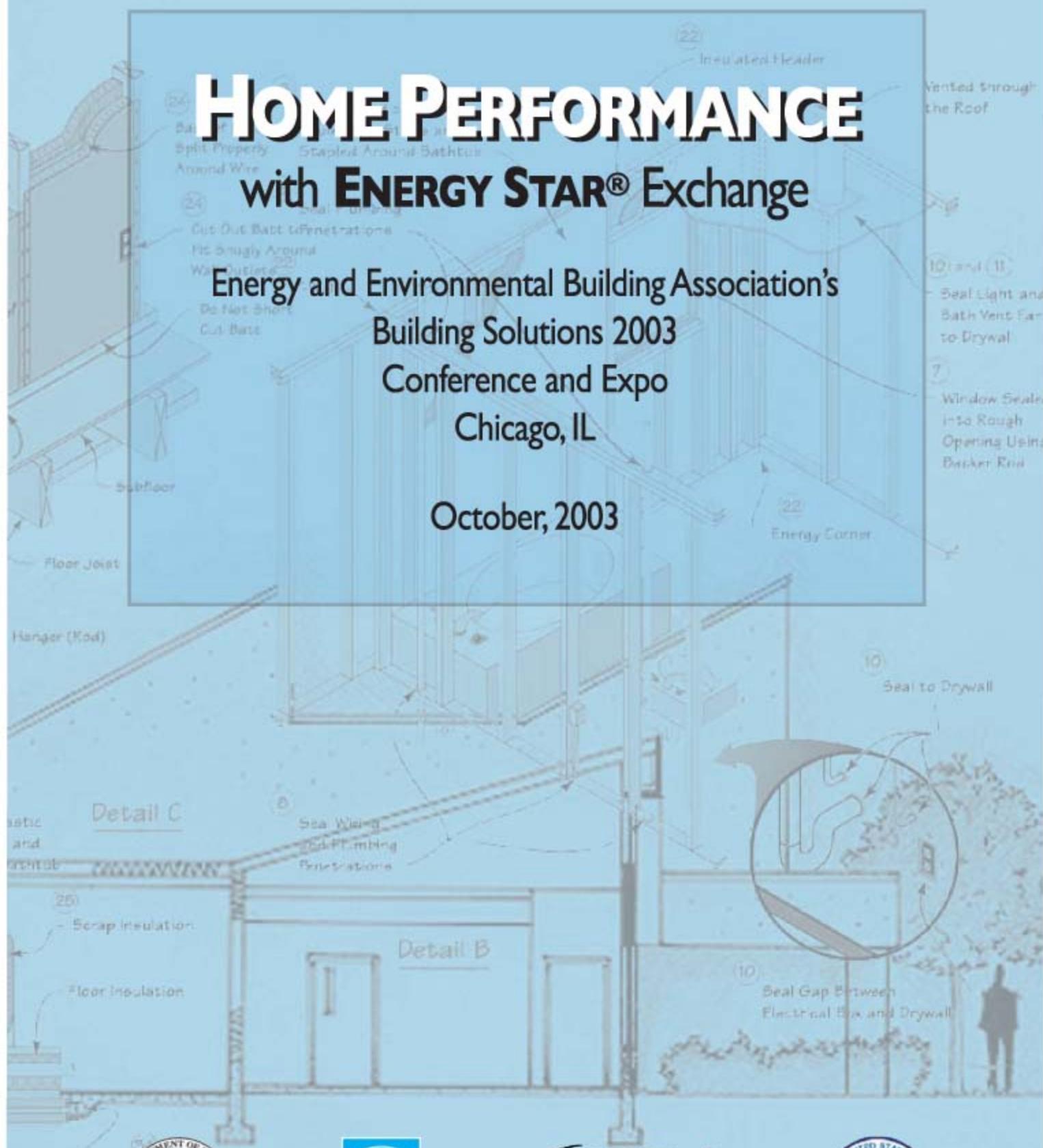


# HOME PERFORMANCE

## with ENERGY STAR® Exchange

Energy and Environmental Building Association's  
Building Solutions 2003  
Conference and Expo  
Chicago, IL

October, 2003



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## **Executive Summary**

The following summaries, provided by implementers of *Home Performance with ENERGY STAR®* around the country, are for use in the October 15 discussion during the Energy & Environmental Building Association (EEBA) Building Solutions, 2003 Conference in Chicago.

The summaries and session discussions provide an overview of *Home Performance with ENERGY STAR*, along with results and lessons learned from existing *Home Performance* implementers in New York, Wisconsin, Massachusetts, California, and Kansas City. Five future pilot projects set to begin in Georgia/Alabama, Idaho, Missouri, New Jersey and Texas will also be presented and discussed.

Session topics will include the use of different training approaches, methods of quality assurance, and the role contractor certification plays in several of the programs. The session will conclude with a roundtable discussion of Home Performance issues by current and emerging implementers, with time for participant questions.

*Home Performance with ENERGY STAR* uses the growing awareness and credibility of the ENERGY STAR brand to encourage and facilitate whole-house energy improvements in existing homes through self-sustaining energy efficiency programs. Whether you're a state energy official, utility program manager, contractor training professional or efficiency program implementer, you're sure to benefit from the unique presentations and networking opportunities that this session will offer.

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## New York

### Overview of the Program

New York's Home Performance with ENERGY STAR Program, developed under the New York Energy \$mart program, is administered by the New York State Energy Research and Development Authority (NYSERDA). NYSERDA's initial market transformation approach focused on transforming the ENERGY STAR lighting and appliances market. This approach was expanded in 2001 to include the Home Performance with ENERGY STAR program.

The New York Energy \$mart ENERGY STAR market transformation efforts differ from most traditional efforts, which rely on consumer-directed rebates to increase demand. The New York program relies on midstream level incentives to actually change the supply characteristics of the marketplace--from what manufacturers produce, to levels of products that retailers stock, to what practices builders and contractors support. This effort is coupled with an extensive media campaign to spur consumer education and demand for ENERGY STAR labeled products and services. NYSERDA's strategy is to develop and support an energy-focused home improvement industry, which uses performance-based "building science" techniques to maximize quality, consistency and effectiveness of efficiency improvements in existing 1-4 family homes.

This program is designed to transform New York's energy efficient construction marketplace through a comprehensive "whole-house" training curriculum leading to a required contractor certification, coupled with a comprehensive consumer and contractor awareness/education campaign and incentives aimed at overcoming barriers to mid-stream market participants.

The comprehensive consumer and contractor awareness/education campaign is focused on "call to action" marketing, creating both consumer demand and contractor participation. Consumer demand is what will ultimately bring about market transformation. Homeowners receive information on the program by accessing our website GetEnergySmart.org or by calling our toll-free number 1-877-NY SMART. As a result of their inquiry, homeowners receive an information packet, a video and most importantly, a list of participating contractors in their area. Providing a homeowner with a list of participating certified contractors not only serves to boost the homeowners comfort and confidence level in the program, but also generates qualified leads for the contractor.

The underlying principles of this innovative and performance-based program are:

- Facilitate the growth of the building performance industry in New York State;
- Increase the energy efficiency, health, safety and comfort of existing 1-4 family housing within New York State;
- Build an infrastructure of certified home performance contractors within New York State;
- Promote the "house-as-a-system" philosophy;
- Maintain the high technical standards, guidelines and integrity of the New York Home Performance with ENERGY STAR program;
- Increase trade adoption and application of the technical "best practices" for home improvement in New York State.
- Incorporate a proven marketing template that increases consumer awareness and demand and encourages contractor participation.

All contractors who participate must become certified and accredited through the Building Performance Institute (BPI), a national resource for building science technology that sets the standards for assessing and improving the energy performance of homes. Extensive training places a strong emphasis on building science technology, in addition to energy analysis software, and sales and marketing techniques tailored to the residential contracting business. In order for contractors to become BPI certified/accredited, they need to demonstrate the ability to use advanced diagnostic testing equipment when assessing a home. The program provides the necessary equipment to certified contractors through an agreement directly with NYSERDA.

Additionally, this program is designed to give New Yorkers a “one-stop shopping” experience when implementing energy efficiency improvements in their homes. The same contractor who completes a homeowner’s energy assessment, schedules and completes the work. This assessment is also designed to promote cooperation between trades, further integrating the “house-as-a-system” philosophy. This program rewards contractors who partner outside of their trade to deliver optimum energy efficiency value to homeowners.

The New York Home Performance with ENERGY STAR program incorporates a homeowner financing option that is contractor-originated based on Fannie Mae’s home improvement loan. Only a BPI certified/accredited firm can offer homeowners’ the low-interest ENERGY STAR financing. Under this financing, once the work scope has been completed, the contractor is paid and the homeowner begins making payments.

The program was introduced in four (4) metropolitan areas in Upstate New York in a staged fashion, beginning with Syracuse in March 2001. It was subsequently rolled out in Albany, Binghamton and Buffalo in the next few months, and then expanded to other areas of the state in 2002.

### **Marketing:**

The overall marketing goal for NYSERDA’s Home Performance with ENERGY STAR is to drive consumers, trade contractors and others to participate in a Market Transformation program for improving the energy efficiency, comfort and health of existing homes. Therefore, NYSERDA’s primary marketing focus of Home Performance with ENERGY STAR is two-fold: (1) to recruit and educate contractors to affect change in home improvement services by using a whole house, house-as-a-system approach to diagnose and treat homes; and (2) to increase awareness and demand from consumers to increase residential energy efficiency (long term), and to ask for BPI certified contractors.

The marketing program was launched in February of 2001. The multi-media public awareness campaign includes television, radio, newspaper, direct mail, co-op advertising, public relations and special events. The spokesperson for the campaign is Steve Thomas, television’s renovation and design expert. Mr. Thomas is featured in all the advertising and sales collateral materials used to increase awareness and demand for residential energy efficiency services, as well as to help recruit home improvement contractors for participation in the initiative. His role as television’s renovation and design expert positions him as an unbiased, third party source for the best resources and information about remodeling, renovating and building homes. His media presence is extremely important in maintaining awareness of, and demand for, the comprehensive energy services provided through Home Performance with ENERGY STAR, along with the concern over rising energy costs and tight energy supply in New York, as well as nationwide.

### **Results to Date:**

The following series of tables and charts provide a quick summary of program results and metrics to date.

Table 1 represents the program Household Activity by month for jobs in process and completions from July 2002 through August 2003.

**TABLE 1**

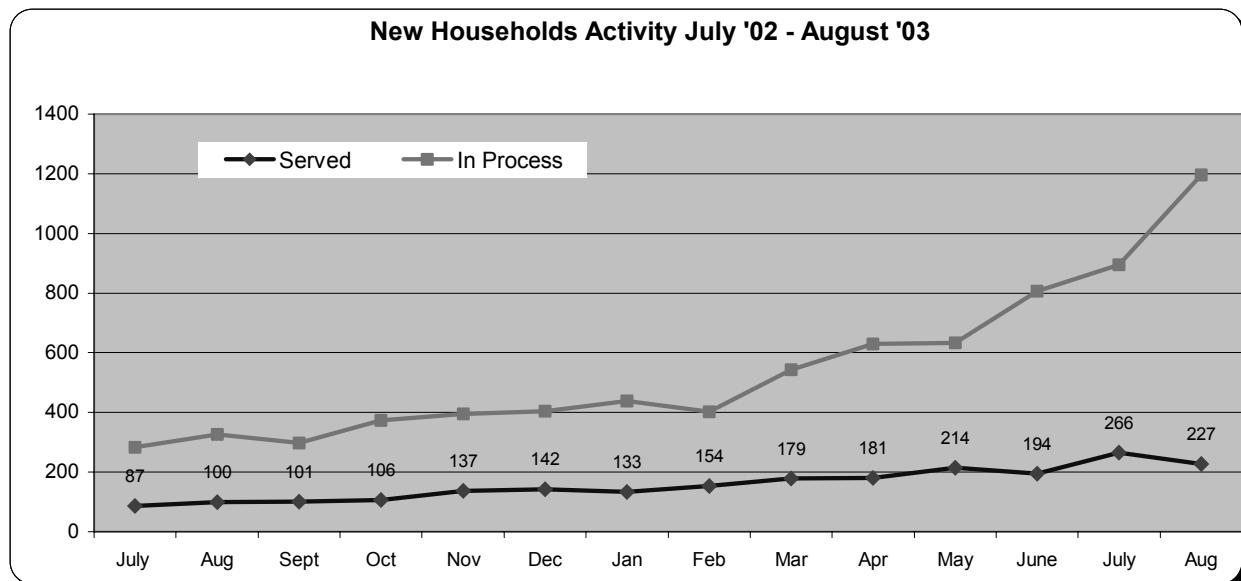


Table 2 represents the monthly dollar value of the Home Performance work completed by participating home performance with ENERGY STAR contractors for New York households to date.

**TABLE 2**

**Monthly Value of Home Performance with Energy Star**

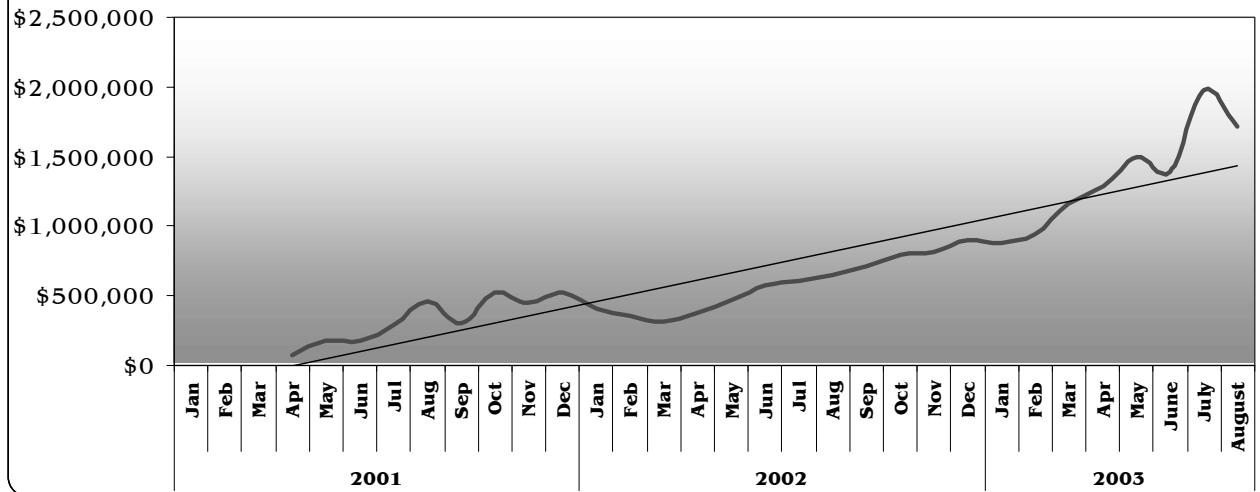
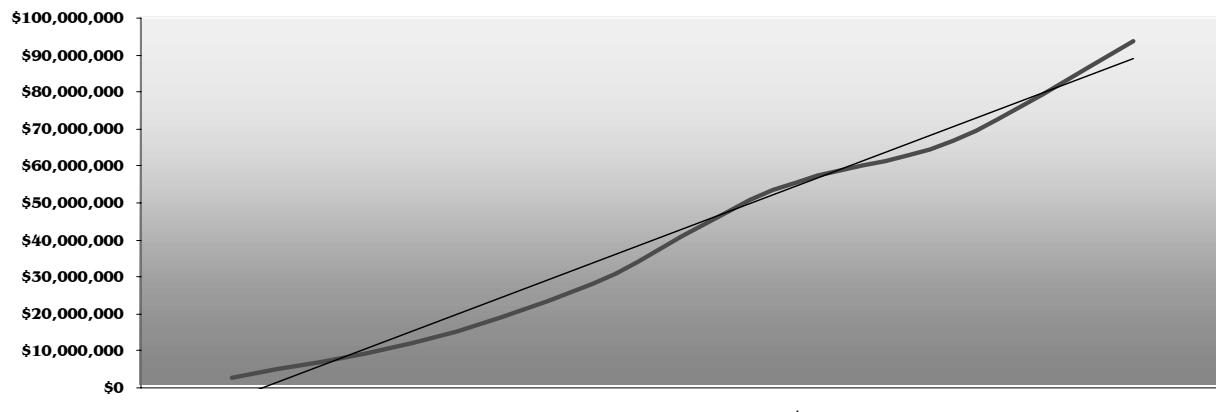


Table 3 represents the projected lifetime savings, based on program growth through June 2006, of the Home Performance work completed by participating home performance with ENERGY STAR contractors for New York households to date.

**TABLE 3**

**Projected Lifetime Savings Home Performance with Energy Star**



*Average of \$600 savings per year per household over 15 years*

### **Lessons Learned and Next Steps:**

Key factors to the program's success are a well-designed implementation strategy that included a strong marketing component to create consumer demand (paid media advertising), a focus on infrastructure development to create a competent contractor capacity, and a market-by-market approach that balanced consumer demand with the ability to service that demand.

This program has encountered a number of challenges since its inception, including: limited consumer awareness (solution: created and implemented a strong marketing campaign), lack of the trades communicating with each other (solution: designed and implemented contractor referral incentive structure), variations in the consumers' demographics and market dynamics of each market (solution: strong market research and targeted marketing), lack of consistent standards and best practices (solution: development of consistent certification and accreditation requirements), high contractor business start-up costs, (solution: designed and implemented incentives for training, certification, accreditation, diagnostic equipment), and the lack of the ability for contractors to "close the deal" (solution: implemented contractor originated consumer financing for energy efficiency work).

NYSERDA has made a number of changes since the program began. In mid-late 2002, NYSERDA introduced an additional subsidy for income-eligible households. If the household is in an income range of 60%-80% of the State Median Income, NYSERDA offers a subsidy of 50% to help pay for the eligible work. In October 2002, NYSERDA also introduced a Homeowner Financing Incentive for homeowners who do not use the low-interest ENERGY STAR financing. This is a 10% incentive received by the customer, directly from NYSERDA, after the job has been completed. The customer can apply this incentive toward the principle on the alternative financing they use to pay for the work.

Other recent changes include multiple consumer low interest financing options; additional contractor skill set development (heating, shell, cooling, mobile homes, etc.), and a requirement for a comprehensive assessment on every job.

The next steps for the program are: expansion into the New York City metropolitan area and Long Island, integration of advanced metering, stronger inclusion of ENERGY STAR appliances and lighting, enhanced financing programs, entrance into the remodelers market, and training and certification development for the New York City housing stock (i.e., low-rise residential row housing). Based on the current program growth and expansion into the New York City market, a huge program growth rate is expected over the next few years.

The following bullets outline some additional lessons learned from implementing New York's Home Performance with ENERGY STAR program:

- Marketing to consumers the value of home performance is key to both creating consumer demand and building builder participation. This marketing needs to be monitored closely as not to create more demand than the infrastructure can supply. The marketing message needs to be targeted with the seasons (seasonality).
- Program design is very important. Individual markets needs are not all the same. Flexibility in the design phase is critical in developing a program that is to be implemented statewide.
- Infrastructure development takes time. Contractors do not become building performance specialists overnight. Extensive training is needed.

- The training and certification infrastructure development also takes time. Setting standards and certification protocols that can be replicated does not happen quickly.
- Simplicity of the program incentive structure is important. Focus on incentives that are truly effective, i.e., low-interest financing, equipment assistance, comprehensive assessment, training and certification.

**Conclusion:**

The key program elements for other program implementers to consider, based on our experiences, are as follows: know your markets (stakeholder involvement), take seriously creating consumer demand (marketing), spend time and resources to build a competent contractor infrastructure (training, certification, accreditation, and technical assistance), and provide ongoing consumer protections by implementing strong program quality assurance and quality control mechanisms.

## Wisconsin

### **Overview of the Program**

Wisconsin's Home Performance with ENERGY STAR is delivered in two segments, the Efficient Heating and Cooling Initiative, and Building Performance.

The primary objective of the Efficient Heating and Cooling Initiative is to ensure that consumers have access to the most efficient HVAC equipment available. Wisconsin's method is to work cooperatively with area HVAC distributors to offer contractor training curriculum and consumer incentives where distributors agree to stock and promote qualifying equipment. Best practices training is provided for participating contractors. Curriculum delivered to date is in the best practices of airflow, refrigerant charge, and equipment sizing.

Whole house analysis is the core of Building Performance. Wisconsin works with a number of different energy services and home improvement market providers, including building science consultants, insulators remodelers, home improvement companies and heating contractors. All completed projects must have pre-evaluation and post verification of combustion safety and effectiveness of measure installation.

### **Funding:**

Wisconsin's Home Performance program is funded with utility ratepayer generated public benefits funding. Residential, as well as all other sectors are encompassed in the Focus on Energy Program administered by the State Department of Administration. Funding for the current fiscal year is \$5.6 million for both initiatives.

### **Consumer Incentives:**

Wisconsin offers consumer incentives on a per measure basis to encourage the installation of all measures recommended by consultants and contractors. Typical consumer incentives in Building Performance are \$475 per completed unit. The Efficient Heating and Cooling Initiative provides equipment incentives averaging \$175 per household.

### **Contractor Incentives:**

Contractor incentives offered through Building Performance are paid for completing prescribed testing procedures such as combustion safety testing; an incentive is paid where air sealing meets a minimum reduction of 400 cfm; and for facilitating work by third party contractors. Average incentives paid are \$250 per completed unit.

Incentives are paid to Efficient Heating and Cooling Initiative contractors who provide detailed field data related to best practices protocols for research purposes, typically \$50 per unit.

### **Quality Assurance Mechanisms:**

Wisconsin performs quality control of completed work in roughly 10% of all completed units. Quality assurance consists of both post inspection of completed work and site based technical assistance. Technical assistance is provided in roughly 50% of projects for new contractors and consultants.

### **Marketing Approach:**

Building Performance is largely marketed through its market providers. The majority of marketing funds are spent in public relations campaigns to directly support participating consultants and contractors. Other methods are targeted mailings, and information / education related efforts, primarily trade shows.

## **Results to Date**

### **Cumulative number of households served:**

The Efficient Heating and Cooling Initiative provided incentives in more than 14,000 homes since November 2001. Building Performance provided whole house services in 800 units since February 2002, and provided evaluations where non-reportable work was facilitated in 400 additional units.

### **Current monthly average of households served:**

This cooling season the Efficient Heating and Cooling Initiative received payments requests for over 7,000 households, which represents a 35% increase from the same time period last year. A projected 16,000 households will be served during the next fiscal year. Building performance completes work in an average of 50 units per month, increasing by more than 50% from the same time period last year.

### **Scope of jobs, in terms of measures performed and dollars spent:**

Consumers pay an average of \$2,300 for shell measures. Approximately 90% of households receive attic insulation and air sealing, 35% of households insulate sidewalls, and 10% of households install foundation or floor insulation and moisture control measures. About 10% of households completed in Building Performance replace water heaters and other equipment.

### **Savings, both total and average: kWh, BTU (gas or oil):**

In fiscal year 2002 Home Performance with ENERGY STAR in total saved an estimated 9.5 million kWh, and 355,000 therms. Engineering calculations indicate peak savings of 6,000 kW.

### **Number of participating contractors/firms:**

The Efficient Heating and Cooling Initiative has 823 participating HVAC contractors; Building Performance has a total of 102 participating providers, 40 of which are consultants. Remaining contractors include remodelers home improvement companies, insulators and HVAC contractors who provide whole house services.

### **Other key results:**

- More than 800 contractors trained in HVAC best practices.
- Presently 25 remodeling companies are providing services in all households they serve as part of their business model.
- Wisconsin realized a 21% market share increase of 12 and 13 SEER air conditioner units since the inception of Home Performance with ENERGY STAR.
- HVAC manufacturers are matching the Initiative's incentives, totaling more than \$3 million to date.
- Sales of 90+ AFUE furnaces with ECM motors increased by 350%.

### **Lessons Learned and Next Steps**

Wisconsin began with an education and information based model, marketed directly to consumers. With limited resources, Home Performance with ENERGY STAR shifted to a model that markets services through contractors at the end of 2002. The primary emphasis is to influence consumers during home improvement or at the point of equipment failure. The result has been a more buy in from our participating contractors, who actively promote program services to their customers. With reference to Building Performance our approach moving forward will be to increase cross promotion with trade associations, and gradually increase participation from remodeling companies, focusing in areas with sufficient infrastructure as we train consultants and other energy services contractors.

## Massachusetts

### **Overview of the Program**

Massachusetts Electric has been providing residential Home Energy Assessments to its Massachusetts ratepayers since 1980 as mandated by Massachusetts General Law Chapter 465. The RCS program underwent a redesign that was approved by state regulators in 2001. The rationale for the redesign was to shift the program focus from primarily an educational and motivational program to a program focused on actual implementation of major energy efficiency improvements. All of Massachusetts Electric's customers are eligible to participate in the RCS Program and the recent redesign provides a two-tiered approach to service delivery. All potential program participants go through a "Tier I" screening process. Tier I screening is designed to identify the specific needs of the customer. Tier I allows customers to receive information and assistance over the phone and by mail as well as the opportunity to discuss specific technical questions with an appropriately trained professional. Those customers who have an interest in implementing energy efficiency improvements or who specifically request the in home 'audit' are referred to "Tier II".

Customers who request an 'in home' visit or audit or who indicate an interest in pursuing improvements in their home are referred to "Tier II" to receive a detailed Home Energy Assessment (HEA). Massachusetts Electric has contracts with several local vendors that have extensive experience in residential energy conservation to deliver the RCS program to its customers. Energy specialists trained in current building science principles conducts the HEA. Due to the fact that there have been 20 years of 'free' energy audits and the legislation continues to require a 'free' service, the ability of Tier I to screen customers to only those interested in investing in improvements is limited. The result is a large number of customers who are only interested in the 'free' service, 'free' materials or general education. Due to this history, it is not possible to offer a complete diagnostic service with every 'Tier II' home visit. In essence the home visit is designed to provide a more detailed visual screening, computer analysis, and sales process to motivate customers to invest in energy efficiency measures. The typical HEA includes:

- Gathering and analysis of energy usage data
- Description of overall program to the customer
- Confirmation and/or determination of customer primary concerns
- Gathering and analysis of energy usage data and relevant demographic information
- Definition of the thermal envelope of the home
- Investigation of thermal envelope air leakage paths by visual inspection of the home's specific architectural features that are the most common leakage points
  - Attic and knee wall inspection of top plates, plumbing & wiring penetrations, chimney chase, framing transitions, etc.
  - Basement/crawl space inspection of exterior perimeter leaks and interior vertical bypasses
  - Exterior overhangs or cantilevered areas
- Evaluation of the existing insulation levels of the thermal envelope
- Evaluation of the adequacy of ventilation of unconditioned spaces
- Assessment of the type, efficiency, and condition of windows and doors
- Identification of type and efficiency of existing heating, cooling, and domestic hot water equipment.
- Assessment of heating distribution system for insulation and/or sealing needs

- Performance of a combustion efficiency test of the heating equipment as conditions allow
- Visual evaluation of potential health & safety concerns
  - Inspection for signs of potential combustion safety issues
    - Adequate combustion air
    - Condition of combustion gas venting components
    - Evidence of back drafting
    - Potential effects of exhaust appliances and distribution systems on appliance draft
  - Identification of existing or potential moisture concerns from both internal and external sources
- Identification of high use and/or inefficient appliances and lighting
- Installation of immediate savings measures such as compact fluorescent bulbs and water saving devices
- Motivation of customer to implement energy efficiency and/or health & safety related improvements
- Computer modeling of the home using a Massachusetts Division of Energy Resources approved audit software.
- Presentation of a customized report with detailed recommendations for improvements including costs, energy savings, payback, and available utility incentives.

Through the HEA, it is determined if the customer will proceed with the energy efficiency improvement opportunities identified by the analysis. The customer is presented with a proposal that includes the complete package of appropriate site-specific diagnostic testing and installation measures including combustion safety testing, blower door testing, and duct leakage testing. The diagnostic testing is then performed as part of the treatment of the home for customers who contract for follow up installations. This procedure allows the comprehensive ‘house as a system’ approach to be completed to BPI standards in the most cost effective manner given the historical market demand for the program and slow transition that will be needed to increase participation by motivated and informed customers. National Grid hopes that the affiliation and sponsorship of the program under the Home Performance with Energy Star initiative will help accelerate the transition of the program focus from information only to implementation.

#### **Quality Assurance:**

National Grid will use several vendors to implement the Home Energy Service program. Vendors who are accredited by the Building Performance Institute (BPI) currently service more than 80% of the program participants in Massachusetts. Any vendor who is not BPI certified will meet the quality assurance requirements of the Home Performance with Energy Star program by having no less than 15% of completed jobs inspected by a designated approved third party sponsored by National Grid. This will ensure that all cost effective measures are being presented to customers and that all implemented measures are installed according to accepted standards of the Building Performance Institute.

#### **Funding:**

The Home Energy Service program is funded through the rate base. These funds pay for the marketing, administration and implementation of the program. Vendors are currently paid on a per audit basis, however, we are moving to a system that will pay vendors for BTU's saved. This change in philosophy will force vendors to screen customers thoroughly before going to an audit and should increase implementation of measures.

Customer incentives vary from utility to utility in Massachusetts. Thermal measures can vary from 20% up to \$750 to 75% up to \$1000.00. Additionally, the electric utilities offer a \$300.00 rebate for refrigerator replacement through the program.

**Results:**

In 2002 Massachusetts Electric audited 5459 homes 330 (6%) had thermal measures implemented, 848 (14%) replaced refrigerators.

\$836,368 incentive dollars went to our customers, an average of \$710 per job.  
\$594,541 dollars were spent by our customers, an average of \$505 per job.

In 2003 through August Massachusetts Electric audited 3649 homes 242 (6%) had thermal measures implemented, 347 (9%) replaced refrigerators.

\$268,177 incentive dollars went to our customers an average of \$458 per job.  
\$372,024 dollars were spent by our customers an average of \$636 per job.

**Lessons Learned and Next Steps:**

The Massachusetts Home Energy service is not nearly as effective a program as it can be. After 20 years of it being an education program moving it to emphasize implementation has been quite challenging. For example:

- 1) Many very competent auditors who could explain the issues in a house did not have the skills or the desire to be salesmen and close a deal.
- 2) Each of the gas (6) and electric (4) utilities in the state offer a variation of the program so there is much confusion. There is no consistent message going to our customers.
- 3) Paying vendors by the number of audits they perform is the wrong way to measure success.
- 4) The law requires that we market to all of our customers at least once per year. This shotgun approach gives us too many dead leads.
- 5) Working with the other gas and electric utilities to create a statewide program with one consistent message has not been possible. Both the gas and electric utilities are measured differently at the State level so it is not in their best interests to work together.

In the 18 months since the program changed to emphasize implementation we have had some success stories. From October of 2001 through June of 2002 Massachusetts Electric ran a program that targeted a specific market in 10 cities and towns. The implementation rate through program was 28%.

Massachusetts Electric also has a number of pilot programs to increase implementation including:

- 1) Marketing Home performance with Energy Star on a direct mail piece to cities and towns in central Massachusetts.
- 2) Working with Berkshire Gas Company to combine our incentives in western Massachusetts using the Home Performance with Energy Star marketing piece.
- 3) Performing a blower door test in 500 homes to see if this technology can help increase sales
- 4) Collaborate with small oil companies to offer an incentive to there customers when they are changing their heating systems to also upgrade insulation and air infiltration measures.
- 5) Increase the incentive to the customer to 75% up to \$1,000.00.

Moving forward the Electric Utilities have agreed to jointly go out to bid for a program that will have some dramatic changes. The focus of the new program will be BTUs saved per dollars spent. Our vendors will be rewarded and compared for the amount of implementation they install.

We will be working with more oil companies to offer our program as an added value for their customer base. We will, for the first time, have a consistent marketing message using Home performance with Energy Star and the BPI standards as our program foundation.

## California

### Overview of the Program

The CBPCA was formed in 2000 to encourage science-based comprehensive home diagnostics and retrofits in California, where no other such program has existed. The first two years of its existence were spent in planning, fundraising, and initial public education. The current CPUC-funded program introduces the program to contractors and consumers in two California urban areas, Fresno (in the hot Central Valley) and SF South Bay Area (San Jose, etc.). Contractors are solicited, their personnel are trained in both technical and business/marketing/sales practices, extensive and varied consumer marketing is done to acquaint homeowners with the opportunity, initial leads are provided to the contractors, and they are given extensive further field training, mentoring and validation of methods and results.

### Program Organization and Participants

CBPCA's program manager (Tim Locke) is an experienced home performance expert and directs all field operations, with assistance from a second home performance professional (Rick Chitwood). Bevilacqua-Knight, Inc. (BKi) is responsible for program planning, administration, contractor outreach, and data management. Solem & Associates coordinates marketing efforts, with Adrising, Inc. of San Francisco assisting with planning and execution. Performance Systems Development, Inc. (PSD) developed the contractor-training curriculum, provides software for savings calculation and contractor tracking, and provides general process consulting. The program includes an independent EM&V subcontractor for the CPUC (Lutzenhiser & Associates), and is also linked to a current California Energy Commission R&D project on best home performance contractor practices and program strategies.

- **Funding:**  
\$1.6 million awarded in fall 2002 by the California Public Utilities Commission for the remainder of 2002 and 2003. Due date for 2004-05 renewals/new proposals was September 23, with awards probably in early 2004.
- **Consumer Incentives:**  
This program offers no consumer incentives and instead markets the program on the merits of comprehensive retrofits. Emphasis is on contractor training and field mentoring, with consumer education and marketing to incent the contractors with initial job leads.
- **Contractor Incentives:**  
Contractors are given 7 days of intensive classroom and field training at a highly subsidized cost, followed by extensive field mentoring and verification.
- **Quality Assurance Mechanisms:**  
All contractors are observed and assisted with their first five diagnostics, and additional field help is provided on all aspects in order to get contractors "over the hump" of the barriers they face in adopting a new business. 10% of all jobs are also subjected to independent verification of quality and results by CBPCA field staff, with an emphasis on early jobs.
- **Marketing approach:**  
The CBPCA program brands and markets its diagnostic as the "Healthy House Inspection" to avoid jargon and help make the program broadly relevant to homeowner interests rather than only energy savings-focused. The full program, including the retrofits, is branded as the

“California Home Performance Program” and co-branded with Home Performance with Energy Star. The marketing strategy is to gain enough customer leads to get new contractors interested and started, balanced by marketing and sales training so the contractors can take over. Marketing efforts have included experiments with involving local community groups, endorsements from public figures, brochures, a short video, direct mail, radio/TV/newspaper feature articles based on demos of diagnostics, home show booths linked with radio and newspaper ads, a low price for the diagnosis, and telemarketing. This effort is now focusing primarily on home shows and the low-priced diagnostics (subsidized by the job pricing and high closing rate) plus the contractor training in cost-effective self-marketing.

## **Results to Date**

- **Cumulative number of households served:**
  - After a slow start due to marketing and contractor outreach difficulties (now solved), now about 150 leads, 50 diagnostics, and many jobs underway although few completed yet. Rapid acceleration finally, now that the summer construction/repair rush is over and contractors have more time available.
- **Current monthly average (or trends) in households served:**
  - Unclear, improving fast. Growing at least 50% per month.
- **Scope of jobs, in terms of measured performed and dollars spent:**
  - This program has promoted full retrofits; most include major HVAC upgrades including new heating and/or AC, ductwork, ventilation additions, insulation upgrades, thermal envelope closure and sealing, combustion appliance safety testing, windows, and moisture retention corrections. The earliest jobs averaged over \$16,000 (big houses, big problems) but that average is now stabilizing closer to \$12,000.
- **Savings, both total and average: kWh, BTU (gas or oil), and \$:**
  - Not enough final test-out data yet, but initial test-in using TREAT has yielded very high simulated energy savings. First 10 homes averaged 9000 kWh and over 200 therms in projected savings per year, although we expect this average to drop as we enter the San Jose market (less extreme temperatures) more strongly and as we get enough billing or metered data to calibrate the model.
- **Number of participating contractors/firms:**
  - Currently about 10 contractors; latest training sessions (to be completed before EEBA) have about 25 more signups so we will have many more contractors working later this fall.
- **Qualitative discussion of what participating contractors look like**
  - Most so far are small HVAC contractors, due to our initial targeting. However, we are now moving to a stronger focus on home improvement and general remodeling contractors, and larger contractors in general due to their greater ability to risk investing in a new business opportunity, market, and manage the transition. Our best performers are home improvement contractors who already do a variety of specialty jobs and are familiar with subcontracting, marketing, and managing a more complex business.

- **Effectiveness of QA program:**
- Our QA program is diligent and effective. However, it's very expensive and we are moving toward more intensive training and other learning mechanisms to improve contractor capabilities, monitor progress, and reduce QA requirements.
- **Effectiveness of marketing:**
- Our initial marketing activities were not effective. They relied too heavily on labor-intensive outreach to community groups for leverage, as well as direct mail and endorsements, but much less than expected was gained for the effort and funds expended. We now are marketing economically and effectively through appearances at home shows and other home-related venues where we meet customers and gain many high-quality leads easily. We are also using demonstration diagnostics in association with local news media coverage, which also bring in significant numbers of leads to our toll-free number. We recently produced a low-cost short video and distributed it for free on CD to interested parties including potential customers at shows, call-in inquiries, groups such as health professionals, and news media, and it is also on our website and used in our contractor training. Don't yet know its effectiveness but it gets a lot of interest.
- **Other key results worth noting:**  
We need to provide stronger incentives to contractors to keep them going during the initial learning-curve period. We plan to do this next year with partial repayments of their training, software, and equipment costs after they complete a substantial number of jobs and file the required data with us.

### **Lessons Learned and Next Steps**

#### **What conclusions have you drawn?**

It's very difficult to get contractors—especially small ones—to risk adopting a new business model, marketing, sales activities, rigorous technical diagnosis work, and subcontracting all at once. Many contractors, although initially interested, find the diagnosis, computer simulation, and sales-closing process difficult to learn. Unusually capable and innovative contractors are required; their initial discipline may not matter. Finding and encouraging them effectively requires a major effort and should not be underestimated.

It's also difficult to educate the public effectively on a totally new concept in home improvement that they never heard of before. We find that personal one-on-one contact (e.g., home shows) and news features work best. Paid media is probably not cost effective except for very large programs that can afford the saturation and repetition that are needed to create broad public awareness. Ultimately we and our contractors generally believe that solicitation of their existing customers and referrals will be the most practical market approaches, especially since long-term market transformation program commitments (needed for big media approaches) are very hard to sustain with public funding agencies.

- **What's been working well?**

As noted earlier, our current marketing strategy seems to be doing a good job of matching the growth of our contractor capacity with access to enough initial customers, with reasonable cost and flexibility. Our stress on the “healthy home” is an important factor, since it engages a broad range of customer motivations (home quality and functioning, safety, family health, comfort, pride, long-term home value, etc.) in addition to energy cost savings. We believe this is very important, since true whole-house retrofits often cannot be justified on energy savings alone. Other motivations may even be more important to many homeowners.

Our contractor training curriculum developed primarily by PSD and gradually refined through experience by our field trainers, has been very effective.

We also feel that our limitation to only two urban areas (one first, the other added later) has been a good initial strategy, since it allowed us to refine the details of our approach, avoid over commitment, and gradually expand our reach. We are now ready to go beyond those two areas.

- **What hasn't worked as well?**

Early mix of marketing efforts, as noted earlier; too strong a focus on small HVAC contractors; lack of adequate incentives to contractor involvement and perseverance; too-costly field mentoring. Our program, like many others, has also suffered from the CPUC's very extensive, fluid and unexpectedly costly reporting and monitoring requirements. But we are learning to be more efficient at it, and they too, like us, have been working hard and are learning more about what they need.

- **What would you do differently if you were starting over?**

Hopefully we WILL be starting over—or continuing—next year with a renewed contract. We will implement the lessons described above.

**And a few thoughts for discussion:**

- **What sort of support at the national level is needed?**

All new home performance programs very badly need greater visibility and credibility with both customers and contractors. A stronger national marketing support program by Home Performance with Energy Star would help all existing programs and encourage the start of more. HpwES is considering support of a syndicated “Click and Clack”-type radio call-in show or clips to use in local shows, which would be great, and it should also consider sponsoring a similar newspaper-column syndication as well.

We also need to develop and share more and better written reference materials for contractors on sample recommended best practices, standards, sample policies on dealing with dangers such as mold, management of liability, supporting materials (sales guidelines, presentation books, handouts, website content, standard truck logo decals, job checklists, recommended equipment lists/features/sources, job completion certificates for customers, etc.), and find a way for programs to share information about program administrative procedural experience. We certainly have learned a lot in many of these aspects of home performance programs and would like to be more involved in compiling and sharing such things.

A national call-in technical information hotline for contractors staffed by one (or more, based on demand) experienced diagnosticians would be a useful tool for all programs, if such people could be found and induced to do it. Also encourage program use of available aids such as Home Energy Magazine (subsidize its distribution to new HP contractors via their local programs) and Affordable Comfort workshops and conferences (sponsor a regular contest for free attendance?). And certification bodies such as the Building Performance Institute should be underwritten at the national level so that their development can be accelerated.

- **In what areas can the existing and emerging programs work together to increase success and sustainability?**

Since all programs have to work very hard just to keep moving ahead, it's hard to find time for much active coordination with others. HPwES is doing a great service to all programs through its branding and general criteria standardization as well as its sponsorship of events such as the EEBA workshop and related program information-sharing sessions at other conferences such as Affordable and RESNET. More of this plus perhaps an ongoing active website newsletter would be great. Some national-level help with the costs of assembling experiences and reference materials for the benefit of all would also be very valuable.

## Kansas City, Missouri

### **Overview of the Program**

An attempt to motivate market transformation without substantial input of money

#### **Funding:**

Minimal dollar input (less than 50k) EPA support for Admin/Advertising – DOE support in conjunction w/BPI – for KBSI affiliation/training/certification

#### **·Consumer Incentives:**

Comfort, lower utility costs, ROI

#### **Contractor Incentives:**

No cost training and BPI certification

Quality Assurance mechanisms

Over-site by BPI/KBSI proctors as a component of job cost

#### **·Marketing approach**

Minimal funding for print media advertising – intensive efforts to do talk radio interviews, talk TV spots, news items, etc. Use of spring HBA Home Show to highlight Steve Thomas of This Old House to promote program (Thanks NYSERDA), Use of Citizen's Sessions at AC/KC to educate/motivate consumers.

### **Results to Date**

#### **Cumulative number of households served:**

Metropolitan Energy Center as contact point, referral point, reports (5-10 calls per month), asking about program.

#### **Current monthly average (or trends) in households served**

No program money was available after the promotion phase to pay staff to track work done.

Personal conversations with participating contractors, indicates that all participants have done at least one job as a result of the program efforts. Some report having done several jobs that they can attribute to our marketing and public awareness efforts.

#### **Scope of jobs, in terms of measured performed and dollars spent**

No funds have been available to track jobs completed.

**Savings, both total and average: kWh, BTU (gas or oil), and \$:**  
No funds have been available to track jobs completed.

**Number of participating contractors/firms:**

Six

**Qualitative discussion of what participating contractors look like:**

Two are HVAC only, two are insulation only, one is HVAC and insulation and one is a home inspector.

**Effectiveness of QA program**

Insufficient funding to support effective QA program

**Effectiveness of marketing:**

For the dollars spent, we feel that the elevation of public awareness in the KC market has been substantial.

**Other key results worth noting**

One contractor (the Home Inspector) has established a company Home Performance Services that will do performance analysis, HVAC, insulation duct sealing and air sealing. The company will build on a collaboration with other BPI certified contractors, but will work toward complete services operated in-house.

**What conclusions have you drawn?**

Creative marketing can generate market movement. Public response appears to be better to Radio/TV, than to print material.

**What's been working well?**

Participating contractors have developed more effective marketing strategies and appear to be employing building science approaches to marketing and work scope decisions.

**What hasn't worked as well?**

Program over-site and administration is impossible without funding.

**What would you do differently if you were starting over?**

Invest more heavily in developing a demand for certified inspections. More money and time spent on broadcast media.

**How are you changing your approach as you move forward?**

Working toward establishing a regular broadcast media presence that can be supported by contractor sponsorship, grant support, etc., to focus on developing public demand for qualified diagnostics and improvements.

**Anything Else We Should Know About the Program**

Efforts that were initiated in KC will be built upon by the current grant to the state of MO being operated out of St. Louis.

**And a few thoughts for discussion:**

- What sort of support at the national level is needed?
  1. Support for elevating public awareness, more focus on broadcast media.
  2. Work with manufacturers and suppliers to reduce costs of higher efficiency HVAC – Note: Codes establish the floor; as a result the industry stocks and provides units of minimum allowable efficiency. Incentives to manufacturers and suppliers to stock and provide higher efficiency units and materials at more competitive prices (to the contractors) would help get higher efficiency units on the market.

**In what areas can the existing and emerging programs work together to increase success and sustainability?**

- Sharing of broadcast and print media materials designed to promote diagnostics and solutions by qualified (certified) contractors.
- Sharing of the availability of celebrities (Steve Thomas and others) to motivate local media markets to pay attention to the Home Performance message.

## **Georgia/Alabama**

### **Overview of the Program**

The Home Performance with ENERGY STAR project will help to overcome barriers to improving the energy efficiency of existing homes in two key regional markets: Atlanta, Georgia and Birmingham, Alabama. Atlanta represents a market where there has been modest development of systems-based energy training and technical assistance programs. Birmingham represents a market with virtually no presence of high performance new homes or renovation. These two locations will serve as models for cities throughout the Southeast.

The objectives of Home Performance with ENERGY STAR are to:

- Establish Home Performance with ENERGY STAR standards for the Southeast
- Establish contractor accreditation criteria
- Develop training curricula, technical assistance and quality assurance programs
- Train contractors in systems-based energy efficiency upgrades so that they can assess a home and offer improvement services to homeowners
- Accredit contractors and perform quality assurance inspections
- Raise consumer awareness of systems-based energy upgrades through marketing and outreach
- Help homeowners find contractors that offer systems-based energy retrofit services
- Increase the use of energy efficient mortgages for home performance retrofits in Atlanta and Birmingham.

Southface anticipates a 3-day training for contractors with one day focusing on building envelope (including insulation, air sealing, moisture management, and windows), one day focusing on HVAC systems (including duct design and installation, equipment sizing and specifications), and one day focusing on field work (including field measurements, blower door and duct blaster testing, combustion safety analysis, and moisture assessment). Interactions between topics will be highlighted as in all “House as a System” trainings.

Beyond the training curriculum, Southface will develop a method of assuring quality among accredited contractors. This methodology is likely to include performance-based testing and spot checking of some percentage of contractors’ work. Southface will draw heavily on the quality assurance standards of its Home Energy Rating Provider entity, Southface Energy Rated Homes, and the EarthCraft House program.

Follow-up technical assistance will be provided after the training to help the contractors transfer their education to the job. In addition, contractors will need access to building diagnostic equipment, especially blower door and duct blaster equipment. While some contractors will certainly purchase their own equipment, it is unlikely that initially all contractors will make this level of investment. Southface will arrange for contractors that do purchase equipment to get a discount from The Energy Conservatory, much like graduates of the Southface Home Energy Rater training currently receive. For contractors that do not wish to buy equipment, an equipment rental program will be established in Atlanta and in Birmingham. Southface has adequate equipment to support such a system in Atlanta, but an additional set of testing equipment will be necessary for the Birmingham market.

Southface will inspect a percentage of jobsites to ensure that contractors are following sound building science practices and Home Performance with ENERGY STAR guidelines. These inspections will serve to measure quality assurance and to provide technical assistance to contractors.

While the actual number of homes to be inspected will be determined in part through collaboration with other Home Performance with ENERGY STAR programs to ensure consistency, it is anticipated that approximately 20 jobsites in Atlanta and 10 jobsites in Birmingham will be inspected during the pilot phase. These visits will provide an opportunity for contractors to ask questions and to ensure compliance with program standards. The inspections will continue on a random basis based on the accreditation standards. Information will also be obtained from customers to ensure that the contractor is interacting in a positive manner with consumers.

## **Idaho**

### **Overview of the Program**

The Idaho Energy Division's Idaho Energy Retrofit Pilot Project has been promoting energy efficiency for new home construction through the EPA's Energy Star Homes certification program. Through this activity we have received numerous requests for services on existing housing. Currently the public is referred to the Energy Star web site along with additional links that provide published resources for consumer assistance. This grant provides an opportunity to address and answer consumer demand for improving the energy efficiency of the existing housing market.

The overall goal of this program will be to evaluate the potential for a statewide and, ultimately, a northwest regional program that could be funded by the Northwest Energy Efficiency Alliance (NEEA) in future years. A key partnership in addition to the Alliance is Climate Crafters, a NEEA funded non-profit organization currently providing residential air distribution and heat pump and air conditioner optimization training and certification throughout the Pacific Northwest. This organization has the potential to become a whole house certification organization for the Pacific Northwest. The Boise market is an optimum market for this pilot because an infrastructure exists for contractors and home performance evaluators who currently participate in the Idaho Energy star Home program for new site built homes. The Idaho Energy Division has a staff experienced in training and administering a home evaluation program through the Energy Star Homes program and the Super Good Cents manufactured home program.

The objectives of this program are to:

1. Establish a well-managed, cost effective program that effectively delivers quality energy efficiency and home safety upgrades to the public.
2. Create consumer awareness and perceived value around Home Performance with Energy Star services.
3. Create a community of local businesses that view Home Performance with Energy Star as good for their business.

## **Missouri**

### **Overview of the Program**

Missouri's residential efforts, beyond the Low-Income Weatherization Assistance Program, have been limited to providing technical assistance, dissemination of information and participation in the ENERGY STAR Change a Light Program. The Missouri Energy Center responds to more than 200 requests for residential assistance or information annually. Therefore, we have identified considerable interest in and need for more intense residential services. Home Performance with ENERGY STAR will offer such services. The grant award of \$100,000 of Department of Energy funds will launch the effort to build a service provider network in St. Louis and provide needed support for the marketing effort in Kansas City and St. Louis. The funds will allow training and certification of a network of service providers to deliver high-quality energy efficiency improvements to Missouri homes.

The project's goal is to develop a self-sustaining, high quality, energy efficiency program to offer home improvement services to Missouri homeowners. The residential initiative will be modeled after the Home Performance with ENERGY STAR Program. A network of trained and certified contractors will be developed in the St. Louis metropolitan area to provide a valuable one-stop service to participating homeowners. The service will be a systems based, whole-house approach to include a home inspection linked to delivery improvements, diagnostic testing and "best practice" installations. Keys to the Missouri initiative will be the development of the service delivery network, strategic marketing to match home improvement demand with the delivery network, quality assurance and readily available financing. In the Kansas City area, where a cadre of contractors has been certified, the program will focus on marketing. As the program trains and certifies contractors in the St. Louis area, marketing activities will be poised and ready to inform residents of the availability of these high quality services.

### **Funding:**

Available funds for the project consist of \$100,000 from the award of a Residential Deployment grant from Department of Energy and cost-share of \$30,000 from state funds and Kansas City area utilities and \$32,427 of in-kind contributions from St. Louis, Kansas City and other partners. These partners include Metropolitan Energy Center, Missouri Gas Energy and Kansas City Power & Light – Kansas City; Gateway Center for Resource Efficiency, Missouri Botanical Garden – St. Louis; Building Performance Institute – Malta, NY; Kansas Building and Science Institute – Manhattan, KS; MSI Consulting – Waterville ME. In addition, we have a commitment from United Missouri Bank to provide financing to homeowners and to contractors at below market rates.

### **Consumer Incentives:**

Missouri is not positioned to offer significant incentives to consumers such as rebates on equipment or materials. We will rely on the economics of the home improvements, safety and comfort improvements that come with a whole-house approach and the assurance of quality home improvements by trained and certified home improvement contractors. We hope to convince contractors to offer low-cost home improvement audits and enhance their ability to convert the completed audit's recommendations into a completed home improvement project.

### **Contractor Incentives:**

Incentives include, low/no cost for certification and training, marketing assistance, customer referrals, loan of diagnostic tools to ease start-up costs and available financing to assist with start-up costs at below market rates. Missouri plans to reimburse the first six, St. Louis area contractors for a significant amount of the training and certification costs upon passing the tests for

certification and completion of home improvement projects. This approach is taken to assure commitment of participating contractors. Continuation of the reimbursement incentive to additional contractors will be determined by the availability of future resources.

### **Quality Assurance Mechanisms:**

Quality assurance is considered a significant component for program success. BPI certification will add credibility to the program and serve as the primary method of quality assurance. The Missouri Energy Center technical staff will inspect a minimum of 5 percent of completed homes to assure the quality of home improvements. Area partners Metropolitan Energy Center and Gateway Center will conduct a random sample survey with homeowners to follow-up on the quality of the home improvements and contractor's business conduct. This three-pronged quality assurance plan is the approach for implementation.

### **Marketing Approach:**

Actions to educate consumers on the value of energy saving home improvements and the work quality of the network of certified contractors will be elements of Missouri's marketing approach. Plans for marketing development include the procurement of a marketing professional to advise on the marketing methods that will be the most efficient and cost effective. Use of local media and community outreach will be part of the strategy to develop the demand for services. The whole-house approach is new to contractors as well as consumers. Homeowners will need opportunities to learn about this home performance program, see examples of it and determine if they can take advantage of it in their homes. Neighborhoods with older homes that can likely benefit from home improvements are targets for marketing efforts and can provide a substantial market for home performance services. Programs to reach out to them will include alliances with community organizations, neighborhood meetings, leaflets, media interviews, home shows and possibly demonstration projects.

A community-based referral element to match interested consumers with certified whole-house testers and retrofitters will be established and maintained. Area partners in Kansas City and St. Louis will provide a point of contact for services. The referral mechanism will establish and maintain a Web site and a toll-free telephone number to match consumers and contractors. Web sites of area businesses and organizations with a significant stake in the success of the program will be solicited to link their Web sites to Missouri Energy Center's, and those of local partners, Gateway Center and Metropolitan Energy Center. Potential Web links are with the local electric and gas utilities, Home Builder Associations, lending institutions and more. ENERGY STAR Partner resources will be used as appropriate and as much as possible.

## New Jersey

### Overview of the Program

New Jersey has supported Energy Star appliance and new home construction standards for three years under its ratepayer supported Clean Energy programs.

This USDOE Special Project will support a pilot Home Performance with ENERGY STAR®. The Home Performance with Energy Star pilot will be based on the proof of concept phase in New York State. That NYSERDA sponsored program has shown how to

- recruit contractors into a program that changes the way they do business,
- expand contracting businesses in this model and to transform a market.

New York's program is now completing over one million dollars per month in energy improvements to homes in the state and is increasing each month. The program has now expanded to Massachusetts and Rhode Island with significant opportunity to bring the model to other locations in the country.

BPU, is New Jersey's agency responsible for energy policy and oversight of public benefit funds that support of energy efficiency and renewable energy. BPU expects to utilize this pilot program to start the development of Energy Star in NJ. The program will become part of the overall re-evaluation of the program designs being employed to deliver benefits to the people of New Jersey.

The largest part of New Jersey's housing stock is existing homes, a large proportion are older homes, particularly in urban areas. A great need exists for good programs to address maintenance and upgrade of existing homes. The Building Performance Institute (BPI) will provide a third party evaluation and certification role to insure the use of market based quality assurance systems and the improved professional standards for contractors in the weatherization business.

This pilot program will be launched in one geographic area with a contained media market and strong housing demand. At this stage the project plan is to operate the pilot in the Atlantic City area. The program will build in the contractor network that operates in the air conditioner rebate program, combined with some weatherization agencies that have made a decision to operate in the open market.

## **City of Austin, Texas**

### **Overview of the Program**

Austin Energy, a municipally-owned utility, seeks to accelerate deployment of energy-efficiency technologies through the expansion of Austin Energy's Total Home Efficiency Program, already available for the existing homes market. Expansion of the Total Home Efficiency Program will include marketing the program under the "Home Performance with Energy Star" brand. Austin Energy plans to partner with a third party vendor to create and develop a contractor training and certification program, along with a comprehensive marketing program for both the utility and certified contractors.

Through the Total Home Efficiency Program, Austin Energy offers rebates or low interest loans for energy reducing retrofit measures. This program already meets the criteria to qualify as a "Home Performance with Energy Star" program. The Total Home Efficiency Program currently includes, limited marketing efforts; contractor registration; walk through energy analysis; home inspections and quality assurance inspections of contractors work.

Funds from this grant offer the opportunity for Austin Energy to expand this program to provide extended benefits to:

Contractors – Training certification program, diagnostic testing training, complete marketing and business support program, continuing training, and sales leads.

Customers – enhanced quality assurance of work through contractor certification, increased resale value through improvements made to the home under the "Home Performance with Energy Star" program, energy savings information through pre- and post-installation testing, increased overall home energy performance through emphasizing the "whole house" approach.

Austin Energy – increased customer awareness of energy efficiency programs through association with the national "Home Performance with Energy Star" brand; savings data through pre- and post-installation testing, and software for tracking and reporting efficiency measures installed.

These added components to the Austin Energy - Total Home Efficiency Program will be self-sustaining after the 36-month grant funded period.