

Increasing Demand for Assisted Home Performance with ENERGY STAR in the Affordable Housing Market

Energy Programs Consortium

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INTRODUCTION

Many low-income homeowners have high energy bills due to lack of insulation and to aging and outdated appliances and heating and cooling systems. The Weatherization Assistance Program (WAP) was designed to help many of these families. Weatherization funding, however, has not been adequate to meet more than a fraction of the need and the income ceiling is set too low in some states to help families who have low incomes but are considered “over-income” for the purposes of receiving program benefits.

The New York State and Wisconsin Assisted Home Performance programs provide a solution to this concern for some families by providing a partial grant to pay for services similar to those provided by the Weatherization program. Families then pay the difference from their own sources or by borrowing funds from state energy assistance loan programs.

As models for others states, these programs offer options for states to leverage scarce resources by providing energy efficiency services to lower-income families who are not eligible for Weatherization services, but do not have sufficient funds to pay for the full installation cost of the program measures from their own resources.

In June of 2005, the Energy Programs Consortium (EPC) received a contract from the US Environmental Protection Agency to investigate options for including the Assisted Home Performance program as part of the Weatherization, Rehab and Asset Preservation (WRAP) model. WRAP was established in 2002 by EPC with support from the Ford Foundation and 35 regional and local foundations, utilities and state and local governments to develop new strategies to help low-income families sustain home ownership. For the first four years of the program, WRAP grants primarily supported the development of 11 neighborhood-based pilot projects in nine states, providing one-stop locations designed to integrate energy and rehab grant assistance programs to help increase the affordability of home ownership for low-income families.

EPA funds supported:

- A dialogue with stakeholders in the WRAP network about strategies for integrating Weatherization and other low income energy and rehab programs with the Assisted Home Performance program.
- An analysis of Assisted Home Performance Programs with ENERGY STAR in two states that also have WRAP pilot programs with the Weatherization program
- A discussion of opportunities for expanding the Assisted Home Performance Program by using the network agencies and training organization supporting the delivery of Weatherization services;
- The development of a low income energy efficiency mortgage refinance model that would complement the Assisted Home Performance grant/loan program programs in New York and Wisconsin.

This report provides a discussion and summary of the work conducted in completion of this contract. It is divided into four sections.

- Section 1 provides a detailed discussion of Assisted Home Performance programs in New York State and Wisconsin including a comparison of the programs with the Weatherization Assistance Program. It includes a discussion of the role that Weatherization training and delivery could play in expanding Assisted Home Performance and reasons why many local agencies might be reluctant to take on that role.
- Section 2 provides a discussion of state-sponsored residential energy efficiency grant, loan and tax credit programs that could be used integrated as part of the Assisted Home Performance program.
- Section 3 discusses the development of an energy efficiency mortgage program that would be designed to complement and expand the existing Assisted Home Performance programs by providing an umbrella program that would allow families to combine mortgage finance with energy efficiency improvements. For low income families, the program would combine existing grant and loan subsidies as part of the mortgage. Section 3 also provides a discussion of the market data that is currently available that could be used to set target goals for states to implement an expanded Assisted Home Performance program.

KEY FINDINGS

- Assisted Home Performance programs in New York and Wisconsin offer a model for states that are interested in expanding Weatherization services to families with higher incomes that do have sufficient funds to cover part of the cost of these services. It is not practical for states to expand 100 percent grant-funded Weatherization services to higher income families because the current program only has sufficient funds to serve about 100,000 families annually, less than 1 percent of the eligible population.
- The Weatherization delivery and training system would be ideal for providing services to families eligible for Assisted Home Performance programs. Many of these agencies have the skills to provide these services and the neighborhoods served by these agencies have both families that are eligible for the main program as well as those that have incomes that are slightly higher and would be eligible to participate in this type of program.
- There are currently more than 700 local nonprofit agencies that deliver Weatherization services. Many of these services are similar to those required by the Assisted Home Performance model. Both programs review the home's heating and cooling equipment, insulation, and air infiltration levels and perform tests, including blower door testing for air leakage, to determine areas that will benefit from energy efficiency upgrades. Some state and local Weatherization programs are less sophisticated and rely on a limited array of service delivery options. Other states have very complicated diagnostic protocols that address both the energy efficiency and the health and safety of the home and its mechanical systems.
- Many Weatherization providers are committed to providing 100 percent grant-funded assistance and some are not interested in moving into what they view as "fee-for-service" work. During the course of this project, project staff interviewed Weatherization providers about their interest in participating in fee-for-service Assisted Home Performance program. In general, reaction was mixed, and some were concerned that it could lead to the replacement of the Weatherization program. In addition, some agencies see themselves as "mission-driven" and are not interested in providing fee-for-service work. Many of these agencies provide services based on grant funds provided prior to the start of service delivery.

There are also Weatherization agencies that are interested in providing "fee-for-service, especially if those services will be offered to low income families who are not eligible for Weatherization. In New York, for example, 40 of the 70 local Weatherization agencies are involved in Assisted Home Performance and 18 of the 20 agencies in Wisconsin agreed to participate.

- Assisted Home Performance can be integrated into the WRAP Model and can provide important energy efficiency services for those families that can take on additional debt or meet the match requirement from savings. Many of the families participating in the WRAP program, however, have high interest rate mortgages and are not able to take on additional debt. In addition, many of them own homes that have related structural problems that need to be addressed prior to the installation of certain energy efficiency measures. For example, some need roof repair or replacement that must be done before insulation is installed. For other WRAP families that do have high interest rate mortgages or other significant housing rehab needs, Assisted Home Performance as developed in New York and Wisconsin could

represent an ideal opportunity for these families to increase the energy efficiency of their homes.

- Residential energy grant, loan and tax credit programs could be integrated into the broader goals of Assisted Home Performance and Home Performance programs. Thirty-six states and the District of Columbia offer at least one of these programs. Mechanisms for financing efficiency vary; some states rely on loans, others grants or tax rebates and incentives. The majority of these programs are no more than a decade old, and they are growing and changing rapidly as states learn from their experiences. In sum, these many and diverse state financing programs offer a wide range of experiences and approaches to financing energy efficiency and can serve as a basis for larger, more coordinated approaches to energy efficiency finance.
- The development of an Assisted Home Performance-based mortgage refinance product would address the energy efficiency needs of low income families who have high interest rate mortgages and cannot borrow or provide additional funds to meet the match requirements of these programs. It would allow families to refinance high-interest-rate mortgages often provided by predatory lenders, incorporate weatherization and other available grant resources, and borrow additional sums to cover other rehab-related needs.

An Assisted Home Performance market-based low-income mortgage refinance model that offered access to energy efficiency services and available grant resources could do the following:

- Compete directly with sub-prime and predatory mortgage brokers;
- Build on available grant funds, thereby reducing the need for additional borrowing;
- Expand the energy savings potential for grant-based weatherization programs by providing additional borrowing for measures that are not covered by grant funds.

One of the key steps in bringing the low income energy efficiency mortgage program to scale, as well as expanding the Assisted Home Performance program, would be to develop a market-based understanding of opportunities to influence purchasing decisions and then set clear and achievable goals based on market transaction points. The development of a state and income-specific database that could provide these indicators that could be used to support the expansion of both programs. For example, in 2005, combined annual transactions of new and existing home sales for all families totaled 8.4 million; the cumulative total for 2002 to 2005 amounted to almost 30 million transactions. The number of home improvement projects averaged 15.5 million each year between 1994 and 2003 with an average job of about \$5,977. The average in 2003 was \$6,898. In other words, the data would suggest that every year more than 11 percent of all homes are sold and 27 percent undergo at least some level of home renovation.

SECTION 1: IMPLEMENTING ASSISTED HOME PERFORMANCE: THE NEW YORK STATE AND WISCONSIN PROGRAMS

Two of the WRAP pilot programs, Community Action Agency of Milwaukee and the Community Development Corporation of Long Island (CDCLI) were located in states that supported Assisted Home Performance programs. While it is still too early to tell how significant the programs were in helping WRAP clients save energy using these services, the savings reported statewide indicate the benefits of these programs.

This section is divided into three parts:

- Part 1 provides a summary and description of the key elements of State of New York's Assisted Home Performance Program with ENERGY STAR.
- Part 2 provides a summary and description of the key elements of the Wisconsin's Targeted Home Performance Program with ENERGY STAR.
- Part 3 provides a discussion of key market opportunities to expand Assisted Home Performance programs in partnership with Weatherization training and service delivery agencies.

In summary, the New York State and Wisconsin programs both target Assisted Home Performance services to low income families. However, they are quite different in their approach, partly as a result of the income groups that they are targeting for providing services. New York State provides Weatherization services to families with incomes up to 60 percent of the state median income (\$41,612 for a family of four) and Assisted Home Performance for families between 60 percent and 80 percent of state median income (between \$41,612 and \$55,483 for a family of four). The state pays 50 percent of the first \$10,000 in expenditures and allows families to borrow the amount that is not covered by the state grant at a subsidized interest rate.

In contrast, Wisconsin provides Weatherization services up to 150 percent of the federal poverty level (\$30,000 for a family of four) and Assisted Home Performance for families between with incomes between 150 percent and 200 percent of the federal poverty level (between \$30,000 and \$40,000 for a family of four) and the local utility generally provides a grant to cover the remaining 10 percent. As such, the Wisconsin program more closely resembles an extension of the traditional Weatherization Assistance Program by targeting services to very low income families, while the New York State program more closely resembles Home Performance by targeting services to families that need some financial help, but can be expected to pay at least a portion of the costs.

Part 1: State of New York: Assisted Home Performance with ENERGY STAR

Single Family Eligibility: New York's income eligibility for Weatherization Assistance is 60 percent of the state's median income. But with Assisted Home Performance with ENERGY STAR, New York helps families with incomes above that level to reduce their energy bills by providing half of the improvement costs. The program is managed by the New York State Energy Research and Development Authority (NYSERDA) and funded as part of the state's systems benefit charge. The program provides grant assistance up to 50 percent of the first

\$10,000 in approved measures for families between 60 and 80 percent of state median income. The other 50 percent can be paid for directly by the family or borrowed through an interest rate subsidized loan program.

Multi-Family Eligibility: For owners of buildings with two-to-four families, the program can be accessed if the owner is income-qualified and occupies one of the units, or if the tenants are income-qualified. An income-qualified owner who lives in the two- to four-unit building can receive a subsidy of up to \$5,000 for the whole building without any income verification required for the tenants. A higher subsidy, up to a total of \$10,000 per building, may be available if tenants also are income-eligible. The following chart outlines the amount of subsidy available for the multi-family properties. Financial support is provided in direct correlation to the number of units within the property that are income eligible.

Number of Income-Eligible Units	Total Number of Building Units			
	1	2	3	4
4				50%
3			50%	45%
2		50%	40%	30%
1	50%	30%	20%	15%

Marketing: NYSERDA developed a comprehensive media campaign to support the roll-out of the program, including television and radio ads, billboards, and printed brochures to disseminate information about contractors and services. NYSERDA’s energy education unit has also distributed informational materials to teachers, students, facility managers, and those families who will soon become the next generation of homeowners. Throughout the education process, NYSERDA emphasized high quality installations, certified contractors trained to perform only the highest quality services, and the use of ENERGY STAR goods and appliances to promote energy efficiency in product use.

Service Delivery Process: Income-eligible families who are interested in participating in the New York State program must first contact a contractor certified by the Building Performance Institute (BPI) to have a Comprehensive Home Assessment (CHA) performed on their home. BPI is a national company that sets standards for assessing and improving the energy performance of homes and provides training for energy efficiency contractors and programs.

About 50 percent of the contractors in the program are also Weatherization providers. Most have developed profit-making entities within their nonprofit organizations to provide Assisted Home Performance services. The remaining 50 percent are private contractors who have been trained and accredited to provide energy efficiency services. NYSERDA originally targeted Weatherization agencies as the primary delivery mechanism but opened participation to private contractors to achieve adequate coverage in all service areas. Some, but not all, Weatherization contractors prefer to only provide 100 percent grant-funded services through Weatherization and are not interested in providing fee-for-service type programs. As a result, NYSERDA had to expand the pool of contractors beyond the Weatherization provider network.

The CHA Audit Protocol includes:

- Use of blower doors to measure air changes per hour and cubic feet of leakage;
- Use of furnace testing equipment to measure efficiency, draft, and burn quality in combustion systems;
- Zone pressure diagnostics to determine air flow and heat loss between conditioned and unconditioned space;
- Dimensions and calculations for size of heated area, recording of the composite of floors, walls, ceilings, windows, doors, and roof to determine the heat loss through the building shell;
- Shell integrity assessment and repairs required to protect insulation materials;
- Relative humidity measurements to determine air quality and potential moisture problems;
- Duct tests for air systems to locate leakage and air movement throughout the home;
- Analysis of the domestic hot water system for water and heat loss;
- Recording of lighting use and other appliances to determine where retrofits with ENERGY STAR appliances and products would be cost effective; and
- Infrared pictures of the building shell, heating systems, and piping to locate loss and determine remediation requirements.

The contractor takes the information collected during the tests and enters it into Assisted Home Performance with ENERGY STAR software. Two systems are currently in use—Home Check, developed for NYSERDA by the Conservation Services Group, and Targeted Residential Energy Analysis Tool (TREAT), developed by Performance Systems Contracting.

The resulting report will outline the energy efficiency improvements that can be installed in the home and the cost of that work. The report will also include estimates of energy and money savings, as well as information on the payback period for recommended improvements. The cost and payback of the recommended measures in the home will vary depending upon the contractor selected by the family and the services to be installed. Typically, energy efficiency measures recommended through the CHA include, but are not limited to:

- Insulation: Add insulation to the attic, foundation, walls and crawl spaces to help reduce energy use and increase comfort.
- Sealing Air Leaks: Use blower door diagnostics to seal air leaks in the shell between the conditioned and unconditioned space in the home to reduce cold drafts and possibly improve indoor air quality.
- Equipment Upgrades: Replace furnaces, boilers, water heaters and/or central air conditioning systems based on the condition and efficiency of the existing unit. Also, modify or seal distribution systems, venting, and ductwork to increase efficiency and performance of the heating and cooling equipment.
- Domestic Hot Water Systems: Install faucet aerators and showerheads, insulate tanks where appropriate, insulate pipe, install temperature controls and replace systems where it is deemed cost-effective.
- ENERGY STAR Appliances and Lighting: Install programmable thermostats and ENERGY STAR qualified compact fluorescent light bulbs where applicable. Replace old and outdated appliances with ENERGY STAR-rated equipment (like refrigerators and freezers) when necessary and cost effective.

Once a scope of work is agreed upon between the contractor and the family, a contract is executed and provided to the program for review and approval. If any changes to the scope of work are considered after the agreement has been reached, all changes must be written down in advance and signed by both the contractor and the homeowner. The contractor provides the family with a copy and forwards the changes to the Program staff as well. The change order must include any impact that the added or omitted work will have, including cost effectiveness or payback period of the project.

After the work has been completed, the contractor is required to repeat the tests performed during the CHA and record the results so that they can be compared to the pre-existing condition of the home. These tests ensure that the contracted work was performed properly and that the home meets the program's health, safety, and technical requirements. When all the work in the original work scope and change orders is complete, the contractor will provide a Certificate of Completion the homeowner to sign. The certificate documents that the work was satisfactorily completed and the homeowner has accepted the work. This contractor and the homeowner must have this certificate in order to access the financial incentives included in the program.

For those families that cannot afford their portion of the services as a cash outlay, low-interest, unsecured financing is available. These loans can range from \$2,500 to \$20,000, depending on the homeowners' credit worthiness and need. The loan term can be set from 3 to 10 years. Another financing option is the [New York Energy Smart Loan Fund](#). This Fund is provided through a network of financial institutions that offer secured residential loans for energy-efficient home upgrades. The Fund reduces the rates on these loans by up to 4.0 percent over a 10-year term. A maximum of \$20,000 may be borrowed for a building of one- to-four family units. These financing options cannot both be used at the same time, and customers must pay \$500 at the time of completion of the work. In most cases, the savings resulting from reduced energy use more than covers the cost of the loan. Most families have a positive cash flow derived from the savings even when amortizing the loan cost over 10 years.

Program Statistics: The New York State program has completed 4,936 homes since the beginning of the program. The following are selected program statistics:

- Annual savings of 6.1 million KWh of electricity and 250,573 MMBtu of fossil fuels.
- The average homeowner saves \$910 per year on utility bills and savings for all homeowners total of \$3.9 million a year.
- Average cost per job is \$8,129; the program has resulted in \$40.2 million in energy-related improvements, of which NYSERDA paid \$18.7 million.
- Of the work completed, \$17 million was for core energy (insulation, appliances, air sealing, etc), \$10.3 million for heating, \$12 million for windows and doors, and \$1 million for health and safety measures.

Customer Satisfaction: The comprehensive program evaluation report (May 2006) reported that 75 percent of the participant homeowners in the program were very or somewhat satisfied with their contractors and 81 percent of the participants reported that their familiarity with energy efficiency measures and equipment had increased significantly or somewhat during the last few years. More than half said all or most of the increase was due to participation in the program. The evaluation was for the whole program and did not break out the low income

component.

Market Development Incentives: The program includes a series of participation incentives for both the homeowner and the contractor. For the homeowner, the incentives include:

- Improved health and safety of their homes, including air quality, moisture control, abatement of dangerous gas leakage and back drafting;
- Improved energy efficiency in the home resulting in lower energy bills and more cash flow to pay for other necessities like food, clothing, and medicine;
- Lower maintenance requirements for the home because of new equipment installations and better air quality; and
- Enhanced durability of the home due to reduced maintenance requirements and more affordable maintenance routines for major appliances.

Incentives for the contractors to join the project and become accredited through BPI include the following:

- The CHA takes between two and four hours, depending on the array of diagnostics required. The contractor is reimbursed between \$250 and \$500 by the homeowner for the CHA, regardless of whether any work is ever performed.
- Contractors are reimbursed approximately \$1,000 for their participation in each of the required certification trainings. The four disciplines are Building Analyst I (required for CHA), Building Shell Specialist (required to perform building envelope measures); Heating Specialist (required to repair and install furnaces and duct systems); and Cooling and Heat Pump Specialist (required to work on central air conditioning, geothermal systems, air handlers, and heat pumps).
- Contractors are reimbursed up to 25 percent for approved marketing tools to promote their participation in Assisted Home Performance. This includes television and radio ads, printed advertising, brochures, giveaways, truck decals, signage, and related event participation.
- Based on specific production requirements, a contractor can earn an additional five percent of the invoiced amount as a bonus.
- Contractors acting as general contractors and overseeing the work of other contractors on the jobsite may be reimbursed up to two percent of the invoice amount for these supervisory responsibilities.
- Contractors may receive incentives for equipment purchases ranging from 10 to 25 percent for blower doors, furnace testing devices, infrared imaging, and other items.

Program Observations

- **Marketing:** The focus of marketing was to educate the public about energy efficiency. The Program assists families but does not perform services on behalf of the families – like Weatherization. Families have control over what services are installed, who installs them, and how payment will occur. NYSERDA has created a one-stop shop to arrange for the CHA, the contractors who perform the shell and furnace services, and the quality control. Payment assistance and financing are also available through NYSERDA but the family is heavily invested in the cost of service delivery. Contractors are the primary marketing force – selling families the rewards of energy efficiency and the peace of mind from enhanced health and safety within the home.

- **Consistent Standards:** The use of BPI as a training and accreditation manager provides skill enhancement for contractors and establishes a standard for consistently high quality work. Customers receive the benefit of hiring someone who has been trained to know what they are expected to do in the home and will follow a set of prescribed protocols to reach consistent success. Private contractors are being trained to model homes within a CHA and will deploy this technology in their other home rehabilitation work – improving the overall market. There is also a consistency in knowing that whatever is discovered in the CHA, the contractor will recognize the condition and have a remedy to abate or improve the existing condition.
- **Implementation Market by Market:** The adage that “one size fits all” does not apply in the residential home improvement market, especially where energy efficiency and health and safety are the primary outcomes of the work scope. The expectations of the customers when hiring a contractor and the marketing and service delivery requirements of the contractors do not often match in a newly developing market. Each market sector must be addressed for their unique needs – customers needing an education of what they are buying and why and contractors needing trained not only in the proper installation of materials and services to maximize efficiency and quality but marketing the need for these services to customers.
- **Develop Market Based Partners:** Not only is it important to bridge the knowledge gap between the customer and the contractor so that both understand the complexities of energy efficiency services, but other active market partners must be included in the education strategy. This includes the on-going training, certification and accreditation acceptance by trade groups, adult learning centers, financial institutions, realtors, property management companies, and other housing experts. The acknowledgement and participation of these partners is essential in transforming the entire residential market into an energy efficiency mindset.
- **Target Incentives to Contractors:** Using an independent accreditation manager like BPI ensures that contractors will implement consistent standards and receive the required training necessary to use state of the art technologies and techniques. This provides a marketing advantage to these participating contractors that must be used when soliciting work from customers. Those contractors who show success in their marketing and service delivery strategies should be supported and encouraged throughout the project.
- **Commitment to the Project:** In order to affect a real market transformation, the program management must be committed for the long term. Investment by the private sector must be guaranteed - like those being made through the SBC by the privately owned utilities. Several operating years will be required in order to effectively build partnerships between the public and private sectors. The communication must be open and continual. Program advisory committees and established feed back loops are the best ways to ensure that communication is clear, concise and useful in improving the Program and helpful to those who are participating.
- **Financing:** The underlying financing of any project is discretionary and dependent on several factors. In federally assisted programs like Weatherization, customers are not required to participate. In NYSERDA’s Assisted Home Performance Program the customer is required to pay for a large share of the work being performed. This investment shifts responsibility for service delivery oversight, accountability, and quality acceptance from the

program to the customer. And the customer needs to be properly informed about what they are purchasing with their money. Because of the income levels being prioritized in the Program, some subsidy is required for both the contractor and the customer as a market incentive.

- Use of Local Weatherization Agencies: In New York there are 70 local agencies and about 40 of them are involved in Assisted Home Performance. Local Weatherization agencies are some of the best-trained and capable contractors in delivering energy efficiency services in residential properties. However, there are a few issues that will surface when engaging this network in a “profit”-generating endeavor like Assisted Home Performance. Private sector contractors can generate profits and share those profits among the company’s employees.

Most public organizations have very rigid pay scales and don’t have the ability to provide incentives for the work being performed. In fact, many public organizations will lose qualified staff to the private sector due to financial incentives and pay increases. Also, the culture regarding timing, pricing, and other delivery aspects of the project are very different between the public and private sectors. Public agencies are used to long-term project funding and budgeting while private contractors focus on securing work for the future. Also, contractors are much more flexible at increasing capacity to meet additional workloads from successful marketing efforts.

- Public Support: In order for the program to be successful and continue to transform the market, support must be garnered from utility companies, public service commissions, state legislatures, governor’s offices and state administrative departments. This is relatively simple since it is a population comprised of working poor families, elderly households with limited pensions, or large families barely able to pay bills. These families have been turned down in the past and aren’t requesting a government “hand-out”, only a “hand-up” in meeting their energy needs.

Part 2: State of Wisconsin: Targeted Home Performance with ENERGY STAR

Targeted Home Performance with ENERGY STAR is part of Wisconsin's Focus on Energy Program and is funded as part of the state's system benefit charge. Focus on Energy is a public-private partnership offering energy information and services to residential, business, and industrial customers throughout Wisconsin. These services are delivered by a group of firms contracted by the Wisconsin Department of Administration's Division of Energy. The goals of this program are to encourage energy efficiency and use of renewable energy, enhance the environment, and ensure the future supply of energy for Wisconsin.

Historically, Wisconsin has supported two sets of energy efficiency initiatives aimed at residential consumers. The first is a set of income-eligible programs for those families living in or near poverty. The second is set of "market rate" programs designed to serve middle and upper income families with no affordability issues.

Low-income households in Wisconsin—those at 150 percent or below of the federal poverty level—receive free energy efficiency services through the Weatherization Assistance Program. Higher income households use capitalization to purchase energy efficiency services from qualified vendors on the open market, while taking advantage of utility-sponsored rebate programs and financial assistance to defray some of the initial investments.

A 2001 study of residential homes in Wisconsin found significant energy-saving opportunities in households with incomes between 150 percent and 200 percent of the poverty level. The findings of the study, *Understanding the Potential of Weatherization Programs for Low-Income Households from 150% to 200% of FPL*, supported the establishment of Wisconsin's Targeted Home Performance with ENERGY STAR Program. The goal the program is to help qualifying limited-income Wisconsin residents make energy efficiency improvements to their homes. "Program consultants" complete the improvements at minimal cost to the homeowner. The outcome is to make the home more comfortable, safer, easier to maintain, and energy efficient.

Local Weatherization contractors provide Assisted Home Performance services in most locations of the state. In areas where the local Weatherization agency is not a provider of services, the state uses ENERGY STAR raters and program consultants to provide direct services to families. The use of these private contractors has two benefits. First, it propagates the ideas of energy efficiency through the contractors' fee-based work in the private sector. Second, it creates a group of highly qualified private contractors to be used by middle and upper income families who want to participate in the Home Performance with ENERGY STAR, the state's market-rate program providing energy efficiency services for existing homes.

Families who wish to participate in the Targeted Home Performance project must meet the following eligibility criteria:

- The household must be a customer of a utility company participating in the state's Focus on Energy Program.
- The household gross income must be more than 150 percent but cannot exceed 200 percent of the federal poverty level. Applicants must provide income documentation for a minimum of three months of gross income (in some cases annual income is used) to prove eligibility.

- The family must reside in an eligible dwelling type. The Program will provide services to applicants residing in single family and mobile home units as well as duplexes up to a four unit building. In order for the program to serve a multi-unit building, at least 50 percent of the units must be deemed income-eligible. For example, two units (66 percent) of a triplex must be income-eligible in order for the building to receive services. All property owners are required to provide proof of ownership and must agree to pay an energy assessment fee (\$150) and the 10 percent co-payment for all measures installed. Note: according to program staff, in many cases the 10 percent is provided directly by the family's local utility. As such, the program is similar in many ways to traditional weatherization in that families are receiving 100 percent grant-funded assistance.

Potential participants are informed about the program through a variety of sources. Many are referred to the program by participating utility company customer service offices because they have trouble paying their bills. In addition, the program conducts a few specifically targeted direct mail campaigns and uses "word of mouth" for other referrals. The program also receives referrals through the local agency energy assistance offices, senior centers, and other public offices, especially when the family is over-income to receive public assistance.

Service Delivery: Once household is determined eligible, a qualified program consultant performs an energy assessment of their home. The inspection process results in a list of improvements to increase energy efficiency and health and safety for the home. Program participants must allow all of the energy efficiency measures to be installed in their home. They cannot simply choose a few of the recommended measures. Approximately 90 percent of the energy home improvement costs are funded through the Targeted Home Performance with ENERGY STAR. The family is responsible for covering at least 10 percent of the improvement costs.

As part of the home assessment, the program consultant reviews the "house as a system" and determines where the family can save energy. The consultant also conducts a series of health and safety inspections to test whether combustion appliances are working and venting properly. Based on the results of the inspection, the program consultant will perform one or more of the following energy efficiency or health and safety measures:

- **Insulation:** Add insulation to the attic, foundation, walls, and crawl spaces to help reduce energy use and increase comfort.
- **Sealing Air Leaks:** Use blower door diagnostics to seal air leaks in the shell between the conditioned and unconditioned space in the home to reduce cold drafts and possibly improve indoor air quality.
- **Equipment Update:** Replace furnace, boiler, water heater and/or central air conditioning system, based on the condition and efficiency of the existing unit. Also modify distribution systems, venting, and ductwork to increase efficiency and performance of new equipment.
- **Energy Saving Devices:** Install faucet aerators and showerheads, programmable thermostats, and ENERGY STAR qualified compact fluorescent light bulbs where applicable. Consultants will also analyze major appliances (like refrigerators and freezers) and recommend replacements when necessary and cost effective.

The program provides emergency services for heating system replacements and water heaters only under special circumstances—such as for previous participants whose heating system or hot water heater has failed, or for customers who had received assistance through Weatherization but

whose furnace was not replaced at the time. If an applicant has a failing heating system and has not participated previously, that individual is referred to the program for whole-house services to receive the greatest benefit. Eligible customers with a failing heating system are given priority for system replacement to prevent "no heat" situations.

Funding: The 2006 program budget is \$2.1 million and is expected to be sufficient to provide services to 335 homes with an average cost of \$5,750. Funding for program is provided a public benefit charge. The program is managed by Wisconsin's Focus on Energy programs, managed through the state's Department of Administration (DOA). DOA contracts with Wisconsin Energy Conservation Corporation (WECC), to manage the energy efficiency portion of their program portfolio.

Administrative costs for the project are capped at 5 percent of the available funds. This limit guarantees nearly all the Project funds are available to provide direct energy efficiency services to participants' homes. Using the existing Weatherization network of local service providers also helps reduce administrative expenses, since these organizations already have efficiencies in place through the standard Weatherization program they manage on behalf of the state.

Marketing costs are kept at a minimum because WECC can use existing referral networks to identify potential participants in the project. Utility call centers, energy assistance providers, social service agencies and housing assistance programs are all used to identify potential participating families. According to WECC staff, utility call center staff refers 50 percent of those contacted through the Focus on Energy hotline.

Focus on Energy also has a cooperative agreement with the state's energy assistance providers allowing program staff to receive a list of those households who have applied for energy assistance but were found to be over-income for energy assistance. Focus on Energy also uses these lists to do "targeted" direct mail campaigns to increase program participation either statewide or in specific areas where more participation is desired.

Evaluation Results: *Targeted Home Performance with ENERGY STAR* was formally evaluated after the end of its third program year. A report released in October of 2004, entitled *Year 3 Low-income Program Evaluation – Volume 1 Report, Final 10/13/04*³, summarized the details of a survey that was administered to the Weatherization providers who deliver program services to households. This research also included some valuable customer surveys and subsequent customer satisfaction analysis.

A majority of participants reported a high level of satisfaction with the services they received through the Program. On a five-point rating scale, with "5" equaling the *very satisfied*, the overall program rating was 4.6 for the most recent year examined. The customer service measure that earned the highest level of satisfaction was "*Knowledge of Targeted Home Performance with ENERGY STAR staff*" that was completed as part of the program's evaluation.

The program staff received a rating of 4.7 out of 5 points. All other satisfaction measures received a rating of 4.3 or better. These measures include: types of improvements made, quality of work performed, application processed and amount of time it took to receive services.

As a direct result of energy efficiency measures installed in their homes, most participants reported both a decrease in their utility bills and an increase in their ability to pay them—and other bills as well:

- 63 percent reported increased control over energy use.
- 55 percent reported increased control over the size of their energy bill.
- 24 percent reported that they would pay have paid fewer bills on time if they had not participated in the program.
- 74 percent reported that their utility bill was lower as a result of participating in the program.

In the same program evaluation, overall energy savings were also valued. According to the report, *"Targeted Home Performance with ENERGY STAR participants over about a two and a half year period ... saved an estimated 178 thousand total annual kWh and 49 thousand total annual therms. Total annual savings per participant averaged 806 kWh/year and 262 therms/year for participants using natural gas. These per participant total annual savings are 11 and 28 percent of average pre-participation total annual kWh and therms consumption, respectively."*

Program Observations

- The program requires a strong partnership with local Weatherization services providers. Using the standards, policies and practices of the existing Weatherization makes it easier for the agencies to integrate Targeted Home Performance workloads and maintain consistency in quality and appropriateness of service delivery.
- The local network must be encouraged to integrate Targeted Home Performance work within their existing infrastructure. Where necessary, the local operations may need to be expanded to meet the additional work required for the project.
- Local agency and consultants must be trained in Targeted Home Performance reporting and invoicing requirements. They will differ from those already in place for traditional Weatherization projects or market rate billing by consultants.
- Utility companies, public service commissions, state legislatures, governor's offices and state administrative departments are all potential partners who could support the implementation of Assisted Home Performance. This is relatively simple since it is a population comprised of working poor families, elderly households with limited pensions, or large families barely able to pay bills. These families have been turned down in the past and aren't requesting a government "hand-out", only a "hand-up" in meeting their energy needs.
- The project requires adequate and on-going funding to make it effective. Adequate funds are required to entice public and private consultants and agencies to join the team of specialized contractors who provide the energy efficiency services. On-going funding is required to ensure that investments in staff, training, equipment and certifications will be cost-effective within a reasonable business model.
- The project funding should include adequate resources to pay for training, participant identification and certification, referrals, recordkeeping, and reporting.

Part 3: Market Development Opportunities with the Weatherization Network

Prior to the recent increase in energy prices, most states set their income eligibility at 150 percent of the federal poverty level. But as a result of rising energy costs during the last few years, a number of states have raised their eligibility ceiling to 200 percent or higher. These states recognized that many families above 150 percent of the federal poverty level need help in paying their energy bills and also do not have sufficient resources to take advantage of loan and tax credit programs. Assisted Home Performance can help to address that need by providing a partial subsidy, thereby allowing states to stretch scarce resources.

The Weatherization training and delivery network would appear to be the logical first choice for providing Assisted Home Performance services. The target families are generally close to the income ceiling of the Weatherization program and the services delivered have many similarities.

There are currently more than 700 local nonprofit agencies that deliver Weatherization Assistance services. Many of these services are similar to those required by the Assisted Home Performance model. Both programs review the home's heating and cooling equipment, insulation, and air infiltration levels and perform tests, including blower door testing for air leakage, to determine areas that will benefit from energy efficiency upgrades. Some state and local Weatherization programs are less sophisticated and rely on a limited array of service delivery options. Other states have very complicated diagnostic protocols that address both the energy efficiency and the health and safety of the home and its mechanical systems.

Table 1 compares the service and delivery structure of the Weatherization program with the Assisted Home Performance programs in New York and Wisconsin.

In general, those local agencies and contractors that perform diagnostics similar to those required by Home Performance refer to their programs as Weatherization Plus. In these cases, Home Performance would be considered a similar diagnostic model. These contractors conduct blower door, carbon monoxide, furnace efficiency, and health and safety tests and should easily be able to meet Home Performance certification. Contractors that provide more limited Weatherization measures would not be able to meet certification standards without additional training.

Many Weatherization providers are committed to providing 100 percent grant-funded assistance and some are not interested in moving into what they view as "fee-for-service" work. During the course of this project, project staff interviewed Weatherization providers about their interest in participating in fee-for-service Assisted Home Performance program. In general, reaction was mixed, and some were concerned that it could lead to the replacement of the Weatherization program. In addition, some agencies see themselves as "mission-driven" and are not interested in providing fee-for-service work. Many of these agencies provide services based on grant funds provided prior to the start of service delivery.

Table 1: Program Comparison for Home Performance Implementation

Program Design Element	Weatherization Assistance Program	Assisted Home Performance: New York	Targeted Home Performance: Wisconsin
Income Eligibility for households opting to participate	Either 150% of OMB Poverty Level or up to 60% of statewide median income	60% to 80% of statewide median income	151% to 200% of Federal Poverty Level
Types of homes eligible to receive services	Single family homes, mobile homes, large and small multi-family buildings	Single family homes, two- to four unit multi-family buildings	Single family homes, mobile homes, two- to four-unit multi-family buildings
Ownership of homes	Homeowners and renters may apply.	Homeowners and renters. Owners of multi-family building must be income-eligible to apply.	Homeowners and renters. Owners of multi-family building must be income-eligible.
Landlord participation in cost of service delivery	Each state sets limits of how much is required – investments range from 0% to 50%.	Property owners must pay (\$250 to \$500) and at least 50% of the cost to install measures.	Property owners are required to pay the assessment fee (\$150) and a 10% co-payment
Program spending limits	An average cost per unit established each year: \$2,825 for FY 2006.	Up to \$5,000 is allowed per dwelling – up to \$10,000 for two- to four-unit buildings.	No limit is set – currently average is approximately \$5,200.
Customer financial participation	Customers are not required to provide any financial support to receive services.	Customers must pay (\$250 to \$500) and at least 50% of the cost to install measures.	Customers must pay the needs assessment fee of \$150 and 10% of the cost to install the measures.
Delivery network providing the audit and energy efficiency installations	900 local agencies comprised of community action agencies, nonprofit organizations, and units of local governments.	Services are provided through a network of private contractors and nonprofit organizations.	Services are provided through the WAP network except in certain areas where private contractors provide services.
Area covered by the program	Every political subdivision of the country through the state and local network	Those geographic areas covered by the six investor-owned utilities participating in the state’s systems benefit charge	Every county in the state has available services.
Primary referral to the Program	LIHEAP offices within each state. Also use other social service offices and utility customer services	Select utility companies’ bill payment assistance programs and word of mouth	LIHEAP offices and word of mouth. Some referral occurs through utilities.
Energy Needs Assessment	Local agencies use either a site-specific audit or a priority list based on computer modeling.	Uses a site-specific computerized modeling program to determine needs, cost and savings	Uses a priority list based on computerized modeling to determine services to be installed
Diagnostics applied during the audit process	Blower doors, furnace efficiency testing equipment, manometers, duct testing equipment, CO detectors	Blower doors, furnace efficiency testing, manometers and duct testing equipment, CO detectors, infrared cameras, zone pressure testing equipment	Blower doors, furnace efficiency testing equipment, manometers, duct testing equipment, CO detectors

Program Design Element	Weatherization Assistance Program	Assisted Home Performance: New York	Targeted Home Performance: Wisconsin
<p>Service delivery options</p> <p>Crew and contractor training for installation to prescribed standards</p> <p>Quality control requirements</p> <p>Additional financing available for customer use</p> <p>Replicability of the project</p>	<p>Where appropriate and cost effective: blower door directed air infiltration; insulation of walls, ceilings, and floors; domestic hot water system treatment; tune-up, repair, and replacement of the central heating system; cooling measures allowable in selected climatic areas; lighting retrofit; electric water heater and refrigerator replacements; duct system sealing and balancing; significant health and safety measures directed at controlling moisture, lead paint dust, and CO spillage.</p> <p>Training occurs in the field with oversight from the state office and some have training centers that provide ongoing skills training. At a minimum, all standards reflect manufacturers' or industry requirements.</p> <p>Every home must have a quality control inspection and sign off by the customer. The state reviews a percentage of work performed by each local agency for quality and appropriateness.</p> <p>None is required since there is no financial participation.</p> <p>Already exists in every state and local jurisdiction.</p>	<p>Where appropriate and cost effective: blower door directed air infiltration; insulation of walls, ceilings, and floors; domestic hot water system treatment; tune-up, repair, and replacement of the central heating system; cooling measures; lighting retrofit; appliance replacement; electric water heater replacements; other appliance replacements as required; duct system sealing and balancing; health and safety measures directed at controlling moisture, lead paint dust, and CO spillage.</p> <p>All crews and contractors must receive training and be accredited by BPI to provide quality services within prescribed standards set by NYSERDA and BPI.</p> <p>Every home must have Certificate of Completion reflecting the work performed and the final test results. NYSERDA uses a third party to inspect at least 15% of all work completed.</p> <p>NYSERDA has loan programs and interest reduction programs to help customers finance their portion of the work.</p> <p>Require a long-term commitment in time and resources to create a pool of qualified contractors and customers.</p>	<p>Where appropriate and cost effective: blower door directed air infiltration; insulation of walls, ceilings, and floors; domestic hot water system treatment; tune-up, repair, and replacement of the central heating system; lighting retrofit; refrigerator and electric water heater replacements; duct system sealing and balancing; significant health and safety measures directed at controlling moisture, lead paint dust, and CO spillage.</p> <p>Training occurs in the field with oversight from the state office and the WECC. The state has prescribed standards in place. At a minimum, all standards reflect manufacturers' or industry requirements.</p> <p>Every home must have a quality control inspection. The state reviews a percentage of work performed for quality and appropriateness. The program is also evaluated by a third party.</p> <p>In the case of hardship, some utility companies and local agencies will provide grants to help defray family's costs.</p> <p>Project requires long-term financial commitment and training of existing contractors and crews to perform high quality services.</p>

There are also Weatherization agencies that are interested in providing “fee-for-service, especially if those services will be offered to low income families who are not eligible for Weatherization. In New York, for example, 40 of the 70 local Weatherization agencies are involved in Assisted Home Performance and 18 of the 20 agencies in Wisconsin agreed to participate.

Of the 12 local agencies that have participated in the WRAP pilot program, for example, six would be willing to provide Assisted Home Performance programs and six would not. All six agencies that said they were willing have track records of developing low-income housing and charging clients for their services; the other six agencies are primarily social service agencies and generally provided services at no charge. They are used to providing services based on grant funds provided prior to the start of service delivery and do not have resources to provide staff prior to the receipt of program income.

The Weatherization training network could also be a partner in providing Assisted Home Performance training. Weatherization technical skills are taught through a variety of training opportunities including courses in heating system tune-ups and retrofits, shell retrofits, air sealing, blower door use, health and safety diagnostics, duct sealing and lead safe practices. These programs are similar to the certification requirements for Assisted Home Performance. The following is a list of weatherization assistance training agencies:

- **Association for Energy Affordability, Inc., Bronx, New York**
Contact: David Hepinstall, 105 Bruckner Boulevard, Bronx, New York 10454
(718) 292-6733, <http://www.aeanyc.org>
- **Corporation for Ohio Appalachian Development Training Center, Athens, Ohio,**
Contact: Michael Keyes, Post Office Box 787, Athens, Ohio 45701
(740) 594-8499, mkeyes@coadinc.org, www.odod.state.oh.us/cdd/oeo/owtc.htm
- **CASE Training and Energy Services Center, Princeton, West Virginia**
Contact: Stacy Keys, 212 Federal Street, Bluefield, West Virginia 24701
(304) 487-6571, swkeys@email.com
- **Indiana Community Action Association Training Center, Indianapolis, Indiana** Contact:
Ed Gerardot, 1845 West 18th Street, Indianapolis, Indiana 46202
(317) 638-4232, egerardo@incap.org, www.incap.org/wxcourses.htm
- **Kansas Building Science Institute, Manhattan, Kansas**
Contact: Doug Walter, Post Office Box 1264, Manhattan, KS 66505
(785) 537-2425, kbsi@cox.net, www.KansasBuildingScience.com
- **New River Center for Energy Research and Training, Christiansburg, Virginia**
Contact: Bill Beachy, 990 Cambria Street, Christiansburg, Virginia 24073
(540) 382-5327, NRCERT@aol.com, www.nrcert.org
- **Stockton Training Center, Stockton, California**
Contact: Charles Segerstrom, 1129 Enterprise Street, Stockton, CA 95204
(209) 465-6115, CFS1@pge.com, www.pge.com
- **Weatherization Training Center, Williamsport, Pennsylvania**
Contact: Bill Van der Meer, Pennsylvania College of Technology, One College Avenue
Williamsport, PA 11701 (570) 327-4768, bvanderme@pct.edu, www.pct.edu/wtc

SECTION 2: STATE-SPONSORED ENERGY EFFICIENCY GRANT, LOAN AND TAX CREDIT PROGRAMS

State governments play a critical and leading role in energy efficiency investment and financing. Their efforts have put billions of dollars into energy efficiency programs and have developed a capacity and experience to finance energy efficiency, particularly in new and existing residences. Each state that runs an energy efficiency financing activity takes a somewhat different approach. Some are small-scale programs funded out of an old and diminishing source of money known as the Petroleum Violation Escrow (PVE) funds.¹ Other states run larger-scale programs from bonds or appropriations and other states use public benefit funds to finance major energy efficiency investments. The largest state activities rely on multi-million dollar public benefit funds for support.

Mechanisms for financing efficiency vary too; some states rely on loans, others grants or tax rebates and incentives. Some, like New York State, use a combination of several kinds of incentives. Some states rely on their utilities to manage energy efficiency investments with funds collected pursuant to state legislation and regulation. Other states manage their efficiency programs “in-house” through their energy office or utility commission. A small group of other states contract out the management of their energy efficiency programs to third parties.

This section describes state level programs to finance energy efficiency in residential housing. After a brief overview of state activities, it will review three categories of state activity: state loan programs, state grant and rebate programs, and state tax incentive programs. The majority of these programs are no more than a decade old, and they are growing and changing rapidly as states learn from their experiences. These many and diverse state financing programs offer a wide range of experiences and approaches to financing energy efficiency and can serve as a basis for larger, more coordinated approaches to energy efficiency finance.

The state programs to finance energy efficiency fall three discrete categories: loans, grants and rebates, and tax incentives. As shown in Table 2, 36 states plus the District of Columbia offer at least one of these programs: nine states plus the District of Columbia have established tax incentive program; 12 states plus the District of Columbia have a rebate and grant program; 29 states plus the District of Columbia have a supplemental Weatherization program; and 16 states have loan programs. Some states operate several efficiency incentives – Alaska, for example, operates two loan programs.

¹ Petroleum violation escrow (PVE) funds are also known as oil overcharge funds. They come from fines paid by oil companies in violation of the federal oil price caps in place from 1973-1981. Over \$4 billion dollars of these PVE funds have been disbursed to state energy offices. These funds are, however, diminishing rapidly and are no longer a long term source of funding for state-administered energy programs.

Table 2: Residential Energy Efficiency Incentives

State	Tax Incentive	Rebate/Grant	Low-Income	Loan
Alabama				
Alaska				2
Arizona	1		1	
Arkansas				
California	1		1	1
Colorado		1	1	
Connecticut	1		1	1
Delaware		1		
District of Columbia	1	1	1	
Florida				
Georgia			1	
Hawaii				
Idaho	1		1	1
Illinois		1	1	
Indiana			1	
Iowa			1	
Kansas				
Kentucky			1	
Louisiana		1	1	1
Maine		1	1	1
Maryland	1		1	
Massachusetts	1		1	1
Michigan		1	1	
Minnesota			1	3
Mississippi				
Missouri			1	
Montana	1			1
Nebraska				1
Nevada			1	
New Hampshire			1	
New Jersey		3	1	1
New Mexico				
New York	2	6	1	2
North Carolina				
North Dakota				
Ohio			1	1
Oklahoma	1			
Oregon	1	2	1	1
Pennsylvania			1	1
Rhode Island		1	1	
South Carolina				
South Dakota				
Tennessee				
Texas			1	
Utah				
Vermont		1	1	
Virginia				
Washington			1	
West Virginia				
Wisconsin		3	1	1
Wyoming				
States	10	13	30	16
Total # of Programs	11	20	30	20

Residential Energy Efficiency Loans: 16 states offer loan programs that support energy efficiency. While energy efficiency loans do vary in many respects, it is possible to lay out their basic characteristics by discussing seven categories: loan structure and loan caps, interest rates, term of loans, eligibility requirements, pre-approved uses of funds, requirements (or lack of requirement) for an energy audit, and sources of funds.

Loan Structure and Loan Caps: States typically offer loans either to builders or directly to residential homeowners. States generally cap the size of each loan, or the size of the state's contribution to the loan. The size of each loan varies a great deal, from as small as \$400 to as large as \$60,000 in the case of Connecticut's MultiEnergy Conservation Loan program. Typical loans tend to be around \$15,000 for a single family building.²

Table 3: Summary of Loan Caps in Selected States

State	Single Family	Multi-Family (if applicable)
Connecticut	\$400-\$15,000	\$60,000 (for building with more than 5 units)
Idaho	\$1,000-\$15,000	Same loan for single-family and multi-family
Massachusetts	Commonly \$15,000 (\$10,000 with some lenders); at least one unit must be owner-occupied.	N/A
Minnesota Rental Energy Loan Fund	\$500-\$10,000	Multi-family buildings eligible for same program.
Montana	\$40,000	Multi-family buildings eligible for same program.
New York	\$20,000	Lesser of \$5,000/unit or \$2,500,000. Additional \$2,500,000 available if the project incorporates advanced electric meters.
Ohio	\$500-\$10,000 for 1-3 unit buildings	
Oregon	\$15,000 minimum	
Pennsylvania	\$10,000 maximum with larger loans available in some cases.	Eligible for same program as long as owner occupied.

Interest Rates: Interest rates are generally subsidized through an interest rate buy-down or are offered at a discount to market rates. The discounted rate is typically set at between four and five percent. Some states offer what they call a blended rate, in which state funds supplement and leverage private lending, increasing the reach and size of the loan programs. Massachusetts gives lower interest rate loans to families with lower incomes.

² A multi-family building is typically a building with more than four units.

Table 4: Summary of Interest Rates in Selected States

State	Interest Rate or Other Loan Characteristics
Alaska	Buys down interest rates by 25 to 75 basis points.
Connecticut	Rates set at 1%, 3% or 6% depending on income, family size and location.
Idaho	4% fixed for term.
Louisiana	Louisiana's HELP program uses a blended rate through which the state subsidizes the first 50% of loan and the remaining 50% of the loan is set at the bank's rate. For example, a \$12,000 loan might have a \$6,000 subsidized interest rate at 2% and a non-subsidized rate at 8% for the remaining \$6,000.
Massachusetts	Massachusetts offers a loan program that gives borrowers with incomes at less than 80% of the state median income a zero interest loan. The program provides an interest rate of 3% for those who are above that level. Rather than make the loans itself, the state uses private lenders to make the loans and reimburses them for the difference between the borrower's rate and prime plus 1%.
Montana	5% fixed for term.
Minnesota	4% fixed for term .
Ohio	An interest rate buydown program of up to 50% for the first five years of the loan.
New York	Interest rate buy-down of 4% or up to 6.5% buy-down in the ConEdison territory (New York City).

Term of the Loan: The term of most loans is typically between five and ten years.

Table 5: Summary of Loan Terms in Selected States

State	Maximum Term (in years)
Alaska ³	15
Connecticut	10
Louisiana	5
Idaho	5 (Requires that for existing homes and business the savings from reduced energy usage must be great enough to offset the cost of the project within 15 years.)
Minnesota Rental Energy Loan Fund	1-5
Montana	10
New York	10
Ohio	Subsidy only provided for the 5 years of loan.
Pennsylvania	10

³ Alaska's Small Building Material Loan and the Association Loan Program.

Eligibility Requirements and Security: Most states set out some kind of eligibility requirements so that they can screen applicants. Idaho requires a credit score of at least 620 and Pennsylvania's Keystone Home Energy Loan Program looks for a credit score of 630, although it will consider applicants that range as low as 620. Pennsylvania rejects approximately 25 percent of its loan applicants. Connecticut does a credit check on loan applicants and rejects between 40 and 50 percent of the applicants as a result of these credit checks. Montana contracts with a financial entity to gather credit information and all loan services. This company recommends loan approval or denial. Ohio leaves the credit evaluation procedure up to the participating bank lender.

Many states also require some type of security, typically in the form of a lien on the property. Alaska's Small Building Material Loan and its Energy Efficiency Rate Reduction Program both require a lien on the property, as do Connecticut, Idaho, Minnesota,⁴ and Oregon. Montana generally uses the installed equipment as the security for the loan, and does not place a lien on the full property. Louisiana, Massachusetts and Ohio leave the decision about whether to place a lien on the property to the participating bank lender. In the case of Massachusetts about half of all loans involve a lien.

Pre-approved Uses of Funds: The state loan program define what kinds of energy efficiency products or technologies they will fund, generally laying out specific products but sometimes referencing other widely known and accepted programs like EPA's ENERGY STAR program. Louisiana's Home Energy Loan Program (HELP) is an example of a program that references ENERGY STAR. It approves the use of funds for ENERGY STAR-rated clothes washers, dishwashers, refrigerators/freezers, water heaters, lighting fixtures, gas furnaces, boilers, heat pumps, air conditioners, programmable thermostats, building insulation and windows. Ohio's Double Savings Loan program approves a similar list of equipment, and also requires that the equipment be ENERGY STAR-rated.

Connecticut specifies automatic set back thermostats, siding, caulking and weather-stripping, insulation, replacement heating systems, window replacement. Idaho includes water heaters, lighting and "other building improvements" in its list. In some cases states set out a more general mandate rather than specifying specific technologies. Alaska's program specifies that it will loan to "projects that improve the livability of a home, improve energy efficiency..."⁵

Energy Audit Requirements: A home energy audit can identify specific measures that are appropriate to reduce energy consumption in a particular home, targeting specific applications of technologies, suggesting specific places that need sealing, new insulation or ventilation. New York requires an energy audit, and further requires that the auditor be certified by the Building Performance Institute, a national organization that certifies energy auditors.⁶

⁴ Lien applies for loans of greater than \$5,000.

⁵ Alaska Small Building Material Loan through AK Housing Finance Corporation

⁶ For more information on the Building Performance Institute see <http://www.bpi.org/>.

Table 6: Summary of Audit Requirements in Selected States

State	Audit Requirement
Connecticut, Montana and Pennsylvania	Do not require an audit
Louisiana	The HELP program requires an energy rating for the home and allows the homeowner to pick all the appliances, so long as the home passes the energy audit. Also allows the homeowner to not do an audit, but then the homeowner must pick from a prescribed list of items.
Massachusetts	Requires either a no-cost basic energy audit or will provide a blower door audit for additional cost.
New York	Energy audit required by an auditor certified by the Building Performance Institute.
Ohio	Energy audit required, using a home energy rating system. ⁷

Sources of Funds Vary: States use a number of different sources to fund their energy efficiency programs, ranging from Petroleum Violation Escrow (PVE) funds to general obligation bonding to appropriations to public benefit funds. Montana uses environmental fines collected from companies with air quality violations to fund its program.

Table 7: Summary of Sources of State Program Funds in Selected States

State	Source of Funds
California	Public benefit fund
Connecticut	Public benefit fund
Idaho	PVE funds
Massachusetts	Public benefit fund
Minnesota	PVE funds
Montana	Air quality fines collected by the state Department of Environmental Quality
New York	Public benefit fund
Ohio	Public benefit fund
Oregon	General Obligation Bonds
Pennsylvania	State Treasurer's Office for some programs and Sustainable Energy Funds (a variant on public benefit funds) for other programs.

Public benefit funds tend to yield the largest and most consistent funding for energy efficiency financing of any type. Public benefit funds (sometimes called system benefit funds or other similar names) are accumulations of funding that result from a small surcharge placed on

⁷ A home energy rating is a standardized system that rates the energy efficiency of residences. The rating is a measurement of a home's energy efficiency. Most energy ratings involve an on-site inspection by a trained and certified home energy rater. The home energy rater inspects the home and measures its energy characteristics, including insulation, window efficiency, the heating and cooling system efficiency, the solar orientation of the home, and the water heating system. In most cases, the measurements the rater enters these measurements into a computer program that produces a report of the cost-effective options for improving the home's energy efficiency, rates the home's energy efficiency and estimates energy costs.

consumers' energy bills. The charge is usually volumetric, meaning it is a per-kilowatt hour charge. Utilities collect the money and either manage the public benefit fund under the supervision of their utility commission, or they may collect the money and remit it to the state.

PVE funds are available to states as a result of alleged oil company violations of Federal oil pricing controls in place from 1973 to 1981. These funds are almost totally expended, however a few states still have funds remaining and are using them to support various energy efficiency initiatives, such as the loan and grant programs discussed in this section.

Currently 23 states and the District of Columbia⁸ have some type of public benefit funds that support energy efficiency. These vary in size; Rhode Island's fund is about \$15 million per year while California's puts \$280 million into energy efficiency per year. Funding levels typically are in mils per kilowatt hour. Connecticut's \$87 million annual program has a 3 mil per kWh funding level. New York's \$87 million program has a funding 1.02 mil per kWh funding level. In total, these funds represent approximately \$1 billion dollars in annual funding for energy efficiency.

In some cases (Massachusetts, Maine, California, New Jersey and New York, for instance) state agencies administer the public benefit funds, in other cases (Connecticut, Rhode Island, New Hampshire, for example) the utility administers the program and in two other (Vermont and Oregon) cases a third party does so under a performance-based contract with the state.

Programs Specific to Low-Income Families: As referenced in the discussion of New York, some states offer grant programs specifically to low-income families. These state funds supplement federal Weatherization Assistance Program funding for low-income families. Table 8 lists all state funding, as well as federal and utility weatherization funding. All states offer low-income energy efficiency grant programs funded by the federal Weatherization Assistance Program and 30 states and the District of Columbia also offer additional funds to supplement those services.

Other Grant and Rebate Programs: 12 states also offer grant or rebate programs that support energy efficiency and are generally not income-contingent. Grant and rebate programs vary a great deal, but a descriptions of them can be divided into nine different parts: those programs designed specifically for low income families, a designation of who receives the money, designation of who qualifies for the grant or rebate, specification of the size of the grants or loans, designation of who is eligible to receive funding, whether an energy audit is required, how the funds are distributed, the source of funds.

⁸ The states are Arizona, California, Connecticut, District of Columbia, Delaware, Illinois, Maine, Maryland, Massachusetts, Minnesota, Michigan, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, Wisconsin.

Table 8: Weatherization Funds by State (FY 2005)

State	Federal			State			Federal + State
	DOE	LIHEAP Transfer	Total	PBF	Utility	Total	
Alabama	\$2,767,449	\$835,000	\$3,602,449	\$0	\$0	\$0	\$3,602,449
Alaska	\$1,813,767	\$1,000,000	\$2,813,767	\$0	\$0	\$0	\$2,813,767
Arizona	\$1,138,751	\$1,229,691	\$2,368,442	\$0	\$869,861	\$869,861	\$3,238,303
Arkansas	\$2,079,513	\$1,906,358	\$3,985,871	\$0	\$0	\$0	\$3,985,871
California	\$6,322,844	\$22,447,438	\$28,770,282	\$0	\$99,056,964	\$99,056,964	\$127,827,246
Colorado	\$5,504,036	\$4,490,922	\$9,994,958	\$0	\$2,700,000	\$2,700,000	\$12,694,958
Connecticut	\$2,759,107	\$0	\$2,759,107	\$7,273,399	\$0	\$7,273,399	\$10,032,506
Delaware	\$577,217	\$400,000	\$977,217	\$0	\$0	\$0	\$977,217
Dist. Columbia	\$749,216	\$999,008	\$1,748,224	\$3,500,000	\$0	\$3,500,000	\$5,248,224
Florida	\$2,592,639	\$3,859,747	\$6,452,386	\$0	\$0	\$0	\$6,452,386
Georgia	\$2,940,956	\$2,677,363	\$5,618,319	\$0	\$1,430,000	\$1,430,000	\$7,048,319
Hawaii	\$204,993	\$0	\$204,993	\$0	\$0	\$0	\$204,993
Idaho	\$1,942,077	\$1,942,077	\$3,884,154	\$0	\$2,225,000	\$2,225,000	\$6,109,154
Illinois	\$14,349,500	\$16,313,465	\$30,662,965	\$4,844,753	\$0	\$4,844,753	\$35,507,718
Indiana	\$6,580,199	\$4,740,931	\$11,321,130	\$0	\$567,303	\$567,303	\$11,888,433
Iowa	\$5,011,292	\$5,184,900	\$10,196,192	\$0	\$4,814,744	\$4,814,744	\$15,010,936
Kansas	\$2,175,587	\$2,256,022	\$4,431,609	\$0	\$0	\$0	\$4,431,609
Kentucky	\$4,548,384	\$3,540,645	\$8,089,029	\$0	\$361,418	\$361,418	\$8,450,447
Louisiana	\$2,427,976	\$1,151,986	\$3,579,962	\$0	\$882,584	\$882,584	\$4,462,546
Maine	\$3,081,589	\$4,816,834	\$7,898,423	\$1,700,000	\$0	\$1,700,000	\$9,598,423
Maryland	\$2,992,926	\$773,220	\$3,766,146	\$1,600,000	\$716,885	\$2,316,885	\$6,083,031
Massachusetts	\$6,968,249	\$7,000,000	\$13,968,249	\$21,215,000	\$0	\$21,215,000	\$35,183,249
Michigan	\$15,257,442	\$8,500,000	\$23,757,442	\$5,000,000	\$0	\$5,000,000	\$28,757,442
Minnesota	\$10,100,643	\$6,149,575	\$16,250,218	\$0	\$3,956,177	\$3,956,177	\$20,206,395
Mississippi	\$1,655,581	\$0	\$1,655,581	\$0	\$0	\$0	\$1,655,581
Missouri	\$6,029,907	\$0	\$6,029,907	\$0	\$500,000	\$500,000	\$6,529,907
Montana	\$2,623,349	\$2,695,829	\$5,319,178	\$1,274,371	\$0	\$1,274,371	\$6,593,549
Nebraska	\$2,501,138	\$2,282,876	\$4,784,014	\$0	\$0	\$0	\$4,784,014
Nevada	\$925,040	\$0	\$925,040	\$2,621,272	\$1,454,000	\$4,075,272	\$5,000,312
N. Hampshire	\$1,515,114	\$500,000	\$2,015,114	\$953,398	\$0	\$953,398	\$2,968,512
New Jersey	\$5,125,246	\$3,607,000	\$8,732,246	\$13,671,113	\$0	\$13,671,113	\$22,403,359
New Mexico	\$1,634,730	\$1,488,000	\$3,122,730	\$0	\$0	\$0	\$3,122,730
New York	\$21,818,047	\$32,241,788	\$54,059,835	\$3,660,426	\$0	\$3,660,426	\$57,720,261
North Carolina	\$4,176,834	\$4,343,072	\$8,519,906	\$0	\$0	\$0	\$8,519,906
North Dakota	\$2,589,151	\$2,107,079	\$4,696,230	\$0	\$0	\$0	\$4,696,230
Ohio	\$15,009,117	\$16,917,856	\$31,926,973	\$6,976,875	\$780,000	\$7,756,875	\$39,683,848
Oklahoma	\$2,602,794	\$1,081,926	\$3,684,720	\$0	\$0	\$0	\$3,684,720
Oregon	\$3,078,771	\$3,437,911	\$6,516,682	\$8,900,000	\$0	\$8,900,000	\$15,416,682
Pennsylvania	\$14,772,357	\$19,990,900	\$34,763,257	\$20,645,515	\$0	\$20,645,515	\$55,408,772
Rhode Island	\$1,161,108	\$1,750,000	\$2,911,108	\$1,100,000	\$0	\$1,100,000	\$4,011,108
South Carolina	\$1,783,179	\$1,802,597	\$3,585,776	\$0	\$0	\$0	\$3,585,776
South Dakota	\$1,925,053	\$1,542,561	\$3,467,614	\$0	\$0	\$0	\$3,467,614
Tennessee	\$4,199,886	\$2,151,351	\$6,351,237	\$0	\$0	\$0	\$6,351,237
Texas	\$5,599,993	\$7,703,606	\$13,303,599	\$0	\$2,098,850	\$2,098,850	\$15,402,449
Utah	\$2,086,136	\$2,309,000	\$4,395,136	\$0	\$0	\$0	\$4,395,136
Vermont	\$1,283,358	\$0	\$1,283,358	\$2,100,000	\$49,344	\$2,149,344	\$3,432,702
Virginia	\$4,751,384	\$5,445,547	\$10,196,931	\$0	\$0	\$0	\$10,196,931
Washington	\$4,642,533	\$5,697,581	\$10,340,114	\$0	\$5,452,255	\$5,452,255	\$15,792,369
West Virginia	\$3,225,843	\$2,519,804	\$5,745,647	\$0	\$0	\$0	\$5,745,647
Wisconsin	\$9,768,947	\$11,196,390	\$20,965,337	\$41,484,767	\$0	\$41,484,767	\$62,450,104
Wyoming	\$1,179,511	\$1,470,540	\$2,650,051	\$0	\$0	\$0	\$2,650,051
Totals	\$232,550,459	\$236,498,396	\$469,048,855	\$148,520,889	\$127,915,385	\$276,436,274	\$745,485,129

Qualified Measures for Grant or Rebate Programs: Every state specifies what equipment qualifies for a grant or rebate, and in most cases the list is fairly similar, with air conditioners, lighting, furnaces, washing machines, duct sealing, programmable thermostats and insulation appearing on almost every state’s list of qualifying equipment. Some states maintain expanded lists – New York includes efficient ceiling fans and dehumidifiers in its list of products.

In many cases, grants or rebates are directly tied to an ENERGY STAR classification. The District of Columbia, for example, has this requirement for clothes washers and dryers, refrigerators and freezers and room air conditioners. Maine’s rebate for certain lighting fixtures is tied to ENERGY STAR rating. Rhode Island’s ENERGY STAR Rebate Program focuses on furnaces, boilers and ENERGY STAR programmable thermostats. Clothes washers need to qualify for the ENERGY STAR rating if they are to get the Vermont rebate. Wisconsin’s ENERGY STAR Products Cash-Back rewards program offers rebates for dishwashers, refrigerators/freezers, dehumidifiers, lighting and clothes washers that comply with ENERGY STAR.

Table 9: Summary of Qualified Measures in Selected States

State	Products
Delaware	Focuses on energy efficient products: clothes washers/dryers, refrigerators and freezers, air conditioners, programmable thermostats
District of Columbia	Products include air conditioners, refrigerators, and washing machines. All must be ENERGY STAR-RATED.
Illinois	Refrigerators/freezers, water heaters, lighting, furnaces, boilers, duct/air sealing, building insulation, windows.
New York	Clothes washers/dryers, dishwashers, refrigerator/freezers, dehumidifiers, ceiling fans, water heaters, lighting furnaces, heat pumps, duct/air sealing, building insulation.
Oregon	Equipment insulation, programmable thermostats, caulking/weather stripping, duct/air sealing, building insulation, widows, doors.
Rhode Island	Furnaces, boilers, programmable thermostats.
Vermont	ENERGY STAR-RATED clothes washers, lighting and furnaces.
Wisconsin	One incentive program for heating and cooling and another for appliances. Heating and cooling equipment is based on pre-qualified equipment. Appliances (dishwashers, refrigerator/freezers, dehumidifiers, lighting and clothes washers) must be ENERGY STAR-RATED.

Scale of Grant and Loan Subsidies: This is a difficult piece of the puzzle for states. It is easy to spend too much, to offer too large an incentive, and equally easy to offer too low an incentive such that it has no effect on the buyer’s decision.

Table 10: Summary of Program Incentive Level in Selected States

State	Incentive Level
District of Columbia	Room air conditioner: \$50, fridge: \$100, washing machines \$150
Delaware	Refrigerators: \$100, Freezers \$50, Electric water heaters \$25, central a/c \$350
Illinois	Varies, see footnote. ⁹
Louisiana	Up to 20% of costs of measures to improve efficiency (as determined by an audit), capped at \$2,000.
Maine	\$2 off CFLs and \$12 off other ENERGY STAR lighting fixtures
New Jersey	Central air conditioning: \$300-\$400 depending on efficiency; heat pumps at \$350-\$450 depending on efficiency
New York	The Assisted Home Performance Grants program offers grants that cover up to 50% of the cost of energy efficiency upgrades, with a max of \$5,000 per single family home and \$10,000 for 2-4 family units. The Assisted Multifamily Program offers up to \$500 “gap” funding to customers whose income is less than 80% of the state median income. It is designed to meet the needs of energy efficiency projects when other sources of funding cannot do so.
Oregon	25% of the total cost of upgrades up to a total cost of \$500 per household.
Rhode Island	Rebates of \$200 for efficient furnaces and \$25 for ENERGY STAR programmable thermostats.
Vermont	Rebates (through coupons) of \$1.50 per CFL bulb, \$10 per torchiere, as well as \$50 for ENERGY STAR clothes washers and \$100 for ENERGY STAR furnaces.
Wisconsin	Partial List: Refrigerators: \$50; dishwashers: \$30; light bulbs: \$2; torchieres and ceiling fans: \$15; central air conditioners: \$100-\$200; furnaces: \$150.

Eligibility Requirements: Compared to loan programs, grant and rebate programs tend to be more flexible and open to most families. The District of Columbia, Louisiana, Maine, Oregon,

⁹ Illinois Energy Efficient Affordable Housing Construction Program:

- Rehab: multi and single family: \$2,500/unit, single room occupancy, <80 units: \$2.75/sqft of living space and single room occupancy, >80 units: \$2.50/sqft of living space
- New Multi-Family: 80 units or less: \$2.50/sqft of living space, more than 80 units: \$2.25/sqft of living space
- New Single Family: single family: \$2,000/unit, duplex: \$3,500/duplex and 3-flat: \$4,500/building

Rhode Island, Vermont and Wisconsin, for instance, do not make any distinction based on income or other criteria to determine who is eligible to receive grants and rebates. Illinois' Energy Efficient Affordable Housing Construction Program is available to non-profit housing developers. New York is a bit different. It provides a coordinated menu of several programs. Assisted Home Performance Grants are designed for families is 80 percent or less than the median income in the state and its EmPower program is designed for families with a household income that is below 60 percent of the state median income or who participate in a utility payment assistance program.

Designation of Who Receives Funding: State programs designate who actually receives funding. In some cases the state gives the rebate directly to the homeowner, trying to influence retail consumers' decisions. In some cases states give it to contractors, distributors or manufacturers, thus trying to influence the decisions at the wholesale, distributor or manufacturer level.

Table 11: Summary of Grant or Rebate Program Recipient in Selected States

State	Grant or Rebate Recipient
Delaware	Grant/rebate offered directly to homeowner
Illinois	Offers its grants directly to Illinois-based non-profit housing developers for use in rehabilitation or construction of affordable housing units.
New York	Provides incentives to lighting contractors, distributors, manufacturers and designers – not to the multi-family residence or business where the equipment is being installed.
Oregon	Grant/rebate offered directly to homeowner.

Energy Audit Requirements: Like loan programs, some grant programs require an energy audit. These energy audits are less common requirements than for the loan programs, however. An energy audit is an integral part of the Louisiana Home Energy Rebate Option (HERO) program, since the amount of incentive is based on the energy rater's calculation of energy savings; existing homes must improve their energy efficiency by at least 30 percent to be eligible for the rebate. New York's Assisted Multifamily Program requires and provides energy audits. Oregon's State Home Oil Weatherization (SHOW) program pays for an energy audit. It then asks homeowners to fill out (on their own or with a certified contractor) an Energy Audit Checklist and to turn that form in along with receipts when they request the rebate. Wisconsin's approach is different; the state's Home Performance with ENERGY STAR program uses its grant funds to pay for home energy audits and then provides the cash incentives for installing the efficiency measures based on the recommendations in the audit.

Distribution of Rebates: This factor is important – ease of distribution of money, especially for small purchases will determine if people really use the incentive. An incentive that is too difficult to take advantage of won't be used.

Table 12: Summary of Requirements for Distributing Funds in Selected States

State	Means of Distributing Funds
District of Columbia	DC residents submit proof of purchase and residency to the DC Energy Office.
Delaware	Grant funds distributed through the Energy Office. Homeowners contact Energy Office to reserve the grant before purchasing equipment, or apply for the grant after purchase.
Illinois	Grants for the Energy Efficient Affordable Housing Construction Program given directly to non-profit housing developers.
Louisiana	The Louisiana Department of Natural Resources issues a rebate based on (1) an initial energy rating and (2) a subsequent verification by the home energy rater that the efficiency improvements have been installed.
Maine	Coupons are available in the store at participating retailers; retailers are later reimbursed by Efficiency Maine
New Jersey	Incentives offered through the utilities.
New York	<p><i>Assisted Home Performance Grants:</i> Application done through a community organization or through a Building Performance Institute certified contractor.</p> <p><i>Small Commercial Lighting Incentives Program:</i> Incentives given directly to lighting contractors, distributors, manufacturers and designers.</p> <p><i>Energy Smart New Construction Program:</i> grant given through a competitive application process run by the state energy office. Both of these programs focus on commercial and industrial customers, plus multi-family residential.</p>
Oregon	<p>Multifamily Home Energy Savings Program: The Energy Trust of Oregon distributes funding directly to the owner of multifamily properties (property with five or more units).</p> <p>State Home Oil Weatherization program: Mail-in rebates processed by Oregon Department of Energy.</p>
Rhode Island	State distributes the rebate once the customer submits receipts, proof of building permit and proof of the efficiency of the new furnace.
Vermont	Coupons redeemable at retail stores that are either available at the store or that can be printed on the Efficiency Vermont website.

Tax Incentive Programs: Nine states plus the District of Columbia use tax incentives as a further measure to encourage energy efficiency in residences. Tax incentives laws specify who is eligible for the incentive, whether the incentive is a deduction or credit, and which specific measures qualify for the tax incentive. Typical incentives specify certain measures or technologies that qualify.

Table 13: Summary of Tax Incentive Programs in Selected States

State	Qualifying Measures or Technologies
California	Lighting, chillers, furnaces, boilers, heat pumps, Air conditioners, Caulking, weather-stripping, duct/air sealing, building insulation, windows, advanced electric metering
District of Columbia	Equipment that can qualify includes (but not limited to) clothes washers, lighting, water heaters, duct and air sealing, insulation, windows, doors, and roofs. All equipment must meet applicable ENERGY STAR standards.
Idaho	Caulking/weather stripping, building insulation, windows and doors.
Montana	Water heaters, chillers, furnaces, boilers, heat pumps, a/c, programmable thermostats, caulking/weather-stripping, building insulation, windows and doors.
Oregon	Refrigerator/freezers, clothes washers and dishwashers that qualify for the credit. Oregon's standards are more stringent than those of the federal government's ENERGY STAR program, so not all ENERGY STAR-RATED appliances will qualify for the Oregon incentive. ¹⁰

¹⁰ Refrigerators-freezers qualifying for an Oregon Residential Energy Tax Credit must have at least 20 percent lower energy consumption than allowed by the July 1, 2001 US DOE standards for refrigerators. The federal ENERGY STAR program is adjusting its efficiency specification upward to a level matching Oregon's minimum requirements so that all refrigerator-freezers that qualify for Oregon's tax credit will also be ENERGY STAR refrigerator-freezers. However, it is important to note that the ENERGY STAR program continues to include more classes of refrigerators, refrigerator-freezers and freezers that are not included in Oregon's tax credit program. The bottom line: While all Oregon tax credit-eligible refrigerator-freezers will be ENERGY STAR, not every ENERGY STAR product will qualify for an Oregon tax credit. Oregon tax credits are available only for refrigerator-freezers with fully automatic defrost cycles, and with net refrigerated volumes between 12 and 30 cubic feet.

Clothes washers: The Oregon tax credit minimum qualifying Modified Energy Factor (MEF) is 1.6. Oregon's maximum Water Factor (WF) requirement is 8.5 gal/cu ft/cycle. The federal ENERGY STAR program has no Water Factor maximums. Therefore, it remains possible that some ENERGY STAR models may not qualify for tax credits in Oregon.

Dishwashers: Dishwashers qualifying for an Oregon Residential Energy Tax Credit must have an energy factor of 0.61 cycles/kWh or higher. Also, qualifying dishwashers must have a maximum water use per cycle, as tested, of 6.5 gallons. (<http://egov.oregon.gov/ENERGY/CONS/RES/tax/appliances.shtml>)

Some states offer a tax incentive for purchase of a new home if it meets a certain efficiency level.

State	Energy Efficiency New Home Tax Incentive
Arizona	5% credit up to \$5,000 for new homes 50% more efficient than the 1995 Model Energy Code. Average savings is \$190 for a home
District of Columbia	5% credit up to \$2,000 if home is 50% more efficient than the 1995 Model Energy Code
Oklahoma	\$4,000 tax credit to contractors who build new energy efficient homes that are at least 40% below the International Energy Conservation Code (IECC), and a \$2,000 credit to those contractors who build homes that are between 20% and 39% better than the IECC

Credit or deductions levels vary from one state to another; in one case the deduction is for the interest on a loan for energy efficiency, but in most cases the tax incentive is based on the cost of equipment such as lighting, water heating, cooling, insulation or other equipment, listed below.

Table 14: Summary of Tax Credit Deduction Levels for Selected States

State	Tax Credit or Deduction Level
California	Personal tax deduction of 100% of the interest on a loan to buy energy efficient equipment or materials if the loan is from a publicly owned utility company (such as the Los Angeles Department of Water and Power or the Sacramento Municipal Utility District).
District of Columbia	10% of expenses for lighting controls and programmable thermostats, to 20% of expenses for water, heating, cooling systems and insulation of water heating and existing duct work, to 25% of expenses for double pane windows, caulking for windows, 20% for insulation of walls, floors and ceiling, major home appliances. Limited to \$500 for renovations per year and at \$2,000 for new homes.
Idaho	100% tax deduction including costs of material and labor; applies only to homes built before 1976.
Montana	Credit is set at 25% of the cost of the capital investment and capped at \$500 per taxpayer.
Oklahoma	\$4,000 per new home that is less than 2,000 s.f. and constructed at 40% better than the IECC and \$2,000 for homes less than 2,000 s.f., constructed at 20%-39% better than IECC.
Oregon	Incentives range from \$50-\$180 per appliance

SECTION 3: NEXT STEPS: DEVELOPING AN ASSISTED HOME PERFORMANCE-BASED MORTGAGE PROGRAM

During the course of this project we have held a number of discussions and meetings with stakeholders in various states, including Connecticut, Massachusetts, New York, New Jersey, Pennsylvania, Washington State, and the District of Columbia, as well as WRAP program managers to discuss options for expanding the Assisted Home Performance model. One of the suggestions that was raised was the need for a complementary low-income energy efficiency mortgage program that would build on the existing program, by adding a second set of financing options for low income families, especially those that have high interest rate mortgages and as a result cannot take on any additional debt to do install energy efficiency measures.

As a result of those discussions working groups were established in Massachusetts, New Jersey, New York, and Pennsylvania to design and develop a low-income energy efficiency mortgage program that builds on the existing network and is modeled after the Assisted Home Performance programs in New York and Wisconsin. The program would

- Allow families to refinance high-interest-rate mortgages often provided by predatory lenders;
- Incorporate weatherization and other available grant resources;
- Borrow additional sums to cover other rehab-related needs.

An Assisted Home Performance market-based low-income mortgage refinance model that offered access to energy efficiency services and available grant resources could do the following:

- Compete directly with sub-prime and predatory mortgage brokers;
- Build on available grant funds, thereby reducing the need for additional borrowing;
- Expand the energy savings potential for grant-based weatherization programs by providing additional borrowing for measures that are not covered by grant funds.

The product would be saleable to secondary markets, priced competitively as a fixed-rate 30-year loan, and for maximum reach, loans would be originated by approved lenders and nonprofit intermediaries.

The program would also build on the common interests of the environmental, energy, and housing communities, addressing the dual concerns of improving the environment and increasing the affordability of low-income housing by reducing energy consumption. It would be designed to serve as a model for other states, with the goal of bringing the program to scale as a national initiative to help sustain affordable, energy-efficient low-income homeownership.

The product design and implementation would be supported by: state energy/housing agencies, more than one secondary market/investor outlet, responsible lenders and nonprofit financial intermediaries and energy grant providers and private foundations. These entities would provide funds to mitigate the investor risk that the more flexible credit standards of the loan product would engender. In addition, to make the loan more affordable, the program would seek to

include available grant funds that the families could eligible for, including lead abatement, weatherization and home funds.

Benefits to the Family: Cost savings gained from energy-efficiency improvements could provide incentives for lenders to provide improved lending terms because, as a result of their lower energy bills, families would be in a better position to meet their monthly mortgage payment. Low-income families pay 16 percent of their income on home energy as compared to 4 percent for other families.

Table 15 illustrates the potential savings that a family could achieve by participating in the program. A family with a \$100,000 mortgage and a high interest rate mortgage could save \$170 a month by refinancing their home mortgage from 9 to 7 percent and receiving services from the Weatherization Assistance Program. These savings could be used to support additional borrowing of about \$26,000 that could be used to pay for other needed improvements that are not covered by weatherization grants.

Table 15: Comparison of Estimated Monthly Payments for a Typical Low Income Family Using an Energy Efficiency Mortgage

Current Mortgage				
Mortgage	Interest Rate	Monthly Payment	Average Energy	Total
\$100,000	9%	\$804	\$155	\$959

Low Income Energy Efficiency Mortgage					
Mortgage	Interest Rate	Monthly Payment	Average Energy	Total	Difference
\$100,000	7%	\$665	\$124	\$789	\$170

Integrating Brokerage and Grant Services: The model includes the addition of a loan brokering service to develop the local delivery system. A well-designed program without a local delivery system will never go to scale. Services would include:

- Applicant intake and qualification;
- Credit, loan counseling, and social services, where needed;
- Loan brokering to provide refinance and rehabilitation loans to reduce debt service costs and to supplement energy and weatherization grants, thus providing a comprehensive rehabilitation and energy improvement package.

Community action, community development, and other nonprofit corporations, in partnership with state energy and housing agencies, would manage the program. The revenue generated from loan brokering would be used to support other service costs.

Developing the Statewide Program: The first step in developing a statewide program will be to prepare a strategic plan in partnership with state and local officials in selected target states. In each case, the program will only go forward after a comprehensive planning process and the explicit endorsement of the state's Governor. This is important because it helps to address

barriers to integration and provides local pilots with “cover” to seek support for new delivery systems.

The EPC contract has supported initial pilot discussions on developing the program in the states of Massachusetts, New Jersey, New York, and Pennsylvania to begin developing the product model and delivery system. Members of the working groups include senior-level housing finance, energy, and treasury officials. Six meetings were held in 2006, including a regional meeting on December 1 in New York City. Key topics include developing a common audit tool, working with Fannie Mae to develop a usable secondary market product, identifying regional and local lenders who could participate in the program, appropriate state subsidies and potential nonprofit pilot program sites.

The working group discussions are already gaining attention from other states. North Carolina, Washington State, Wisconsin, and the District of Columbia have indicated an interest in joining the discussion. In addition, the National Association of State Energy Officials is planning a special session during their 2007 winter meeting to discuss the project.

In each state, we are working with the state energy office, Public Service Commission, and housing and community development agencies to develop a strategic plan that will include the following elements:

- Statewide elements:
 - Conduct an analysis of all available state and local programs (grant-based and loans).
 - Identify potential partners/funding sources.
 - Secure signed MOUs from programs to work within agreed-upon common program guidelines to deliver services.
 - Determine the most effective mortgage and service delivery model(s).
 - Set realistic timelines for program start-up in each state.
- Agency elements
 - Outline demonstration program structure, including delivery plans for each site, agreements with potential partners, outreach plans, and client in-take and service plans.
 - Develop a “resource manual” of all the available grant programs that is kept up-to-date for each participating agency.
 - Develop a plan with partner agencies to coordinate delivery of services and minimize overlapping requirements, including eligibility, home inspections, and timeframes.
 - Assign each participating family a “housing consultant/advocate” who will provide ongoing support (directly or through referrals) during the process and serve as the family’s advocate during the refinance and program integration process.
- Mortgage brokerage elements:
 - Provide participating families with the lowest interest rate options available.
 - Support parent or network nonprofit(s) with net revenue from the service.
 - Structure a refinance that could include a rehabilitation and energy efficiency loan at the lowest possible cost to the family.

- Offer the ability to affordably borrow against home equity to pay for energy and other rehab-related improvements.
- Provide reduced interest rate options based on the family’s increased ability to pay as a result of energy savings and/or improvements in credit scoring.
- Reduce the total cost of borrowing as a result of a lower mark-up on the “wholesale price” than that charged by commercial mortgage brokers (The wholesale price refers to the low interest rates banks and investors provide to loan brokers, who then add rates and fees).
- Provide competition to neighborhood-based brokers who frequently charge excessive rates and inappropriately place families in sub-prime loans when they are eligible for prime interest rate loans.

Role for Nonprofit Agencies: These products can be marketed by working with the existing network of nonprofit agencies that provide and support weatherization and energy grant programs. By adding a couple of extra data questions to their intake protocols, these agencies can find eligible applicants for lenders and nonprofit intermediaries to process. Their current and previous client base will quickly produce a fair volume of business. To this network will be added a pilot group of nonprofit mortgage brokers who will deliver loans to the approved lenders that currently provide rehab and energy loans. Wholesale loan pricing (nonprofit brokers) will not exceed retail loan pricing.

One of the single most important contributions this effort will make to the nonprofit community is supporting and rewarding entrepreneurship. By tying revenue supports (fee income) to the number of closed loans, the participating nonprofits learn the market discipline necessary to be successful. With this success comes unrestricted income that can be used to support their operations and/or be used to expand these types of public/private partnerships. The private market is more willing to support efforts that lead to volume and reward efficiency. And with loan guarantees to support investor returns, the fee income paid to nonprofits will not drive up the loan interest rates and fees charged to low-income homeowners.

Product marketing can begin in earnest after the first several hundred loans are made. That initial period allows for changes in processing and underwriting as loan sale criteria are tested and perfected. At that point, the public could be made aware of the product through a public and/or public/private marketing campaign.

Perhaps for-profit brokers can be induced to deliver qualified borrowers for limited fees. The brokers’ pricing will be limited so that the net loan cost to the borrower is equal to a retail lender (and investor) rate and fees. This pricing provides the brokers with revenue to support their efforts and does not punish the borrower with higher costs. Because the lender making the loan does not do intake or qualifying work, only underwriting, their costs are reduced, and the fees paid to the nonprofit broker will equal the rate and fees that a retail lender would charge (Wholesale pricing).

Nonprofits also provide loan counseling and other homeowner services that will produce better borrowers with lower credit risk. The loan counselors can work with homeowners whose current credit does not meet the standards of the loan product. When these homeowners are ready and

meet the standards, the counselors can bring their package to the lenders. Alternatively, the counselors can deliver these loan-ready packages to another nonprofit or for-profit approved mortgage broker to quickly and easily make the loan. The nonprofits can then share in the revenue generated in a regulatory compliant way.

Also important is that fact that the product being developed is ideally suited for delivery by nonprofit energy and housing organizations because it involves integrating grants and loans as well as overseeing the rehab and weatherization process. This is a process that banks have shown little if any interest in directly providing.

Role for Foundation Support: There is a possible role for the foundation community to support the development of an Assisted Home Performance energy efficiency mortgage program. Foundations can agree to purchase mortgages or provide loan capital to make mortgage loans by making Program-Related Investments (PRIs).¹¹ These investments would provide an additional level of loan security for the investors—a level that will allow the loan product to meet the varied credit situations of many low income and minority homeowners and still provide a prime interest rate to these homeowners. PRIs can supply this additional security or additional cash collateral for the investors.

By providing additional loan security (collateral) to the investor through the PRI funds, the interest rate to the borrower can be lowered. For example, if a loan security of \$40 million were offered, of which \$2 million were provided by a PRI and \$38 million in loans properly made by lenders, this security could be priced to allow a prime loan rate to the homeowners. The low interest rate cost of the PRI funds—in many cases 1 percent—would be blended into the mortgage payments. The PRI funds could be interest-only during a short period, perhaps up to five years, and then allow the principal to be repaid as loan principal is repaid, or allow PRI additional collateral funds to be released back to the foundation as the loans perform over a longer term.

These additional collateral supplements can be used instead of traditional mortgage insurance for these mortgages. A committee of lenders, investors, and mortgage insurance companies would analyze the mortgage product to decide which approach to use, or to use both at the same time. The results would then be priced to determine the easiest, cheapest, and most effective way to provide Fannie Mae prime loan pricing to all customers that meet the agreed-upon credit criteria. And if Fannie Mae or other traditional secondary markets take too much time to consider this approach, State Housing Finance agencies could be willing to aggregate these loans.

The Brokerage Process: The statewide initiatives that are being developed will seek to integrate mortgage brokering into the delivery of energy services. These programs would have nonprofit mortgage brokers at the center of a regional network. This hub-and-spoke approach would permit the large volume of homeowners seeking energy assistance to be processed for brokered loan services without additional cost to them; at the same time, the nonprofit broker would have a reasonable volume of business. Each network would be self-supporting after an initial

¹¹ PRIs are generally defined as low-interest loans or other investments made by foundations for purposes related to the foundation's interests and mission.

capitalization to cover start-up costs, marketing, and loss coverage. A break-even point would be achievable within 18 months. The networks could be linked to permit statewide coverage.

The marketing campaign that will be a part of this initiative will reach out beyond the households that receive energy assistance and seek a second tier of customers for the brokerage service. This population, often the working poor, while not necessarily income eligible for energy assistance, is often victimized by neighborhood loan brokers whose higher cost loans do not reflect their actual credit risk, thereby stripping equity from homeowners. This effort will deliver set fee service and loan interest rates that equal the borrower's actual credit risk, thereby reducing monthly payments and building home equity. The energy savings achieved by the homeowner will further reduce home ownership costs and increase disposable income for these cash-strapped homeowners.

The fees generated from the brokering service would deliver positive revenue to the participating nonprofits that may also be providing services to the network: energy, counseling, and social services. As their volume of applicant referrals increases, so their revenue share increases. This model rewards efficiency and will be used by the network to weed out inefficient service providers in favor of their more efficient counterparts.

National Advisory Committee: The project will be guided by a national advisory committee of state and private sector housing, energy, community development, banking, and foundation officials. Members would include public service commissioners, state energy and housing directors, and representatives from key national organizations that support the development of affordable housing and have an interest in the program, as well as those who are interested in developing similar programs in their states.

The goal is nothing short of changing the way that nonprofit housing and energy agencies do business. The status quo is to provide niche-based services, specializing in lead abatement, rehab, social service delivery, and weatherization. Rarely do agencies provide more than one of these services in a comprehensive and integrated manner. By not providing mortgage broker services, the agencies miss opportunities to raise more revenues for additional services and directly compete with predatory lenders.

Developing a Market Data Base to Support the Expansion of Assisted Home Performance and the Development of a Low-Income Home Energy Efficiency Mortgage Product: One of the key steps in bringing the low income energy efficiency mortgage program to scale, as well as expanding the Assisted Home Performance program, would be to develop a market-based understanding of opportunities to influence purchasing decisions and then set clear and achievable goals based on market transaction points. The development of a state and income-specific database that could provide these indicators that could be used to support the expansion of both programs.

The following three tables are examples of the data that EPC is preparing.

- Table 16 illustrates the number of new and existing home sales. Combined annual transactions totaled 8.4 million in 2005, the cumulative total for 2002 to 2005 amounted to almost 30 million transactions.
- Table 17 illustrates the number of home improvement projects at average of 15.5 million each year between 1994 and 2003 with an average job of about \$5,977. The average in 2003 was \$6,898.
- Table 18 illustrates the change in the number of homeowners between 2001 and 2004. In other words, every year more that 11 percent of all homes are sold and 27 percent undergo at least some level of home renovation.

Year	Home Sales (000)			Home Prices	
	New	Existing	Total	New	Existing
2000	877	5,152	6,029	\$205,983	\$160,835
2001	908	5,296	6,204	\$207,354	\$168,791
2002	973	5,566	6,539	\$213,180	\$177,382
2003	1,086	6,175	7,261	\$220,288	\$185,077
2004	1,203	6,779	7,982	\$230,842	\$200,158
2005	1,283	7,075	8,358	\$240,900	\$219,000

2003			Average 1994- 2003		
# (000)	Average \$	Total \$(millions)	# (000)	Average \$	Total \$(millions)
20,024	\$6,898	\$138,135	15,550	\$5,977	\$92,950

Year	Total (000)
2001	69,986
2004	73,753