BEST PRACTICES FOR ENERGY RETROFIT PROGRAM DESIGN

BEST PRACTICES WHITE PAPER

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This document is part of a series of reports developed by the Best Practices Committee of the Home Performance Resource Center to aid program managers, program designers and policymakers in the design and implementation of successful home energy retrofit programs. The series is based on nine case studies of state and local programs in California, Colorado, New Jersey, New York, Oregon and Texas, with analysis by four separate working groups focused on financing and incentives, marketing, workforce development and business models. Additional documents in the *Best Practices for Energy Retrofit Program Design* series are available online at *www.hprcenter.org*.

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INTRODUCTION

Retrofitting existing homes for improved energy efficiency is increasingly viewed as a cornerstone of policy initiatives targeting clean energy development and job creation in the construction and building materials manufacturing sectors. However, despite the clear economic and environmental benefits of reducing household energy waste, cost-effective efficiency measures have so far failed to gain widespread acceptance among American homeowners. This paper, which is based on detailed case studies of nine existing state and local programs, summarizes best practices recommendations developed by the Home Performance Resource Center to guide the design and implementation of successful home energy retrofit initiatives.

OVERCOMING COMMON BARRIERS TO ADOPTION

The primary obstacles to widespread adoption of efficiency retrofit measures are not technical. Significant efficiency gains can be achieved through the application of common insulation and weatherization techniques, and by replacing inefficient lighting, appliances and HVAC equipment with readily available products. Despite the prospect of reduced household energy bills, homeowner acceptance of these measures has been hampered by a combination of upfront capital costs, low public awareness, consumer inertia and limited availability of dedicated energy retrofit services.

Consumer Inertia

Experience has shown that even well-informed homeowners can be reluctant to follow through with efficiency upgrades, and that providing free or subsidized energy audits is not enough to assure high conversion rates from the audit phase to full implementation of recommended home improvements. The process of selecting a contractor and making decisions about retrofit measures can be intimidating, and many homeowners are put off by the cost, time and inconvenience involved in any home improvement project. Rebates and other financial incentives have proven to be a powerful tool for overcoming consumer inertia, particularly in emerging markets where public awareness about energy retrofits remains low.

The most successful programs provide a simple, consumer-friendly process for obtaining incentives, with clearly defined requirements and minimal paperwork. Whenever possible, homeowners should have the option of deducting rebate amounts from the initial job cost, with the incentive paid directly to the contractor upon completion of the work. Programs that certify participating service providers

build trust in the industry and make it easier for homeowners to choose an auditor or contractor.

Access to Capital

Although energy cost savings can over time amortize the cost of efficiency retrofit measures, many homeowners lack capital for the initial investment. Programs should provide different pathways for homeowners to finance retrofit projects, including interest-free or below-market-rate secured and unsecured loan options, including Property Assessed Clean Energy (PACE) or on-bill financing opportunities that address the concerns of homeowners who are reluctant to invest in long-term energy savings for a property they expect to sell before the investment pays off. As with incentives, programs should design financing programs that are easy for consumers to understand and obtain.

Public Awareness

Many American homeowners are not well informed about the long-term savings that can be achieved through Home Performance retrofits, or are not aware of the tax credits, rebates and energy improvement financing options that are available to them. For this reason, energy retrofit programs should place a high priority on public outreach to educate consumers about available incentives, and about the full range of benefits that increased energy efficiency can bring both to individual homeowners (lower energy bills, higher resale values, improved thermal comfort and indoor air quality) and to the community as a whole (local job creation, reduced carbon emissions, prevention of utility rate hikes to pay for increased generation capacity). Consumer education campaigns may include some combination of media relations activities; paid advertising; direct mail (independently produced or tied to utility bill or property tax mailings); informational Web sites; and outreach through community groups or public events (homeowner or neighborhood associations, home shows, community fairs, etc.).

Availability of Services

To ensure adequate consumer access to reliable energy retrofit services, programs should collaborate with the private sector to develop industry capacity along with rising demand. Leveraging the power of private investment can greatly enhance the impact of public incentives, and a more competitive market brings down retrofit costs for homeowners. Further considerations regarding private-sector collaboration are addressed below.

ENABLING PRIVATE-SECTOR SOLUTIONS

Improving the efficiency of America's housing stock will not be possible without significant, consistent and sustainable growth in the energy retrofit industry. Programs targeting widespread adoption of efficiency improvements (as well as job

creation in the construction and manufacturing sectors) must create an environment in which local businesses can profitably deliver quality auditing and energy retrofit services at scale.

A Business-Friendly Regulatory Environment

While regulation of participating contractors and auditors is necessary to assure quality and prevent fraud, the regulatory environment should not become an impediment to profitability and scale. Programs should set stable and consistent rules and guidelines that give companies as much predictability and flexibility as possible, and synchronize requirements with other local, state and national programs to ensure that companies can work efficiently across multiple program environments. Paperwork and processing times should be minimized to avoid wasteful administrative costs, and labor requirements should not unduly drive up the cost of retrofit services. Finally, programs should give companies the leeway to test and create innovative business models, so the industry can operate at maximum efficiency and continue to provide the highest level of quality to American homeowners.

Incentives for Energy Retrofit Businesses

Rapid expansion of industry capacity can be enhanced by financial incentives and energy improvement financing programs designed to support the growth of existing retrofit businesses, and to help new participants enter the efficiency retrofit market. Small companies in particular can benefit from programs that help contractors with limited cash reserves cover upfront materials costs until projects are completed and incentives are disbursed.

Workforce Development Initiatives

As demand for retrofit services increases, there will be a growing need for properly trained and accredited workers. Because the pool of qualified workers is currently much too small to meet anticipated demand, retrofit programs should incorporate workforce development initiatives designed to draw good workers into the industry, increase opportunities for field training, and help trainees transition into energy retrofit jobs. Workforce development activities should be planned in direct collaboration with the private sector as well as educational and training institutions, workforce development boards and nonprofit organizations.

Credentialing and Quality Assurance

Appropriate accreditation of auditors and key contractor personnel will allow the industry to grow rapidly without sacrificing quality. The Building Performance Institute (BPI) and other credentialing organizations have established strong accreditation programs that can be used to certify participating auditors and contractors, and to set performance standards for retrofit work. Programs should

require test-ins and test-outs on all projects to verify industry-standard quality and performance, and where routine test-outs are performed by the contractors who complete the work (as is required by many industry-accepted certifications), programs should implement third-party oversight through random field-testing on a percentage of all jobs.

TOWARD A PERFORMANCE-BASED MARKET FOR HOME ENERGY RETROFITS

Historically, the standard model for home improvement incentive programs has been to offer rebates or tax credits for specific products – such as energy-efficient appliances, replacement windows or photovoltaic systems. Because incentives based on prescriptive lists of qualifying measures are already familiar to many consumers, this approach can achieve rapid deployment of some kinds of efficiency improvements. However, whole-house retrofits based on a systematic audit of a home's energy performance have been shown to deliver much deeper energy savings and are the most cost-effective way to reduce residential energy use carbon emissions. For this reason, programs should establish graduated incentive structures that prioritize performance-based incentives over product rebates, and provide more substantial incentives for projects that achieve greater energy savings.

In markets where the prescriptive approach is deemed to be the most expedient way to begin reducing household energy use, product rebates should be used a stepping-stone to a more effective performance-based market for retrofit services. Ultimately, retrofit programs will achieve the greatest program-wide efficiency gains if auditors, contractors and customers have the freedom to design projects that will achieve the most energy savings possible given the homeowner's individual energy needs and budget.

CONCLUSION

While the principles outlined above can serve as general guidelines for the development of successful energy retrofit programs, it is important to emphasize that there is no one-size-fits-all solution that can address local variations in climate, housing stock, affluence, market maturity and cultural considerations. And because the market for efficiency improvements is currently quite small relative to the number of homes that must be retrofitted to achieve our national energy and job creation goals, public- and private-sector participants alike must be prepared to adapt as the market grows and matures.

HOME PERFORMANCE
RESOURCE CENTER

The Home Performance Resource Center is a national 501(c)(3) nonprofit organization formed to conduct public policy and market research in support of the Home Performance industry. The Resource Center develops research materials for policymakers, energy program managers and industry stakeholders to promote job creation, economic recovery, lower household energy bills and deep reductions in residential carbon emissions through improved home energy efficiency.

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