Program Design & Customer Experience – Make Design Decisions

**Description**

Successful residential energy efficiency programs address the specific needs, opportunities, and challenges of their local markets. Programs that are most likely to succeed aren’t those that pick program elements from a menu of options. Instead, you should develop a coordinated strategy of related elements that are designed to overcome multiple market barriers to ensure the greatest fit of your program to your local context. To make sure that your program is tailored to your specific market, your design should be based on:

- Your **market assessment**, which identified needs and opportunities in the market. Design your program to seize these opportunities and overcome customers' barriers to adopting residential energy efficiency measures that you've identified.
- Your **program goals and objectives**, which define what your program seeks to achieve.
- Your **partners** who will help you deliver the program, with particular understanding of local contractors and their capacity and, in many cases, local utilities.

If your organization has a detailed **business plan** for providing residential energy efficiency services, it will be a key guide for program design. If your organization does not have a business plan, you will make many of these types of planning decisions as you develop your program design. A business plan typically describes your organization’s:

- Market position in relation to other organizations’ residential energy efficiency services and your organization’s strengths and capabilities
- Services your organization will provide directly or through partners, such as financing, rebates, assistance finding contractors, and quality assurance
- Target markets and how your organization will reach them
- Assets and infrastructure needed by your organization in order for it to play your desired role in the market, such as networks of qualified contractors and IT systems
- Financial model, including your organization’s funding and revenue strategy and a realistic assessment of the costs and effort needed to participate in the market
- Governance structure, describing who will manage various aspects of your organization and make decisions about program design and implementation.

Information in your business plan about your organization’s services, target markets, revenue, and costs provides a good foundation for program design. The program design process will help you specifically define the markets, products, and services on which your organization’s residential energy efficiency program will focus. Your business plan will also help you be realistic about your organization’s budget for the program as you decide on your program’s scope and offerings.

The program design stage is when you need to make concrete decisions about:

- Specific market sectors to target
• Products and services to provide
• Your service delivery model and interaction process with customers and contractors.

Over-arching program design decisions will influence—and will be influenced by—decisions about specific program components, including marketing and outreach, financing, and contractor engagement and workforce development.

As you make decisions about program design, you may find it helpful to seek advice and input from subject matter experts, stakeholders, program partners, and other residential energy efficiency program administrators through the Better Buildings Residential Network.

Obtaining the buy-in of experts, stakeholders, and partners as part of the design decision-making process can go a long way toward building strong program design, commitments, and champions of your program. Many individuals and organizations in your local jurisdiction will likely be in a position to contribute ideas and resources to your program. Examples of experts include energy efficiency staff at utilities and utility associations, state energy offices, regional energy efficiency organizations, and national nonprofits working on energy efficiency. Stakeholders may include local government officials, neighborhood or community groups, contractor associations, and housing agencies. Partners may include financial institutions and home performance contractors.

Once you have made key decisions about program design, you will be ready to develop an implementation plan, establish an evaluation plan, and develop resources for launching and managing your program.

Key steps for making design decisions are:

• Select your target market sector(s)
• Identify barriers to overcome with customers
• Select your products and services for customers
• Determine how you will deliver services
• Select and design key coordination and communication activities
• Get feedback on your program design.

Program Design Guides
Several guides are available to help you design a residential energy efficiency program. These guides may be useful supplements to the information provided in this Solution Center.

• A Short Guide to Setting Up a City-Scale Retrofit Program by Green for All and the Center on Wisconsin Strategy. This guide provides energy efficiency program design guidance for local and regional programs, focusing on cost-saving energy efficiency strategies, creation of high-quality jobs, and services for the low-income sector.

• Energy Efficiency Quick Start Programs: A Guide to Best Practices by the Southeast Energy Efficiency Alliance. This guide describes the planning, design and delivery of early-stage energy efficiency programs in the Southeast. It captures general concepts essential to the successful development and implementation of robust program portfolios, as well as lessons learned from prior experience on the regional and national levels.
• **Existing Homes Program Guide** by the Consortium for Energy Efficiency. This guide provides background on the residential energy efficiency upgrade market in the United States and Canada and highlights energy efficiency program approaches and strategies.

• **Home Performance with ENERGY STAR Sponsor Guide** by the U.S. Department of Energy’s (DOE) Home Performance with ENERGY STAR program. This guide provides an approach for developing an implementation plan for a Home Performance with ENERGY STAR program. It covers key elements of the plan, including the scope and objectives of the program and the policies and procedures that will enable its success. Section 2 of the guide focuses on program success.

• **Residential Retrofit Program Design Guide** by Oak Ridge National Laboratory. This guide focuses on the key elements and design characteristics of building and maintaining a successful residential energy efficiency program from start to finish. Information is laid out in chronological order of program development.

• **Tool Kit Framework: Small Town University Energy Program** (STEP) is a description of the key program design and implementation elements of the STEP residential energy efficiency program in University Park, Maryland, a Better Buildings Neighborhood Program partner. The handbook is written for interested citizens, elected officials, and municipal staff who want to establish and run their own efficiency programs within a small community or neighborhood using program design elements, materials, and lessons from STEP.

• **2015 Update Report from the Multifamily Subcommittee of the California Home Energy Retrofit Coordinating Committee** (MF HERCC) provides recommendations on the design and implementation of multifamily energy efficiency upgrade programs. Recommendations in this report cover topics such as pre-screening buildings, incorporating health and safety into program models, and promoting water efficiency upgrades along with energy efficiency.

For related information about design decisions for other components of residential energy efficiency upgrade programs, please refer to the following:
Find related information across other program components:

- **Market Position & Business Model – Develop a Business Model**
  Define your business model, including market position, products and services, type of customers, financial model, governance structure, and the assets and infrastructure your organization needs.

- **Evaluation & Data Collection – Develop Evaluation Plans**
  Identify the right questions to ask, appropriate metrics to collect, and the processes needed to initiate third-party impact and process evaluations.

- **Marketing & Outreach – Make Design Decisions**
  Decide on priority target audience segments, messages, and incentives that will motivate customers.

- **Financing – Make Design Decisions**
  Determine if enhancements to existing financing products or the development of new products are necessary to allow you to achieve your goals and objectives.

- **Contractor Engagement & Workforce Development – Make Design Decisions**
  Solidify your program strategy and decide which customers you will focus on; what products, services, and support you will provide; and how you will partner with contractors and others to deliver services to your customers.

**Step-by-Step**

There are several steps to making final design decisions for your residential energy efficiency program.

**Select your target market sector(s)**

A key design decision is identifying what market sector or sectors your program will focus on. Identifying target market sectors requires considering the market opportunity (i.e., where there is an unrealized opportunity for residential energy efficiency improvements) and where your organization and partners can effectively add value to the market. Your market assessment and your business plan may already have helped narrow the options for target markets. Your work on marketing and outreach may also have identified market segments on which to focus. As your program develops and matures, be open to changing your target market sector based on experience.

To the extent that you need to further define your market sector, the questions below will help.

**What housing sector(s) will you focus on?**

Residential energy efficiency programs can address single-family, multifamily, or manufactured homes, or a combination of them. Programs can focus on homeowners, renters, or both. Your market assessment should have determined where the key opportunities are and what housing sector focus has the most potential to help you achieve your goals.

Your choice of sectors will influence your program design. For example, if you are focused on multifamily rental buildings, you will need to encourage both owners and tenants to pursue upgrades. If you are focused on newer manufactured homes you will need to offer different types of home performance improvements than if you are focused on older single-family homes.

**What fuel types will you include?**

Residential energy efficiency programs typically include electricity and/or natural gas, and some also address heating oil, biofuels, or other fuel types. The decision about what fuels to focus on depends largely on the characteristics of the housing stock you are working with and the types of energy savings you seek (e.g., from heating, cooling, lighting, appliances, etc.). Your decision will also depend on the dominant fuel type(s) in the market; for example, in parts of the northeast, northwest, and some other regions of the country heating oil is the predominant fuel used to heat homes.
If your organization is a utility or working with one, your program will typically focus on the type of fuel the utility supplies. Different types of incentives may be available for different fuels depending on the mix of utilities in your area. For example, an electric utility may provide rebates for electric system heating upgrades, but a natural gas utility may not provide rebates for natural gas heating systems. Some programs have been very successful at filling gaps in what the local utility addressed or incentivized.

When addressing multiple fuels, programs have a strong opportunity to streamline and simplify the process for customers by coordinating residential energy efficiency services and incentives offered by different types of fuel providers to accomplish the most energy savings with the least amount of hassle for the customer. For example, an electric utility program could partner with a gas utility to offer customers services across all of their homes’ fuel types (e.g., electricity for lighting and appliances and gas for heat and hot water).

What geographic area will your program cover?

Your market assessment should have identified geographic opportunities, such as gaps in existing services. Your geographic boundaries will influence the level of demand and contractor participant interest that your program generates, which are both critical to sustaining a viable program over time and to meeting your goals. For example, if one of the goals of your program is to create jobs, you need to identify and help create a market large enough to support hiring and training new professionals to meet demand. Some larger contractors may not be interested in participating unless the geographic area of the program is in line with their sales territory. Others might be concerned about geographic size and whether they will be able to generate enough work over a sufficient period to justify their costs to participate in the program.

The choices you make about your geographic boundaries will depend on program priorities and how much you can incentivize your market. If you can’t offer strong financial incentives and there aren’t other compelling factors driving community demand (e.g., high awareness, energy costs, climate concerns), you might need a much larger pool of potential customers to meet your goals. For examples of programs that have broadened their geographic reach after initial program launch, see the Tip for Success, “Make sure there are enough customers in your target market to meet your goals and attract partners.”

Select your geographic boundaries to support your program’s goals and objectives. Some programs choose to “go broad” and target a larger geographic area, with an emphasis on the number of participants but not necessarily getting a high percentage of participation from homeowners or large savings from individual upgrades. Other programs choose to “go deep” by prioritizing smaller geographic areas in order to achieve high participation rates and deeper upgrades of individual homes. Finding the appropriate balance in a given place and time depends on market factors and resources available to the program.

- The 2015 American Council for an Energy-Efficient Economy (ACEEE) study, Expanding the Energy Efficiency Pie: Serving More Customers, Saving More Energy Through High Program Participation, looked into factors that influenced participation rates of several programs with varying geographic ranges. The report found that programs that focus an intense marketing and outreach effort on a smaller geographic area can achieve high percentages of home upgrades in the community. For example:
  - During the 1980’s, the Hood River Conservation Project concentrated intensive marketing and generous incentives on the town of Hood River, OR and its 3,500 eligible residential homes and achieved an 85% energy upgrade participation rate.

- An in-depth examination of program strategies implemented by the DOE Better Buildings Neighborhood Program partners found that restricting program outreach too much or in a way that divides neighborhoods can unnecessarily limit and complicate program participation.

What income levels will you focus on?

The choice of whether to focus on low-income, middle-income, or high-income customers (or some combination) will be driven by your market assessment and your goals. The income level on which you choose to focus will also be influenced by the funding available to you to help customers at different income levels overcome the specific barriers they face.

- A program focusing on low-income markets typically needs to provide higher financial incentive levels or 100% financing but may also be able to partner with programs or institutions providing low-income assistance, such as the Weatherization Assistance Program or a Community Development Financial Institution.

- A middle-income focus may require financial incentives and better-than-market rates (or more flexible eligibility for financing). For more information on middle-income market segments, see the report “Delivering Efficiency to Middle Income Households” by Lawrence Berkeley National Laboratory.

- A program focusing on customers who do not face any significant financial hurdles may not require new approaches to financing and would instead focus on non-financial barriers to upgrading homes.

If your program is targeting products and services to certain income levels, it may need to establish eligibility criteria based on household income. An alternative approach is to target services to a specific geographic community where the income level may be more homogenous.
Market Sector Considerations for Utilities

For utilities, regulatory requirements are a primary consideration when determining the market sectors on which to focus. In addition to the program opportunities a utility identifies through its market assessments, regulators might require that it invest a minimum amount of its total budget in programs for specific rate classes, such as programs for limited-income or small business customers. Typically, these groups targeted by regulators are less likely to participate in generally available programs because they experience specific market barriers that are more pronounced than for the general population, such as a lack of available funds. Regulators may require that utilities make a concerted effort to reach these customers and/or set specific budget amounts. These types of requirements impose some limits on the flexibility of a utility program.

Some jurisdictions employ revenue formulas or spending caps that dictate how much funding is available for addressing particular markets. For example, if 40% of utility revenue comes from residential customers, utilities may need to invest at least 40% of energy efficiency program expenditures in residential programs to ensure that customers are receiving benefits in proportion to their investment. Similar allocations may apply to revenues and expenditures from different fuel types for multi-fuel utilities.

Rules may specify equity in the geographic distribution of program funding, rules or targets for reaching customers with lower incomes, or other factors.

Identify barriers to overcome with customers

The technology behind air sealing, insulation, and other residential energy efficiency measures is well known, and energy efficient products are widely available. Other types of barriers keep homeowners from pursuing cost-effective home energy upgrades—lack of information, lack of financing, lack of time, inertia, and lack of easy access to trusted contractors.

Once you have determined your target market, you need to understand what barriers are keeping your customers from pursuing home energy upgrades and what your program can do to overcome those barriers. The Marketing and Outreach component of the Solution Center provides information on specific strategies for researching customer motivations and barriers.

Barriers to Home Energy Upgrades from the Home Performance Resource Center

Homeowners may face several different types of barriers to home energy upgrades. A useful resource that outlines four such barriers is the Home Performance Resource Center’s “Best Practices White Paper”.

**Inertia.** Even if customers recognize the financial and comfort benefits of an upgrade, they may be put off by the cost, time, and hassles of finding a contractor, scheduling the work, and living through an upgrade project.

**Access to capital.** Even though energy upgrades pay for themselves over time through energy savings, they still require an up-front financial investment that homeowners may not have or may not choose to devote to energy efficiency.

**Public awareness.** Many people are not aware of the cost, comfort, and other benefits of residential energy efficiency or the many incentives available to them.

**Availability of services.** Homeowners don’t necessarily know who to turn to for home energy upgrade services or how to choose a knowledgeable, trustworthy home performance professional.

Resources in the Solutions Center provide information about strategies to help overcome these barriers:

- The **Marketing & Outreach** component of the Solution Center describes rebates and other financial incentives, which can help overcome consumer inertia. It also describes public awareness strategies to provide consumers with information about the benefits of energy upgrades as well as the availability of program services and incentives.
- The **Financing** component describes loan options that can provide customers with access to capital that can be paid off over time.
- The **Contractor Engagement & Workforce Development** component describes how programs can collaborate with private sector contractors to develop capacity and make residential energy efficiency services available.
Barriers to Installing Ductless Heat Pumps from the Northwest Energy Efficiency Alliance

The Northwest Energy Efficiency Alliance (NEEA) launched a Ductless Heat Pump Project in 2008 with utilities and energy efficiency programs to promote ductless heat pump (DHP) adoption and demonstrate the technology’s viability. After years of implementation, NEEA recognized that there were still significant barriers to full adoption, and conducted consumer research to more fully understand these barriers. Key findings from their study included:

- Only 41% of survey respondents had heard of DHPs.
- The largest barriers to installing DHPs were upfront cost, concerns over improper installation, and difficulty of self-installation (see chart):

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<tr>
<th>Obstacles to Purchasing Ductless Heat Pumps</th>
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<td>More expensive than standard heating systems</td>
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<td>Improper installation wastes energy</td>
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<td>Challenge to install by oneself</td>
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- Survey respondents who were interested in DHPs were highly motivated by saving money on utility bills. They were also motivated by saving energy, equipment safety, and ease of equipment operation.
- 79% of survey respondents indicated that they would contact their contractors for more information on DHPs. Online ratings, customer reviews, and friends and family suggestions were also important factors when making final decisions.


Select your products and/or services for customers

After identifying your target market and the barriers they face to undertake home energy upgrades, decide among a range of possible products and services your program will provide to overcome these barriers. Note that your business plan may already outline the types of services your organization could provide through a residential energy program. Your decisions for which products and services to provide to customers should be based on:

- What will help overcome customers’ barriers to upgrading their homes’ energy efficiency and encourage participation
- Where you see gaps in the market that your program can fill
- Your program goals and objectives
- The cost of products and services to the program, partners, and customers
- The capacity of your program, contractors, and partners to provide these products and services.

Examples of services to customers include:

- **Education**. Some programs focus on homeowner and tenant education to overcome awareness barriers and encourage residents to undertake behaviors that save energy. Although education is often not enough in itself to motivate behavior change, it is a key component of most marketing and outreach strategies.
  - For example, the Energy Upgrade California program in Alameda County, California, provided a guide and training to multi-family building owners on operations and maintenance practices that could reduce energy use and provided them with ideas for tenant education to reduce energy use.
  - The **Marketing & Outreach component** of the Solution Center provides more information on customer awareness and education.
• **Financial or non-financial incentives.** Many programs, especially utility programs, provide rebates or other incentives to customers to help overcome barriers related to inertia (e.g., through limited-time offers) or access to capital for residential energy efficiency measures such as new appliances or insulation. A comprehensive evaluation of over 140 programs across the United States found that successful programs offered rebates more frequently than less successful programs, but the rebate amounts they offered were lower (around 25% of project costs). More successful programs also provided direct installation of products (e.g., compact fluorescent lightbulbs and low-flow showerheads) at no or low cost to reduce energy use and encourage customer interest.
  ○ The Marketing & Outreach handbook on making design decisions provides more information on designing incentives.

• **Financing.** In addition to incentives, many programs provide financing—often through financing partners and occasionally directly—to overcome barriers related to customers’ access to capital.
  ○ For example, the Solar and Energy Loan Fund in St. Lucie County, Florida, is a nonprofit Community Development Financial Institution focused on facilitating home energy upgrades by providing loans to homeowners in economically distressed areas.
  ○ The Financing component of the Solution Center provides more information on designing financing programs.

• **Home energy assessments and upgrades.** Comprehensive assessment and upgrade services help overcome several barriers—inertia, awareness, and availability of services—by reaching out to homeowners about the benefits of energy upgrades, helping them understand what measures are most cost-effective and provide the most benefits, and then helping them find contractors that can do the work.
  ○ For example, most programs funded through the DOE’s Better Buildings Neighborhood Program and using the Home Performance with ENERGY STAR model provided comprehensive home energy assessments and upgrades through contractor partners.

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**Best Practices: Program Design for Assessments**

A comprehensive evaluation of over 140 energy efficiency programs across the U.S. found that programs that offered participants multiple types of home assessments (e.g., online, walk-through, or full diagnostic) were more successful than those that did not. In addition, the evaluation found that programs that installed low-cost measures during home assessments were more successful. For more information and examples of programs with these characteristics, see the Tips for Success, “Offer multiple types of assessments” and “Directly install measures during the assessment.”

**Setting Energy Assessment Scope and Price**

In 2014, Resources for the Future (RFF) conducted a survey of 1,784 homeowners across 24 states who received home energy assessments to understand why more people did not take action to upgrade their homes. The survey results showed that assessments that homeowners had to pay for (versus those offered for free) were generally more comprehensive – and that more detailed, comprehensive assessments were more likely to lead to upgrades. Assessments that homeowners paid for were more likely to include blower door tests, infrared imaging, utility bill analysis, and photos of problem areas in the energy reports.

RFF Survey Results: Extent of Follow-up on Insulation Recommendation by Whether Audit Included Particular Services
When you set **program goals and objectives**, you may have identified complementary goals, such as improved health and safety through better indoor air quality, greenhouse gas emissions reductions, or water efficiency improvements. Your program will also need to design services to achieve these goals or identify partners that can deliver necessary services.

### Overcoming Choice Overload

When faced with too many choices, many people decide to choose none of the options, a phenomenon called ‘choice overload.’ Franklin Energy Services, a program implementation contractor, thought this phenomenon could explain why, when a customer received an energy assessment that identified many options for improvements, the customer did nothing. Franklin Energy Services and Xcel Energy teamed to test a strategy to overcome choice overload with commercial customers. In their experiment, one set of customers received the standard energy assessment report with detailed recommendations, while another set of ‘treatment’ customers received the same report, with a cover letter listing their ‘best option’ for energy upgrades. Franklin Energy Services found that the treatment customers installed more measures and saved more energy than the control group. Though this experiment was for commercial customers, Franklin Energy Services thinks that the results are applicable to residential customers as well. For more information, see the [report](#) or a [Peer Exchange call summary](#) from March 2015.

### Selecting Residential Energy Efficiency Measures

In many areas, whole-house approaches covering many upgrade measures offer greater benefits and lower transaction costs than prescriptive single-measure strategies (e.g., insulation, heating/cooling system upgrade) because they allow solutions to be tailored to homes and give customers access to a broad range of options through one program. Because of their comprehensive scope, whole-house programs can also help establish longer-term relationships with customers so that they can undertake measures over time as opportunities and resources allow. A comprehensive evaluation of residential energy efficiency programs found that allowing homeowners to undertake multiple projects at once or to stage their upgrades were more successful. Prescriptive program paths may reduce the time and financial cost of entry for some participants; designing prescriptive programs to encourage participants to install multiple measures can provide similar benefits as a comprehensive whole house program; for more information see the Tip for Success, “Offer homeowners multiple types of assessments.”

Program designers may want to consult with building science experts familiar with the local housing stock and residential energy efficiency market to determine the extent to which all or some of the upgrade measures described above will be necessary to meet program goals.
The Building America Solution Center provides access to expert information on hundreds of high-performance construction topics. This includes detailed information on common energy efficiency measures and equipment, such as air sealing and insulation, HVAC components, and windows. It provides users with how-to guides and reference documents for each component of a house.

You will need to decide which types of upgrade measures you will promote through marketing and outreach, contractor training, program incentives, and other aspects of your program. By defining measures, you can ensure that your contractor base has the capacity to provide them, that any incentives are aligned with the measures that you select, and that your marketing and outreach strategy focuses on encouraging these upgrade measures. Common examples include air sealing, insulation, heating and cooling system upgrades, appliance upgrades, lighting, and installation of energy efficient windows and doors.


Some programs may offer additional measures of value in their communities, such as solar or other renewable energy. The choice of measures will depend on the type of housing stock and fuels your customers use, as well as the cost and relative energy-saving benefits of these measures. Your selection may also be influenced by the need to satisfy cost-effectiveness tests as described in the highlight box. Also consider real or perceived customer value—that is, what your customers are interested in paying for.

Cost-Effectiveness Tests for Energy Efficiency Measures
Regulated utilities must often satisfy cost-effectiveness tests for energy efficiency programs. These tests assess whether the cost of running a particular program is justified by the energy savings that the program delivers. Because some upgrade measures are more cost-effective than others under these tests, the results may influence what measures utility program can provide.
If your program will be funded or run by a utility, you should understand:

- What benefit-cost test or tests does the program need to satisfy? If multiple tests are used, does one test have primacy or do all test results need to be considered equally?
- Is cost-effectiveness screening done for each measure, the program as a whole, all programs addressing a particular sector, or across the utility’s entire portfolio of energy efficiency programs?
- Are there particular considerations when including a measure that is not cost-effective?
- Do programs have to demonstrate cost-effectiveness in the first year or is a multi-year perspective taken to allow for higher startup costs?
- What, if any, non-energy benefits can be included as part of cost-effectiveness screening?

For more details and resources on measuring cost-effectiveness, see the Evaluation & Data Collection handbook on developing evaluation plans and the Home Performance with ENERGY STAR Sponsor Guide.

Once you have identified the products and services you will provide—as well as the upgrade measures, if applicable—you may need to revisit decisions about which partners to include in your program to make sure that you and your partners can effectively deliver program services. For example, if you are providing energy efficiency loans, you will need to make sure that you have financial partners that are interested in providing these services to customers at terms that will encourage home energy upgrades.

**Determine how you will deliver services**

Integrated models, independent energy assessment models, and energy advisor models are three common delivery models for programs that provide energy assessment and upgrade services. As you think about which model may be most appropriate for you, consider a set of evaluation criteria, such as:

- The model’s effectiveness given your local market characteristics
- The model’s characteristics that can overcome your customers’ barriers to home energy upgrades
- Net impact on program costs in light of your program budget
- Consistency with goals and objectives (e.g., short-term residential energy efficiency benefits versus long-term market transformation).

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**In Their Own Words: One-On-One Communication Delivers Strong Customer Satisfaction**

You may want to consider offering homeowners a choice of which approach they would like to use. Different models may be attractive to different homeowners.

**Integrated Model**

In an integrated model, one contractor conducts the energy assessment and then performs the upgrade work. Homeowners only work with one contractor, which can simplify and streamline the project. Home energy assessment to upgrade conversion rates (i.e., the percent of assessments that result in upgrades) are typically higher under this model because contractors can follow up on their assessment with a bid for work and have an opportunity to market their services directly to customers.
A potential challenge for the integrated model is real or perceived conflict of interest when the same contractor that identifies upgrade opportunities also performs the work. There is a risk that contractors will identify measures that have low energy savings potential or a higher price in order to boost their profits from the upgrade, or push homeowners toward measures in which the contractor has particular skills. If the assessment is not well documented, this model may require customers to get multiple home assessments if they want multiple bids. Depending on who pays for assessments, this adds costs for customers, contractors, or programs.

An integrated model has typically worked best in situations where:

- Programs have high confidence in the integrity and skills of their contractors
- Contractors already have strong relationships with customers
- There aren’t many independent assessors in the community.

If an integrated approach makes sense for your program, be sure to implement a robust quality assurance system that includes:

- Quality work standards and participation requirements for contractors
- Monitoring contractor recommendations for upgrade measures to ensure that customers are getting good advice on the most cost-effective measures for their homes
- Steps to verify contractor recommendations and the results of their work
- A process for resolution if homeowners feel that contractors proposed and undertook work that was not in their best interests.

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**Austin Energy Uses an Integrated Model with Verification**

In Austin Energy’s Energy Accelerator program, participating contractors provide homeowners with a streamlined 30-minute visual assessment, a proposal, and a cost estimate for recommended residential energy efficiency upgrades at no charge. The contractors cover the cost of the assessment but are supported by Austin Energy’s program through co-marketing and other efforts to drive demand.

Austin also has a real estate disclosure ordinance that created homeowner demand for assessments at the time of sale. Homeowners may get multiple assessments from multiple contractors to compare proposals and prices.

Homeowners select one or more contractors to provide a visual assessment and develop a proposal and cost estimate. Once the homeowner selects a home performance professional to do upgrade work based on his or her proposal and cost estimate, Austin Energy performs an in-house verification of the proposal with the home performance professional and homeowner to ensure that the proposed measures are appropriate for that particular home.

According to Austin Energy, the integrated model with the additional verification step has several advantages:

- Home performance professionals have the knowledge and experience to know what kinds of energy upgrades are appropriate for a home.
- Home performance professionals can provide accurate cost estimates for energy upgrades during the home assessment and timely and useful information for homeowners needing to make decisions.
- The verification process conducted by Austin Energy provides an opportunity to reinforce a home performance professional’s recommendations or make additional suggestions.

To find out more about how Austin Energy is working with contractors, see the case studies:

- Austin Energy Residential Power Saver Program
- Spotlight on Austin, Texas: Let Your Contractor Be Your Guide for Big Rewards
- Spotlight on Austin, Texas: Best Offer Ever Produces Upgrades in Record Time

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**Independent Energy Assessment Model**

In an independent energy assessment model, one contractor conducts the energy assessment and another conducts the upgrade. This division of responsibilities helps ensure that recommended upgrades are in the best interests of the homeowner. It can increase homeowners’ confidence that they are getting unbiased advice, and the homeowner may feel less committed to a particular contractor when they choose who will conduct the upgrade. However, because independent assessors are paid for an assessment rather than an upgrade, the assessor has less of an incentive to encourage homeowners to follow through with recommendations and undertake an upgrade.
In some cases, independent energy assessment contractors have relationships with particular upgrade contractors to whom they direct homeowners. This can help homeowners identify appropriate upgrade contractors, but it may weaken the independence of the contractor conducting assessments.

With two or more different companies involved, task coordination and workflow management can be more challenging under this model. After the assessment, homeowners might be less likely to pursue energy upgrades because they need to spend more time and effort to choose qualified contractors. (And independent assessors may not take full advantage of the assessment as a primary tool for marketing upgrades to homeowners).

Assessment costs may be higher in this model because assessment-only contractors have to cover their full assessment costs rather than covering some costs through earnings from upgrade work. This may translate into higher out-of-pocket expenses for customers or higher costs for programs if the program is subsidizing part of the assessment costs. Quality assurance costs may be higher as well because programs need to ensure the quality of contractors conducting assessments as well as those implementing upgrades.

An independent energy assessment model has typically worked best when:

- Independent assessors are available
- A program has many contractors and there is not good information about their qualifications and integrity
- The contractor base does not include many experienced whole home professionals (in which case assessors can help define appropriate scopes of work).

If an independent energy assessment model makes sense for your program, be sure to:

- Incorporate a workflow management system to ensure a smooth transition from the contractor conducting the assessment to the contractor conducting the upgrade and help reduce the likelihood of project delays or homeowners losing interest
- Offer support and guidance to homeowners to minimize the complexity of interpreting the assessment and completing the upgrade process
- Provide customer-friendly lists of qualified contractors to homeowners.

Programs Provide Information on Contractors and Energy Advisors to Customers

Some programs not only provide lists of contractors and energy advisors, but also customer feedback about them that is useful to potential customers. Examples include:

- Efficiency Maine, which has set up a page on its website where customers can find energy advisers and view feedback on their work. The results are filtered by location and can be differentiated by areas of expertise, number of projects completed, and customer satisfaction.
- Maryland’s Home Performance with ENERGY STAR program, which has a website in which homeowners can rate and review their contractors. Reviews are published on the website as part of each contractor’s information page. Users of the website can search for contractors and sort the results based on homeowner ratings.

Energy Advisor Model

In an energy advisor model, a program-sponsored advisor provides advice and process management to customers in conjunction with either the integrated model or an independent energy assessment model described above. Energy advisors help customers understand, manage, and successfully navigate the home energy assessment and upgrade process regardless of which assessor or contractor they may work with. Multiple programs have found that energy advisors have increased homeowner satisfaction and improved assessment-to-upgrade conversions.

In Their Own Words: Energy Advisors Build Trust
Energy advisor services are a strategy for addressing informational, decision-making, and transactional barriers that prevent customers from completing an upgrade. Programs have offered a portfolio of services based on the barriers faced by their customers, including:

- Program orientation
- Scheduling the assessment and upgrade
- Contractor selection assistance
- Reviewing the assessment report and recommendations with customers in order to help them identify an appropriate scope of work for that customer
- General upgrade project management
- Paperwork assistance
- Advising customers about available financing options and rebates.

A key challenge for this model is the cost of energy advisors and the fact that the services they provide may not be fully recovered through program revenue. Anecdotal information, however, from programs suggests that successful energy advisor programs may reduce some other costs, such as:

- Requiring less investment in customer care services, such as a centralized customer help lines or call centers
- Spending less on marketing and customer acquisition because customers served by energy advisors are more likely to move forward with an upgrade (meaning the program doesn’t have to recruit as many)
- Allowing lower financial incentives because energy advisors help encourage upgrades directly.

An energy advisor model has worked well in situations where:

- Contractors do not have much sales experience and are not interested in obtaining it
- There are not many whole-building contractors (in which case energy advisors can provide information about whole building solutions)
- Contractors need assistance with project tracking, reporting, and coordination
- Past attempts to encourage home energy upgrades have not been successful.

Trusted Advisors Help Homeowners Overcome Barriers
In the report **Energy Advisors: Improving Customer Experience and Efficiency Program Outcomes**, Lawrence Berkeley National Laboratory describes the barriers that prevent homeowners from pursuing upgrades, and the energy advisor services to help address them. Programs have found that providing energy advisor services has enabled them to increase the number, depth, and breadth of energy-saving measures that homeowners install, as well as helping to streamline the process for customers. Energy advisors can create an opportunity to gain homeowners’ trust, build program credibility, and actively encourage customers to install the upgrades that were recommended during assessments. Several programs have used the energy advisor model to improve upgrade conversion rates and strengthen relationships with homeowners. The most common services that energy advisors provided were working with homeowners to review their assessment reports, and reviewing the final scope of work prior to completing the upgrade.
In Denver, the Energy Advisor Program Helped Homeowners Go the Extra Mile in the Mile-High City

The Denver Energy Challenge launched in 2011 with a “neighborhood blitz” model focused on door-to-door outreach. In early 2012, after experiencing difficulty scheduling energy assessments and converting them to upgrades, the program revamped itself and ultimately upgraded more than 5,900 homes by enlisting energy advisors who helped customers through each step of the home upgrade process. Eighty percent of customers enrolled in the advisor program completed at least one upgrade.

For more information about Denver’s approach, see the information from an interview with Denver Energy Challenge representatives about the program’s energy advisors.

Adapt an Existing Program Model Tested by Other Programs

It may be useful for your program to adapt an existing program model tested by other programs. For example, you can draw on the program design experience of DOE’s Better Buildings Neighborhood Program. DOE’s Home Performance with ENERGY STAR Program (HPwES) provides HPwES Sponsors with approaches for program design that synthesize various strategies into a whole house approach. The HPwES “News and Events” webpage provides updated information on program activities and accomplishments.

Small towns may want to draw on lessons from the Small Town Energy Program in University Park (STEP-UP), which produced information on program designs specifically for small towns. RePower Bainbridge has also developed a guide that serves as a “how to” reference for small or isolated communities based on its program experience.

Decisions about the products and services you offer and your service delivery model will greatly influence the development of your implementation plan and your detailed approach for interacting with customers and contractors.

Select and design key program coordination and communication activities

In addition to providing a set of products and services to customers, programs often conduct communication and coordination activities that help build program awareness, support partners, and coordinate the many activities associated with delivering products and services to customers. Programs may fulfill these activities themselves, contract with other organizations to complete them, or look to partners to fulfill them.

The list below is not exhaustive, but it identifies many of the most common communication and coordination activities that you may need to build into your program design.

Program Delivery and Evaluation:

- **Tracking and coordinating upgrade projects**, which helps streamline the interactions between customers, contractors, lenders, and your program. Effective tracking and coordination also allow your program to monitor what it is accomplishing, how well products and services are being delivered to customers and where you have opportunities for improvement. For more information about designing project tracking systems, see the discussion of program resources in the Program Design & Customer Experience Develop Resources handbook.

- **Customer call centers or other technical assistance**, which ensure that your program is responsive to customers’ needs, answers their questions, and keeps them from losing interest in completing their own home energy upgrades. For more information about designing call centers and other forms of customer assistance, see the discussion in the Program Design & Customer Experience Develop Resources handbook.

- **Evaluation**, which ensures that you are tracking and communicating what your program is accomplishing and engaged in ongoing learning about how to adapt and improve. For more on the design and implementation of program evaluations, see the Evaluation and Data Collection component of the Solution Center.

Marketing Incentives, and Financing:

- **Marketing and branding**, which communicates the value of residential energy efficiency, educates customers, and lays the groundwork for energy upgrades. These activities support the long-term development of a sustainable market for residential energy efficiency for your program and your partners. For more information on the design of marketing and branding efforts, see the Marketing & Outreach component of the Solution Center and, specifically, the Make Design Decisions handbook.
Managing financial incentives for customers, which ensures that customers know about and receive all of the incentives for which they are eligible in a timely manner and that contractors are knowledgeable about and telling customers about applicable financial incentives. This may include providing program-related incentives and/or coordinating with other organizations (e.g., utilities) that provide complementary incentives. For more information on the design of incentive systems, see the Marketing & Outreach component of the Solution Center and, specifically, the Make Design Decisions handbook.

Monitoring the status of financing with lenders, which tracks customers’ applications for financing and their receipt of loans. This information can help contractors know when work can begin and can help programs communicate status information to customers. For more information on tools for tracking customer status, see the Program Design & Customer Experience Develop Resources handbook.

Contractor Engagement and Workforce Development:

- Recruiting contractors, which helps ensure a sufficient pool of contractors that have the knowledge and skills to meet the demand that your program is creating. For more information about recruiting strategies, see the Contractor Engagement & Workforce Development component of the Solution Center and, specifically, the Identify Partners handbook.

- Ensure a qualified workforce, which supports training and employment assistance for home performance professionals. For information on creating a workforce development plan, see the Contractor Engagement & Workforce Development component of the Solution Center and, specifically, the Develop Implementation Plans handbook.

- Contractor coordination, which links customers interested in energy assessments and upgrades with contractors that can do the work. This helps create business opportunities for contractors—especially if accompanied by contractor sales training—and effective coordination keeps customers and contractors satisfied with the program. According to a comprehensive evaluation of over 140 programs across the country, successful programs provided lists of pre-approved contractors and gave homeowners the option of contracting directly with them. For more information on the design of approaches for coordinating with contractors, see the Contractor Engagement & Workforce Development component of the Solution Center and, specifically the Make Design Decisions handbook.

- Quality assurance and quality control, which ensures that upgrade work proposed and conducted for homeowners meets program quality standards and achieves desired results. For more on creating a quality assurance and quality control process, see the Contractor Engagement and Workforce Development component of the Solution Center and, specifically, the Develop Implementation Plans handbook.

At this point in program design, you should be able to map out what services your program and partners will provide and what communication and coordination activities your program and partners will undertake. Your implementation plan will go into greater detail on products, services, and activities to ensure that you have identified critical coordination points with customers, contractors, lenders, and other partners.

Get feedback on your program design

Good program design can be complex. Seek input from experts in the various components of your program. You can also seek input from partners and stakeholders such as local utilities, state or local energy offices, regional energy efficiency organizations, housing organizations, and groups representing specific target populations. These conversations can also help build stakeholder buy-in for your program design and help identify potential program champions. This will help develop the community’s trust in the product and enhance your marketing efforts from the beginning.

Take the opportunity to get customer input into your program. Acquiring feedback directly through focus groups is one way to get customer perspectives. Program partners that work closely with your community may also have good information about customer insights. Customer input can help you select measures to provide, design service delivery methods, and craft incentive programs that spur program participation.

Use the Better Buildings Residential Network to Get Ideas and Feedback on your Program Design

The Better Buildings Residential Network connects residential energy efficiency programs and partners to share best practices to dramatically increase the number of American homes that are energy efficient. Membership is open to organizations committed to accelerating the pace of existing residential upgrades. Members commit to provide DOE with an annual update of the organization’s residential energy upgrades and information about benefits associated with those upgrades. Benefits of membership include:

- Invitations to monthly topical calls on key program design and implementation topics
- Tools, templates, resources, and proven solutions shared by members
- Newsletter and other available updates on residential energy efficiency trends
- Opportunities to be featured in media, case studies, and lessons learned materials
- Optional program benchmarking.
Tips for Success

In recent years, hundreds of communities have been working to promote home energy upgrades through programs such as the Better Buildings Neighborhood Program, Home Performance with ENERGY STAR, utility-sponsored programs, and others. The following tips present the top lessons these programs want to share related to this handbook. This list is not exhaustive.

Keep the program simple for your customers

Given all of the other things that compete for your audience’s attention, it is critical that program participation steps are straightforward and easy to understand. Many programs have found that complexity makes it harder for interested homeowners to complete upgrade projects. These programs have focused on streamlining services, requiring as few steps as possible for customers, and keeping the message about the upgrade process simple.

- **Enhabit**, formerly Clean Energy Works Oregon, provided a “One-Stop Shop” Home Energy Remodel process to guide customers through a four-step process: apply, assess, finance, and transform. This simple process gave customers access to a comprehensive package of services that included low-interest financing and rebates, free energy assessments, assistance from an independent energy advisor, and the option to repay monthly loan obligations through their heating utility bills. To keep the process simple for customers and, in the process, improve program administration efficiency, Enhabit focused on process automation through its internal project tracking system.

- The **EnergySmart** program in Boulder County, Colorado, found that having an energy advisor assigned to each program participant throughout the home upgrade process was a key to keeping the program simple for customers and for overall program success. Energy advisors offered easily accessible subject-matter expertise, project management support, and encouragement to help customers make decisions and complete their upgrades. They installed low-cost energy savings measures and helped homeowners review assessment reports, determine which home improvements to pursue, select contractors, and apply for rebates and financial incentives. EnergySmart enjoyed a robust conversion ratio; nearly 70 percent of enrolled homeowners completed a home energy upgrade. For more on energy advisors, see [Energy Advisors: Improving Customer Experience and Efficiency Program Outcomes](#).

- Recognizing that many different types of energy efficiency financing and rebates were available to its customers—but that it could be overwhelming to sort through them all— **RePower Bainbridge** helped customers access aggregated information by creating a consumer-friendly guide to all utility and non-utility incentives in its service area. The local utility benefited from the guide as well—it made the guide available to all of its customers.

Provide customers with a single point of contact to help them through the upgrade process

While homeowners may be interested in the benefits of an energy upgrade, many are deterred from completing an upgrade project because of the complex and unknown process. Often, a significant portion of homeowners who receive energy assessments do not continue with the upgrades. As part of the Better Buildings Neighborhood Program, multiple programs across the country tested a range of customer service strategies through a single point of contact to guide homeowners through the entire upgrade process. These program staff members are often called energy advisors or energy coaches and can provide a combination of services to help customers overcome barriers to home energy upgrades.

This approach – identifying barriers and providing targeted services through dedicated energy advisors to overcome them – has produced higher conversion rates and more satisfied customers; however, these services can also be time-intensive and increase the cost of program delivery. For more information on utilizing energy advising services to minimize informational, decision-making, and transactional barriers faced by homeowners, see [Energy Advisors: Improving Customer Experience and Efficiency Program Outcomes](#).
• **EnergySmart** in Boulder County, Colorado, found that having an energy advisor assigned to each program participant through the home energy upgrade process was a key to program success. Energy advisors built trust with the customer during an initial home visit and maintained a one-on-one relationship with homeowners throughout the process. Energy advisor services included installing low-cost measures, reviewing the assessment report and work scope, assisting with contractor selection, and helping with program paperwork. The relationship endured after the upgrade: after they completed their first upgrade, program participants frequently continued to stay in communication with energy advisors about additional projects and questions. Through customer surveys, Boulder found that 97% of customers rated their energy advisor as professional, knowledgeable, and timely. These customers agreed that “working with my Energy Advisor has been worth my time and effort.” In Boulder, around 60-70% of homeowners enrolled in the program took actions to upgrade their homes.

• Energy advisors for **Enhabit**, formerly Clean Energy Works Oregon, provided education, objective advice on the assessment report and work scope, and quality control to customers across nearly half of the state. Program staff helped customers initiate the process by scheduling a home energy assessment, and they provided a quality control review following upgrades. Advisors also monitored the progress of each project through internal project pipeline status reports, which helped reduce bottlenecks and minimize customer frustration. The energy advisor strategy helped Enhabit achieve a 94% customer satisfaction rating during the program pilot. Enhabit found that in some cases—such as having energy advisors present at assessments conducted by high performing contractors—the program could reduce energy advisor services without impacting customer satisfaction or reducing the number of upgrades completed. This knowledge allowed the program to reallocate their resources.

• The **Denver Energy Challenge** provided customers with free energy advisor services starting with an initial phone call. The energy advisors helped customers by identifying available rebates and financing options, finding qualified home improvement contractors, reviewing bids, providing education on energy improvements, and even connecting qualified residents with other free or subsidized energy improvement services outside of the Denver Energy Challenge. As a result of this support, nearly 75% of customers who worked with an energy advisor went on to complete a home energy upgrade.

• **NeighborWorks of Western Vermont** staff scheduled all contractor visits for its customers residing in small towns across Rutland County. Once contractors completed home energy assessments, energy advisors reviewed assessment reports with customers. This review helped customers understand the content of the reports and prioritize improvements to be undertaken based on their needs and budgets. Energy advisors helped customers apply for financing (as needed) – a common point in the upgrade process where projects stall – and move on to the next steps. The energy advisor acted as the customer’s primary point of contact for information about the assessment and upgrade process. This approach contributed to the program’s success in completing over 600 upgrades from 2010 through 2013.

• **Greater Cincinnati Energy Alliance** (GCEA) energy advisors helped homeowners through every aspect of the upgrade process, from requesting an assessment to hiring a contractor. The program found that offering energy advising services through one individual person – the energy advisor – made potential customers more comfortable with the program, even if many customers did not actually contact the advisor. This hands-on customer service increased the number of completed upgrades and ensured that a high standard of quality was maintained throughout the process.

Make upgrade options clear and concise for customers

Programs in many regions of the U.S. find that the concept of home performance is new to homeowners. Homeowners may not know how energy efficiency measures compare (e.g., energy savings benefits of insulation versus new windows) or have not heard about some effective measures, such as air sealing. Programs can help customers overcome decision paralysis with a prioritized list of upgrade recommendations and help deciding which measures to undertake. Several programs have devised simple approaches to help customers understand the energy savings, cost savings, and other benefits from various types of measures, so homeowners can choose what is best for them. Recognize that customers may have other priorities when considering an assessment’s proposed measures (e.g., improving the look of their home with new windows or replacing an aging furnace before winter weather sets in).

• **Austin Energy** developed a form to estimate energy savings using a point system that contractors could use with residents during a home assessment. The form helped contractors and customers quickly determine which measures would achieve 15% energy savings in the home. Texas A&M’s Energy Systems Laboratory validated the point system for the program to ensure its accuracy and integrity. The program found that this streamlined approach was appealing to customers and contractors.

• **Los Angeles County’s Energy Upgrade California** implemented the **Flex Path program** that used a point system to show the energy savings from a menu of energy upgrade measures. To be eligible for program rebates, residents then selected which measures they would like to undertake that would total over 100 points and achieve 15% energy savings.
Many programs that focused on a specific neighborhood or other small geographic areas have found it difficult to generate enough customer interest, partner interest, and upgrade activity to meet program goals. Regional or statewide approaches are often more attractive to contractors, lenders, utilities, and other partners than smaller markets defined by neighborhoods or city boundaries because they align with more typical service territories. Programs have found that larger contractors often are not interested in working in multiple cities or towns that have varying qualifications procedures and incentive rules. Utility partners are often better able to engage with a program's design, and therefore a greater investment in its outcome. For more on working effectively with contractors, see the Contractor Engagement and Workforce Development handbooks.

**Keep program participation simple for your contractors**

Successful residential energy efficiency programs strive to set requirements for high-quality home energy upgrades and streamline processes to facilitate contractor participation. Balancing these two essential elements can minimize the burden on contractors and help the program maintain a consistent pool of qualified professionals. Satisfied contractors are a key to satisfied customers and successful programs.

To reduce contractors' reporting costs and enable timely and complete reporting, programs have streamlined contractor reporting forms while still collecting the necessary information for program operations. Most programs also avoid making contractors meet locally-specific certification requirements, instead requiring certification from nationally recognized programs. Many have found that soliciting ongoing feedback from contractors and communicating early about new offerings and potential changes allows for contractors to have a voice in the program's design, and therefore a greater investment in its outcome. For more on working effectively with contractors, see the Contractor Engagement and Workforce Development handbooks.

- **Long Island Green Homes** began consulting with contractors during program design and continued to do so as the program launched. The program made it a priority to engage with a core group of trusted contractors when rolling out program changes, asking them about their needs, concerns, and current state of business. In this way, the program ensured that program offerings were adding value for the home performance industry and that program requirements were manageable for contractors.

- **NeighborWorks of Western Vermont** focused on listening to the needs, wants, and issues of contractors, so the program could help them serve customers most effectively. The NeighborWorks program held individual monthly meetings with each contractor to review client status, as well as bi-weekly group contractor meetings to review program issues, alert contractors to any changes in the program, and provide learning opportunities.

- **Enhabit**, formerly Clean Energy Works Oregon, has been very successful in engaging contractors in regular, ongoing communication and making adjustments to the program in response to contractor feedback. For example, when Enhabit engaged a new financing partner, the program asked contractors to examine the loan product and approval process. Leadership of the Home Performance Contractors Guild of Oregon, an organization that provided a unified voice and formal role for program contractors, identified that the timing of loan signings came too late in the contractor sales process. The guild said the financing product would not be of much use to contractors because contractors would have to expend considerable effort in a project before knowing if their customer could get a loan to pay for it. As a result, Enhabit renegotiated with the financing partner to put the loan signing earlier in the sales process. For more information, see the case study Making the Program Work for Contractors.

**Make sure there are enough customers in your target market to meet your goals and attract partners**

Many programs that focused on a specific neighborhood or other small geographic areas have found it difficult to generate enough customer interest, partner interest, and upgrade activity to meet program goals. Regional or statewide approaches are often more attractive to contractors, lenders, utilities, and other partners than smaller markets defined by neighborhoods or city boundaries because they align with more typical service territories. Programs have found that larger contractors often are not interested in working in multiple cities or towns that have varying qualifications procedures and incentive rules. Utility partners are often better able to engage with a program offering services across a large segment of their customers. Historically, credit unions, community banks, CDFIs, and national lenders already specializing in energy efficiency loans have been more receptive to partnerships with residential energy efficiency programs.

- **Be SMART Maryland** shifted away from a volunteer-driven, neighborhood-by-neighborhood approach in favor of marketing through contractors and local community organizations to a broader geographic area. The program found it difficult to manage marketing and outreach to diverse geographic locations with the neighborhood approach (e.g., volunteer networks were difficult to engage and inconsistent from community to community). The adjustment in marketing strategy and target audience definition expanded Be SMART Maryland’s service area, proved to be more effective in generating interested customers, and made the program more attractive to qualified contractors.

**Michigan Saves**, formerly BetterBuildings for Michigan, provided customers with a “base package” that included an energy assessment, direct installs of compact fluorescent light bulbs and water saving devices, and basic measures like air and duct sealing. Customers could then choose to undertake additional measures (e.g., insulation, furnace replacement) in addition to the base package. The program found that the clear and concise base package was a good way to get people into the program, but it wasn’t sufficient to reach the program’s goal of 15% energy savings in upgraded homes. Getting homeowners to achieve higher energy savings through additional measures required incentives, such as rebates and low interest financing. For more information, see the case study Experiment to Find the Right Mix of Incentives.
Incentivize the action you want your customer to take

Successful programs know that it is not enough to get customers interested in their services. They know that homeowners that receive assessments but don’t undertake upgrades don’t receive the benefits of energy efficiency—and programs don’t get credit for energy savings. Instead of emphasizing interim steps, these programs make sure their messages and incentives encourage customers to take actions that save energy—whether it is a home energy upgrade, updating heating system, or purchasing energy efficient appliances.

Multiple programs across the country have settled on an assessment price around $100. Their goal—an energy upgrade. For more information on how Michigan modified the incentive structure of its program, see the case study Experiment to Find the Right Mix of Incentives.

- **Community Power Works** (CPW) in Seattle found that its geographic scope was too narrowly focused when it first began providing services. At that time, CPW was focused on specific areas of the city, including many low-income neighborhoods. These geographic boundaries limited the number of potential customers, and many homeowners in these areas did not have the financial ability to invest in energy efficiency upgrades or access financing. CPW achieved significantly higher results once it expanded its geographic scope to the entire city in early 2012, more than doubling the number of eligible households. The expansion of the service territory—along with other program changes, such as simplifying and increasing incentives and offering new financing options—significantly boosted the number of upgrades per month from around 10 per month in late 2011 to around 50 per month in mid-2012. For more information, see Seattle Community Power Works’ Fall 2012 Progress Report.

- **Energize Phoenix**, which focused its program on a central downtown light rail corridor, expanded its service area after a year of operations in late 2011 to increase the number of homeowners eligible for upgrades and unite neighborhoods that the previous boundaries had unintentionally divided. After the program launched, managers realized that the original program boundary, scaled down to better match funding amounts, divided close-knit neighborhoods and didn’t correspond to traditional media and market boundaries. The program found that it was hard to target its marketing and outreach only to residents in the service area without also reaching those ineligible for the program. Especially in tight-knit neighborhoods, this created discord over who qualified for the program and who did not. When the program expanded the service area in 2011 to cover entire neighborhoods, it increased its geographic area by 55% and increased the number of eligible residential parcels by 77%. This helped drive an increase in single family and multifamily upgrades in 2012 and 2013. After three years in operation, the program upgraded over 2,000 housing units. For more information on the program and the expansion of its service area, see Energize Phoenix’s Energy Efficiency on an Urban Scale, Year Three Report: Results.

- The New Hampshire **Beacon Communities Project**’s original upgrade goals were based on the state’s Climate Action Plan and some general knowledge about the demographics of the three participating communities in the program. As the program began to unfold, however, the program noticed significant differences between the estimated number of projects and the actual level of demand. The projections were likely high because the original estimates were based more on need (i.e., how many buildings the state should upgrade), rather than an analysis of the existing market demand and potential for expansion. By the end of the grant period in 2013, a suite of efforts, including increased marketing and a statewide expansion of its residential program helped the program exceed its revised residential upgrade goals.

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- **Mountain Energy Alliance** (GCEA) promoted low cost energy assessments through its contractors to generate interest for the program. GCEA found that a high percentage of homeowners took advantage of the low-cost assessments with no intention of proceeding to a home energy upgrade. This resulted in a lower-than-expected conversion rate of assessments to completed upgrade projects. In response, GCEA increased the cost of assessments, which excluded homeowners that were merely curious. As a result, the program’s conversion rate increased. At the same time, the program realized that homeowners in the region were not prepared to pay the full market cost for an assessment. GCEA suggests that programs establish a price for home energy assessments that is high enough to reduce the number of homeowners pursuing assessments out of curiosity with little intention to upgrade their homes, but low enough to generate a demand sufficient enough to support a home performance industry. Multiple programs across the country have settled on an assessment price around $100.
• The goal of Enhabit, formerly Clean Energy Works Oregon, was to achieve at least 15% energy savings in each home, but it designed its rebates to reward even greater energy savings. For example, when rebates for 15% energy savings were $500, rebates were $1,000 for 25% energy savings, and $1,500 for 30% energy savings. These incentive levels contributed to the fact that 85% of those participating in Enhabit’s program reduced their energy use by more than 30%. Enhabit’s Executive Director reported that “our incentive structure gets customers excited about aiming high and gives contractors a lever to encourage a more comprehensive scope of work.” To learn more about Enhabit’s experience, see the case study Use Incentives to Get Attention and Encourage Deep Savings. Austin Energy offered a similar tiered rebate system.

Develop partnerships based on an alignment of goals, strong collaboration, and consistent communication

Programs that have developed strong and lasting partnerships have done so by identifying shared goals and seeking ways in which programs and partners can mutually benefit by advancing each other’s missions. Even if partners don’t have the same goals as your program, you can still try to find ways to work together that improve the success of both efforts. Several programs have established forums for regular communication with partners, such as a steering committee or stakeholder group that meets monthly or quarterly, to maintain collaboration and communication. Informal events—such as engaging with partners after hours in a social setting—have proven to be successful at building trust and camaraderie. One key lesson from programs that have established robust partnerships: remember that partnership development often takes more time than planned. Explore this Partnerships Toolkit by the Better Buildings Residential Network for more on partnership development and stakeholder mapping.

• The Better Buildings Program San Jose leveraged local, well-known organizations that delivered non-energy services to low-income residents to help the program reach interested homeowners. Most Holy Trinity Catholic Church and the local Boys and Girls Clubhouse offered the program space for events where they could meet with homeowners, teach them more about the program, and schedule home energy assessments. To help low-income residents cover the cost of home energy evaluations and upgrades, the program also created a partnership with Pacific Gas and Electric’s Moderate Income Direct Install program (which offered free home energy assessments and weatherization services to income-qualified residents) to allow all program customers into the utility’s program. To learn more about the Better Buildings Program in San Jose, see the case study “San Jose, California, Partners with Established Community Groups to Win over Homeowners”.

• Early in its program, EnergyWorks in Philadelphia established a partnership with its local gas utility, Philadelphia Gas Works (PGW), to share lessons learned and customer information, including sharing energy use data once customers authorized its release. This partnership helped PGW enhance its own energy efficiency programs by applying the knowledge learned about home energy upgrades from EnergyWorks. The partnership also provided PGW customers with access to EnergyWorks’ loan program. For EnergyWorks, the partnership gave it access to PGW customers for marketing. Learn more about the partnership from the case study “In the City of Brotherly Love, Sharing Know-How Leads to Sustainability”. EnergyWorks found that by the end of their Better Buildings Neighborhood Program grant period, they had identified a successful formula of marketing, outreach, and contractor interface. They wanted their lessons learned to be useful in the future continued working with the city-owned utility, Philadelphia Gas Works (PGW) to develop a new utility-run energy efficiency program. This program built off and mirrored the design of the EnergyWorks program by incentivizing comprehensive, whole-home residential energy efficiency projects. EnergyWorks’ role changed to providing training and acting as a general contractor, which gave it more flexibility. PGW was able to provide bigger incentives than EnergyWorks could. In addition, PGW benefited from increased customer satisfaction by offering the program, so the program evolution and partnership was a win-win for everyone involved. For more information, see the U.S. Department of Energy’s Focus Series Interview with Philadelphia Energy Works.

• Michigan Saves, formerly BetterBuildings for Michigan, established a partnership with Grand Valley State University (GVSU) to take the program’s community-based approach to a new type of community—university staff—through a semester-long, employer-assisted initiative. The program found that the sustainability staff members at GVSU were interested in the program, and program staff described a “sustainability ethic ingrained in the school’s culture.” GVSU employees were receptive to the energy efficiency message. University leadership joined in as well, with the provost’s office and university president writing letters to staff in support of the program. The school’s human resources department helped the program develop a database to manage services to employees. As a result of the program, 215 people working for GVSU (nearly 10% of total employees) signed up for the program. By going through the university, these sign-ups cost one-fourth to one-third of the program’s normal marketing cost per person. Sixty percent of the homeowners who participated in the GVSU program undertook home upgrades, which was higher than Michigan Saves’ average rate of 44%. To learn more about the effort, see the interview with program leads: “It’s Academic: BetterBuildings for Michigan Partners With University to Reach Employees”.

Provide adequate time for data system development and testing
Many Better Buildings Neighborhood Program partners found that setting up their information technology (IT) systems early in the program design stage ensured that data terms and data entry procedures were consistently applied by all system users. Reaching agreement with stakeholders (e.g., contractors, lenders, marketing partners, evaluators, program staff) on what data the data system would collect, known as system requirements, and how the collected data would be used to evaluate the program helped programs ensure that the data collected was complete. Programs have also found that they receive data of the quality needed for graphs and cost-effectiveness calculations when stakeholders agree up front that the data will be used for these purposes and not just to track energy savings and expenditures.

- **Be SMART Maryland** found that transitioning from spreadsheet-based data collection system to a customized energy IT system was crucial to administering a multifaceted energy efficiency program with rigorous data collection requirements. Investing in their system while they were still designing their program allowed Be SMART to smoothly integrate the system into the program’s operations and to ensure quality data collection and integrity over time. Be SMART also found that while spreadsheets were useful tools in collecting data, their use in analyzing data and generating reports was limited, since the program had to go through a time-consuming consolidation process to combine data from different sources and spreadsheets.

- In Boulder County, Colorado, **EnergySmart** found that it took between four to six months for a database developer and coding consultant to fully develop and test the data system because of its high level of complexity and the customization required. The program also found that having actual users test the system with real inputs and real reporting requirements helped ensure better data quality and user-friendliness. In addition, EnergySmart found that before beginning database development, it was important to reach agreement among stakeholders on what reporting will be expected, and design the database to facilitate building and exporting the reports. For EnergySmart, it was important to set expectations with report recipients about the IT system’s reporting capabilities early on in the process, so recipients did not expect reports that the system was unable to produce.

### Offer homeowners multiple types of assessments

Several successful residential energy efficiency programs offered multiple types of home energy assessments to appeal to a wider spectrum of homeowner interests and needs. These ranged from online home assessments to brief walk-throughs to full diagnostic testing. A comprehensive evaluation of over 140 energy efficiency programs across the U.S. found that programs offering participants more than one option for home assessments were more successful than those that did not. Some have found that more comprehensive assessments can motivate customers to undertake deeper energy upgrades, as noted in a 2015 *Resources for the Future* study. For others, low-cost, less time-intensive assessments can attract homeowners with less need for improvement, time, or funds to invest. Offering more basic and more advanced assessment options gives customers an anchor, or reference point, and enables them to choose the best method to begin the upgrade process based on their needs and resources.

- **RePower Bainbridge** offered interested homeowners two pathways for participating in the program: pay a fee for an in-depth assessment with diagnostic equipment performed by a BPI-certified contractor or start with a more basic, free home assessment conducted by a RePower Bainbridge energy advisor. The free assessment provided homeowners with a customized list of the three highest priority recommended energy upgrades, information about the home’s seasonal and base-load energy usage, information about non-energy benefits of upgrades, rebate availability, and recommendations for local home performance contractors. With the paid assessment, homeowners receive a detailed energy use report for their home, an Energy Performance Score, energy upgrade recommendations, and a comparison of the home’s current energy costs to estimated costs following recommended upgrades. Through the program, 900 basic assessments were completed and 306 comprehensive audits were conducted. The basic assessments led to an 11.4 percent conversion rate, while the comprehensive audits led to a 40 percent conversion rate, resulting in 124 upgrades out of the program’s 606 total.

- **Boulder County, Colorado’s EnergySmart** program set out to create an upgrade process that was as easy as possible for participants. Energy advisors played a key role in lowering barriers to participation, including directing homeowners toward the most appropriate type of assessment for their needs. Options included a free phone consultation, a walk-through assessment with an energy advisor for $50, or a comprehensive audit at $135 – all subsidized by the program. Energy advisors explained upgrade options during audits, and would follow up with participants to encourage them to take action. The comprehensive audit was the most frequently selected option, and represented more than 50 percent of the total households that went on to complete an upgrade.

- **Early in its program, Clean Energy Works** (then operating only in Oregon) conducted a full Home Performance with ENERGY STAR assessment for each participating home; however, this approach was costly for the program and contractors. To reduce costs, Clean Energy Works implemented the 100-Point Performance Check. Assessors go through the list with homeowners during a free initial visual assessment. If the homeowner decides to undertake upgrades, they can invest in more in-depth diagnostic testing.

### Offer customers a range of upgrade paths, including single measures and staging upgrades over time
Programs that offered several paths for customers to upgrade their homes—for example through a choice of single or bundled measures, staged upgrades over time, or a comprehensive whole home upgrade—were found to motivate greater homeowner participation and generate higher energy savings, according to a comprehensive evaluation of over 140 programs across the United States. Providing a limited number of options with different levels of cost and complexity allowed programs to appeal to a broader range of homeowners and contractors. Including options also provided homeowners with a reference point against which to compare available options. Information about the program examples below can be found in the evaluation report, Spotlight on Key Program Strategies from the Better Buildings Neighborhood Program (Final Evaluation Volume 6).

- **Austin Energy** provided two options for homeowners: mid-tier and advanced-tier. Those that chose the advanced tier received a comprehensive third-party assessment with on-site diagnostic testing and energy modeling; they also received financial incentives to improve energy performance by at least 20 percent. The mid-tier option gave participants a list of eligible measures with point values and specified a minimum total point value that equated to at least 20 percent energy savings. Participants in the mid-tier did not receive energy modeling or advanced home diagnostics. The mid-tier option was Austin Energy’s most heavily subscribed program.

- **Los Angeles County’s Energy Upgrade California** began by offering participants two options: basic path and advanced path. The basic path was a prescriptive set of efficiency measures that would qualify for financing, and the advanced path included a full energy assessment and whole-house energy modeling. The program assumed that most upgrades would occur via the basic path; however, this option had minimal participation because homeowners saw its requirements as being too burdensome. In response, the program created a new **Flex Path option** that provided an extensive menu of upgrade options and a $1,500 homeowner incentive. Despite the fact that the Flex Path rebate was lower than that offered via the basic and advanced paths, the Flex Path met the goal of achieving 500 upgrades in only four months, far surpassing participation in the basic and advanced paths. Fifty-seven percent of Los Angeles County projects were Flex Path, compared to 42 percent advanced path and only 1 percent basic path. More than 80 percent of participants reported the availability of the Flex Path incentive was important in their decision to move forward with energy upgrades.

- **Efficiency Maine** structured its incentive program around two upgrade options: a comprehensive project path and a simpler prescriptive project path. The comprehensive project path included two tiers of incentives, based on the expected energy savings from an upgrade. Participants who chose the prescriptive project path received a $400 incentive to cover the assessment and air sealing, and could earn further incentives for additional measures. The prescriptive path allowed homeowners to take a phased approach. It provided incentives to homeowners that underwent an energy assessment, completed air sealing, and installed at least one other energy upgrade measure. Approximately 40 percent of Efficiency Maine’s projects went through the comprehensive path, and 60 percent used the prescriptive path. Energy savings for the two paths was similar, at approximately 25 percent average savings per project.
Examples
The following resources are examples from individual residential energy efficiency programs, which include case studies, program presentations and reports, and program materials. The U.S. Department of Energy does not endorse these materials.

Case Studies

Energy Advisors Build Trust
Author: U.S. Department of Energy
Publication Date: 2014
In this video interview segment, Yvonne Kraus of Conservation Services Group describes how energy advisors were an important strategy for building trust with customers in the community.

One-On-One Communication Delivers Strong Customer Satisfaction
Author: U.S. Department of Energy
Publication Date: 2014
In this video interview segment, Ludy Biddle with Neighborworks of Western Vermont describes the benefits of one-on-one communications between customers and the Neighborhood H.E.A.T. Squad program's energy advisors.

Innovative Energy Efficiency Projects Implemented by Local Governments in the Southwest
Author: Southwest Energy Efficiency Project
Publication Date: 2012
Descriptions of eight county-level and city-level energy efficiency programs in the Southwest.

Spotlight on Austin, Texas: Best Offer Ever Produces Upgrades in Record Time
Author: U.S. Department of Energy
Publication Date: 2011
This case study describes Austin Energy's short-term, comprehensive rebate/financing offer to jump-start participation and valuable lessons learned along the way.

Spotlight on Austin, Texas: Let Your Contractor Be Your Guide for Big Rewards
Author: U.S. Department of Energy
Publication Date: 2011
This case study discusses strategies that Austin Energy, a municipally owned utility, used to collaborate closely with building contractors to launch a new Best Offer Ever promotion quickly and effectively.

Spotlight on Michigan: Sweeping the State for Ultimate Success
Author: U.S. Department of Energy
Publication Date: 2011
This case study describes an innovative program design used by BetterBuildings for Michigan to "sweep" neighborhoods in order to effectively reach its residential audience and achieve an 80% participation rate among those canvassed.

Spotlight on Rutland County, Vermont: How Local Ties Lead to Local Wins
Author: U.S. Department of Energy
Publication Date: 2011
Building on its understanding of homeowners in Rutland County, Vermont, NeighborWorks of Western Vermont (NWWVT) enlisted respected local citizens and organizations to spread the word about home energy efficiency upgrade opportunities, an effort that helped drive demand for nearly 200 home upgrades in just six months.

Spotlight on Seattle, Washington: Community Partnerships Work to Extend Program Reach
Author: U.S. Department of Energy
Publication Date: 2011
This case study shares how Seattle's Community Power Works engaged a vast network of partners to build on existing capacity and knowledge, extending the reach of its program in a short period of time.

Program Presentations & Reports
Strategies for Improving Efficiency in Delivering Efficiency
Author: Cynthia Adams, Local Energy Alliance Program; Larry Earegood, Consumers Energy (MI); John Schott, NYSERDA; Gavin Hastings, Arizona Public Service; Emily Salzberg, Washington State University Energy; Adam Buick, Community Power Works (WA); Bob Knight, BKi
Publication Date: 2014
Quick summaries of strategies various programs have used to improve the efficiency of delivering efficiency.

The Energy Advisor Model: Lessons Learned
Author: Dave Hatchimonji, EnergySmart
Publication Date: 2014
Overview of lessons learned from EnergySmart Colorado's energy advisor model.

Small Towns: Unique Markets and Messages
Author: Chuck Wilson, Small Town Energy Program
Publication Date: 2012
This presentation describes STEP-UP Maryland's program and lessons learned about designing custom messages for specific markets.

Pilot Process Evaluation Report
Author: Research Into Action, Inc.
Publication Date: 2010
This report describes the process evaluation of a pilot project in Portland Oregon that informed the refinement and expansion of the program statewide into Clean Energy Works Oregon (now Enhabit).

Energy Upgrade California in Los Angeles County: The Flex Path Program
Author: Steve Culbertson, BKi
Publication Date: 2012
This presentation talks about Energy Upgrade California's Flex Path pilot program which offers a menu of upgrade options for homeowners to select. Its flexible approach has been popular with middle-income homeowners interested in upgrades.

Going Deep Green: A Whole House Approach: Lessons Learned
Author: Kellie Stickney, SustainableWorks
Publication Date: 2012
Presentation on the SustainableWorks non-profit general contractor model for supporting energy upgrades in Washington state and lessons learned for implementing a whole house approach.

Keeping It Simple from the Customer's Perspective - CPS Energy
Author: Joni Zacharisen, CPS Energy; Clint McKenzie, City of San Antonio, Texas
Publication Date: 2012
Presentation describing the San Antonio program and tactics used to drive demand and enhance service delivery to make the program simpler for customers.

Keeping It Simple from the Customer's Perspective - Greater Cincinnati Energy Alliance
Author: Greater Cincinnati Energy Alliance
Publication Date: 2012
Presentation describing the Greater Cincinnati Energy Alliance program and tactics used to drive demand and enhance service delivery to make the program simpler for customers.

Keeping It Simple from the Customer's Perspective - State of Michigan and Michigan Saves
Author: Mary Templeton, BetterBuildings for Michigan
Publication Date: 2012
Presentation describing the State of Michigan and Michigan Saves programs and tactics used to drive demand and enhance service delivery to make the program simpler for customers.

Long Island Power Authority - What's Working in Residential Energy Efficiency Upgrade Programs
Author: Lisanne Alltmann, Long Island Power Authority
Publication Date: 2011
An overview of ENERGY STAR remodeling options and the associated cost savings.
National Grid: Home Performance with Energy STAR
Author: Jerry Hanna, National Grid
Publication Date: 2011
Brief presentation on the experience of a Massachusetts energy utility, National Grid, with the Home Performance with ENERGY STAR program.

“One-Stop-Shop” Home Energy Remodel
Author: Clean Energy Works Oregon (now Enhabit)
Publication Date: 2012
This presentation from Clean Energy Works Oregon (now Enhabit) covers their “One-Stop Shop” Home Energy Remodel process where customers were guided through a four-step process: apply, assess, finance, and transform. This simple process gave customers access to a comprehensive package of services that included assistance from an independent energy advisor.

Technology Solutions and Programmatic Approaches: Driving Innovation in Residential Energy Efficiency Strategies
Author: Kat Donnelly, EMpowerDevices; Kerry O’Neill, Earth Markets
Publication Date: 2012
Connecticut’s Neighbor to Neighbor Energy Challenge uses dashboards that display key project data for administrators and contractors to monitor progress over time. The program has evaluated performance at different steps in the process and identified strategies to improve performance where needed, such as sales training for contractors, energy advisors, monthly contractor scorecards, and multiple customer “touchpoints.” These improvements increased the close rate from 26 to 60 percent in one year.

What’s Working in Residential Energy Efficiency Upgrade Programs: Greater Cincinnati Energy Alliance
Author: Andy Holzhauser, Greater Cincinnati Energy Alliance
Publication Date: 2011
Presentation on the organization, funding structure, and market focus of the Greater Cincinnati Energy Alliance.

What’s Working in Residential Energy Efficiency Upgrade Programs Promising Approaches and Lessons Learned
Author: Anne Evens, CNT Energy
Publication Date: 2011
An overview of tools and approaches used to transform the energy efficiency market in Chicago.

Program Materials

EnergySmart 2014 Marketing Plan and Implementation Guide
Author: EnergySmart
Publication Date: 2014
This marketing plan describes a social mobilization approach that leverages social networking, including social media, and word-of-mouth marketing to raise awareness and drive customers to program services. It provides strategies and tactics to target audiences most likely to participate, building on market research and audience segmentation to develop a message platform specifically designed to address their key motivating factors and barriers.

Austin, Texas: Project Timetable
Author: Austin Energy
Publication Date: 2010
A project planning timetable template from Austin Energy that reflects all program planning activities, including marketing.

EmPower Louisiana, HERO-Existing Homes Program: Program Guidelines
Author: Louisiana Department of Natural Resources
Publication Date: 2011
Describes program guidelines for EmPower Louisiana’s Home Energy Rebate Option (HERO)-Existing Homes Program. Provides guidance to participants on how the EmPower Louisiana HERO Program will be implemented, and provides details on all aspects of the application and reporting process.
NYSERDA’s Home Performance with ENERGY STAR Process Flow Charts (23 KB)
Author: New York State Energy Research and Development Authority (NYSERDA)
Publication Date: 2010
Two visual flow charts, one that illustrates the process starting with customer interest to final incentive payment, and another that illustrates the program’s quality assurance process.

Program Design Flowchart for Eagle County, Colorado (55 KB)
Author: EnergySmart Colorado
Publication Date: 2011
Example of a program design flowchart showing key steps and relationships for the energy efficiency program in Eagle County, Colorado.

Program Design Flowchart for Greensboro, North Carolina (152 KB)
Author: BetterBuildings for Greensboro
Publication Date: 2014
Example of a program design flowchart showing key steps and relationships for the energy efficiency program in Greensboro, North Carolina.

100-Point Performance Check
Author: Clean Energy Works Oregon (now Enhabit)
Publication Date: 2015
Enhabit uses this 100-Point Performance Check to make recommendations to improve home performance.
Toolbox
The following resources are available to help design, implement, and evaluate possible activities related to this handbook. These resources include templates and forms, as well as tools and calculators. The U.S. Department of Energy does not endorse these materials.

Templates & Forms
None available at this time.

Tools & Calculators

**Buildings Performance Database**
Author: U.S. Department of Energy
The Buildings Performance Database (BPD) is the largest national dataset of real building performance data, and enables users to perform statistical analysis on an anonymous dataset of hundreds of thousands of commercial and residential buildings from across the country. One of the most powerful applications of the tool is custom peer group analysis, in which users can examine specific building types and geographic areas, compare performance trends among similar buildings, identify and prioritize cost-saving energy efficiency improvements, and assess the range of likely savings from these improvements.

**Better Buildings Financing Navigator**
Author: U.S. Department of Energy
Publication Date: 2017
The Better Buildings Financing Navigator is a web-based tool designed to help private and public sector organizations discover financing solutions for energy efficiency projects that meet their unique needs. Through the Financing Navigator, multi-family building owners, facility and energy managers, and other decision-makers can connect with financiers, including banks and financial institutions, to pursue energy-saving measures.

**HPXML Online**
Author: Home Performance Coalition
Publication Date: 2017
Home performance extensible markup language (HPXML) is a national Building Performance Institute Data Dictionary and Standard Transfer Protocol created to reduce transactional costs associated with exchanging information between market actors. This website provides resources to help stakeholders implement HPXML and stay updated on its development.

**Standard Energy Efficiency Data (SEED) platform**
Author: U.S. Department of Energy
Publication Date: 2014
The Standard Energy Efficiency Data (SEED)™ Platform is a software application that helps organizations easily manage data on the energy performance of large groups of buildings. Users can combine data from multiple sources, clean and validate it, and share the information with others. The software application provides an easy, flexible, and cost-effective method to improve the quality and availability of data to help demonstrate the economic and environmental benefits of energy efficiency, to implement programs, and to target investment activity.
Topical Resources
The following resources provide additional topical information related to this handbook, which include presentations, publications, and webcasts. Visit Examples for materials from and about individual programs.

Topical Presentations

**Innovations in Processes to Accelerate Home Upgrade Programs**
Author: Dale Hoffmeyer, U.S. Department of Energy; Chris Baker, Arizona Public Service (APS); Torsten Glidden, Build It Green
Publication Date: 2016
Achieving energy savings goals and improving customer and contractor satisfaction while staying cost-effective makes managing home energy upgrade programs challenging. DOE’s Home Upgrade Program Accelerator is working with program administrators to identify strategies that overcome challenges and achieve better results. The Arizona Home Performance with ENERGY STAR program completed process improvements that improved contractor satisfaction and deceased quality assurance labor. Build It Green implemented software improvements to their utility program’s online rebate applications portal to accelerate data processing.

**Making the Grade: Innovative Approaches to Improving Quality**
Author: U.S. Department of Energy
Publication Date: 2017
This summary from a Better Buildings Residential Network peer exchange call focused on innovative approaches to increase contractors’ work quality through feedback reports and contractor ranking, decrease quality assurance costs through remote quality assurance, and improve contractor engagement. It features speakers from Consumers Energy, Enhabit, and DOE.

**Fostering Behavior Change in the Energy Efficiency Market**
Author: U.S. Department of Energy
Publication Date: 2015
This summary from a Better Buildings Residential Network peer exchange call focused on fostering behavior change in the energy efficiency market.

**The Intersection of Health and Residential Energy Efficiency (201)**
Author: U.S. Department of Energy
Publication Date: 2016
This summary from a Better Buildings Residential Network peer exchange call focused on combining energy and health-related services.

Publications

**Energy Advisors: Improving Customer Experience and Efficiency Program Outcomes**
Author: Lawrence Berkeley National Laboratory
Publication Date: 2016
This white paper from Lawrence Berkeley National Laboratory describes the benefits and costs of energy advisors, and describes how residential energy efficiency programs have made use of them in their program design.

**Energy Efficiency Quick Start Programs: A Guide to Best Practices**
Author: Southeast Energy Efficiency Alliance
Publication Date: 2014
SEEA created this document to inform the planning, design and delivery of early-stage energy efficiency programs in the Southeast. This document captures general concepts essential to the successful development and implementation of robust program portfolios, as well as lessons learned from prior experience on the regional and national levels.
Reaching More Residents: Opportunities for Increasing Participation in Multifamily Energy Efficiency Programs

Author: American Council for an Energy-Efficient Economy
Publication Date: 2016

The multifamily sector can be hard to reach when it comes to energy efficiency programs. Besides being diverse and complex, the sector presents a unique set of challenges to efficiency investments. The result is that multifamily customers are often underserved by energy efficiency programs. Drawing on data requests and interviews with program administrators, this report summarizes the challenges to program participation and identifies best practices that programs can use to reach and retain large numbers of multifamily participants.

Multifamily Energy Efficiency Retrofits: Barriers and Opportunities for Deep Energy Savings

Author: Southeast Energy Efficiency Alliance; Southwest Energy Efficiency Project; Midwest Energy Efficiency Alliance; South-central Partnership for Energy Efficiency as a Resource; Northeast Energy Efficiency Partnerships, Inc.
Publication Date: 2016

This report was developed to help inform national stakeholders about the strategies that have been used to achieve deep energy savings in the multifamily housing sector through energy efficiency upgrades. These strategies could be used as models in areas where utility program administrators and policymakers seek to achieve deep energy savings in the multifamily building stock for the purposes of reducing energy costs, creating comfortable and healthy homes, meeting regulatory requirements, or reducing the environmental impacts of energy consumption. This report includes a national multifamily market characterization, barriers and opportunities for program and policy efforts, and eight exemplary case studies from across the country.

Home Performance with ENERGY STAR Sponsor Guide and Reference Manual (v1.5)

Author: U.S. Department of Energy
Publication Date: 2014

This guide assists with developing an implementation plan for a Home Performance with ENERGY STAR program. It covers key elements of the plan, including the scope and objectives of the program and the policies and procedures that will ensure its success, including co-marketing and brand guidelines (section 1), workforce development and contractor engagement (section 3), assessment and report requirements (section 4), installation specifications and test-out procedures (section 5), and quality assurance (section 6).

Best Practice Guidelines for Residential PACE Financing Programs

Author: U.S. Department of Energy
Publication Date: 2016

This document provides updated best practice guidelines to help implement the Policy Framework for PACE Financing Programs, initially announced on October 18, 2009. DOE has developed these revisions to the original “Guidelines for Pilot PACE Financing Programs,” initially issued on May 7, 2010, to reflect the evolving structure of the PACE market and incorporate lessons learned from various PACE programs that have been successfully implemented. The revised and updated guidelines focus specifically on best practices and guidelines for residential PACE financing programs.

Putting Your Money Where Your Meter Is: A study of pay for performance energy efficiency programs in the United States

Author: Natural Resources Defense Council
Publication Date: 2017

This report examines the history of pay-for-performance (P4P) energy efficiency approaches. As the report describes, there is a diverse spectrum of pay-for-performance programs but, at the most basic level, these programs track and reward energy savings as they occur, usually by examining data from a building's energy meters -- as opposed to the more common approach of estimating savings in advance of installation and offering upfront rebates or incentives in a lump-sum payment. The report finds that P4P has some important opportunities for increasing energy savings, but also key limitations that will need to be better understood through piloting and experimentation.

Capturing Energy Efficiency in Residential Real Estate Transactions: Steps That Energy Efficiency Programs Can Take (875 KB)

Author: U.S. Department of Energy
Publication Date: 2015

Real estate professionals are increasingly aware that today's homebuyers consider heating and cooling costs, efficient appliances, and efficient lighting to be important factors in home purchase decisions. Residential energy efficiency and real estate stakeholders, however, agree that the home resale process frequently fails to account for the value of high-performance home features. If investments in energy efficiency were more accurately reflected in home resale prices, homeowners could have greater confidence that these investments would be recouped at resale, and they might make more investments in efficiency.
Existing Homes Program Guide
Author: Consortium for Energy Efficiency
Publication Date: 2010
This guide provides background on the home improvement market in the U.S. and Canada and end users and systems in existing homes, as well as a description of energy efficiency program approaches and strategies.

Residential Retrofit Program Design Guide
Author: Oak Ridge National Laboratory
Publication Date: 2011
The Residential Retrofit Program Design Guide focuses on the key elements and design characteristics of building and maintaining a successful residential energy upgrade program. The material is presented as a guide for program design and planning from start to finish, laid out in chronological order of program development.

A Changing Landscape: The Regional Roundup of Energy Efficiency Policy in the Northeast and Mid-Atlantic States
Author: Northeast Energy Efficiency Partnerships, Inc.
Publication Date: 2015
This report represents NEEP’s annual assessment of the major policy developments of 2014, as well as its look into the immediate future, where NEEP gauge states’ progress toward capturing cost-effective energy efficiency as a first-order resource. While looking at the region as a whole, NEEP also provides summary and analysis of some of the biggest building energy efficiency successes and setbacks from Maine to Maryland — including significant energy efficiency legislation and regulations and changes in funding levels for energy efficiency programs.

A Policymaker’s Guide to Scaling Home Energy Upgrades
Author: State and Local Energy Efficiency Action Network
Publication Date: 2015
This Guide is designed to help state and local policymakers to take full advantage of new policy developments by providing them with a comprehensive set of tools to support launching or accelerating residential energy efficiency programs. The Guide focuses on four categories of policies that have proven particularly effective in providing a framework within which residential energy efficiency programs can thrive: incentives and financing, making the value of energy efficiency visible in the real estate market, data access and standardization, and supporting utility system procurement of energy efficiency.

Emphasizing the Best Options for Energy Savings: Overcoming Choice Overload in a Commercial Energy Assessment Program
Author: Franklin Energy Services
Publication Date: 2015
This brief study shows that energy efficiency customers are more likely to install home performance upgrades if they are shown a select number of recommended options, rather than facing a choice of many options.

What Homeowners Say about Home Energy Audits
Author: Karen L. Palmer and Margaret A. Walls, Resources for the Future
Publication Date: 2015
This article presents the results of a household survey that showed many homeowners have not had an energy audit, and many of those who have, have not followed through with recommended upgrades.

Author: Northeast Energy Efficiency Partnerships, Inc.
Publication Date: 2016
Residential air-source heat pumps (ASHP) are a heating and air-conditioning technology that use electricity to provide a combination of space heating and cooling to homes. A new generation of ASHPs has come to market over the past five years. This report evaluates the key market barriers as well as potential opportunities to leverage. Based on an assessment of the regional ASHP market, it is clear that while ASHPs have established a viable and growing market, there remains a significant opportunity to further accelerate adoption of the technology and in the process achieve energy and cost savings to the Northeast and Mid-Atlantic region.

Webcasts
Peer Exchange Call: Home Performance with ENERGY STAR and Home Energy Score Integration
Author: U.S. Department of Energy
Publication Date: 2017
Media, Transcript
Focus on Energy, Columbia Water & Light, and utilities from the Energize Connecticut program share how they integrate and implement the Home Energy Score and Home Performance with ENERGY STAR programs.

How to Design and Market Energy Efficiency Programs to Specific Neighborhoods
Author: Michelle Leigh, County of Volusia, Florida; Andrea Petzel, City of Seattle, Washington; Lilah Glick, Greater Cincinnati Energy Alliance
Publication Date: 2011
Presentation, Media, Transcript
This webcast offers information on successful marketing strategies, as well as design considerations and market research insights for creating and marketing successful projects in specific neighborhoods.

Quality Assurance for Residential Retrofit Programs
Author: Jim Grevatt, Vermont Energy Investment Corporation
Publication Date: 2010
Presentation, Media, Transcript
This DOE Technical Assistance Program webcast covers why quality assurance is important for residential upgrade programs, how to define realistic goals, and the key elements of a QA program.

Residential Retrofit Program Design Guide Overview
Author: Richard Faesy, Energy Futures Group; Andy Meyer, Efficiency Maine; Nikki Kuhn, Vermont Energy Investment Corporation
Publication Date: 2011
Presentation, Media, Transcript
Webcast on the DOE Residential Retrofit Program Design Guide, which focuses on the key elements and design characteristics of building and maintaining a successful residential upgrade program.