

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

Source: Booz Allen research

Figure 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.

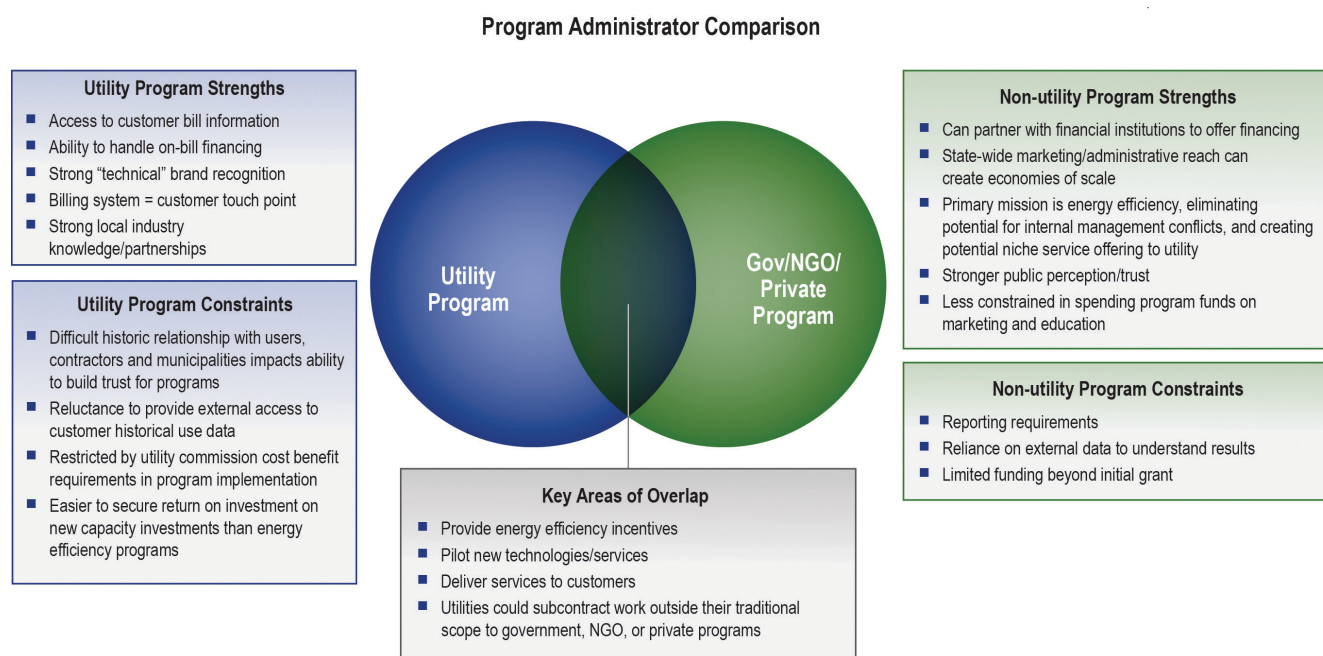
While both program administrators provide and enable home energy upgrades, **non-utility program administrators** generally have greater program flexibility than **utility program administrators** due to utility Benefit Cost Test restrictions.

- 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.



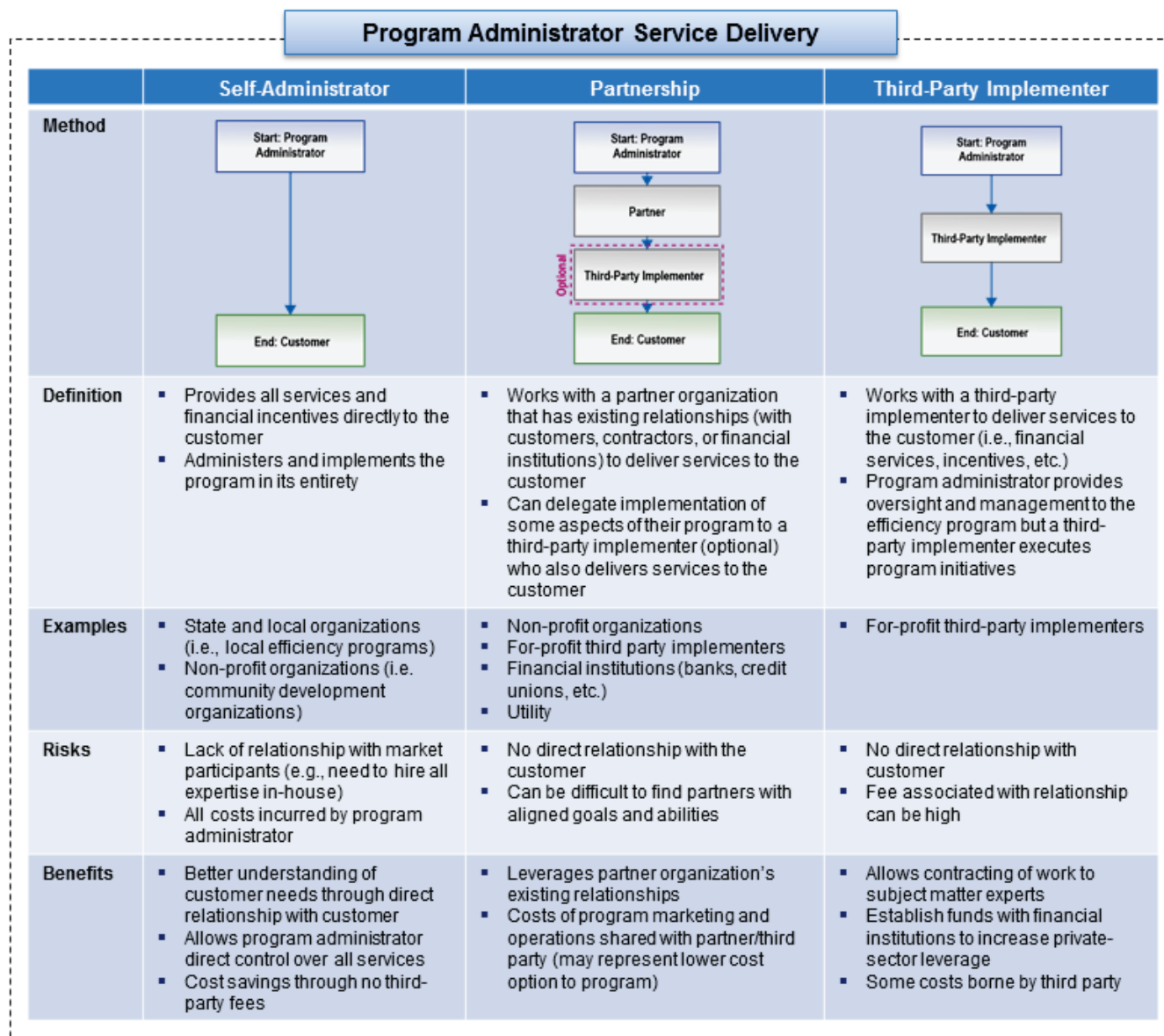
Source: Booz Allen research

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.



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.

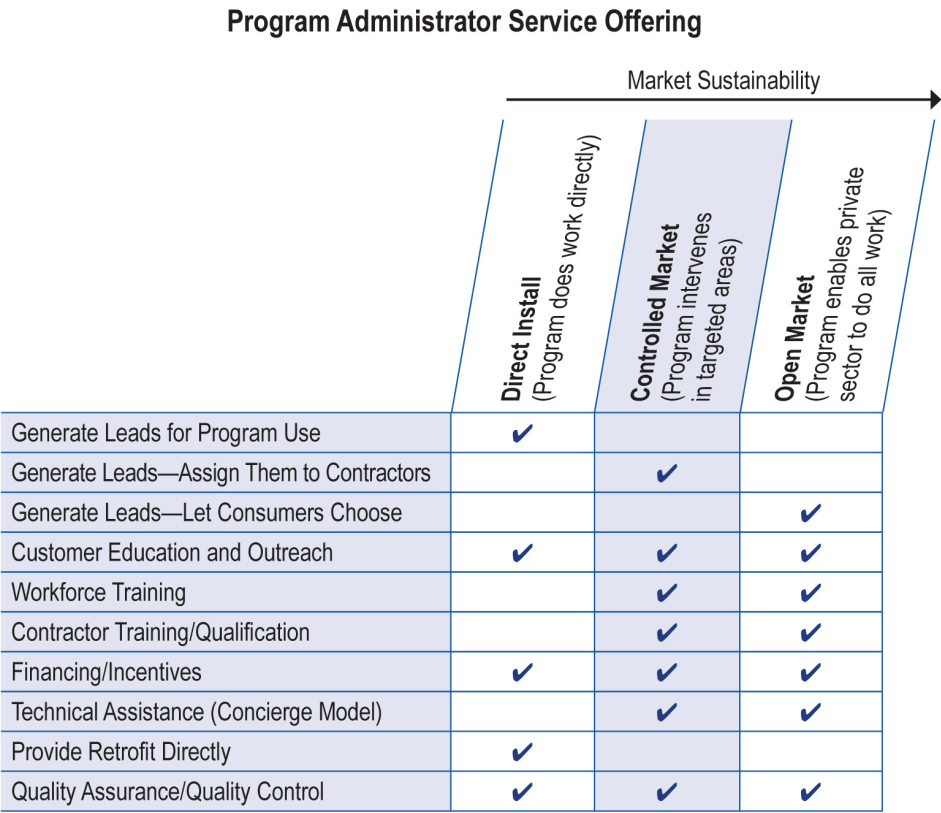


Figure 3-4: Program Administrator Service Offering

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	<ul style="list-style-type: none"> There are two broad types of program administrators, utility and non-utility. Each program type has various strengths and weaknesses that shape how it views its role in the market. Non-utility programs generally have more flexibility in designing their program than utility programs, while utility programs have better access to technical staff and energy data. Several programs may offer similar services in any given market. These programs may collaborate, or even compete with one another to deliver services to the consumer. 	<ul style="list-style-type: none"> Organizations looking to work with programs that offer a wider array of services should determine if there is a non-utility program in their area. Organizations looking for rebates or specific technical expertise may wish to seek out their local utility program for assistance. The landscape for efficiency program services can be very confusing to an external observer. Ideally, all local programs will collaborate, but often this is not the case.
Governance	<ul style="list-style-type: none"> There are two basic types of non-utility program administrators: government and private/not-for-profit programs. Non-utility programs are generally regulated by their funding provider; utility programs are generally regulated by their state or local utility commission. Unlike the other program types, investor-owned utilities (IOUs) also have profit-seeking shareholders who drive the majority of the utility’s investment decisions. 	<ul style="list-style-type: none"> Government programs may hire private or not-for-profit programs to run their programs for them as third-party implementers, as they often do not have the specialized staff on hand to conduct program operations. Non-utility programs must meet reporting requirements as a requisite for receiving program funding. Utility programs are highly limited by Benefit Cost Test regulations placed on them by their utility commissions. To appease their shareholders, IOUs require a monetary profit in addition to the basic energy savings targets of their programs.
Financial Model or Structure	<ul style="list-style-type: none"> Non-utility programs are often grant-funded initially, but are currently evaluating other methods of generating program revenues. Utility programs are typically funded through ratepayer surcharges. 	<ul style="list-style-type: none"> Grant funding is short-term funding and needs to be supplemented regularly to keep a program operational. Ratepayer funding levels are set by state and local regulators and can change over time.
Assets and Infrastructure	<ul style="list-style-type: none"> Each program type has different assets that give it a competitive advantage in delivering services to the customer. 	<ul style="list-style-type: none"> Non-utility programs have flexibility in how to invest their funds in strategic assets (e.g., CRM software). Utilities typically have access to ratepayer energy-use data, which is a critical asset for their programs.

Summary of Program Administrator Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency
Service Offering	<ul style="list-style-type: none"> Both non-utility and utility programs can choose to deliver their services directly or hire/partner with a third-party implementer to deliver them. The types of services available range from direct installation to an open market/market enabling strategy. 	<ul style="list-style-type: none"> Hiring or partnering with a third-party implementer allows the program to deliver specific expertise without hiring in-house experts, but it also may detach program management from direct customer interaction. A direct installation strategy may squeeze out private competition in the market, while an open market strategy is designed to build up private sector capacity for delivering home energy upgrades.
Customers and Customer Acquisition	<ul style="list-style-type: none"> Both program types are ultimately trying to reach the same group of consumers, but have different advantages in doing so. 	<ul style="list-style-type: none"> The greater program design flexibility of non-utility administrators may allow them to use their funding do to more education, outreach, and non-traditional marketing than utility programs. The ability to access energy usage data may allow utility program administrators to target their outreach efforts specifically at energy users who would benefit most from improved efficiency.

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: <ul style="list-style-type: none">■ 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: <ul style="list-style-type: none">■ 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: <ul style="list-style-type: none">■ 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: <ul style="list-style-type: none">■ 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	<ul style="list-style-type: none">■ While the home energy efficiency market was \$38.3 billion in 2009, there is still much that is not fully understood at the regional and local level about the dynamics of the market.³⁴■ Program administrators typically have grant funding ranging from approximately \$500,000 to \$100 million.	<ul style="list-style-type: none">■ Program administrators may lack sufficient data on markets, including the baseline building stock, customer demographics and demand, and other regional considerations.■ Residential energy efficiency program administrators were created to help lower many of the barriers that have slowed the development of the market to date, such as lack of information, high up-front costs, and lack of consumer demand for energy upgrade services.

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	<ul style="list-style-type: none"> Completely government owned (federal, state or local) Typically program funder and administrator, may be implementer as well 	<ul style="list-style-type: none"> For-profit or not-for-profit company hired by government and 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	<ul style="list-style-type: none"> Products and services limited by government regulations and community needs Profit motive not as influential as other market actors Extensive reporting requirements 	<ul style="list-style-type: none"> Set product and service mix based on funder/owner/leadership requirements May be subject to performance-based metrics that will limit ability to offer lower-return and/or riskier service offerings that still may provide value (e.g., education and outreach) 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	<ul style="list-style-type: none"> Program administrator's governance models include the following: <ul style="list-style-type: none"> Government-owned (federal, state, or local government) Private company or NGO (typically a subcontractor or third-party implementer to a government-funded program) Regulations associated with grant funding may restrict program design or operations, limit service 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. 	<ul style="list-style-type: none"> Program administrator regulatory reporting requirements can be burdensome and may discourage the private sector from working with a program effectively. Program design flexibility enables non-utility programs to partner with a wide range of private and public organizations in pursuing their mission of delivering home energy upgrades. Program administrators can increase market sustainability by enabling private companies. This shifts market activity away from government-funded and -run programs to fully private-funded and -run programs.

Financial Model or Structure

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).

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.

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).

Program Administrator Initial Sources of Funding		
Type of Organization	Initial Source of Funding	
	Federal, State, and Local	Private
Government	<ul style="list-style-type: none"> Tax-payer funds Grants 	<ul style="list-style-type: none"> Federal, State, and Municipal Bonds
NGO/ Nonprofits	<ul style="list-style-type: none"> Grants Federal, State, and Municipal Programs 	<ul style="list-style-type: none"> Foundations Private Investors Companies and Corporations Capital Markets
For-Profits	<ul style="list-style-type: none"> Grants Federal, State, and Municipal Programs 	<ul style="list-style-type: none"> Private Investors Capital Markets Companies and Corporations

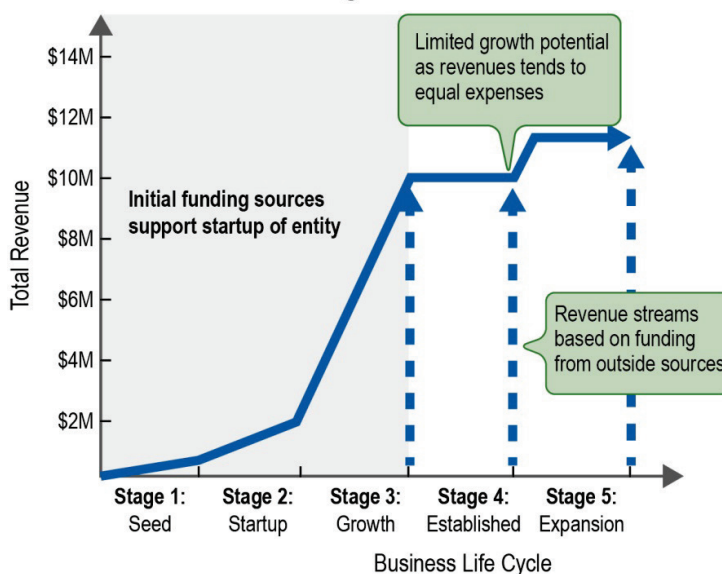
Source: Booz Allen research

Figure 3-6: Program Administrator Initial Sources of Funding

3.2.3.2 Use of Funds

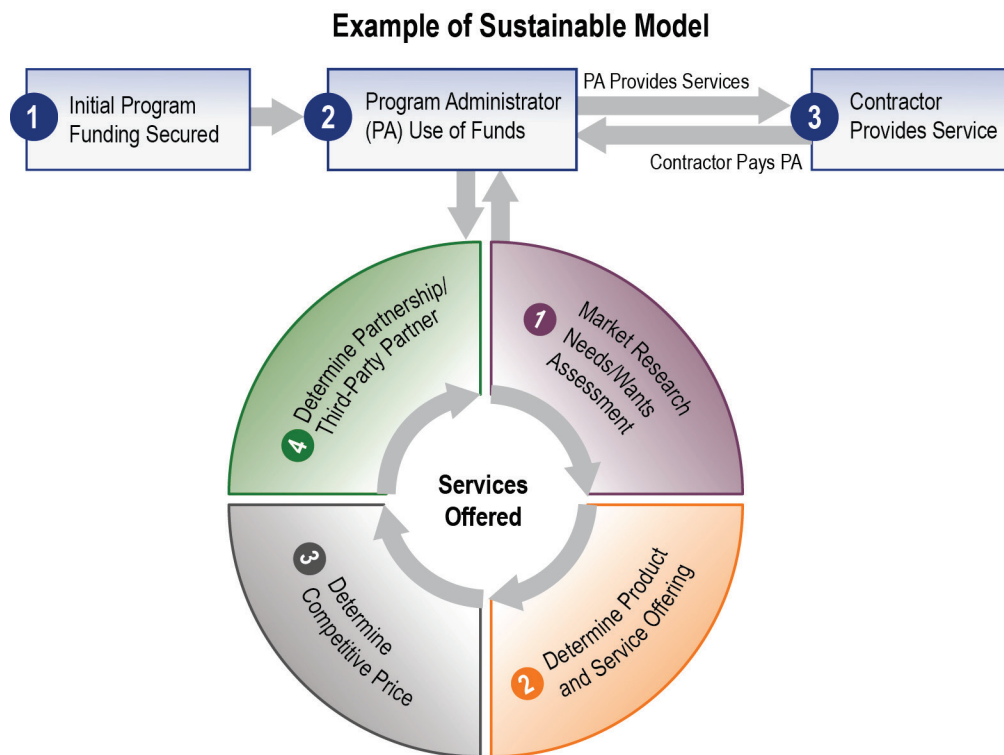
While direct subsidies to consumers drive short-term demand, program administrators (and third-party implementers) should also seek to leverage their initial funding to implement programs that generate sustainable revenue streams. To create a sustainable financial model or structure, a program administrator 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).

Life Cycle of the Government/Private Program Administrator



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	<ul style="list-style-type: none"> Program administrators often rely heavily on public funding and do not have a comprehensive business plan for generating sustainable revenues. Program administrators can identify sustainable revenue streams through engaging contractors to determine potential demand and pricing for these services. Once pricing and services are determined, a program administrator can forecast potential revenues by integrating data from contractors, and market research into a simple income statement model. 	<ul style="list-style-type: none"> At the present time, program administrators typically only last as long as their influx of public funding. Program administrators must leverage their initial funding to implement programs that generate sustainable revenue streams. Program administrators can partner with utilities, contractors, and financial institutions to leverage the expertise of established firms to deliver services that the program cannot provide directly.

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)	<ul style="list-style-type: none"> Multiple full-time staff required for reporting requirements Average salary is \$50,000 plus benefits 	<ul style="list-style-type: none"> Potentially cheapest option for small or limited duration programs 	<ul style="list-style-type: none"> Limits growth capability Quality of data may be compromised by human error 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Ranges from \$100,000 to \$250,000 per year based on customization Cost normally decrease after the first year of service 	<ul style="list-style-type: none"> No significant upfront costs to build software Promotes growth More reliable tracking and monitoring than no software 	<ul style="list-style-type: none"> Software is not owned and may become obsolete Limited competition may result in greater cost of leased software 	<ul style="list-style-type: none"> Most sustainable alternative for small to medium-size programs Soliciting a "Request for Proposals" from multiple vendors may reduce costs
Build Custom Software	<ul style="list-style-type: none"> Depending on size, could be \$5M to \$10M+ Additional upgrade and operations and maintenance costs required 	<ul style="list-style-type: none"> Supports potentially unlimited growth of program Software can be leased to other programs to support costs Supports large-scale database of client records 	<ul style="list-style-type: none"> The large cost of software build will require significant revenue generation to break even Not sustainable unless program is large-scale 	<ul style="list-style-type: none"> 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.

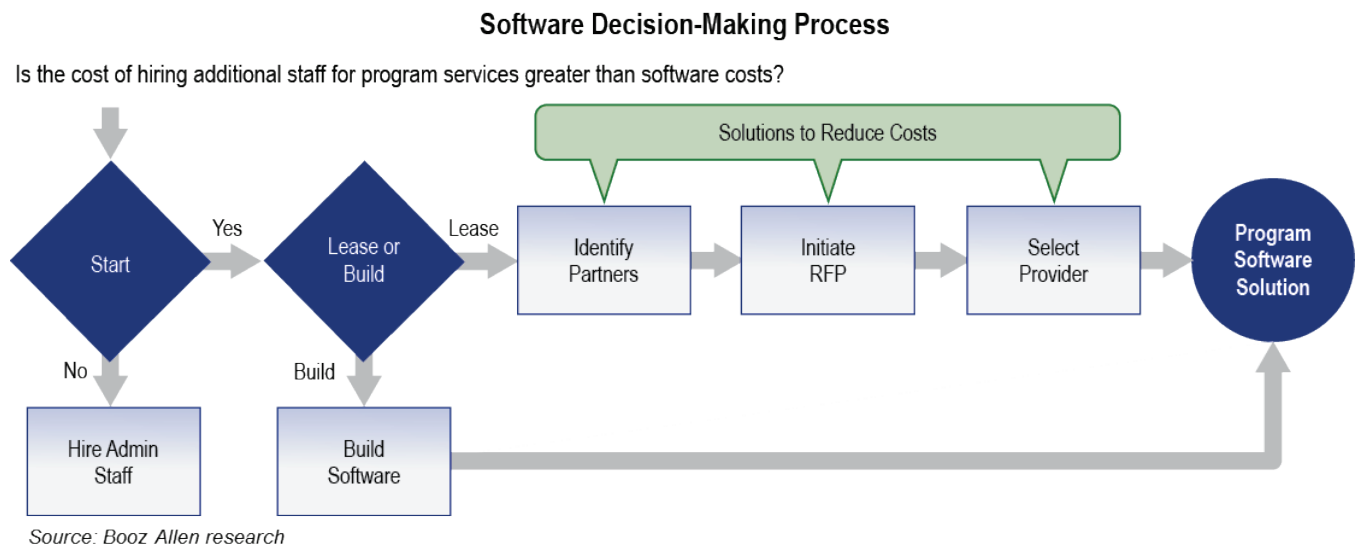


Figure 3-10: Software Decision-Making Process

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 meet 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	<ul style="list-style-type: none"> Perhaps the most critical program administrator asset is its reputation, which is critical to marketing energy-efficient goods and services both to customers and potential program partners. A major program administrator asset is program management software, which can be costly if not optimized to program needs. Program administrators can leverage software to streamline administrative functions. They can also generate revenue by providing data services to home performance contractors and other programs. Program administrators may be able to purchase a multiple-license agreement at a bulk discount and/or sub-license additional licenses 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. 	<ul style="list-style-type: none"> A well-developed program brand image can help a program not only sell its own services to customers but can also serve as a new offering to potential partners. The program could leverage its credibility with the consumer to endorse services offered by partner contractors or utility programs. Investment in software enables a program administrator to be more sustainable in the energy efficiency market by reducing costs and creating additional revenue streams. Software packages that can collect data on customer demand, job progress, and building performance can also enable program administrators to streamline reporting requirements and illustrate program value and growth potential to future investors.

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

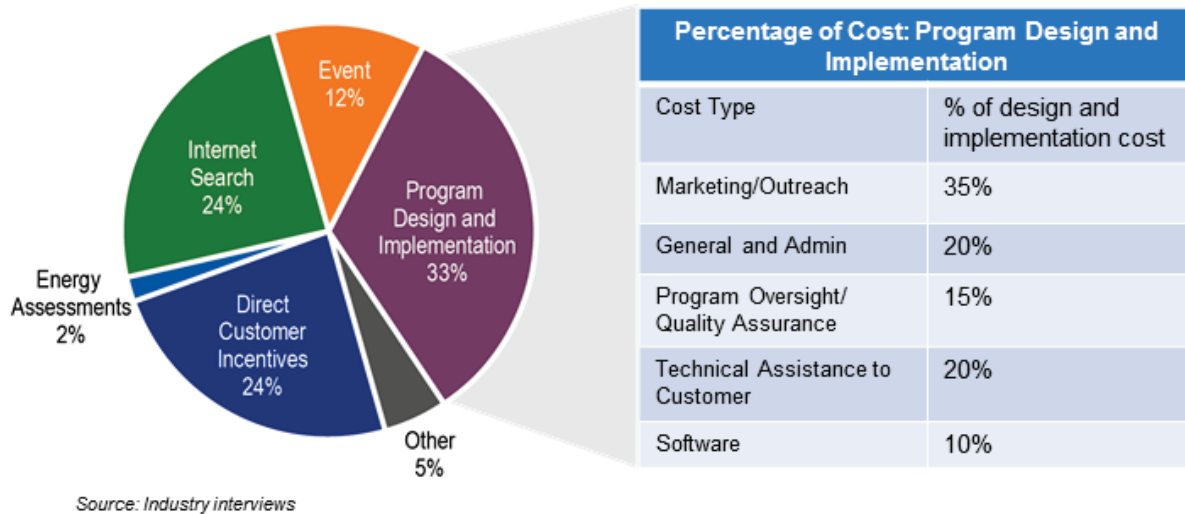


Figure 3-11: Service Offering Cost Drivers

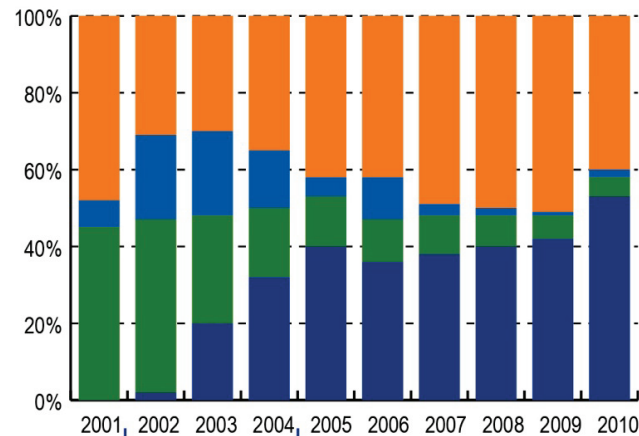
While all programs offer direct incentives to consumers as a service offering, market studies demonstrate that when homeowners are offered the choice between direct incentives and other discounted financing options, they will take the direct incentives the vast majority of the time.

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.

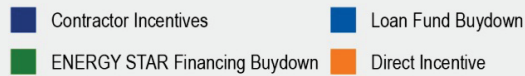
Program administrators can also employ numerous revenue generation options to support a sustainable business model (see Figure 3-13).

Sample Program Funding Analysis

Market Adoption of Program Incentives as % Program Service Budget (2001–2010)



A side effect of direct incentives is that they can cause uncertainty in the marketplace; note three-year window before consumers felt secure in claiming incentives in bulk

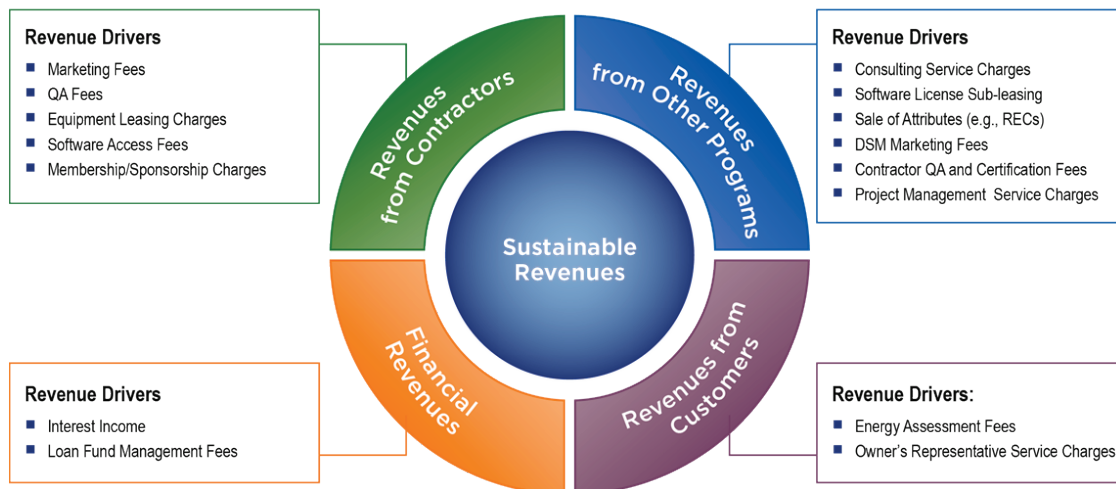


Contractor incentives include advertising incentives, software usage costs, equipment package incentives, training, and certification

Source: Industry interviews

Figure 3-12: Sample Program Funding Analysis

Potential Revenue: Streams and Generation Options



Source: Booz Allen research

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.

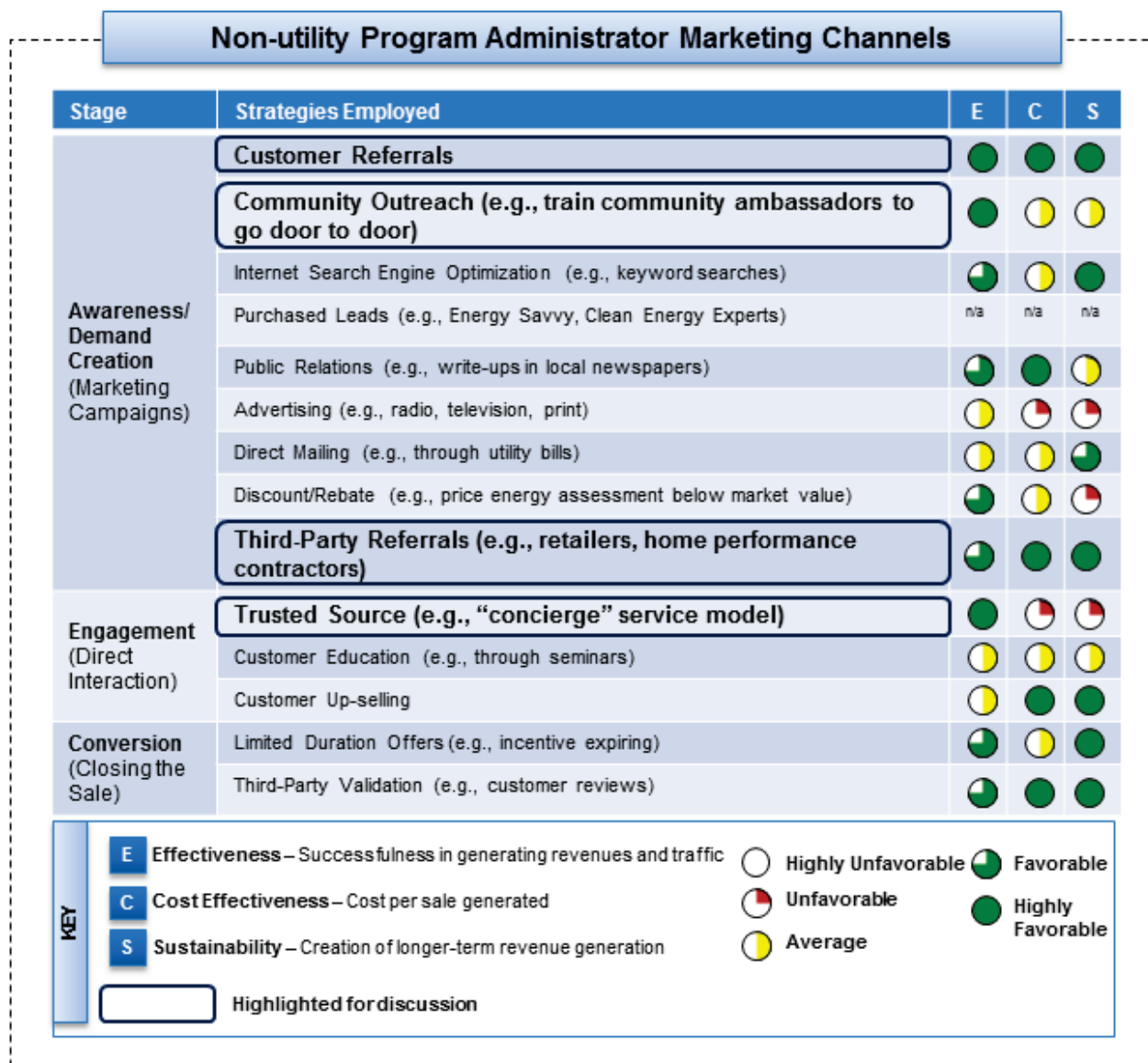
Key Insights

Non-utility Program Administrator Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Service Offering	<ul style="list-style-type: none"> The program administrator's services include: <ul style="list-style-type: none"> Generating and allocating leads Serving as enablers of financing or incentives for home performance work Qualifying and training contractors Providing installation work and quality assurance work directly in some cases. Aligning program service offerings with other existing market actors' (e.g., utilities) can help reduce customer confusion by lowering the potential for mixed messaging. If given a choice between indirect benefits, such as discount loans, and direct incentives, homeowners will take the direct incentives. It is difficult to find the right balance between direct, non-sustainable subsidies to homeowners to spur demand and indirect service offerings that can extend program life. Programs have flexibility to partner with other actors in the market. 	<ul style="list-style-type: none"> Program administrators need to build and maintain relationships with local contractors and customers to effectively drive home energy upgrades in the long run. Program administrators can help smaller home performance contractors generate business by allocating leads, although this may be frowned upon by established home performance contractors who have more established lead generation systems. Program administrators may stunt private sector growth by doing installation work directly, rather than enabling private companies to provide home energy upgrades more effectively. Program administrators must balance customer incentives with other service offerings that can cover program administrative costs. Program administrators can offer a source of leads, low-cost customer financing, training, admin software, energy assessments, and third-party validation to generate sustainable sources of revenue.

Non-utility Program Administrator Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
		<ul style="list-style-type: none"> ■ 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.



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

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	<ul style="list-style-type: none"> While the home energy efficiency market was \$38.3 billion in 2009, there is still much that is not fully understood at the regional and local level about the dynamics of the market.³⁷ Program administrators typically have grant funding ranging from approximately \$500,000 to \$100 million. 	<ul style="list-style-type: none"> Program administrators may lack sufficient data on markets, including the baseline building stock, customer demographics and demand, and other regional considerations. Residential energy efficiency program administrators were created to help lower many of the barriers that have slowed the development of the market to date, such as lack of information, high up-front costs, and lack of consumer demand for energy upgrade services.
Governance	<ul style="list-style-type: none"> Program administrator's governance models include the following: <ul style="list-style-type: none"> Government-owned (federal, state, or local government) Private company or NGO (typically a subcontractor or third-party implementer to a government-funded program) Regulations associated with grant funding may restrict program design or operations, limit service offerings, or increase administrative burdens on potential partners. The program administrator-owner may be a different entity than the third-party implementer, adding layers of bureaucracy. 	<ul style="list-style-type: none"> Program administrator regulatory reporting requirements can be burdensome and may discourage the private sector from working with a program effectively. Program design flexibility enables non-utility programs to partner with a wide range of private and public organizations in pursuing their mission of delivering home energy upgrades. Program administrators can increase market sustainability by enabling private companies. This shifts market activity away from government-funded and -run programs to fully private-funded and -run programs.
Financial Model or Structure	<ul style="list-style-type: none"> Program administrators often rely heavily on public funding and do not have a comprehensive business plan for generating sustainable revenues. Program administrators can identify sustainable revenue streams through engaging contractors to determine potential demand and pricing for these services. Once pricing and services are determined, a program administrator can forecast potential revenues by integrating data from contractors and market research into a simple income statement model. 	<ul style="list-style-type: none"> At the present time, program administrators typically only last as long as their influx of public funding. Program administrators must leverage their initial funding to implement programs that generate sustainable revenue streams. Program administrators can partner with utilities, contractors, and financial institutions to leverage the expertise of established firms to deliver services that the program cannot provide directly.
Assets and Infrastructure	<ul style="list-style-type: none"> Perhaps the most critical program administrator asset is its reputation, which is critical to marketing energy-efficient goods and services both to customers and potential program partners. 	<ul style="list-style-type: none"> A well-developed program brand image can help a program not only sell its own services to customers but can also serve as a new offering to potential partners. The program could leverage its credibility with the consumer to

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
	<ul style="list-style-type: none"> ■ 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. 	<p>endorse services offered by partner contractors or utility programs.</p> <ul style="list-style-type: none"> ■ Investment in software enables a program administrator to be more sustainable in the energy efficiency market by reducing costs and creating additional revenue streams. ■ Software packages that can collect data on customer demand, job progress, and building performance can also enable program administrators to streamline reporting requirements and illustrate program value and growth potential to future investors.
Service Offering	<ul style="list-style-type: none"> ■ The program administrator's services include: <ul style="list-style-type: none"> - Generating and allocating leads - Serving as enablers of financing or incentives for home performance work - Qualifying and training contractors - Providing installation work and quality assurance work directly in some cases. ■ Aligning program service offerings with other existing market actors' (e.g., utilities) can help reduce customer confusion by lowering the potential for mixed messaging. ■ If given a choice between indirect benefits, such as discount loans, and direct incentives, homeowners will take the direct incentives. It is difficult to find the right balance between direct, non-sustainable subsidies to homeowners to spur demand and indirect service offerings that can extend program life. ■ Programs have flexibility to partner with other actors in the market. 	<ul style="list-style-type: none"> ■ Program administrators need to build and maintain relationships with local contractors and customers to effectively drive home energy upgrades in the long run. ■ Program administrators can help smaller home performance contractors generate business by allocating leads, although this may be frowned upon by established home performance contractors who have more established lead generation systems. ■ Program administrators may stunt private sector growth by doing installation work directly, rather than enabling private companies to provide home energy upgrades more effectively. ■ Program administrators must balance customer incentives with other service offerings that can cover program administrative costs. ■ Program administrators can offer a source of leads, low-cost customer financing, training, admin software, energy assessments, and third-party validation to generate sustainable sources of revenue. ■ Program administrators can generate revenue directly from homeowners, for example by charging a small fee for energy assessment services or offering homeowners a "concierge" service. ■ Program administrators can offer valuable business and sales training to companies seeking to become home performance contractors— these companies generally need this type of training at least as much as technical training. ■ Key industry partnerships can help programs expand their potential revenue base through co-branding and referrals.
Customers and Customer Acquisition	<ul style="list-style-type: none"> ■ Program administrator marketing efforts are essential to the development of the market, but can be costly to maintain if outside stakeholders are not properly leveraged. ■ Program administrators can train local 	<ul style="list-style-type: none"> ■ The program administrator can play a key role in generating awareness of energy efficiency and driving demand for home energy upgrades. ■ Collaborating with other actors and market "champions" is an effective way to develop

Summary of Non-utility Program Administrator Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
	<p>“champions” to promote program goals. This is a cost-effective way to promote education on efficiency.</p> <ul style="list-style-type: none">■ There are two basic concierge models that a program could provide: customer representative to the contractor or contractor representative to the customer.	<p>market demand.</p> <ul style="list-style-type: none">■ 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.

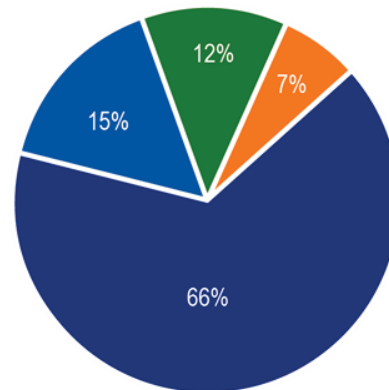
Summary of Utility Program Administrator Characteristics	
Size	In 2010, total utility sector revenue was approximately \$350 billion. ³⁸
Market Role	<p>Services include:</p> <ul style="list-style-type: none"> ■ Generation and distribution of electricity to residential, industrial, and commercial customers ■ Investment in electricity infrastructure throughout the value chain: <ul style="list-style-type: none"> - Generation - Transmission (grid) - Distribution (residential, industrial, and commercial) <p>Services for residential customers in the energy efficiency market may include:</p> <ul style="list-style-type: none"> ■ Demand side management (DSM) ■ Customer services (rebates, home energy upgrades, loans, and education)
Operating Environment	<p>Operate in a market with regulations that impact programs, including:</p> <ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 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	<p>Collaborate with any of the following, depending on their local market demographics:</p> <ul style="list-style-type: none"> ■ 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.

**Net Generation Capacity
(Total Percentage of Power Producers)**



Investor-owned Utilities (210) Federal Utilities (9)
Public Utilities (2009) Cooperative Utilities (883)

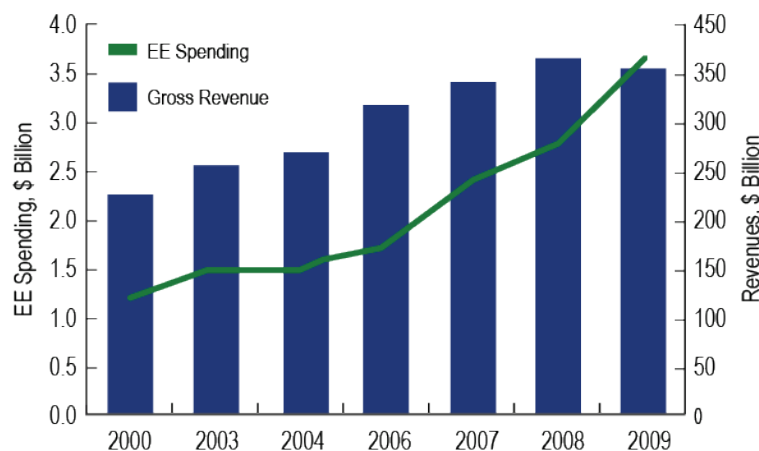
Source: U.S. Energy Information Administration, Electric Power Annual 2009 (2010)

Since the early 2000s—following the passage of energy efficiency mandates in many states—IOWs 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).

Figure 3-16: Net Generation Capacity—Power Producers

However, the amount spent remains small in comparison with their overall revenues (approximately 1 percent).

**Ratepayer-Funded Energy Efficiency
Spending by Electric Utilities**



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	<ul style="list-style-type: none">■ IOUs represent the majority of the market, in terms of installed generation capacity (375 gigawatts, or GW, versus 195 GW for all other utility types—public, federal, and cooperative).³⁹	<ul style="list-style-type: none">■ IOUs have increased spending on energy efficiency steadily over the last few years. However, the energy efficiency spending remains a small fraction of total revenues (e.g., 1 percent of overall revenue).■ Municipal and cooperative utilities, while smaller in terms of market share, often have advantages in that their stakeholders are willing to take a less profit-driven approach to energy efficiency investment.

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.

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.

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.

		Regulated	Deregulated
Utility Stakeholders	State and Federal Legislation/Mandates	<ul style="list-style-type: none"> State Laws National Policies Clean Energy 	<ul style="list-style-type: none"> State Laws National Policies Clean Energy
	Public Utility Commission	<ul style="list-style-type: none"> Public Hearings/Comments Rate Setting (Fair and Reasonable Rates) Program Filings Establishing Return on Investment 	<ul style="list-style-type: none"> N/A
	Ratepayers	<ul style="list-style-type: none"> Input on Rate Cases and EE Program Filings Demand for Services Balanced with Low Rates 	<ul style="list-style-type: none"> Demand for Services Balanced with Low Rates
	Management/Shareholders	<ul style="list-style-type: none"> Reliability is Number One Concern "Fair Rate of Return" above Cost Compliance with State/Federal Mandates 	<ul style="list-style-type: none"> 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.

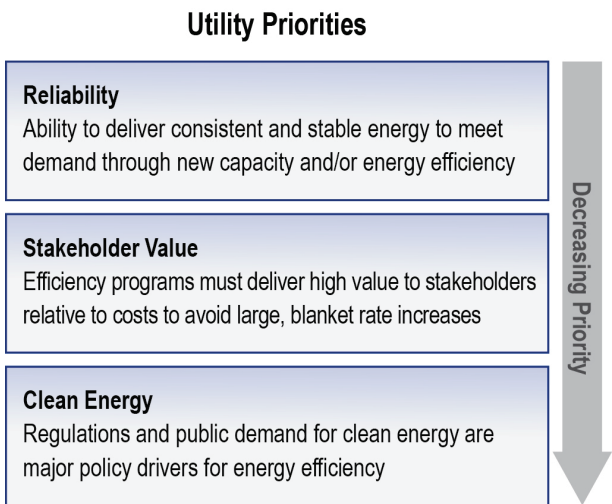


Figure 3-20: Utility Priorities

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	<ul style="list-style-type: none"> Utilities can be divided into three categories: <ul style="list-style-type: none"> IOUs have a traditional corporate governance structure and are motivated primarily by profit Municipal utilities are influenced by the municipal government and are generally regulated at the local level, rather than at the state level Cooperative utilities’ service offerings are driven by the decisions of their members, which are their customers 	<ul style="list-style-type: none"> Working with an IOU requires an understanding of the corporate chain of command. Managers of existing energy efficiency programs are key points of contact for program administrators as they are more familiar with energy efficiency. Municipals and cooperative utilities, while regulated, are not driven by profit margins. (The regulations they must comply with

Summary of Utility Program Administrator Insights		
	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
	<ul style="list-style-type: none"> ■ 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. 	<ul style="list-style-type: none"> ■ 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.

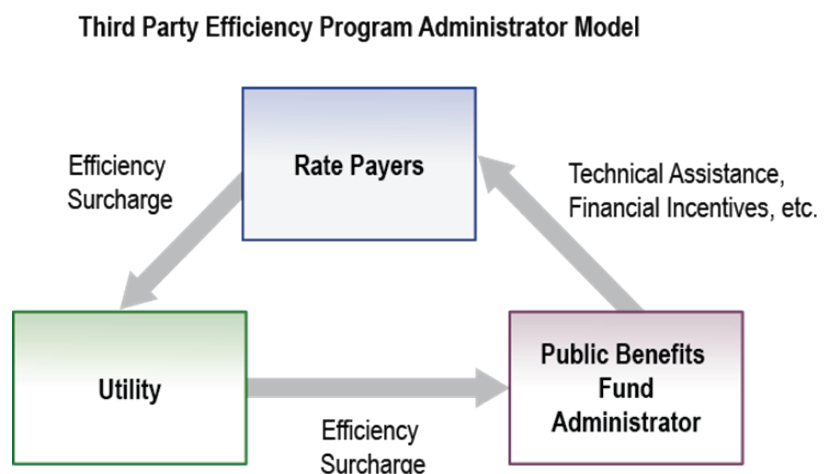
Decoupling refers to a situation where a utility's profits do not depend upon the quantity of energy it sells to customers. By decoupling energy usage from service charges, a utility separates the amount charged to customers from the number of kWh consumed. In other words, even if customers' energy consumption 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	<ul style="list-style-type: none"> Utilities most commonly finance energy efficiency programs through ratepayer funding. This funding can take the form of a surcharge or cost-recovery rate. Many utilities advocate decoupling revenues from the sale of kWh to customers when developing energy efficiency programs, as the decrease in sales of electricity stemming from DSM negatively affects their profitability. Decoupling lowers the value of energy efficiency for customers as their energy costs may not decrease despite their investments in home energy upgrades. 	<ul style="list-style-type: none"> Decoupling is just one of many ways to remove negative financial incentives to utilities for pursuing energy efficiency. Other ways include allowing the utility to increase its rates to compensate for decreased revenues caused by energy efficiency programs, or removing the onus on the utility to run the program altogether. Third-party efficiency program administrators can provide similar benefits to decoupling, while being funded by fees levied on ratepayers. This structure removes the onus for running the efficiency program from the utility itself and provides incentives to homeowners to invest in home energy upgrades.

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		Scenario 2: High Cost of Additional Generation	
New Transmission/Generation Cost/kW		New Transmission/Generation Cost/kW	
Total New Capacity Cost		Total New Capacity Cost	
Energy Efficiency Cost/kWh		Energy Efficiency Cost/kWh	
Program costs	\$0.25	Program costs	\$0.25
Incremental measure costs	\$0.50	Incremental measure costs	\$0.50
Generation savings	\$(0.25)	Generation savings	\$(0.50)
Transmission savings	\$(0.25)	Transmission savings	\$(0.25)
Other savings (environmental, etc.)	\$(0.10)	Other savings (environmental, etc.)	\$(0.10)
Net Energy Efficiency Cost	\$0.15	Net Energy Efficiency Cost	\$(0.10)
Benefit Cost Test	0.80	Benefit Cost Test	1.13
Interpretation: New capacity is preferable to EE		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	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> If other programs wish to collaborate with utilities in the energy efficiency market, understanding the cost-benefit methodology used by their local utility, as well as their basic infrastructure constraints, is critical to determining how the program can add value to a utility's existing programs. Expansion into the energy efficiency market can be more cost-effective than creating new capacity. An average tipping point is approximately \$600 per kilowatt for the cost of new generation.⁴⁷

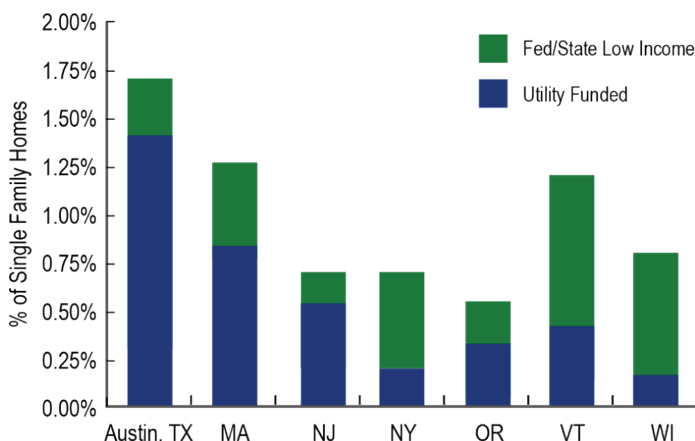
3.3.3.4 Service Offering

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

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

2010 Whole-House Retrofit Participation in Leading U.S. Jurisdictions



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

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.

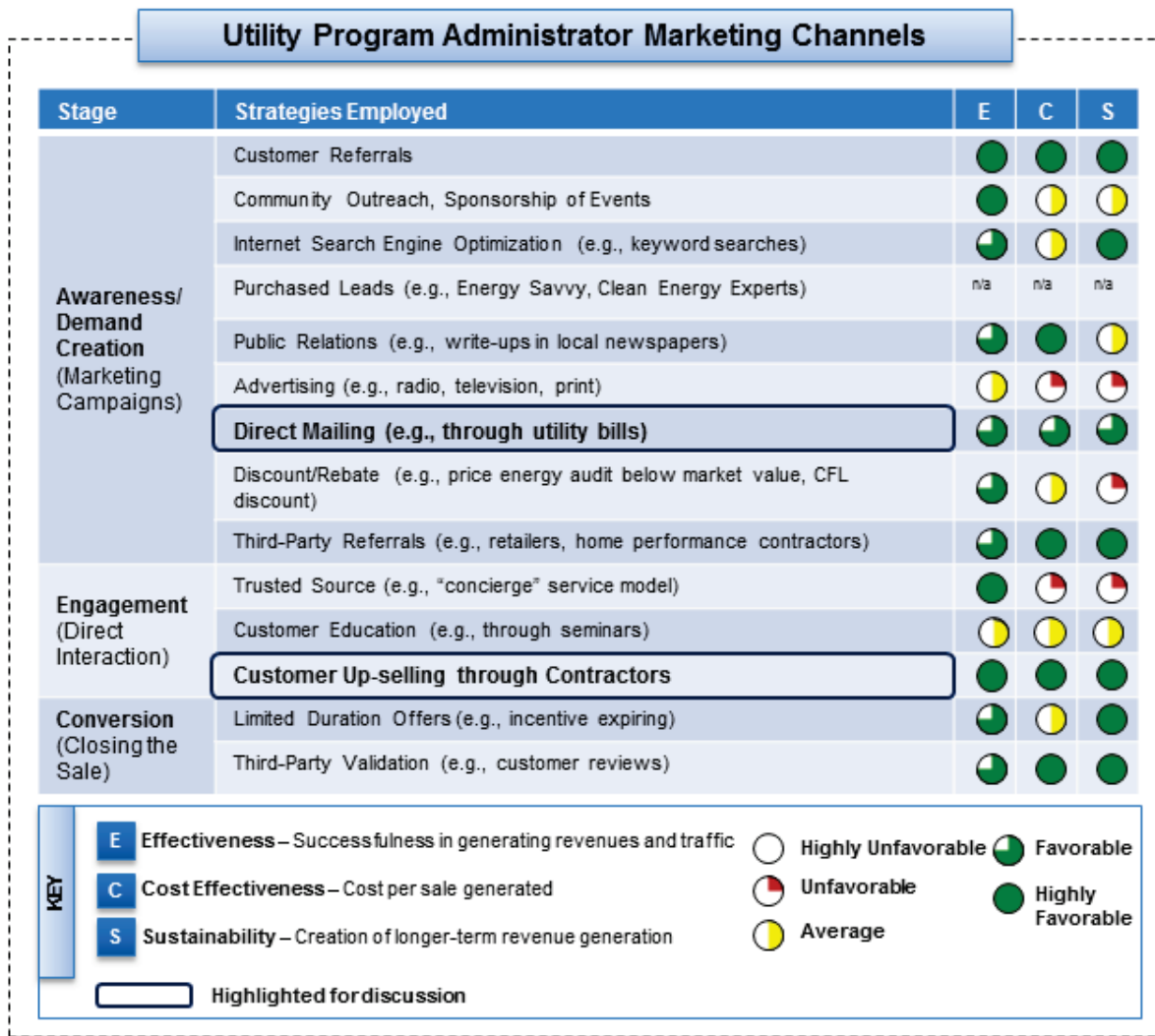
As a general rule, utilities do not like diverting resources to certify and screen potential partner contractors. This has proven to be a significant stumbling block to deploying large-scale whole-home energy upgrade programs. The whole-home energy upgrade approach often requires additional, trusted 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	<ul style="list-style-type: none"> The services for residential customers in the energy efficiency market may include the following: <ul style="list-style-type: none"> DSM Customer services (rebates, home energy upgrades, loans, 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. 	<ul style="list-style-type: none"> Utility cost-benefit tests are cited as a barrier for their entry into the energy efficiency market. Bundling packages of highly cost-effective and less cost-effective energy conservation measures together for submission can help get more aggressive measures to pass the test. Utilities can partner with 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.



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	<ul style="list-style-type: none"> Utilities have direct access to customer energy usage data, which allows them to target key customers and better measure the effectiveness of specific energy efficiency programs. Utility bills are an often-cited advantage in program advertising, as they provide free advertising to potential customers. 	<ul style="list-style-type: none"> Utilities can effectively target customers in the energy efficiency market and enable greater impact of program dollars spent through the use of energy usage data. Positioning the program information next to the total cost of the bill is the optimal way to get customer attention when conducting on-bill advertising.

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	<ul style="list-style-type: none"> IOUs represent the majority of the market, in terms of installed generation capacity (375 gigawatts, or GW, versus 195 GW for all other utility types—public, federal, and cooperative).⁴⁸ 	<ul style="list-style-type: none"> IOUs have increased spending on energy efficiency steadily over the last few years. However, the energy efficiency spending remains a small fraction of total revenues (e.g., 1 percent of overall revenue). Municipal and cooperative utilities, while smaller in terms of market share, often have advantages in that their stakeholders are willing to take a less profit-driven approach to energy efficiency investment.
Governance	<ul style="list-style-type: none"> Utilities can be divided into three categories: <ul style="list-style-type: none"> IOUs have a traditional corporate governance structure and are motivated primarily by profit Municipal utilities are influenced by the municipal government and are generally regulated at the local level, rather than at the state level Cooperative utilities' service offerings are driven by the decisions of their members, which are their customers IOUs have profitability requirements (the average net margin in 2010 was 8 percent), whereas municipal and cooperative utilities are not bound by similar profit mandates from their stakeholders.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. 	<ul style="list-style-type: none"> Working with an IOU requires an understanding of the corporate chain of command. Managers of existing energy efficiency programs are key points of contact for program administrators as they are more familiar with energy efficiency. Municipals and cooperative utilities, while regulated, are not driven by profit margins. (The regulations they must comply with often differ from those covering IOUs.) Program administrators and other entities can work at the legislative level, as a starting point, to influence energy efficiency goals and targets, and can work with the PUC regarding utility regulations (a long-term process). The intervention process allows for some public participation in regulatory cases, such as rate evaluations. Other programs should be prepared to make a partnership case based on both cost and reliability grounds as well as on the value of efficiency as a social good. Making a quantitative case on the cost and value of efficiency to the utility is critical to influencing management and partnership decisions. Partners that can provide solutions to financing home energy upgrades without resorting to blanket ratepayer charges would be favored by utility management.

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
	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ Utilities most commonly finance energy efficiency programs through ratepayer funding. This funding can take the form of a surcharge or cost-recovery rate. ■ Many utilities advocate decoupling revenues from the sale of kWh to customers when developing energy efficiency programs, as the decrease in sales of electricity stemming from demand side management (DSM) negatively affects their profitability. ■ Decoupling lowers the value of energy efficiency for customers as their energy costs may not decrease despite their investments in home energy upgrades. 	<ul style="list-style-type: none"> ■ Decoupling is just one of many ways to remove negative financial incentives to utilities for pursuing energy efficiency. Other ways include allowing the utility to increase its rates to compensate for decreased revenues caused by energy efficiency programs, or removing the onus on the utility to run the program altogether. ■ Third-party efficiency program administrators can provide similar benefits to decoupling, while being funded by fees levied on ratepayers. This structure removes the onus for running the efficiency program from the utility itself and provides incentives to homeowners to invest in home energy upgrades.
Assets and Infrastructure	<ul style="list-style-type: none"> ■ Utility energy efficiency programs must meet mandatory cost-benefit tests, such as the TRC test, which compares the generation and transmission cost savings from energy efficiency against the program's operating costs. 	<ul style="list-style-type: none"> ■ If other programs wish to collaborate with utilities in the energy efficiency market, understanding the cost-benefit methodology used by their local utility, as well as their basic infrastructure constraints, is critical to determining how the program can add value to a utility's existing programs. ■ Expansion into the energy efficiency market can be more cost-effective than creating new capacity. An average tipping point is approximately \$600 per kilowatt for the cost of new generation.⁵⁰
Service Offering	<ul style="list-style-type: none"> ■ The services for residential customers in the energy efficiency market may include the following: <ul style="list-style-type: none"> – DSM – Customer services (rebates, home energy upgrades, loans, education) ■ Utility energy efficiency programs do not typically offer home energy upgrades, which represent one of the least commonly offered services among utilities. Penetration rates are under 2 percent, due to a lack of demand, incentives, or sufficient contractor breadth. 	<ul style="list-style-type: none"> ■ Utility cost-benefit tests are cited as a barrier for their entry into the energy efficiency market. Bundling packages of highly cost-effective and less cost-effective energy conservation measures together for submission can help get more aggressive measures to pass the test. ■ Utilities can partner with other non-utility programs that can provide services on their behalf that would not pass strict Benefit Cost Tests.
Customers and Customer Acquisition	<ul style="list-style-type: none"> ■ Utilities have direct access to customer energy usage data, which allows them to target key customers and better measure the effectiveness of specific energy efficiency programs. ■ Utility bills are an often-cited advantage in program advertising, as they provide free advertising to potential customers. 	<ul style="list-style-type: none"> ■ Utilities can effectively target customers in the energy efficiency market and enable greater impact of program dollars spent through the use of energy usage data. ■ Positioning the program information next to the total cost of the bill is the optimal way to get customer attention when conducting on-bill advertising.

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