

# **Retrofit Program Delivery Models for Home Performance with ENERGY STAR: The Climate to Retrofit Is Now**

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## ABSTRACT

Increasingly in the U.S., Federal, utility, state, and municipal entities offer homeowners incentives to improve the energy efficiency of their homes. Some organizations use the Home Performance with ENERGY STAR (HPwES) platform to deliver residential retrofits as an avenue to invest in energy efficiency improvements using qualified home performance contractors dedicated to a quality assurance program. Since 2002, over 78,000 homes have been improved by over 30 locally sponsored programs in 29 states<sup>1</sup>, with another five to ten programs launching in the near term (EPA 2010). Since its inception, HPwES sponsors have chosen various approaches to implement HPwES based on local market conditions. This paper describes the key program elements and factors leading to the success of six mature locally sponsored programs: Austin Energy, Energy Trust of Oregon, National Grid, the New Jersey Clean Energy Program, New York State Energy Research and Development Authority, and Wisconsin Focus on Energy. By examining existing HPwES programs within the context of recent increases in funding for energy efficiency, this paper highlights successful strategies for future programs to consider. The understanding of diverse program delivery strategies is crucial when launching a retrofit program or providing supporting elements.

## Overview

### The Need to Retrofit

Residential energy consumption accounts for 21% of U.S. energy consumption, as well as 21% of carbon emissions with over 1 billion metric tons of CO<sub>2</sub> emitted (BED 2009). Homeowners spend an average of \$2,003 a year on energy bills (in 2006), which is nearly equivalent to the over \$2,300 homeowners spend each year<sup>2</sup> on improving their homes, and only 22% of these improvements are energy-related<sup>3</sup> (BED 2009; JCHS 2009).

Many of the 75 million existing owner-occupied homes are in need of repair and improvement to save energy as well as improve the safety, comfort, and health of homes, since 60% of homes were built before modern energy codes<sup>4</sup> (Census 2008; BED 2009). As national attention focuses on climate change and economic recovery, home energy retrofits present an opportunity to reduce home energy consumption and utility bills across the U.S. while providing an economic boost to construction industries. In 2009, the Federal Government and the 2009 American Recovery and Reinvestment Act (ARRA) provided over \$5.8 billion dollars in funds for energy efficiency and conservation projects. An additional \$454 million was provided through ARRA as competitive funding, specifically for residential retrofits (Department of Energy 2010). Moreover, utilities expect to add over 88 GW of capacity over the next five years in a changing economic and regulatory climate, which will likely result in increased energy costs (EIA 2010). Comprehensive home energy retrofits will not only reduce energy consumption but also address indoor environmental quality and occupant comfort, health, and safety of homes. When implemented on a large scale, these retrofits have the potential to reduce the need for new utility capacity and reduce CO<sub>2</sub> emissions.

### Home Performance with ENERGY STAR

The HPwES program strives to improve the energy performance of existing single-family homes and ensure quality through a robust quality assurance (QA) program. HPwES uses a whole house approach to energy-efficient retrofits, considering occupant comfort, health, and safety. While HPwES has specific requirements,

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<sup>1</sup> Sponsors include utilities, state energy offices, municipalities and not-for-profits.

<sup>2</sup> On average between 2000 and 2007.

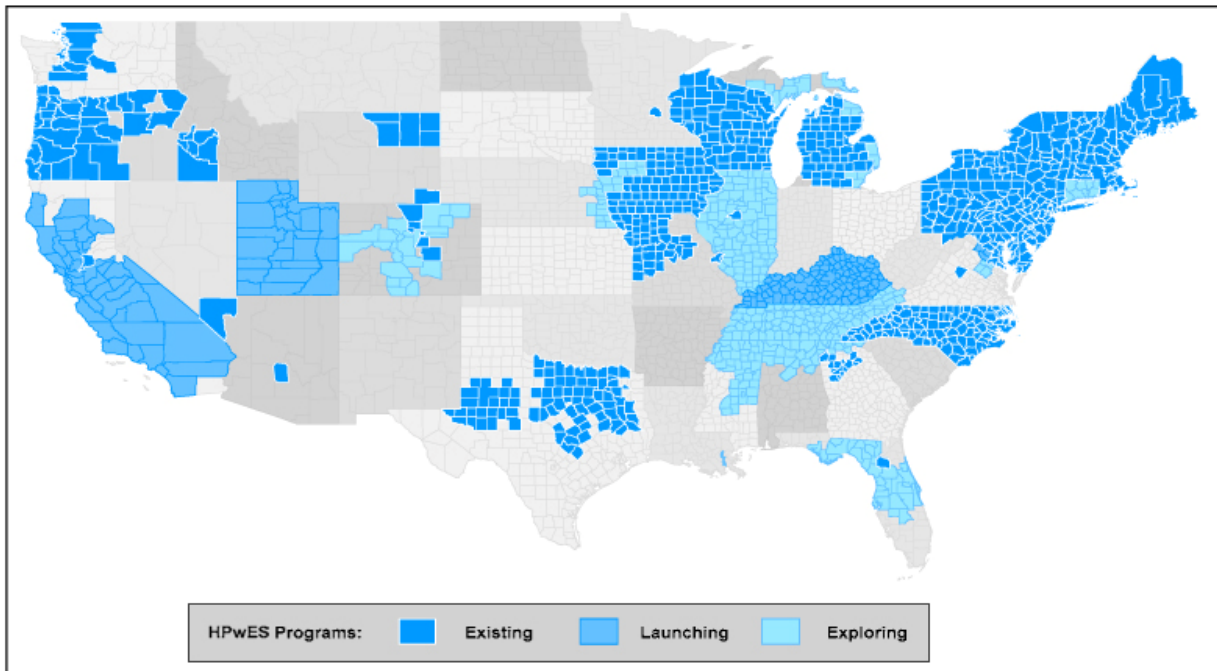
<sup>3</sup> JCHS reports \$52 billion spent on energy-related remodeling in 2007 and over \$227 billion in total.

<sup>4</sup> The Model Energy Code was first adopted by some states in 1983.

individual HPwES programs use different approaches to the process, contractor training and mentoring, incentives, and marketing. The typical HPwES process starts with the job initiation, where contact is made between the homeowner and the program / participating contractor. The contractor or auditor performs a comprehensive energy audit on the house with diagnostic testing and provides homeowners with a prioritized list of efficiency improvements. After the contractor makes homeowner-selected improvements, the contractor “tests-out” using the same diagnostic methods to ensure there are no resultant health or safety problems and third-party QA provides verification of savings, quality, and safety. Currently, over 30 utilities, state energy offices, non-profits, and other entities sponsor HPwES programs at a local /state level (Figure 1).







This paper describes key approaches and best practices leading to the success of six mature local programs, which can aid other organizations in building a residential retrofit market and achieving program goals (Table 1).

**Figure 1. Home Performance with ENERGY STAR Programs as of May 2010**



**Table 1. Home Performance with Energy Star Local Program Summaries**

*Note: The ratios of budget and savings to number of retrofits should not be compared across programs due to varying program definitions, metrics and goals.*

Sponsor	Budget	Total Savings (2009)	# Households	HPwES Retrofits (2009)
	\$1.65 M (2008)	5,241 MWh	303,355 (Austin City)	2,773
	\$22.5 M (2009)	27,740 MWh, 119,777 MMBtu	1,464,672 (Oregon)	932
	NA	NA	2,457,167 (Mass.)	6,259
	\$23.6 M (2009)	1,155 MWh, 38,350 MMBtu	3,149,545 (New Jersey)	1,138
	\$24.8 M (2009, see notes)	2,000 MWh, 146,101 MMBtu (2008)	7,111,130 (New York)	6,343
	\$3.03 M	1,168 MWh, 60,700 MMBtu	2,236,518 (Wisconsin)	1,951

Source: Census 2008; EPA and DOE 2010; Phillips 2010; Energy Trust 2009; NJCEP 2009; NYSERDA 2009; Dedolph 2010. Notes: Oregon budget is entire Home Energy Solutions Program for existing homes. NYSERDA budget is based on a 13 year budget for all residential programs (\$312.8M) and the 2009 estimated budget is calculated by the budget status as of FY 2008 (\$238 million funds spent) divided by number of years left in 13 year budget. NYSERDA savings include low-income portion, Assisted Home Performance Programs and is calculated by using 2006-2008 savings numbers.

### Understanding Diverse Strategies: HPwES Program Approaches

#### Austin Energy: Home Performance with ENERGY STAR

In 1982, the City Council of Austin, Texas passed an ordinance that created a municipal energy utility, Austin Energy. It is now the ninth largest community-owned electric utility and Austin Energy serves approximately 388,000 customers, serving the city of Austin, Travis County, and a portion of Williamson County (Austin Energy 2010). Austin Energy has a robust renewable energy program and green building program, in addition to the HPwES program, which launched in 2004. With over 25 years of experience in energy efficiency, Austin Energy is a paragon of persistence and consistency in using programs like HPwES to cost effectively reduce energy demand.

Austin Energy's program is community- and partnership-driven, utilizing a collaborative approach with both HPwES contractors and Austin Energy inspectors to gain community trust, ensure quality service, and educate homeowners. Austin Energy emphasizes the importance of a good working relationship among contractors and between contractors and inspectors. There are many on-going touch-points between contractors and the HPwES program personnel and each exchange, particularly in the field, is a two-way learning opportunity. One of many Austin Energy inspectors accompanies each contractor on homeowner consultations, contributes to homeowner education, and verifies quality improvements after the work is completed. The initial homeowner visit is a brief visual inspection and functions as a three-party meeting, where the contractor discusses the work scope and improvement options with the homeowner and the inspector acts as the customer advocate. During this visit, the customer has the opportunity to ask questions of both the contractor and the inspector and walk through the decision process with both parties. The contractor and inspector can also work together to formulate the optimum approach to solving problems on site. The administrative cost of the visit is offset by the benefit of access to the home to verify existing equipment and conditions and by ensuring quality from

the start. The initial verification enables the inspector to confirm the existing equipment that is being replaced, minimizing potential installation mistakes and multiple site visits. The visit can include data collection which helps Austin Energy in tracking energy savings and allocating rebates. The three-party visit provides support for contractors in the program and encourages sales by putting consumers at ease.

Austin Energy also employs local community interaction and partnerships to raise awareness and reinforce a consistent program message to the public. Because of the relatively small service community, Austin Energy can rely on longstanding contractor awareness of their programs rather than contributing efforts and funding towards dedicated recruiting. Austin Energy also uses the local scale to their benefit by establishing relationships with community partners like *Velocity*, a local credit union. *Velocity* provides a low interest financing option to homeowners engaged in the HPwES program. Austin Energy buys down the interest rate and *Velocity* supplies a streamlined, easy, loan option for homeowners involved in the HPwES program. Thus, the Austin Energy model shows the advantages of cooperative engagement and leveraging community resources in order to minimize utility sponsor costs and increase the number of households served.

**Table 2. Austin Energy Incentives**

Contractor Incentives	Homeowner Incentives
<ul style="list-style-type: none"> <li>• \$100 for every HPwES job sold or \$50 for air sealing and insulation only</li> <li>• Up to 40% reimbursement on equipment costs</li> </ul>	<ul style="list-style-type: none"> <li>• Free visual audit; diagnostics lumped with job and duct testing rebated. Average rebate: \$1,250; 18% of job (average job cost is \$6,800)</li> <li>• Rebates for 20% of cost, up to \$1,575 on bundled measures</li> <li>• Low-interest loans on eligible improvements: interest rates start at 0% APR and increase based on loan period.</li> </ul>

Source: EPA 2009. Note: In Austin Energy’s case, a HPwES job is defined as air sealing/ insulation plus HVAC system replacement

**Energy Trust of Oregon: Home Performance with ENERGY STAR**

The Energy Trust of Oregon began operating in 2002, charged by the Oregon Public Utility Commission (OPUC) to help pay the above-market costs of renewable energy resources, and encourage energy market transformation in the state. Due to a 1999 energy restructuring law, funding for Energy Trust’s programs began with a public benefits charge assigned to Portland General Electric and Pacific Power customers, followed by Northwest Natural and Cascade Natural Gas assigning a public benefits charge to their customers for gas conservation programs. Energy Trust’s comprehensive HPwES program launched in 2006 in the Portland metropolitan area and then expanded to the rest of their service territory, now covering a majority of the state. The program utilizes a multi-tier tactic to reach homeowners including a free online home energy analyzer, a brief Home Energy Review by program staff to discuss needed improvements and an option for contacting a contractor to undergo a comprehensive HPwES retrofit approach. All of the tiers begin with screening homes by type and energy performance and ultimately, encourage comprehensive improvements. Energy Trust evaluates and adjusts program elements, and develops new approaches, which has led to a successful market-relevant program.

Energy Trust’s HPwES program relies on a strong trade ally network of approximately 500 technicians, 50 of whom are BPI-certified. Energy Trust maintains a longstanding focus on the contractor network with an emphasis on three contractor R’s; “recruiting, rewarding and retaining”, and program staff spent the majority of the first HPwES program year developing training protocols and a list of BPI certified contractors (Ferington 2009). Initially, Energy Trust recruited successful HVAC, windows or other product-based contractors with a large number of jobs. While this strategy was well intentioned, Energy Trust discovered that large, high volume



contractors tended to default to selling their particular product. This led the Trust to shift their focus to innovative, motivated contractors with fewer jobs who included comprehensive retrofits in their business models. Contractors who installed multiple energy saving measures and saw themselves as niche contractors or specialists within the weatherization industry were the successful contractors who adapted well to the HPwES model. By 2008, a contractor incentive of 75% of the total cost of training provided after BPI certification was no longer necessary to attract contractors so the Trust started screening contractors before admitting them to the program. Now the Trust only reimburses contractor training costs for the first technician of a given company after successful BPI certification. Energy Trust also provides ongoing support for contractors in the program through a dedicated Home Performance Account Manager, which includes mentoring, technical assistance, continuing education training and assistance with paperwork and software tools.

Energy Trust of Oregon frequently re-assesses their HPwES programmatic approach and integrates changes based on lessons learned in a changing market. Energy Trust recognized many homeowners contact the program for different reasons and at various interest levels, and therefore, developed a three-tier approach to screen and educate homeowners. Each tier provides a pathway to the next starting with an online home energy analyzer, and moving to the Home Energy Review (HER), which is completed by an Energy Advisor, (a program staff member). The HER is an hour long home survey to assess visible issues, provide recommendations, develop an action plan with some improvements, and screen the home to determine if it is a good candidate for HPwES. The highest tier, HPwES includes a comprehensive audit and multiple measures for a whole house solution. Contractors can utilize Energy Trust’s consumer coupons which encourage bundling measures through cash rebates.

**Table 3. Energy Trust Incentives**

<b>Contractor Incentives</b>	<b>Homeowner Incentives</b>
<ul style="list-style-type: none"> <li>• Listing in Trade Ally Directory</li> <li>• Discounts on technical training and technical assistance</li> <li>• Discounts &amp; some incentives on equipment</li> <li>• Up to \$12,000 a year in cooperative advertising incentives</li> <li>• Monetary rewards for completing first 10 jobs</li> </ul>	<ul style="list-style-type: none"> <li>• Free usage of online energy analyzer</li> <li>• Free home energy review</li> <li>• Rebates on insulation, air sealing, duct sealing, heat pumps, gas boilers, high efficiency water heaters, ENERGY STAR appliances, residential solar thermal and photovoltaic and wind turbine installations.</li> <li>• Green Street Home Equity secured and unsecured home improvement loans of up to \$50,000 with preferred rates and no fees</li> </ul>

Source: Energy Trust 2010

**National Grid: MassSave**

National Grid, the second largest utility in the United States, delivers electricity to approximately 3.3 million customers and natural gas to 3.4 million customers in Massachusetts, New Hampshire, New York and Rhode Island (National Grid 2010). National Grid’s HPwES program, launched in early 2003, is offered within a statewide program termed “MassSAVE” in Massachusetts with eight other utilities, both electric and gas. MassSAVE began over 25 years ago with a partnership of electric utilities, and more recently involves gas utilities, who work together to create statewide consistency and simplify energy savings tracking. The Residential Management Committee (RMC), comprised of energy-efficiency program administrators and the Massachusetts Department of Energy Resources, manages the overall program. In Rhode Island, HPwES is part of National Grid’s own program, EnergyWise. The program works with customers to make energy efficiency improvements by providing audits, directly installing some measures, and connecting customers with utility program incentives.

National Grid and partnering utilities rely on their own contracted program implementers to handle administrative tasks, disseminate educational information, process rebates, conduct mentoring, and perform some basic installation in both Massachusetts and Rhode Island. In each utility service territory, the implementation contractor administers the program but coordinates with MassSAVE statewide effort through the RMC (National Grid 2009). The Rhode Island HPwES coordinates internally within National Grid. The consistent and synchronized retrofit program enables utilities to focus more funds for incentives rather than separate consumer education campaigns that may address homeowners in multiple utility service territories (NSTAR 2009). All utilities can lean on the same marketing and advertising through MassSAVE, and there are plans for a new consolidated website, which would integrate all the Massachusetts energy efficiency programs and websites into a single portal (National Grid 2009). This consistent messaging builds consumer confidence for investing in the often, expensive improvements. The RMC is currently considering additional ways to streamline the HPwES program; specifically, by creating comprehensive, consistent scopes of work and best practices as well as coordinated statewide contractor training programs (National Grid 2009).

National Grid strategically uses funds to invest directly in consumers' homes through robust incentives on retrofit costs, which encourages homeowner follow-through on comprehensive energy saving improvements. National Grid measures success by energy savings achieved, and the percentage of consumer demand-side management payments invested back to the consumer (National Grid 2010). For example, for each home energy audit, the installation of simple improvements such as CFL light change outs, low flow shower heads and air sealing approximately covers the cost of the home visit in realized energy savings. Additionally, National Grid invests program funds to buy down the interest rate on consumer loans, lessening the burden to the homeowner of (high interest) loan payments to invest in improvements. (Hanna 2009). National Grid uses program funds primarily on consumer incentives including up to 75% in rebates per retrofit and no interest loans, which creates substantial demand.

**Table 4. National Grid Incentives**

<b>Homeowner Incentives</b>	
<ul style="list-style-type: none"> <li>• Audit: Free comprehensive</li> <li>• Average job cost: \$2,600 (thermal only)</li> <li>• Average consumer loan: \$7,400</li> <li>• Rebates from National Grid on efficiency measures up to 75% (max \$2,000) in MA and 50% (max \$1,500) for RI</li> <li>• Rebates from COOL SMART on energy efficient central A/C systems</li> <li>• The HEAT Loan Program offers financing for MA residents; National Grid buys down the interest rate to 0%. (Loans are through private banks and consumers can call to find out immediately if they qualify.)</li> </ul>	

Source: Mass Save 2010 Note: No contractor incentives offered at this time

**New Jersey Clean Energy Program: Home Performance with ENERGY STAR**

*New Jersey's Clean Energy Program™* (NJCEP), part of the New Jersey Board of Public Utilities, is the program sponsor for the statewide HPwES program. NJCEP's HPwES program began as a pilot in 2004 and the Board of Public Utilities established it as a state program by the end of 2006.

The New Jersey HPwES program was created to increase the home performance energy efficiency market in the state by assisting homeowners to invest in improvements and by developing a qualified contractor network to perform the work. A robust program budget allowed the program to immediately provide attractive incentives for the homeowner and the contractor, which contributed to a relatively short ramp up time period for the statewide program compared to other comprehensive retrofit programs. NJCEP provides these incentives to

stimulate the market and gain immediate retrofit projects and energy savings.

During the first few years, NJCEP had to develop a qualified contractor base in order to provide the market supply. In 2006 and 2007, the program quickly recognized there was a lack of committed and specially trained contractors in the program. NJCEP and the program implementer determined contractors were either not reporting audits or not conducting them, and NJCEP decided to utilize in-house staff to provide additional audits, to build and address consumer demand. NJCEP elevated contractor recruitment activities and as the market grew, NJCEP shifted back to contractor-performed audits with a focus on reporting and quality assurance. Through contractor feedback, NJCEP learned that the reporting requirements were a burden for the contractor, and began offering a \$175 cash incentive for each set of audit paperwork provided. Contractors are now motivated to report to program administrators and since contractors continued to conduct more audits than program staff, NJCEP plans to return to a contractor audit delivery model in 2010 (Mosser 2010). NJCEP also made targeted efforts to expedite incentive processing after contractors expressed concern over payment delays. In addition to rewarding and motivating a solid network of contractors, NJCEP recognizes the importance of staying in close contact and convenes two conference calls monthly with contractors to provide updates and review quality assurance issues.

The New Jersey program continues to align program elements and balance incentive levels for both demand (consumers) and supply (contractors). The reimbursement of BPI accreditation fees, training costs and equipment subsidies is a significant driver for contractor recruitment and dedicated participation in the program. Heightened levels of consumer incentives in 2009, based on tiered energy savings, resulted in a sizable increase in completed retrofits over only one year, reaching 1,138 completions in 2009 after 163 in 2008 (Mosser 2010). In 2009, the program also experienced an increase in the number of consumers receiving the highest incentive tier available, linked to energy savings of 25% or greater. According to the program contracted implementers, over 90% of completed jobs, such as typical projects like HVAC replacement, have included the subsidized air sealing incentive. Consumers and contractors both utilize the planned program incentives and the HPwES program benefits by increased retrofits. NJCEP balances both demand and supply in the program to achieve maximum results across the state in a new market.

**Table 5. NJCEP Incentives**

Contractor Incentives	Homeowner Incentives
<ul style="list-style-type: none"> <li>• \$175 for every audit reported</li> <li>• 50% subsidy for certified contractors towards purchase the required diagnostic equipment (1 set per company)</li> <li>• 75% of BPI fees are reimbursable during the first year of participation, or after the first year with 10 jobs completed.</li> <li>• Training registration fees are fully reimbursable after receiving BPI accreditation</li> <li>• Rebate of 10% total work scope up to \$1,400</li> </ul>	<ul style="list-style-type: none"> <li>• Audit: Discount of \$125 (\$300 value); rebated if over \$2,000 of improvements</li> <li>• Tier 1: Free \$1,000 of air sealing as long as no health or safety issues.</li> <li>• Tier 2: If estimated heating savings are 5% - 25%; 10% cash rebate, up to \$2,000 <b>or</b> 5.99% interest loan</li> <li>• Tier 3: If estimated heating savings are 25% or greater; 50% cash rebate, up to \$10,000 &amp; 0% interest loan Average incentive / rebate: \$6,485 in 2009 (Average job cost: \$13,792, 2009)</li> </ul>

Source: Mosser 2010; NJCEP 2010

**NYSERDA: Home Performance with ENERGY STAR**

In 1975, the New York State Energy Research and Development Authority (NYSERDA) was established as a public benefit corporation. Then in 1998, NYSERDA was chosen to administer New York Energy \$martSM to serve as the state’s efforts to develop a market for energy efficiency in a variety of ways for electric customers

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of Central Hudson Gas and Electric Corp., Consolidated Edison Company of New York, Inc., New York State Electric and Gas Corp., National Grid, Orange and Rockland Utilities, and Rochester Gas and Electric Corp. (Research Into Action 2009). Although NYSERDA had residential energy efficiency programs prior to HPwES, NYSERDA chose to formally establish a HPwES program in 2001 within the New York Energy \$martSM program. Because of a longstanding commitment to the HPwES program and funding allocated over a five year period NYSERDA has been able to strategically use incentives and marketing to create high demand in the state and develop successful program approaches (NYSERDA 2009).

NYSERDA's HPwES program has benefited from the state's experience in energy efficiency and committed resources, reaching 3.6% market penetration in some parts of the state (Summit Blue Consulting 2009). NYSERDA frequently evaluates program approaches and results to provide better support to contractors and outreach to consumers. Through planning and analysis, NYSERDA adjusts marketing campaigns to target homeowners for assisted HPwES, which provides 50% funding for moderate income homeowners, or market-based HPwES, which includes loans or incentives, in order to meet program goals and react to changing market conditions. In response to a market analysis study, NYSERDA shifted resources to provide contractors in underserved markets with full training, certification, and accreditation reimbursement and increased co-op advertising (NYSERDA 2009). NYSERDA also increased outreach at home shows and contracted with a marketing firm to further increase awareness. Additionally, they are evaluating department-wide marketing efforts and branding to ensure consistency within NYSERDA programs, which is critical within large, sustaining programs (Research Into Action 2009).

NYSERDA has built a strong retrofit market through growing contractor supply from the low income weatherization oriented contractor base with outreach initiatives that encouraged contractor recruitment and training. Homeowner incentives and marketing efforts play a large role in creating consumer demand in New York. According to participating contractors surveyed, homeowners' main sources of HPwES information are contractor advertising and NYSERDA advertising. NYSERDA provided \$1.2 million to contractors through a co-op advertising program as of 2007 (Summit Blue Consulting 2009) and \$15.7 million in incentives as of 2008 (NYSERDA 2009).

**Table 6. NYSERDA Incentives**

Contractor Incentives	Homeowner Incentives
<ul style="list-style-type: none"> <li>• Reimbursements on training and equipment</li> <li>• Free energy auditing software (TREAT)</li> <li>• Bonus for new participants: \$500 for first job and \$1,500 for 24 jobs or more in the first year 5% rebate of job cost up to \$500 for reporting audit</li> <li>• 2% of job cost bonus up to \$400 for referrals to other BPI contractors</li> <li>• Cash awards ranging from \$25 to \$130 for every installed eligible ENERGY STAR product</li> </ul>	<ul style="list-style-type: none"> <li>• Average rebate: \$770 (Average job is \$7,700 with a ~\$300 audit) or loan options.</li> <li>• Incentive of 10% of cost, up to \$3,000 if no financing selected</li> <li>• ENERGY STAR Financing: unsecured loan up to \$20,000 (terms of 3, 5, 7 or 10 years); available to owner-occupied 1- or 2-family homes.</li> <li>• New York Energy Smart Loan Fund: Unsecured loan for up to \$20,000</li> </ul>

Source: Jones 2009; NYSERDA 2010

**Wisconsin Focus on Energy: Home Performance with ENERGY STAR**

Wisconsin's Focus on Energy has been implementing energy efficiency programs since 1980, and HPwES predecessor programs were combined into the HPwES program in 2002. The primary organizations that oversee the Focus on Energy Program include the Statewide Energy Efficiency and Renewable Administration (SEERA), which was formed by the investor owned utilities as required by Wisconsin law and the Wisconsin



Public Service Commission. SEERA creates and funds statewide energy efficiency and renewable energy programs, contracting with entities to administer the programs. Wisconsin Energy Conservation Corporation is the administrator for the Focus on Energy Business, Residential, and Renewable Energy Programs. Focus on Energy houses a longstanding residential energy efficiency program and has become a well-known resource within the state for consumers. The unique auditor-based program approach provides increased oversight, and the program incorporates incentives to drive demand.

Focus on Energy's program is primarily consultant driven– the consultant assesses the home and connects the homeowner to qualified contractors through a network of trade allies. Consultants are independent energy efficiency professionals and are not subcontractors of the program. The consultant approach provides a niche for auditing professionals and creates a higher degree of oversight by the program, which simplifies reporting and program training. Consultants go through a screening process and those that are successful receive an invitation to a two-week training program that includes RESNET and BPI Building Analyst training– a recent program requirement. BPI Building Envelope training is offered as part of the program to qualified contractors. Prior to requiring BPI Certification, Focus on Energy provided their own thorough building science training, but changed to training based on BPI certifications to provide consultants with the recognition offered by a national certification.

Focus on Energy provides an interested homeowner with a list of approved consultants in the program. Access to a consultant provides the homeowner with contractor options and the opportunity to obtain recommendations from an independent person in the retrofit process. Once the homeowner receives a set of recommendations from the consultant, the homeowner may choose to install the improvements through their own contractor, but the consultant also refers the homeowner to trade allies who can install the suggested improvements. The division between qualified, program auditor and trade contractor provides the homeowner with a variety of options and recommendations by specially trained individuals, which is different from other HPwES programs whose contractors may have started as single trade contractors (i.e. insulation installer) or serve in multiple capacities– auditor, installer, etc. Focus on Energy provides a trusted resource in the state for consumers and helps them reach a trained building science auditor. The HPwES program approach shows a commitment to quality and a focus on consumers.

**Table 7. Focus on Energy Incentives**

Contractor Incentives	Homeowner Incentives
<ul style="list-style-type: none"> <li>• Consultants: \$50 - \$150 for combinations of performance testing, combustion safety testing, and/or rating</li> <li>• In 2009, BPI certification fees</li> <li>• Trade Allies: \$75 air sealing and \$75 referral consultant/contractor bonus: 10 – 20 jobs (50% completion) \$1,000; 21 – 40 jobs (50% completion) \$2,000; Over 40 jobs (50% completion) \$3,000</li> </ul>	<ul style="list-style-type: none"> <li>• Building Shell: Air sealing \$75 (400cfm reduction), Attic insulation \$100, Floor insulation \$75, Foundation insulation (Interior \$200) (Exterior \$150), Sidewall insulation \$100 - \$200 depending on type (minimum sq. ft. requirement),</li> <li>• Completion reward: \$250 for installation of top three recommended measures</li> <li>• EFS loans through WECC: unsecured loan, \$2,500 - \$20,000, fixed rate loan terms: 3,5,7,10 years, no fees, points, or closing costs, no prepayment penalty.</li> <li>• Incentives for income qualified households through Focus on Energy Targeted HPwES program.</li> </ul>

Source: Dedolph 2010

## Conclusions

Diverse strategies that reflect local market conditions have led to successful HPwES programs across the US:

- Austin Energy learned to capitalize on its position at a local level to create a committed pool of contractors, gain consumer trust, and establish community partnerships.
- Energy Trust plans to continue to explore new mechanisms to drive retrofits and overcome market barriers including current collaboration with ARRA fund recipients to deploy innovative models beyond its successful three-tiered approach.
- National Grid and MassSAVE's statewide coordination built a strong retrofit market through utility collaboration and consistent marketing.
- NJCEP built a strong contractor base and aligned program elements– marketing, consumer education, and consumer and contractor incentives– to achieve market traction.
- NYSEDA continues to thrive because of program consistency, innovation, and long term planning.
- Wisconsin developed consumer trust through solid relationships with trade contractors and auditor specialists to become a known resource throughout the state.

New or expanding retrofit program sponsors and supporters can learn from the success of existing HPwES programs to build strong programs that drive widespread change. As retrofit funding dramatically increases, new sponsors will face similar challenges in staging and driving demand, which must be addressed at the onset of the program. Kentucky's developing program will be rooted in multiple utilities' coordination, and MassSAVE provides an example of lessons learned on consistent marketing in a state. California is exploring a tiered approach to residential retrofits, and they could build from Oregon's experience in program development to provide homeowners with multiple pathways to improve their homes. Charlottesville / Albemarle County plan to leverage public/private and utility partnerships to create consumer demand and initiate new retrofit technologies. The program can learn from Austin Energy's success in engaging the community, forging partnerships between local government, utilities and contractors, and in building consumer trust. Utah is addressing the challenges of a large geographic area (with rural regions) and a limited number of trained contractors by utilizing a contracted vendor to administer a statewide program and developing partners across the state to ensure a consistent retrofit program. New Jersey and National Grid's experiences provide valuable insight in launching a large, cohesive program across an entire state. Florida can build from Wisconsin's program to effectively utilize an existing auditor network within the state to serve as auditor consultants. This can lessen the contractor ramp up time period and provide increased quality assurance to the retrofit program.

New efforts and funding for energy efficient retrofits create a climate for change that can have an immense impact on the nation's ability to meet carbon and energy saving goals. Using best practices from HPwES programs and taking advantage of the current opportunity, the nation's homes will use less energy while becoming more comfortable, healthier, and safer.

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### References

Austin Energy. 2010. "Company Profile" <https://austinenergy.com> Austin, TX: Austin Energy.

[BED] Buildings Energy Data Book. 2009. <http://buildingsdatabook.eren.doe.gov> Washington, DC: U.S. Department of Energy.

Dedolph, Carter. (Wisconsin Energy Conservation Corp). 2010. Personal communication Jan 27.

Department of Energy. 2010. "**Recovery & Reinvestment: Breakdown of Funding**"  
<http://www.energy.gov/recovery/breakdown.htm>

[EIA] Energy Information Administration. 2009. **Electric Power Annual, Electric Power Industry 2007: Year in Review**. <http://www.eia.doe.gov/>. Wash, DC: EIA.

Energy Trust of Oregon. 2009. **Energy Trust of Oregon 2008 Annual Report**.  
<http://energytrust.org/library/reports/>. Portland, OR: Energy Trust of Oregon

[EPA] U.S. Environmental Protection Agency. 2009. **Integrating Energy Efficiency into New and Existing Homes**.  
<http://www.epa.gov/>. Washington, DC: U.S. EPA.

Ferington, Diane (Energy Trust of Oregon). 2009. Personal communication, January 20, 2010.

Focus on Energy. 2010. "**Home Performance with ENERGY STAR.**"  
<http://www.focusonenergy.com/> Madison, WI: Wisconsin Focus on Energy.

Hanna, Jerome (National Grid). 2009. Personal communication, December 15, 2009.

[JCHS] Joint Center for Housing Studies, Harvard University. 2009. **The Remodeling Market in Transition: Improving America's Housing 2009**. <http://www.jchs.harvard.edu/>. Cambridge, MA: Harvard University.

Jones, John (NYSERDA). 2009. Personal communication. December 15.

Mosser, Mona (NJCEP). 2010. Personal communication. January, 22.

National Grid. 2010. "Our Business." <http://nationalgridus.com>. Waltham, MA: National Grid.

National Grid, NSTAR, Unitil, Western Massachusetts Electric, and Cape Light Compact. 2009. **2010-2012 Massachusetts Joint Statewide Three-Year Electric Energy Efficiency Plan**.  
<http://www.ma-eeac.org/docs/090716-ElecPlan.pdf>

[NJCEP] New Jersey Clean Energy Program. 2009. **New Jersey's Clean Energy Program Report**.  
<http://www.njcleanenergy.com/files/file/Library/NJCEP4Q08RPT.pdf>

NSTAR, National Grid, Unitil, Berkshire Gas, New England Gas Compay, Bay state Gas, and Blackstone Gas Company. 2009. **2010-2012 Massachusetts Joint Statewide Three-Year Gas Energy Efficiency Plan**.  
<http://www.ma-eeac.org/docs/090716-GasPlan.pdf>

[NYSERDA] New York State Energy Research and Development Authority. 2009. **New York Energy \$mart Program Evaluation and Status Report: Year Ending December 31, 2008**.  
<http://www.nyserda.org/>. Albany, NY: NYSERDA

Phillips, Matthew. (Austin Energy). 2009. Personal communication. December 10.

Research Into Action, Inc. 2009. **Process Evaluation: Marketing and Outreach Activities**.  
<http://www.nyserda.org/>. Portland, OR: Research Into Action.

Summit Blue Consulting, LLC. for NYSERDA. 2009. **New York Home Performance with Energy Star® Program: Market Characterization and Market Assessment Evaluation**.  
<http://www.nyserda.org/>. Boulder, CO: Summit Blue Consulting.

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U.S. Census Bureau. 2008. **“United States – States: Housing Units.”**  
<http://factfinder.census.gov/> Washington, DC: U.S. Census Bureau

Wisconsin Public Benefits Program. 2008. **Annual Report July 1, 2006 – June 30, 2007.**  
<http://www.focusonenergy.com/>. Madison, WI: Department of Administration Division of Energy Services.