Expansion into Energy Efficiency**
Market	▪ 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.	▪ Because big box retailers cannot grow though 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	▪ 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.	▪ 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 Model or Structure	▪ Big box and wholesale/distributor/franchiser retailers have high profitability requirements, with a typical gross margin target of 35 percent. ▪ 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.	▪ Big box retailers will seek similar profit margins for home energy upgrades as with their traditional services. ▪ 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	▪ 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.	▪ 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

Summary of Retailer Insights		
	Observations	**Impact on Potential Expansion into Energy Efficiency**
	■ 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.	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	■ Retailers provide goods and services directly to consumers and small contractors. These include: – 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.	■ 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	■ A retailer's brand and physical locations are its primary drivers of customer sales. ■ Retailers reach a wide range of consumers, including both DIY-ers and customers who prefer access to a one-stop-shop for home upgrades (DIFM-ers). ■ Customers visiting retailers typically cannot afford to invest in a whole-home energy upgrade, but prefer instead to make smaller home investments over time. ■ Contractors represent a large and vocal segment of the retailer customer base.	■ 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. ■ Working with contractors to help influence a retailer's product and service mix is one way to help build a local energy efficiency marketplace.

3 Program Administrator Business Models

3.1 PROGRAM ADMINISTRATOR DESCRIPTION

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

- **Non-utility programs.** 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 program administrators 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 all influence how program administrators impact the residential energy efficiency market, as shown in Figure 3-1.

Description of Program Administrators

	Non-utility Program Administrator Model		Utility Program Administrator Model
Descriptor	**Government Entity**	**Private Company or NGO**	**Utility**
Ownership and Implementation	▪ Completely government-owned (federal, state, or local) ▪ Typically program funder and administrator; may be implementer as well	▪ 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	▪ 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	▪ Products and services limited by government regulations and community needs ▪ Profit motive not as influential as with other market actors ▪ Extensive reporting requirements	▪ 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)	▪ 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 3-1: Description of Program Administrators

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. To better understand their opportunities for expansion, collaboration, and sustainability in the residential energy efficiency market, it is useful to understand the key similarities and differences between non-utility and utility program administrators. This section highlights key points of comparison in the categories of market, service delivery, and service offering.

3.1.1.1 Market

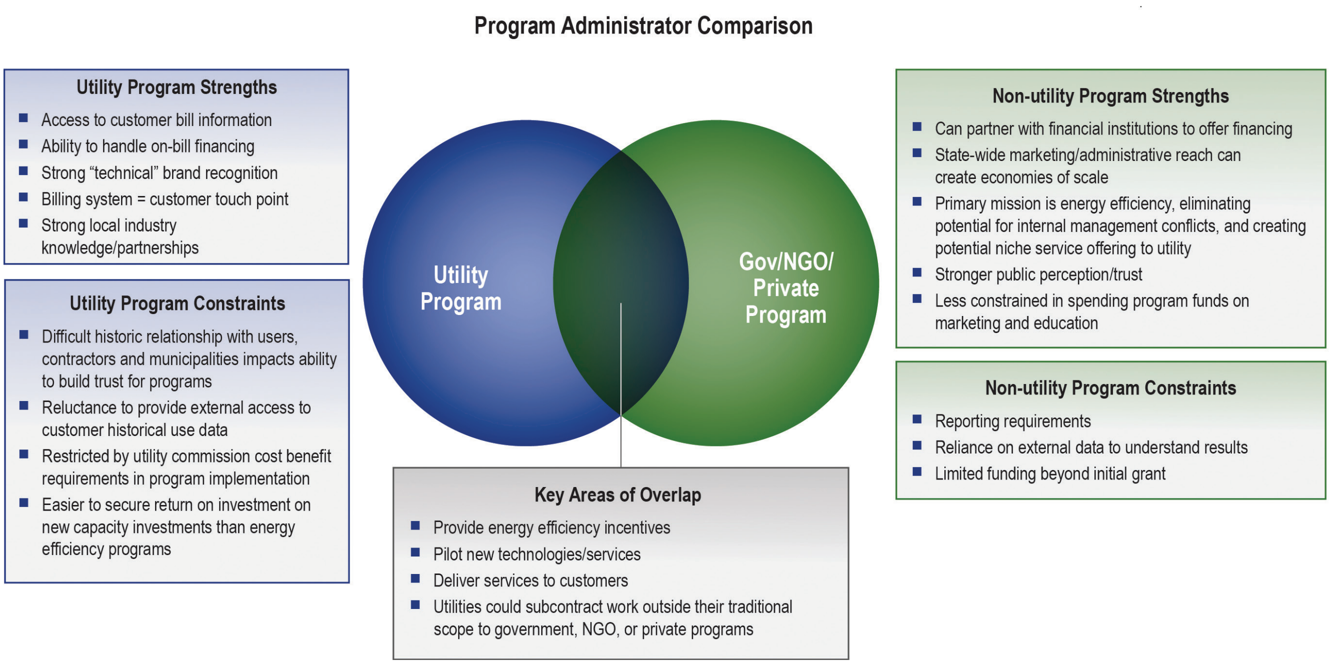
- **Size:** Funding influences the size of a program administrator's organization.
  - **Non-utility programs** are heavily reliant on grant funding. This gives them a wide range of potential sizes (from $500,000 to $100 million on average).
  - **Utility programs** are heavily reliant on ratepayer funding. Therefore, program size varies depending on the size of the utility's market as well as the efficiency goals of state and local regulators. Utility funds make up the majority of energy efficiency program funding, at about $3.5 billion overall.[32]
- **Operating environment:** The regulatory environment strongly influences how program administrators can behave in the residential 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 kWh savings.
  - **Utility program administrators** face regulatory 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 for customers by providing a range of incentives. They may also compete 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.

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

- 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 organizations to provide additional, specialized services such as contractor training or customer education.

Finally, non-utility and utility programs have different strengths and advantages in the residential energy efficiency market. Utility programs have access to real-time customer data and in-house technical expertise. However, they may have less program design flexibility than non-utility programs, due to restrictive public utility commission cost test methodologies (e.g., TRC). Conversely, homeowners generally acknowledge non-utility programs as neutral third parties, as they are typically not-for-profit, and presume them to be less likely to make money from home energy upgrade services than a utility program. Although non-utility program administrators benefit from being able to implement "soft" program services, such as customer education and outreach, they often lack the technical expertise and data of utility programs. The full list of advantages/constraints per program administrator is summarized in Figure 3-2.



Source: Booz Allen research

Figure 3-2: Program Administrator Comparison

As the diagram illustrates, different program structures have many different restrictions and advantages. However, there is also a significant overlap between the two main types of programs. For the most part, this overlap relates to what services these programs deliver to their customers, and how they choose to deliver them. These common elements are outlined in the following section.

3.1.1.2 Service Delivery

Non-utility and utility program administrators share a range of services that they deliver to the residential energy efficiency market. As Figure 3-3 shows, program administrators can provide services directly to consumers, partner with other organizations to deliver them jointly, or hire a third-party implementer to perform services on their behalf.

Program Administrator Service Delivery

	Self-Administrator	Partnership	Third-Party Implementer
Method	Start: Program Administrator → End: Customer	Start: Program Administrator → Partner → Third-Party Implementer (Optional) → End: Customer	Start: Program Administrator → Third-Party Implementer → End: Customer
Definition	▪ Provides all services and financial incentives directly to the customer ▪ Administers and implements the program in its entirety	▪ Works with a partner organization that has existing relationships (with customers, contractors, or financial institutions) to deliver services to the customer ▪ Can delegate implementation of some aspects of their program to a third-party implementer (optional) who also delivers services to the customer	▪ Works with a third-party implementer to deliver services to the customer (i.e., financial services, incentives, etc.) ▪ Program administrator provides oversight and management to the efficiency program but a third-party implementer executes program initiatives
Examples	▪ State and local organizations (i.e., local efficiency programs) ▪ Non-profit organizations (i.e. community development organizations)	▪ Non-profit organizations ▪ For-profit third party implementers ▪ Financial institutions (banks, credit unions, etc.) ▪ Utility	▪ For-profit third-party implementers
Risks	▪ Lack of relationship with market participants (e.g., need to hire all expertise in-house) ▪ All costs incurred by program administrator	▪ No direct relationship with the customer ▪ Can be difficult to find partners with aligned goals and abilities	▪ No direct relationship with customer ▪ Fee associated with relationship can be high
Benefits	▪ Better understanding of customer needs through direct relationship with customer ▪ Allows program administrator direct control over all services ▪ Cost savings through no third-party fees	▪ Leverages partner organization's existing relationships ▪ Costs of program marketing and operations shared with partner/third party (may represent lower cost option to program)	▪ Allows contracting of work to subject matter experts ▪ Establish funds with financial institutions to increase private-sector leverage ▪ Some costs borne by third party

Source: Booz Allen research

Figure 3-3: Program Administrator Service Delivery

When a program administrator provides services directly to homeowners, it develops a deep understanding of their needs (as well as directly controlling all those services). This can facilitate quality control and flexibility to respond to market conditions. However, it can also limit the program administrator's relationship with key market participants, such as home performance contractors and financial institutions, because they can see the program as a competitor. Additionally, the program administrator needs to hire all experts in-house and will incur a higher cost of goods sold.

At the other end of the spectrum, a program administrator can leverage third-party implementers to deliver home energy upgrades to homeowners. This approach allows the program administrator to use subject matter experts and transfer some costs to the third party. Additionally, establishing loans and partnering with financial institutions will increase private-sector financial contributions to the market. The downside to this approach is that it keeps program management generally removed from the day-to-day operations, and it can limit their ability to make effective and timely strategic decisions that impact program customer approaches and service offerings.

3.1.1.3 Service Offering

A program's range of service offerings depends on whether it chooses to take a direct role in the market or serve as an enabler of private-sector efficiency service providers (Figure 3-4). Either approach offers advantages and disadvantages.

Program Administrator Service Offering

Market Sustainability →

	Direct Install (Program does work directly)	**Controlled Market** (Program intervenes in targeted areas)	**Open Market** (Program enables private sector to do all work)
Generate Leads for Program Use	✔		
Generate Leads—Assign Them to Contractors		✔	
Generate Leads—Let Consumers Choose			✔
Customer Education and Outreach	✔	✔	✔
Workforce Training		✔	✔
Contractor Training/Qualification		✔	✔
Financing/Incentives	✔	✔	✔
Technical Assistance (Concierge Model)		✔	✔
Provide Retrofit Directly	✔		
Quality Assurance/Quality Control	✔	✔	✔

Figure 3-4: Program Administrator Service Offering

Programs that choose to provide retrofits and other services, regardless of whether they handle the services themselves or hire a third-party implementer, may limit or eliminate the opportunities for private-sector market players. For example, a program that chooses to conduct installation work itself may have a significant advantage over private firms in the market because it can offer a package of incentives to subsidize the project cost to the consumer. This has the effect of running down the program budget for the year, but makes program administrators difficult to compete with for firms bidding at full cost. Program administrators often provide these incentives to meet mandated home energy upgrade goals, even if it hurts program profitability. On the other hand, a program may choose to qualify and validate home performance contractors and offer its incentives through these contractors. These programs assume an “enabler” role in the market, building up the private sector’s capacity to conduct home energy upgrade services even if the program eventually phases out. This enabler role increases the sustainability of the residential energy efficiency market, but requires additional attention to sales training, skill development, and quality assurance.

3.1.2 Conclusion: Summary of Program Administrator Insights

Program administrators have many advantages in designing and structuring their services to best reach local contractors and customers. These programs can form critical partnerships to help local businesses generate new revenue streams and increase demand for home energy upgrades. The summary below details important observations on program administrators and those observations’ impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help program administrators create and/or sustain a business model that promotes energy efficiency.

Summary of Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency**
Market	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ 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.	▪ 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	▪ Each program type has different assets that give it a competitive advantage in delivering services to the customer.	▪ 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.

Summary of Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency**
Service Offering	▪ 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.	▪ 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	▪ Both program types are ultimately trying to reach the same group of consumers, but have different advantages in doing so.	▪ 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.

3.2 NON-UTILITY PROGRAM ADMINISTRATOR BUSINESS MODEL

3.2.1 Introduction

The non-utility program administrator is an organization that manages a program to encourage home and business energy efficiency improvements. Below is a brief overview of the fundamental characteristics of a program administrator.

Summary of Non-utility Program Administrator Characteristics	
Size	Typically range from approximately $500,000 to $100 million in grant funding
Market Role	Services include: ■ Educating consumers on the benefits of home performance through public outreach ■ Serving as enablers of financing or incentives for home performance work ■ Qualifying and training private service providers to perform and sell home performance installation work ■ Providing the general workforce with technical training in energy efficiency ■ Providing installation work and quality assurance work directly in some cases
Operating Environment	Operate in a market impacted by: ■ Tight regulations associated with grant funding, which can restrict program operations, limit service offerings, and/or increase administrative burdens on potential partners
Competitive Landscape	As market enablers, program administrators do not compete in the traditional sense; however, an abundance of programs in the market and a lack of coordination between them can often result in: ■ Overlapping service offerings ■ Conflicting reporting requirements with other programs ■ Competition with the private firms that offer services directly
Collaborative Landscape	Collaborate with any of the following, depending on their local market demographics: ■ Remodelers (provision of incentives and training, demand generation, and quality assurance) ■ HVAC contractors (provision of incentives and training, demand generation, and quality assurance) ■ Home performance contractors (provision of incentives and training, demand generation, and quality assurance) ■ Retailers (consumer education and outreach and demand generation) ■ Utility program administrators (customer education and outreach, demand generation, co-branding, marketing, and service provision) ■ Other program administrators (customer education and outreach, demand generation, co-branding, marketing, and service provision)

3.2.2 Non-utility Program Administrator Market

The residential energy efficiency market as a whole was estimated at $38.3 billion in 2009,[33] which indicates that a clear market exists. However, it is difficult to obtain reliable data on the current building stock in the United States, or on overall future demand trends for energy-efficient products at the regional and local levels—a barrier to fully understanding the market's future. Energy efficiency program administrators are organizations that were created to evaluate and grow the market, so they could benefit from further information regarding the baseline building stock, customer demographics and demand, and specific regional considerations. The Better Buildings Neighborhood Program has invested in this niche of the market in an attempt to help fill in some of the information gaps and identify best practices that can be replicated to help the overall efficiency market evolve into one that can sustain itself over time.

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	■ 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.[34] ■ Program administrators typically have grant funding ranging from approximately $500,000 to $100 million.	■ 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.

[33] 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.
[34] 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.

3.2.3 Non-utility Program Administrator Business Model

The following sections focus on the five core components of a non-utility program administrator's business model. These sections highlight the critical elements of how a program administrator functions within the market and how other organizations within the market can best collaborate with them.

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.

3.2.3.1 Governance

Program administrators can be public NGOs, or private for-profit third-party implementers, with a range of complexity and chains of command (Figure 3-5). Program administrators are charged with administering funds to implement energy efficiency programs. While government entities typically own and fund efficiency programs, NGOs and/or private company program administrators and implementers often subcontract to these government funders to implement programs on their behalf. Regardless of which organizational model is chosen, program administrators are highly regulated and must meet program goals such as performing a certain number of home energy upgrades or saving kWh produced in a particular area during the grant funding period. Over time, as programs shift away from a government-funded and/or government-run model toward an NGO or even private program model, programs will gain greater flexibility. However, the trade-off for this flexibility will be a greater reliance on revenues generated by the program itself and less reliance on securing grant or other funding from government sources.

Section 3.3 of this guide discusses utilities that administer energy efficiency programs.

Non-utility Program Administrator Governance Models

Descriptor	Government Entity	Private Company or NGO
Ownership and Implementation	▪ Completely government owned (federal, state or local) ▪ Typically program funder and administrator, may be implementer as well	▪ For-profit or not-for-profit company hired by government and utility entities to administer programs ▪ Privately-funded programs are a future possibility
Key Decision-Makers	Federal, state, or local government representatives	Owner, shareholders (if public), board of directors, executive management
Sources of Financing	Public funds and debt	Public funds, owner's equity, debt, and venture capital
Implications	▪ Products and services limited by government regulations and community needs ▪ Profit motive not as influential as other market actors ▪ Extensive reporting requirements	▪ 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) ▪ Fewer reporting requirements

Source: Booz Allen research

Figure 3-5: Non-utility Program Administrator Governance Models

Key Insights

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Governance	▪ Program administrator's governance models include the following: – 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 offering, 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.	▪ 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

A program administrator's initial sources of funding may come from multiple entities, depending on the program administrator type. While NGOs may have a strong interest in raising private funding, program administrators primarily secure initial funding through grants and other government programs (Figure 3-6).

> **Pro forma** refers to forecasted financial statements designed to show future revenues. Pro forma may differ from traditional financial statements in the sense that they are not audited and may not be computed according to Generally Accepted Accounting Principles (GAAP).

Currently, many programs use this initial grant funding to distribute financial incentives directly to homeowners. These financial incentives or rebates drive down the cost of home energy upgrades to homeowners and enable program administrators to quickly drive demand and reach program targets. However, this reliance on grant funding has two unintended side effects. One, it limits program growth because programs that do not generate revenues from sales can only provide services up to the amount of their grant funding. Two, by providing incentives to homeowners under this grant model, programs spend their grant funding much more quickly than they may wish to if they are seeking a longer-term role in the market. This model is not sustainable if grant funding is not maintained; at the present time, it is typical for government and private programs to last only as long as their influx of public funding continues, as shown in Figure 3-7.

Program Administrator Initial Sources of Funding

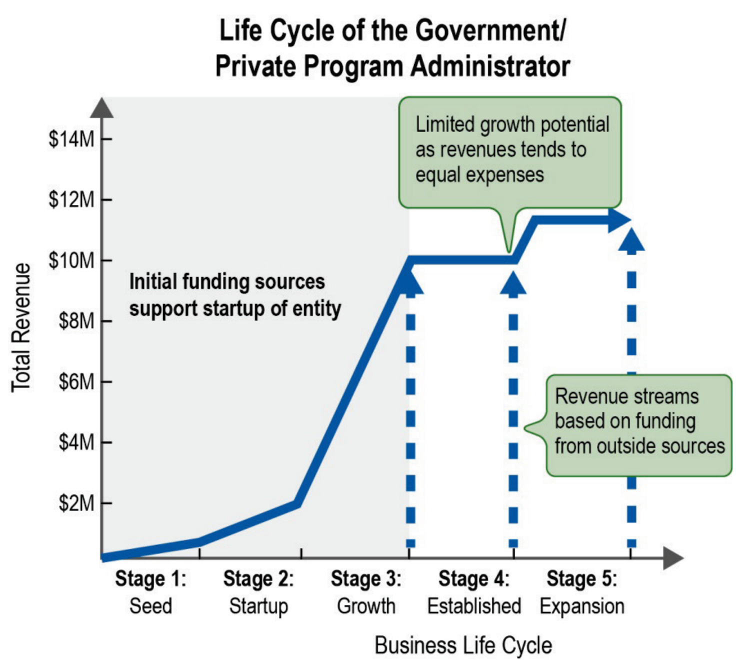
	Initial Source of Funding	
Type of Organization	**Federal, State, and Local**	**Private**
Government	▪ Tax-payer funds ▪ Grants	▪ Federal, State, and Municipal Bonds
NGO/ Nonprofits	▪ Grants ▪ Federal, State, and Municipal Programs	▪ Foundations ▪ Private Investors ▪ Companies and Corporations ▪ Capital Markets
For-Profits	▪ Grants ▪ Federal, State, and Municipal Programs	▪ Private Investors ▪ Capital Markets ▪ Companies and Corporations

Source: Booz Allen research

Figure 3-6: Program Administrator Initial Sources of Funding

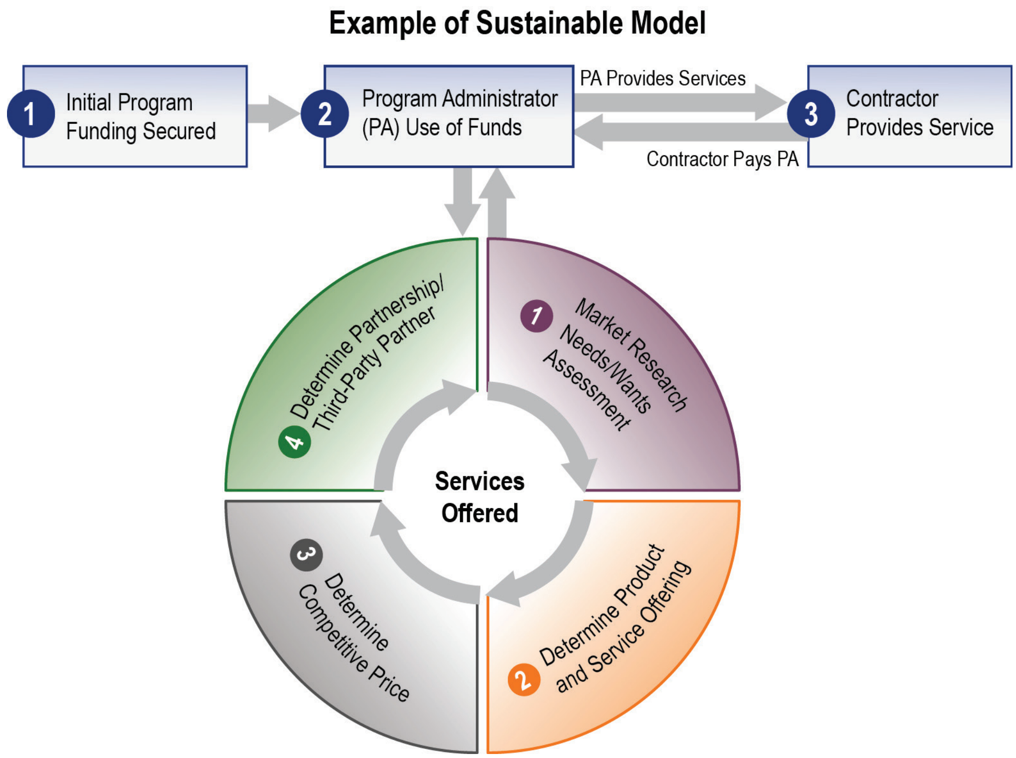
3.2.3.2 Use of Funds

While direct subsidies to consumers drive short-term demand, program administrators (and third-party implementers) should also seek to leverage their initial funding to implement programs that generate sustainable revenue streams. To create a sustainable financial model or structure, a program administrator should evaluate its local market to determine what potential demand for various services could be used to create a basic **pro forma**, and use it to run through high-level scenarios to determine optimal use of funds. This exercise will help the program determine not just what services it should be providing, but also what assets it may need to invest in and what customers it should primarily target (see Figure 3-8).



Source: Booz Allen research

Figure 3-7: Life Cycle of the Government/Private Program Administrator



Source: Industry interviews

Figure 3-8: Example of Sustainable Model

A program administrator should first conduct market research to evaluate home performance contractor skills and capacity in the area before using funds. Market studies may be available, or the research can be performed by local academia, contractors, or utilities. This market research will enable a program administrator to understand the demand for energy efficiency upgrades among local homeowners and what the local home performance contractor base looks like, as well as the home remodel products and services that are already available.

With this market understanding in mind, a program administrator can then identify service offerings that might provide additional sources of revenue beyond grant funding. These service offerings can either differentiate the organization from other industry players or complement existing products and services. In either case, the service offering should be structured so as not to compete directly with contractors currently operating in, or seeking to enter, the home improvement market.

Once this list of potential services is identified, program administrators should engage with local home performance contractors to determine a competitive price for each. Engaging contractors right from the beginning of the program-design process is critical to ensuring that the program adds value to the local market, rather than providing services that will generate little to no demand. For example, the Better Buildings grant recipient in Charlottesville, an independent entity contracted by the city to manage energy efficiency programs, involved contractors very early in the program-design process through a technical advisory committee composed of local contractors. The contractors advised the program administrator on what services were the most cost-effective. In return, the program imposes quality requirements on contractors, including Building Performance Institute (BPI) certification, a standardized test, and a set of best practices to be followed.

Throughout this process, it is important to keep in mind that government regulation or program owner criteria may dictate what services non-utility program administrators can offer.

Key Insights

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Financial Model or Structure	▪ 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 statement model.	▪ 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.

3.2.3.3 Assets and Infrastructure

Business management software can be the primary asset of a program administrator, enabling the program to control implementation costs and enhance its service offerings. As the program administrator's organization grows, the administrative burden of managing program data and funding source reporting requirements also increases. As a result, program administrators must invest in an asset to manage this increased administrative burden. This may include hiring and training a new staff member to manage additional reporting requirements, leasing a software program, or building custom software (Figure 3-9).

Software Options

Option	Cost	Benefit	Risk	Conclusions
Hire Additional Staff (No Software)	▪ Multiple full-time staff required for reporting requirements ▪ Average salary is $50,000 plus benefits	▪ Potentially cheapest option for small or limited duration programs	▪ Limits growth capability ▪ Quality of data may be compromised by human error	▪ A tradeoff analysis should be conducted to determine the value of hiring ~2 additional staff or leasing a software package
Lease Commercial Off the Shelf (COTS) Software	▪ Ranges from $100,000 to $250,000 per year based on customization ▪ Cost normally decrease after the first year of service	▪ No significant upfront costs to build software ▪ Promotes growth ▪ More reliable tracking and monitoring than no software	▪ Software is not owned and may become obsolete ▪ Limited competition may result in greater cost of leased software	▪ Most sustainable alternative for small to medium-size programs ▪ Soliciting a "Request for Proposals" from multiple vendors may reduce costs
Build Custom Software	▪ Depending on size, could be $5M to $10M+ ▪ Additional upgrade and operations and maintenance costs required	▪ Supports potentially unlimited growth of program ▪ Software can be leased to other programs to support costs ▪ Supports large-scale database of client records	▪ The large cost of software build will require significant revenue generation to break even ▪ Not sustainable unless program is large-scale	▪ Only suitable for large-scale programs, as large up-front cost creates a significant barrier

Source: Industry interviews

Figure 3-9: Software Options

Hiring and training an additional administrative staff member is often attractive because the initial investment is low and it often appears to be the cheapest option. However, this option limits the long-term growth of the organization and will require hiring further staff in the future. Investing in a software system, on the other hand, enables program administrators to streamline administrative functions regardless of program growth moving forward.

A program administrator should analyze the costs and benefits of each option when selecting a software system, as shown in Figure 3-10. Leasing a software system is typically the best option for a program administrator: custom-built software has a high cost and is a better fit for large, established organizations that are seeking to sell software services as a primary service offering. Steps a program administrator must follow if he/she selects a lease option include identifying partners, initiating a request for proposals, and then selecting the provider.

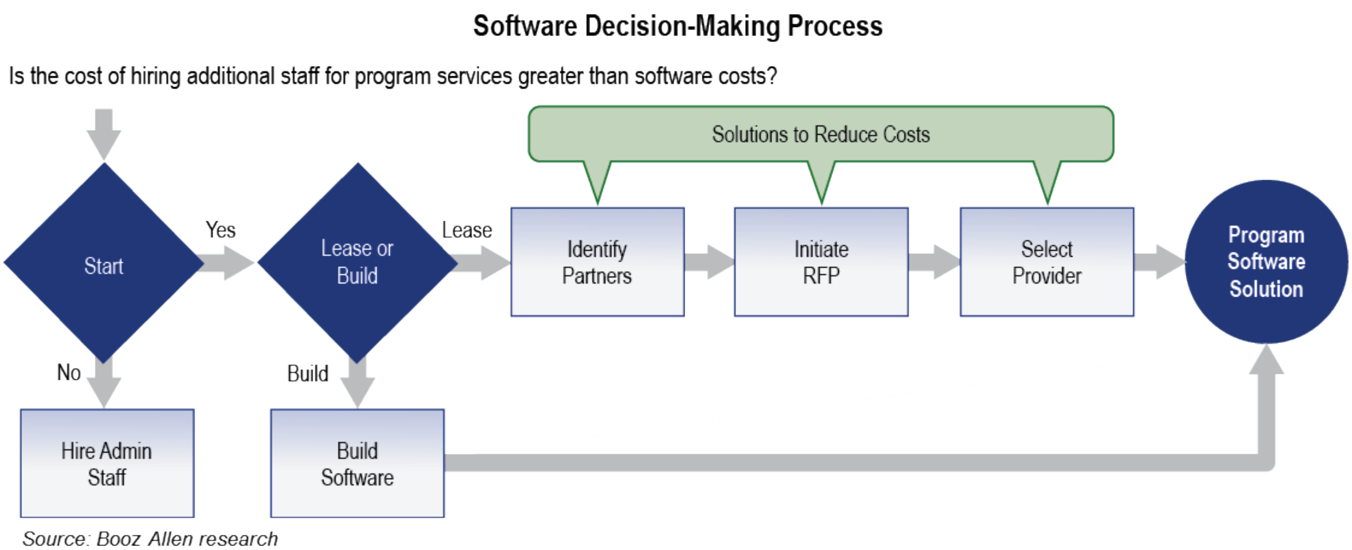


Figure 3-10: Software Decision-Making Process

For those programs that choose a leasing option for software, it may be best to identify other local programs that may be interested in purchasing a bulk license to help control costs. A software system enables program administrators to collect valuable data such as information on potential customers, job progress, and building performance data. This data enables a program to meets its basic reporting requirements and justify its use of grant funding. Additionally, the software enables program administrators to capture qualitative and quantitative data that can be used to educate contractors and customers on the value of home performance, communicate job progress, and capture incentives data in a cost-effective way. Also, in looking forward to a sustainable program model, the building and program performance data captured by a software system can help program administrators raise additional funds from potential investors.

The next step in determining what software option is right for your program is to initiate a request for proposals. This allows multiple software providers to send price quotes and software service specifications to the program administrator for evaluation, promotes competition in the software market, and may drive down the overall cost of purchasing or licensing a software package for the program.

Program administrators should select the software provider that provides the greatest return for the products offered—not always cheapest option, but always one with a proper blend of services and cost effectiveness.

The chosen provider must support the full range of future services the program wishes to generate revenue from, such as providing a field tool for contractors or a homeowner energy tracking tool for quality assurance.

3.2.3.3.1 Brand

A recognizable brand can drive the sales of goods and services well into the future, making it valuable for an extended period. A strong, reputable brand could lead to additional sources of revenue. For example, contractors are willing to pay for cooperative advertising with a well-branded program. However, building a consumer-recognized brand is very expensive and time-consuming, and requires tremendous diligence. For this reason, leveraging existing brands or organizations (such as ENERGY STAR) could be an attractive option.

Key Insights

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Assets and Infrastructure	■ 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 to neighboring programs at a discount. ■ Program administrations wishing to sell software to other programs or contractors as their primary service will need to build their own customer software package.	■ 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.

3.2.3.4 Service Offering

Program administrators offer a wide range of services in an array of markets, but perhaps the most important service that a program can offer its local market is the creation of demand for home energy upgrade services.

Contractors, in particular, may benefit from program administrators' efforts to create demand. However, many program administrators may generate a large number of energy assessment leads that do not generate sales, due to the fact that many homeowners are willing to accept an energy assessment for free even if they have no intention of paying for follow-on work. By charging the customer a token fee for the assessment, rather than providing it for free, the program ensures that only customers with a real interest in energy efficiency upgrades are taking advantage of the assessment service. Depending on the market, the program administrator may conduct the assessment itself, assign sales leads to pre-qualified contractors, or allow the customer to choose which contractor will do the work from a pre-qualified contractor list. Each of these approaches has various implications for the residential energy efficiency market. While small home performance contractors may benefit from having leads assigned to them, as they have relatively small marketing budgets and/or less of a proven track record, larger home performance contractors may find that assigned leads direct business away from them and toward their smaller competitors. In cases in which the program performs the work itself, no contractor that does not supply in-house support for the contractor can benefit from an assigned lead. This approach has significant implications for the long-term sustainability of a private market because the program tends to squeeze out private competition.

3.2.3.4.1 Training

Program administrators should target training service offerings where they will do the most good for the market. This requires targeting established contractors rather than the general workforce, which may not be fully committed to future careers in home remodeling. Established contractors will use the training to implement home remodels because they have established customer bases and industry knowledge. The general workforce, on the other hand, may find the education and certifications interesting, but they may not actually use the skills or possess the industry knowledge necessary to meet program goals or contractor hiring needs.

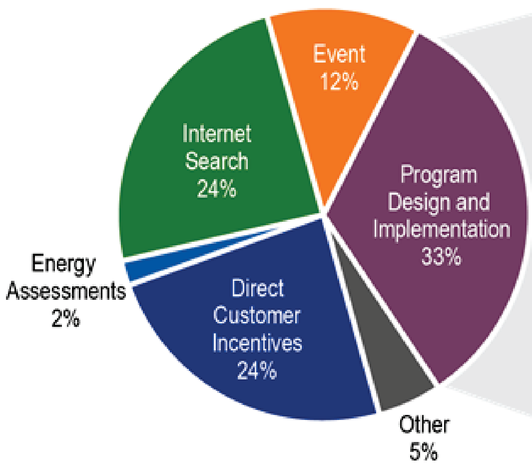
Additionally, program administrators can provide even more value in the home improvement market by offering business and sales training rather than technical training. Many contractors have no formal training on how to strategically run their business or sell home energy upgrades to customers. These skills are invaluable for driving demand and sales. Technical training, on the other hand, is available to contractors through many other avenues (e.g., BPI, manufacturers/distributors, and government agencies).

Due to the increasing complexity of reporting requirements, programs can greatly benefit from including program reporting training with its typical technical and business-related training. Before designing program data requirements (e.g., for the claiming of incentives), the program can determine the data local contractors are already collecting and tie program reporting requirements to existing metrics rather than with new data sources. This helps minimize the need for additional training.

3.2.3.4.2 Service Offering Revenues

In addition to adjusting service offerings to enable other market players and increase home energy upgrades, program administrators must adjust their service offerings to generate revenues beyond grant funding. Program design and implementation budgets represent less than one-third of total costs for successful programs that provide direct incentives to consumers (Figure 3-11). This ratio may vary in a move toward a more sustainable model.

Service Offering Cost Drivers



Percentage of Cost: Program Design and Implementation	
Cost Type	% of design and implementation cost
Marketing/Outreach	35%
General and Admin	20%
Program Oversight/ Quality Assurance	15%
Technical Assistance to Customer	20%
Software	10%

Source: Industry interviews

Figure 3-11: Service Offering Cost Drivers

While all programs offer direct incentives to consumers as a service offering, market studies demonstrate that when homeowners are offered the choice between direct incentives and other discounted financing options, they will take the direct incentives the vast majority of the time.

As seen in the sample program funding analysis in Figure 3-12, as a program begins to offer direct incentives, homeowners demand incentives over other service offerings. This service offering drains program budgets quickly. While direct incentives are useful for driving market demand, they must be carefully targeted to maintain program sustainability. Therefore, program administrators need to be careful to limit their distribution of direct incentives, possibly through limited-time offers or contests. Additionally, program administrators should be transparent about the limited availability of direct incentives. They should communicate clearly with customers and contractors to ensure that they do not generate confusion in the marketplace or create an over-reliance on their program incentives and undermine their program's long-term market sustainability. Additionally, the process of validating specific performance standards required to claim an incentive can be long and costly, both to the program (conducting project review and quality assurance) and to the contractor seeking to claim an incentive on behalf of a homeowner (long delays in project payment put strain on their cash flows). As a general rule, a simpler incentive structure benefits all associated parties.

Program administrators can also employ numerous revenue generation options to support a sustainable business model (see Figure 3-13).

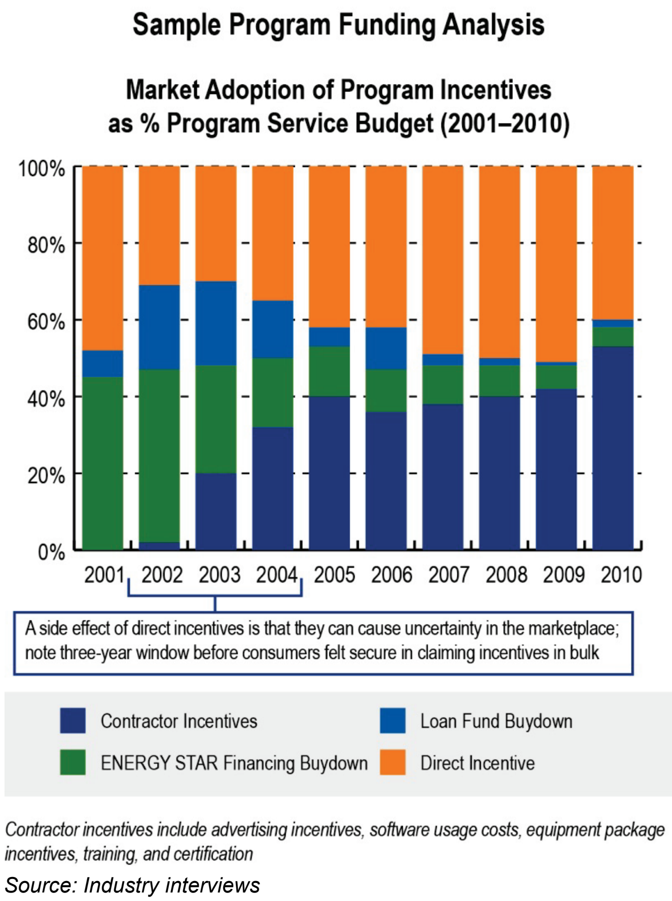


Figure 3-12: Sample Program Funding Analysis

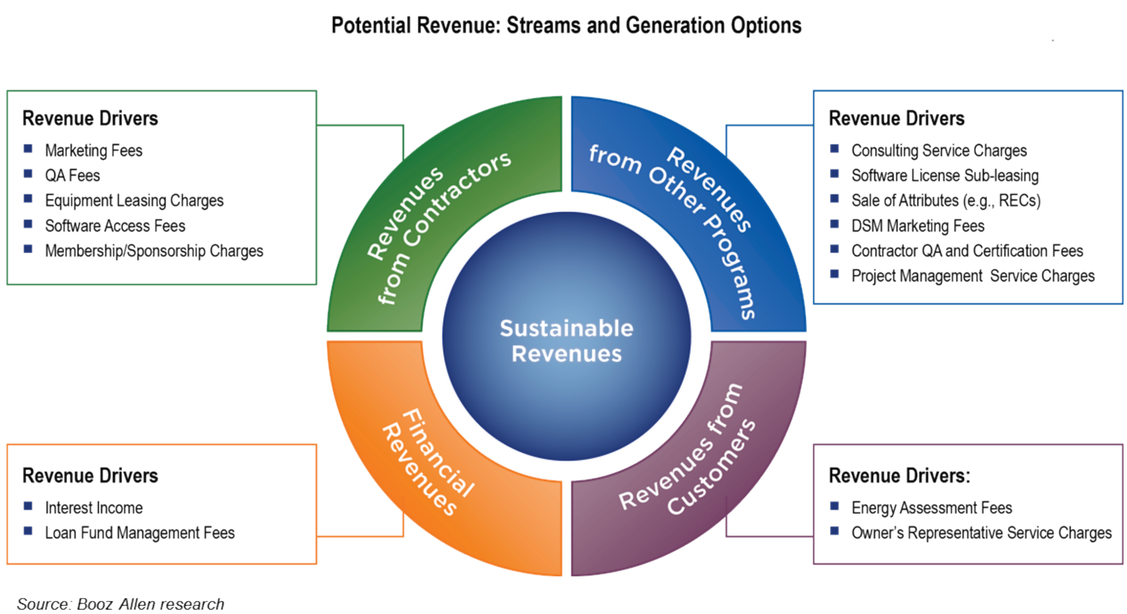


Figure 3-13: Potential Revenue: Streams and Generation Options

The primary source of revenue that is available to all programs is the generation and sale of high-quality leads to local contractors. All contractors interviewed indicated that they already spend a great deal of their marketing budget trying to identify leads and that a quality lead can cost up to $300 ($250 average) in terms of time and effort. Many contractors would be willing to pay a third party (such as an efficiency program) to do this work.

Offering discount loans to customers is another option for programs seeking potential sources of revenue. As the program receives the repayments, they can use these funds to buy down the interest on new loans every year. Revenues from the issuance of loans are highlighted in Figure 3-14, which represents a sample income statement for a program administrator. The main goal of an income statement is to ensure that the annual influx of cash is sufficient to support incentives as well as program administration costs and interest payments if the program received debt financing. Many of the contractors interviewed indicated that these financial services provide significant value by helping them close sales that they might otherwise not have made. As other market-based financing options tend to be expensive, a program offering a lower interest rate on its financing would be highly appealing to both customers (as a means of financing jobs) and contractors (as a means of selling jobs).

Sample Income Statement Program Administrator Year End 2011	
REVENUE	
Repayment from Loans	$500,000
Training	250,000
Total Revenue	750,000
COST OF GOODS SOLD (COGS)	
Loan Subsidies	200,000
Training	100,000
Direct Incentives	20,000
Technical Assistance to Customers	60,000
TOTAL COGS	**380,000**
GROSS PROFIT	**370,000**
OPERATING EXPENSES	
General and Administrative	262,500
Total Operating Expenses	262,500
OPERATING INCOME	**107,500**
OTHER EXPENSES	
Interest Expense	60,000
Total Other Expenses	60,000
NET INCOME BEFORE TAXES	**$47,500**

Source: Booz Allen research

Figure 3-14: Sample Income Statement for Program Administrators

One other potential source of revenue is the acquisition of a software system that enables program administrators to track and manage customers, jobs, and contractors, as well as to collect data centrally and streamline incentive reporting requirements. Revenue can be generated through the purchase and sub-licensing of the software with other programs to generate savings from bulk purchasing. The assets or infrastructure section of this model highlights some potential software options and benefits. One contractor interviewed indicated that the value (in terms of lower cost) of software that could reduce administrative labor would be in the range of $60 to $80 per job.[35]

Program administrators can also generate revenue directly from homeowners. For example, rather than offering rebates to contractors to make energy assessment services free, as is currently the case in many locations, program administrators may choose to charge homeowners a small fee for the service. This generates a revenue stream for the program, and it also ensures that all homeowners enrolling in the program have both the disposable income and the interest to invest in home performance improvements, thus saving the program costs on assessments unlikely to lead to additional work.

Another service that a program administrator may wish to offer to customers is a job-management role known as a “concierge” service. In this role, the program serves as a representative of the customer in overseeing the work done by the contractor, ensuring that the work is quality, all rebates are captured, and the communication lines between the customer and the contractor remain open. To date, many programs

[35] Source: Industry interviews during Better Buildings “Business of Energy Efficiency” workshop, October 24–26, 2011.

have offered this service free of charge, but, based on the high demand for this service in many markets, programs may explore the sale of this service to customers for a small fee.

The other potential alternative to this model would be for a program to sell a concierge service directly to contractors to help them manage their customers and facilitate sales. This model would reduce the potential mixed messaging risk associated with multiple parties advising the customer (assuming that the program and its client contractors coordinate efforts). However, it would also reduce the effectiveness of the program as a neutral third-party advisor. The exact form this service may take will depend on the specific market in which a program seeks to operate in. For example, serving customers directly would require a large enough customer group to make this service profitable and a sophisticated local contractor base to reduce risk in working on their behalf. While these are just a few of the potential revenue-positive services a program can offer to the market directly, there are also potentially valuable services that could be provided via a partnership with other core market participants. For example, a program administrator could partner with a retailer to help drive the purchase of more energy- or water-efficient products post-energy-upgrade by providing coupons for these goods at the retailer's local store. The discount provided by these coupons could be generated through a negotiated bulk purchase of each product selected from the retailer. Such benefits to program enrollment would help generate interest in the community and could lead to additional customers for both program and retailer.

Alternatively, a program with a local contractor base that consists of generally small firms has a number of viable partnership options. These include helping to coordinate across industry silos (for example, serving as a broker to help specialist contractors partner up to do home energy upgrades), aggregating local contractor marketing budgets, and running a cooperative mass-media campaign under the program's brand name. Each of these options represents potential value to the market that the program could capture to help sustain its operations in a non-grant-funded scenario.

Key Insights

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Service Offering	■ The program administrator's services include: – 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.	■ 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.

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
		■ 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-branding and referrals.

3.2.3.5 Customers and Customer Acquisition

Program administrators typically target a broader audience than private companies, which may focus on a narrow demographic group they find profitable. For example, publicly funded programs may use neighborhood-specific strategies such as “sweeps” or programs aimed at low-income demographics. These options may be too large-scale or may not be profitable for a standard business. The full range of strategies employed by program administrators is outlined in Figure 3-15. Many of these strategies are successful, cost-effective ways to reach homeowners. However, as program administrators move toward a revenue-driven model, they may find they need to eliminate some of the more costly options or narrow their focus to segments of the market that can drive their sales.

Non-utility Program Administrator Marketing Channels

Stage	Strategies Employed	E	C	S
Awareness/ Demand Creation (Marketing Campaigns)	**Customer Referrals**	Highly Favorable	Highly Favorable	Highly Favorable
	Community Outreach (e.g., train community ambassadors to go door to door)	Highly Favorable	Average	Average
	Internet Search Engine Optimization (e.g., keyword searches)	Favorable	Average	Highly Favorable
	Purchased Leads (e.g., Energy Savvy, Clean Energy Experts)	n/a	n/a	n/a
	Public Relations (e.g., write-ups in local newspapers)	Favorable	Highly Favorable	Average
	Advertising (e.g., radio, television, print)	Average	Unfavorable	Unfavorable
	Direct Mailing (e.g., through utility bills)	Average	Average	Favorable
	Discount/Rebate (e.g., price energy assessment below market value)	Favorable	Average	Unfavorable
	Third-Party Referrals (e.g., retailers, home performance contractors)	Favorable	Highly Favorable	Highly Favorable
Engagement (Direct Interaction)	**Trusted Source (e.g., "concierge" service model)**	Highly Favorable	Unfavorable	Unfavorable
	Customer Education (e.g., through seminars)	Average	Average	Average
	Customer Up-selling	Average	Highly Favorable	Highly Favorable
Conversion (Closing the Sale)	Limited Duration Offers (e.g., incentive expiring)	Favorable	Average	Highly Favorable
	Third-Party Validation (e.g., customer reviews)	Favorable	Highly Favorable	Highly Favorable

KEY

- E **Effectiveness** – Successfulness in generating revenues and traffic
- C **Cost Effectiveness** – Cost per sale generated
- S **Sustainability** – Creation of longer-term revenue generation
- Highlighted for discussion (shown in bold)

Highly Unfavorable · Unfavorable · Average · Favorable · Highly Favorable

Source: Booz Allen research

Figure 3-15: Non-utility Program Administrator Marketing Channels

Building public awareness through **community outreach** is a key program administrator role, but the high cost of long-term education and outreach programs is an issue for program sustainability. To this end, program administrators should consider partnering with outside stakeholders such as neighborhood groups, churches, and other public programs to help spread their educational materials at a lower cost to the program. Training a group of local, influential leaders to teach others about the benefits of energy efficiency is a way to build widespread marketing initiatives without significant spending on advertising. These strategies are critical, as the private sector does not tend to invest in large-scale education and outreach programs to move the market.

Additionally, investment in a program's brand (as outlined in the assets and infrastructure section of this model) is critical to driving both **customer referrals** and **third-party (contractor) referrals** to program services. These referrals are critical drivers of program success, and they are highly cost-effective ways to generate new leads for home energy upgrade services. A strong brand associated with customer service and quality work can help build customer (and by extension, contractor) confidence in the program and help spread a program's reach through word of mouth.

Finally, a strategy that has been adopted by many programs and been highly effective to date is the **"trusted source (concierge)"** model. The concierge service essentially puts the program in the role of a project manager, coordinating the efforts of the homeowner, contractor, and other associated parties in a home energy upgrade to ensure that the work is done correctly, financed appropriately, and completed in a timely manner. While programs have seen a large uptake of this service, it has proven costly to sustain.[36] A potential opportunity that is currently being evaluated is to begin charging "concierge fees" to homeowners to help mitigate the cost of providing such a labor-intensive service. Another model under consideration is the sale of the concierge service to contractors as a means of providing the customer with a knowledgeable, dedicated customer service representative. Both options have value (e.g., customers obtain a neutral third-party job manager and contractors obtain assistance with customer service and sales). However, the optimal solution for a program considering this service offering will likely depend on the local market they are serving. Key questions the program should consider in assessing its market include the customer's willingness to pay for third-party oversight and the quality of contractors influencing the strength of the program's brand.

Key Insights

Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Customers and Customer Acquisition	▪ 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.	▪ 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.

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

3.2.4 Conclusion: Summary of Non-utility Program Administrator Insights

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. The summary below details important observations on non-utility program administrators and those observations' impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help program administrators create and/or sustain a business model that promotes energy efficiency.

Summary of Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
Market	▪ 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.[37] ▪ Program administrators typically have grant funding ranging from approximately \$500,000 to \$100 million.	▪ 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	▪ Program administrator's governance models include the following: – 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.	▪ 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	▪ 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 statement model.	▪ 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.
Assets and Infrastructure	▪ 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 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

[37] 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**
	■ 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.	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	■ The program administrator's services include: – 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.	■ 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-branding and referrals.
Customers and Customer Acquisition	■ 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	■ 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

Better Buildings
NEIGHBORHOOD PROGRAM
U.S. DEPARTMENT OF ENERGY

Summary of Non-utility Program Administrator Insights		
	Observations	**Impact on Potential Expansion into Residential Energy Efficiency Market**
	"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.	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.

3.3 UTILITY PROGRAM ADMINISTRATOR BUSINESS MODEL

3.3.1 Introduction

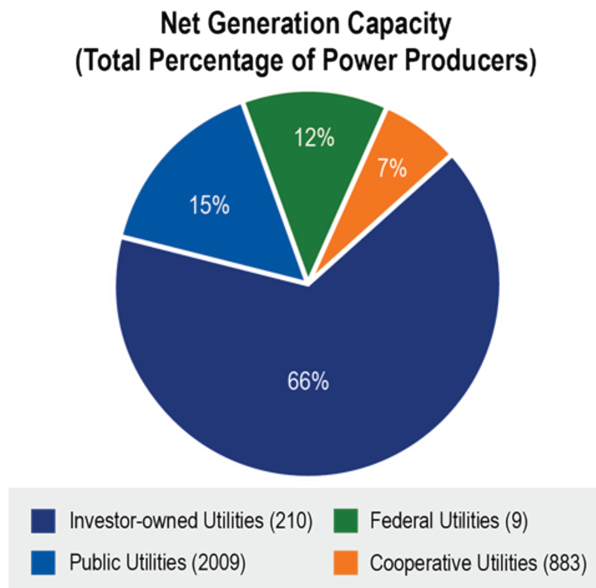
A utility is a public and/or investor-owned entity that is in the business of generating and disseminating energy to a range of customers. Utility program administrators offer a range of efficiency services to customers in addition to providing energy. Utilities can also partner with other actors in the efficiency value chain. Below is a brief overview of the characteristics of a utility.

Summary of Utility Program Administrator Characteristics	
Size	In 2010, total utility sector revenue was approximately $350 billion.[38]
Market Role	Services include: ■ Generation and distribution of electricity to residential, industrial, and commercial customers ■ Investment in electricity infrastructure throughout the value chain: – Generation – Transmission (grid) – Distribution (residential, industrial, and commercial) Services for residential customers in the energy efficiency market may include: ■ Demand side management (DSM) ■ Customer services (rebates, home energy upgrades, loans, and education)
Operating Environment	Operate in a market with regulations that impact programs, including: ■ The 2005 Energy Policy Act, which regulates the electric power industry's generation, distribution, metering, and taxation ■ State public utility commissions (PUCs) regulate utilities including rates, cost-recovery, and competition ■ State energy efficiency portfolio standards ■ Federal and/or state implementation of Clean Air Act regulations
Competitive Landscape	■ 70 percent of U.S. power is distributed by IOUs, 11 percent by municipal utilities, and the remainder by cooperative and federally owned utilities ■ Utilities typically have a local monopoly for residential customers (competition from independent power producers is mainly at the wholesale level) ■ Utility energy efficiency programs may compete with state and local energy efficiency programs
Collaborative Landscape	Collaborate with any of the following, depending on their local market demographics: ■ Remodelers (provision of incentives and training, demand generation, and quality assurance) ■ HVAC contractors (provision of incentives and training, demand generation, and quality assurance) ■ Home performance contractors (provision of incentives and training, demand generation, and quality assurance) ■ Retailers (consumer education and outreach and demand generation) ■ Other, non-utility program administrators (customer education and outreach, demand generation, co-branding, marketing, and service provision)

[38] U.S. Energy Information Administration. *Electric Power Annual 2009.* (2011). http://www.eia.gov/electricity/annual/archive/03482009.pdf.

3.3.2 Utility Program Administrator Market

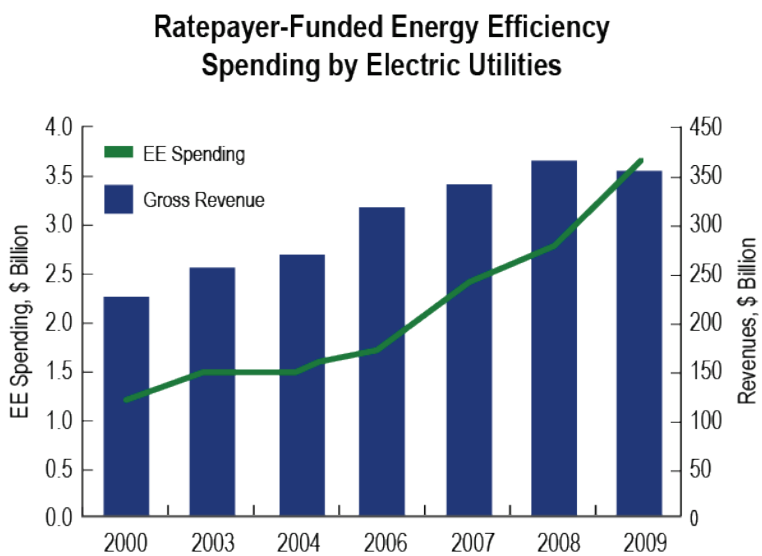
Sales of electricity to residential customers amounted to $157 billion in 2010, according to the Energy Information Administration (EIA). This represents approximately 44 percent of the utility sector's total revenue. IOUs are by far the largest supplier of power to the residential sector, and are the main focus of this business model. (The model also addresses the significant number of public and cooperative utilities.) Independent power producers represent a large share of the U.S. power generation capacity, but generally do not directly serve the residential market and are, therefore, not covered in this business model. To see an example of the total percentage of net generation capacity divided up by power producer, see Figure 3-16.



Source: U.S. Energy Information Administration, Electric Power Annual 2009 *(2010)*

Figure 3-16: Net Generation Capacity—Power Producers

Since the early 2000s—following the passage of energy efficiency mandates in many states—IOUs in the energy efficiency sector have increased their spending (with ratepayer funds), as noted in Figure 3-17. However, the amount spent remains small in comparison with their overall revenues (approximately 1 percent).



Source: American Council for an Energy Efficient Economy, 2010 State Energy Efficiency Scorecard *(2010); U.S. Energy Information Administration,* Electric Power Annual 2009 *(2010)*

Figure 3-17: Ratepayer-Funded Energy Efficiency Spending by Electric Utilities

Key Insights

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Market	▪ 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).[39]	▪ 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.

[39] 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.

3.3.3 Utility Program Administrator Business Model

The following sections focus on the five core components of a utility's business model, highlighting the critical elements of how utilities function within the market and how other organizations within the market can best collaborate with them.

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.

3.3.3.1 Governance

Utilities can be divided into three categories: public (including municipal and federal), cooperative, and IOUs. Figure 3-18 highlights the key governance implications of each structure. In general, as utilities are large organizations, targeting the decision-makers that can shape an energy efficiency program can be challenging for entities seeking to cooperate with utility program administrators.

Utility Governance Models

	Municipal Utility	*Cooperative Utility*	*Investor-Owned Utility*
Description	Nonprofit utilities owned by municipalities	Nonprofit utilities owned by their customers/members	Utilities owned by their shareholders
Key Decision-Makers	Elected officials, board (elected or appointed), executive management	Members, executive management	Shareholders, board of directors, executive management
Profit Requirement	Break even with recovery of costs through rates	Break even with recovery of costs through rates	Shareholders' required rate of return or allowable return under regulations

Source: Booz Allen research

Figure 3-18: Utility Governance Models

Figure 3-19 further illustrates the differences in governance between **regulated** and **deregulated** IOUs and the implications for utility stakeholders. The graphic also shows the usage of clean energy (renewable energy and energy efficiency) in both types of IOU. Regulated utilities, which serve most residential customers, have significant restrictions on their ability to expand services and set rates.

> A **regulated** investor-owned utility is a provider of gas or electric service owned by private shareholders and whose service rates are defined by an external regulator.
>
> A **deregulated** investor-owned utility is a provider of gas or electric service owned by private shareholders that operates in competitive markets.

In working with regulators, utilities prioritize reliability and cost above clean energy unless directed otherwise. Regulated utilities' service offerings are directly influenced by energy efficiency targets, which are in turn influenced by state legislatures.

For non-utility programs and other stakeholders, influencing state policy is, therefore, the best way to shape the mandates that regulators impose on utilities. The intervention stage of the regulatory process is where the general public can influence the rate case and program design of regulated utilities. However, this is a long-term process. In the shorter term, working with utility program managers directly is the best way to influence program design and coordinate activities.

Utility Stakeholders

	Regulated	Deregulated
State and Federal Legislation/Mandates	▪ State Laws ▪ National Policies ▪ Clean Energy	▪ State Laws ▪ National Policies ▪ Clean Energy
Public Utility Commission	▪ Public Hearings/Comments ▪ Rate Setting (Fair and Reasonable Rates) ▪ Program Filings ▪ Establishing Return on Investment	▪ N/A
Ratepayers	▪ Input on Rate Cases and EE Program Filings ▪ Demand for Services Balanced with Low Rates	▪ Demand for Services Balanced with Low Rates
Management/ Shareholders	▪ Reliability is Number One Concern ▪ "Fair Rate of Return" above Cost ▪ Compliance with State/ Federal Mandates	▪ Profit/Performance Targets ▪ Reliability is Number One Concern ▪ Strategic Decisions ▪ Implementation

Source: Booz Allen research

Figure 3-19: Utility Regulation Models

Understanding the utility program planning process is critical to influencing its energy efficiency strategies, as well as its rate case to its regulators. To facilitate the regulatory review cycle, many states have adopted a mandatory Integrated Resource Planning (IRP) process for their utilities to follow. This requires the utility to submit a plan to its regulator every few years that outlines the state of its current infrastructure, as well as projected future investments necessary to maintain grid reliability and meet any required renewable or energy efficiency targets. Programs should have a firm understanding of their local utility's most recent IRP (where applicable) to influence their long-term planning process.

When seeking to engage utility management, it is important to keep in mind that clean energy and energy efficiency are often a lower priority than reliability and cost. A typical utility's priorities are summarized in Figure 3-20.

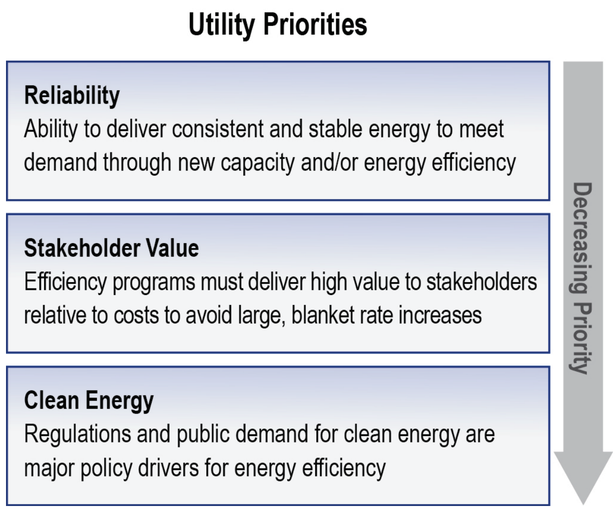


Figure 3-20: Utility Priorities

Given that grid reliability and cost are primary factors in utility decision-making, any partnership proposals made by those seeking to work with a utility's efficiency program should clearly demonstrate benefits to the utility in these areas. For example, a program aiming to encourage a utility to expand its efficiency efforts into home energy upgrades should have ample quantitative data that demonstrates the cost effectiveness of home energy upgrades in reducing loads and by extension, improving grid stability and reducing customer utility bills. Although modeled or calculated savings projections (known as deemed savings) can be used to justify cost effectiveness, real-time data collected from sample buildings is more convincing to utility decision-makers. Utilities are also sensitive to placing significant burdens on program non-participants. Therefore, simply establishing overall cost effectiveness may not be enough to convince utility decision-makers of a partnership's merits. The program should also consider strategies (such as discounted customer financing) that minimize the need for large, blanket ratepayer charges to subsidize energy efficiency investments.

Key Insights

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Governance	■ Utilities can be divided into three categories: – **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	■ 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

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
	▪ 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.[40] ▪ 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 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.	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 public utility commission (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.

3.3.3.2 Financial Model or Structure

The financing of energy efficiency programs differs from that of more capital-intensive investments, such as new generation capacity, for which utilities rely heavily on debt and shareholder equity. Ratepayers are the primary source of funding for energy efficiency programs for both public and investor-owned utilities. Additional sources of funds for utility efficiency programs may include state and local funds, as well as program grants.

Traditionally, utilities have a disincentive to reduce energy consumption, as their revenues have been tied to kWh sales. **Decoupling** and **cost-recovery** mechanisms allow utilities to recover some of the revenue lost from **demand side management** or other energy efficiency programs.

By decoupling energy usage from service charges, a utility separates the amount charged to customers from the number of kWh consumed. In other words, even if customers' energy consumption decreases, they see no change in their utility bill and in effect the cost of energy efficiency is passed on to all ratepayers. Utilities favor this approach, which lets them invest these proceeds without damaging their revenue stream. Decoupling lowers the value of energy efficiency for homeowners, however, as their investment in home improvements is not offset by lower energy costs. One benchmark for when such mechanisms may be implemented is the point at which DSM/efficiency leads to a decrease of more than 1 percent in utility revenue per year, but a variety of methods may be used to determine when cost-recovery or decoupling is indicated.[41]

[40] Source: Booz Allen research.
[41] Source: Industry interviews. (See "Acknowledgements" for a complete list of industry representatives interviewed.)

DSM differs from a wider energy efficiency program in scope, and is a widely used utility strategy at the present time. Energy efficiency programs attempt to modify consumer demand for energy through various methods, such as financial incentives for permanent building upgrades and education. The goal of such programs is to lower the need for investment in future generation resources, as well as to mitigate high electrical usage during peak demand hours. In contrast, DSM programs focus primarily on temporarily shifting and balancing the electrical load on the grid to reduce peak electricity demand. The goal of DSM programs is to meet the demand for electricity during peak hours without activating more expensive peak generators. This strategy reduces stress on the grid and lowers the cost of peak electricity to customers. Demand reduction through efficiency or DSM programs affects revenue and variable costs, such as fuel, but does not lower fixed costs (e.g., transmission, distribution, generation). Again, this approach leads to a decrease in utility profitability if user rates are not decoupled or increased through a cost-recovery rate mechanism.

Cost-recovery mechanisms allow an organization to wait to recognize revenues from an investment until the organization has completely recovered the up-front cost of the investment.

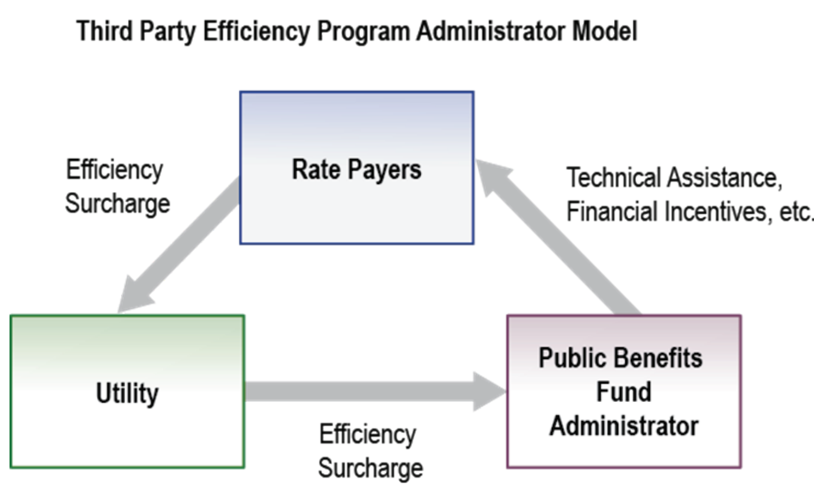
Decoupling refers to a situation where a utility's profits do not depend upon the quantity of energy it sells to customers. By decoupling energy usage from service charges, a utility separates the amount charged to customers from the number of kWh consumed. In other words, even if customers' energy consumption decreases, they see no change in their utility bill.

Demand side management (DSM) programs temporarily shift and balance the electrical load on the grid to reduce peak electricity demand. The goal of DSM is to meet the demand for electricity during peak hours without activating more expensive peak generators. This helps control costs both to the utility and the ratepayer through reduced fuel usage and operation and maintenance requirements.

IOUs focus their rate case with a PUC on the necessity for a reasonable rate of return (or profit) from rates. Gross profit is a primary factor for IOUs, but is not a factor for municipal or cooperative utilities, whose mandate is to break even. Data show that the operating margin for publicly traded U.S. IOUs (regulated and deregulated) in 2010 was approximately 16 percent; operating margin is the ratio of operating income (revenue minus operating expenses excluding interest and tax) over total sales revenue.

Several utilities are testing alternative sources of funding for energy efficiency programs. One structure involves setting up an unregulated subsidiary to provide home energy upgrade services. Because the subsidiary is not subject to PUC rate regulations, it can charge market rates for such services as energy assessments. However, the market penetration of these alternative models remains limited and for the foreseeable future the ratepayer funding model is unlikely to be challenged.

An alternative model for funding energy efficiency programs outside of utility implementation is for states to set up a dedicated energy efficiency utility or third-party energy efficiency administrator. In this model, illustrated in Figure 3-21, ratepayers fund the



Source: Booz Allen research

Figure 3-21: Third-Party Efficiency Program Administrator Model

energy efficiency program through a standard utility fee. The utility then transfers the money to a state or local government-owned “public benefits fund,” and the state or local government hires or creates a third-party implementer to manage the fund and provide efficiency services to the consumer. This structure allows the energy efficiency program to use ratepayer funding, but avoids misaligned incentive issues related to a non-decoupled utility (e.g., reduction in utility revenues due to implementation of efficiency). Vermont, Hawaii, New York, Maine, and Washington, D.C., have adopted the energy efficiency utility model.

Key Insights

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Financial Model or Structure	▪ 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 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.	▪ 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.

3.3.3.3 Assets and Infrastructure

The primary asset around which a utility builds its program is generation and transmission infrastructure. The impacts of implementing a large-scale energy efficiency program on the utilization of this asset can be significant, especially financially. For this reason, unless an energy efficiency mandate is in place that requires program implementation regardless of cost, most PUC regulations require that utilities use a Benefit Cost Test to determine whether an energy efficiency program will be more cost effective than adding new generation or transmission infrastructure.

Of Benefit Cost Tests, the TRC test is the most common. The TRC test measures the net costs of a DSM program as a resource option, based on its total costs, including both the participants' and the utility's costs.[42] TRC testing is a comparison of the benefits of energy efficiency on a per-dollar-spent basis. It can be combined in some states with the societal cost test, which includes other factors, such as environmental benefits and negative externalities. Benefits can include avoiding social externalities and “non-price” benefits enjoyed by participants (e.g., improved comfort, aesthetic qualities).[43] The Benefit Cost Test helps evaluate whether a program will provide benefits at a better rate of return than building new capacity. The ratio is typically developed such that a value less than one means the program costs less than building new capacity, whereas a value greater than one means the program costs more than building new capacity.

---

[42] Source: California Public Utilities Commission. *California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects*. (2001). http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

[43] U.S. Department of Health and Human Services, Administration for Children and Families. “Glossary of Selected Terms Used in Utility Deregulation.” (2011). .http://liheap.ncat.org/iutil2.htm.

However, TRC tests have limitations and most do not fully account for non-quantitative benefits. They have also been criticized for including items among the costs of efficiency programs that are not fully justifiable.[44] This leads TRC tests to undervalue the benefits of efficiency programs. TRC tests can also yield different results depending on the period over which proposed improvements are evaluated.

Although the basic assumption in the two scenarios shown in Figure 3-22 is that energy efficiency program costs are the same, generation costs are significantly higher in the second scenario. This results in higher savings from energy efficiency. When generation costs are low, the benefit cost ratio is below one, which means that the new generation capacity is more cost-effective than energy efficiency. Conversely, when new generation costs are higher, the benefit cost ratio is above one and energy efficiency becomes the most cost-effective option. Note: In Figure 3-22, "incremental measure cost" refers to the total cost to society.

Scenario 1: Low Cost of Additional Generation	
New Transmission/Generation Cost/kW	
Total New Capacity Cost	
Energy Efficiency Cost/kWh	
Program costs	$0.25
Incremental measure costs	$0.50
Generation savings	$(0.25)
Transmission savings	$(0.25)
Other savings (environmental, etc.)	$(0.10)
Net Energy Efficiency Cost	$0.15
Benefit Cost Test	**0.80**
Interpretation: New capacity is preferable to EE	

Scenario 2: High Cost of Additional Generation	
New Transmission/Generation Cost/kW	
Total New Capacity Cost	
Energy Efficiency Cost/kWh	
Program costs	$0.25
Incremental measure costs	$0.50
Generation savings	$(0.50)
Transmission savings	$(0.25)
Other savings (environmental, etc.)	$(0.10)
Net Energy Efficiency Cost	$(0.10)
Benefit Cost Test	**1.13**
Interpretation: EE is preferable to new capacity	

Source: Booz Allen research

Figure 3-22: Benefit Cost Test Illustration

Expanding generation or transmission to meet demand is not always the best option for utilities, particularly when finding a site for new capacity is challenging (often due to such factors as remote location, local opposition, or high cost per kW). Although costs vary based on the location and type of plant, a typical rough break-even generation cost—above which energy efficiency becomes preferable—is $600/kW.[45] On the other hand, depending on the location of the utility and local demographics, energy efficiency savings may not be realized as anticipated, or may have a low potential in the first place, which will impact the comparison with new capacity and can lead to a change in the benefit cost ratio over time.

Overall, tests like TRC can be challenging to meet for energy efficiency programs and can stifle innovative service offerings such as home energy upgrades. A work-around, which has been explored by such utilities as Pacific Gas & Electric (PG&E) in California, is to bundle energy efficiency programs together to improve the potential returns of a particular conservation measure by including it with others that are above the TRC threshold.[46] For example, bundling simple lighting upgrades with insulation and some of the costlier home

[44] Neme, C., and Kushler, M. *Is It Time to Ditch the TRC? Examining Concerns with Current Practice in Benefit-Cost Analysis* (2010). ACEEE Proceedings Paper. http://aceee.org/proceedings-paper/ss10/panel05/paper06.

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

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

energy upgrade components can help the full home energy upgrade package meet the TRC test as part of a larger suite of services. Anyone seeking to partner with a utility program would be well served to gain a basic understanding of how their proposed collaboration may be evaluated relative to other options such as new generation.

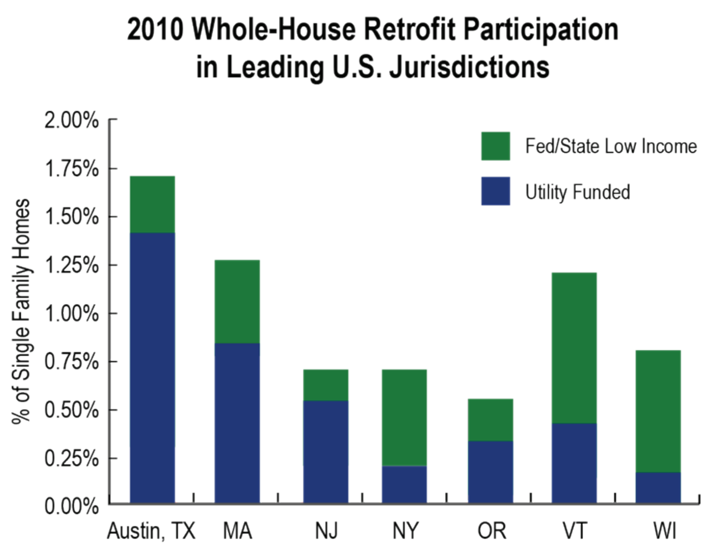
Key Insights

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Assets and Infrastructure	■ Utility energy efficiency programs must meet mandatory cost-benefit tests, such as the TRC test. This test compares the generation and transmission cost savings from energy efficiency against the program's operating costs.	■ 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.[47]

3.3.3.4 Service Offering

Although utilities do not commonly offer comprehensive/whole-home energy upgrades at present, they are increasingly working upgrades into their energy efficiency programs. Energy efficiency service offerings, ranked approximately from most to least commonly offered by utilities, include:

- Low-income home weatherization
- Compact fluorescent light bulb (CFL) rebates
- Appliance rebates
- Energy assessments
- New home energy packages
- Subsidized financing
- Load shedding and peak management (commonly offered for industrial and commercial customers but less prevalent in the residential market)
- Home energy upgrades



Source: Regulatory Assistance Project, Residential Efficiency Retrofits: A Roadmap for the Future *(2011)*

Figure 3-23: 2010 Whole-House Retrofit Participation in Leading U.S. Jurisdictions

As shown as Figure 3-23, penetration rates for home energy upgrade programs among locations where energy upgrades are most readily available are below 2 percent. This low-level penetration is also true for the leading location, Austin, Texas, which can be explained by a variety of factors. Generally speaking, the educated customer base that demands energy efficiency in homes is small, and financial mechanisms to overcome up-front cost hurdles are not firmly established. Most

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

of the locations from the graphic are primarily grant-funded programs. Additionally, the lack of a ready contractor base with well-developed sales and business plans and the ability to provide these services is a significant hurdle to overcome to ensure the development of a sustainable home improvement market under the umbrella of utilities.

As a general rule, utilities do not like diverting resources to certify and screen potential partner contractors. This has proven to be a significant stumbling block to deploying large-scale whole-home energy upgrade programs. The whole-home energy upgrade approach often requires additional, trusted contractor support. Utilities also do not provide resources to coordinate their program efforts with other existing resources in the market (e.g., other rebate programs). This is a significant limitation for programs because there is an opportunity to bundle utility offerings with rebates at the point of sale to drive consumer demand.

Key Insights

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Service Offering	▪ The services for residential customers in the energy efficiency market may include the following: – DSM – Customer services (rebates, home energy upgrades, loans, and 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.	▪ 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 non-utility programs to provide services on their behalf that would not pass a strict Benefit Cost Tests.

3.3.3.5 Customers and Customer Acquisition

As established businesses, utilities have a number of marketing channels already in place that their efficiency programs can use to advertise benefits. Figure 3-24 outlines the range of marketing channels utility program administrators employ to reach their customers.

Utility Program Administrator Marketing Channels

Stage	Strategies Employed	E	C	S
Awareness/ Demand Creation (Marketing Campaigns)	Customer Referrals	Highly Favorable	Highly Favorable	Highly Favorable
	Community Outreach, Sponsorship of Events	Highly Favorable	Average	Average
	Internet Search Engine Optimization (e.g., keyword searches)	Favorable	Average	Highly Favorable
	Purchased Leads (e.g., Energy Savvy, Clean Energy Experts)	n/a	n/a	n/a
	Public Relations (e.g., write-ups in local newspapers)	Favorable	Highly Favorable	Average
	Advertising (e.g., radio, television, print)	Average	Unfavorable	Unfavorable
	Direct Mailing (e.g., through utility bills)	Favorable	Favorable	Favorable
	Discount/Rebate (e.g., price energy audit below market value, CFL discount)	Favorable	Average	Unfavorable
	Third-Party Referrals (e.g., retailers, home performance contractors)	Favorable	Highly Favorable	Highly Favorable
Engagement (Direct Interaction)	Trusted Source (e.g., "concierge" service model)	Highly Favorable	Unfavorable	Unfavorable
	Customer Education (e.g., through seminars)	Average	Average	Average
	Customer Up-selling through Contractors	Highly Favorable	Highly Favorable	Highly Favorable
Conversion (Closing the Sale)	Limited Duration Offers (e.g., incentive expiring)	Favorable	Average	Highly Favorable
	Third-Party Validation (e.g., customer reviews)	Favorable	Highly Favorable	Highly Favorable

KEY

E **Effectiveness** – Successfulness in generating revenues and traffic

C **Cost Effectiveness** – Cost per sale generated

S **Sustainability** – Creation of longer-term revenue generation

Highly Unfavorable; Unfavorable; Average; Favorable; Highly Favorable

Highlighted for discussion

Source: Booz Allen research

Figure 3-24: Utility Program Administrator Marketing Channels

Primarily, utilities have two unique advantages in marketing their services: direct access to customer energy use data and direct access to customers through their monthly bills. Using their monthly bill **direct mailings,** utilities can advertise their energy efficiency programs without incurring additional costs, a means that has proven effective to generating customer interest in energy efficiency services to date. This is especially true when the utility includes the program information next to the dollar total on the bill, the one area customers tend to focus on when reviewing their statements.

By reviewing energy usage patterns, utilities are better able to target their services across the board to customers that can benefit most from reduced energy savings. This allows the utility to save money and time in that they can focus their marketing and outreach on specific neighborhoods, rather than scattering it across the full market. Outside of the utility itself, however, there are significant barriers to how this data may be shared with others who may wish to use it for similar purposes. From a legal standpoint, concerns about privacy and sharing of personal information limit what information utilities may be willing to share with other programs in their region. This is particularly true when a utility is competing with another program to reach its mandatory efficiency target.

While utilities have these specific advantages in how to target and distribute their messaging, it is also worth noting that local contractors are the primary direct sellers of utility rebates and other utility services. This marketing often happens at the point of sale, with contractors pitching utility rebates or services as part of their overall home upgrade **customer upsell** strategy. As a result, many utilities reach out to their local contractor base to help them stay aware of specific incentive options and deadlines as they roll them out.

Key Insights

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
Customers and Customer Acquisition	■ 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.	■ 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.

3.3.4 Conclusion: Summary of Utility Program Insights

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. The summary below details important observations on utility program administrators and those observations' impact on potential expansion into the residential energy efficiency market. Understanding these impacts can help program administrators and other actors create and/or sustain a business that promotes energy efficiency.

Summary of Utility Program Administrator Insights

	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
Market	■ 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).[48]	■ 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	■ Utilities can be divided into three categories: – **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.[49] ■ 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 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.	■ 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.

[48] 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.
[49] Source: Booz Allen research.

Summary of Utility Program Administrator Insights		
	Observations	**Impact on Potential Entry into Residential Energy Efficiency Market**
	▪ 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.	
Financial Model or Structure	▪ 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.	▪ 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	▪ 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.	▪ 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.[50]
Service Offering	▪ The services for residential customers in the energy efficiency market may include the following: – 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.	▪ 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	▪ 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.	▪ 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.

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