THE ROLE OF LOCAL GOVERNMENTS AND COMMUNITY ORGANIZATIONS AS ENERGY EFFICIENCY IMPLEMENTATION PARTNERS: CASE STUDIES AND A REVIEW OF TRENDS

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ABSTRACT

Local governments have the authority to implement discrete enabling policies that influence the real estate market and drive demand for utility energy efficiency programs. Many local governments and local organizations are also developing programs and plans to meet energy needs while addressing other community priorities, such as economic development, job creation, or sustainability. At the same time, utility programs are seeking to target the communities and sectors with the greatest efficiency opportunity and to cost-effectively scale up programs to serve more participants. Rather than competing, local actors and utilities can offer each other unique skills and tools, which when combined through sustained program partnerships can provide a significant program delivery opportunity. Well-designed partnerships can leverage the skills and resources of utilities, governments, and nonprofits, while tailoring programs to local needs and goals.

This paper describes the characteristics and potential contributions of both local actors and utilities as they relate to implementing energy efficiency. Next it describes two different roles for local governments and civil society in implementing energy efficiency: (1) enabling policies and (2) program partnerships—including several detailed case studies for each. Finally, this piece concludes by describing some of the trends and challenges in local implementation of energy efficiency.

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INTRODUCTION

Recent federal programs, most notably the Energy Efficiency and Conservation Block Grant (EECBG) funded through the 2009 economic stimulus, have provided unprecedented funding to local governments for energy efficiency. While funding for EECBG is expiring in 2012, many local jurisdictions have gained experience in the field and are looking for opportunities to refine, expand, and sustain their efforts regarding energy efficiency. Local governments have the authority to implement discrete enabling policies that influence the real estate market and drive demand for utility energy efficiency programs. Many local governments and organizations are also developing programs and plans to meet energy needs while addressing other community priorities, such as economic development, job creation, or sustainability. At the same time, utility programs are seeking to target the communities and sectors with the greatest efficiency opportunity and to cost-effectively scale up programs to serve more participants. Rather than competing, local actors and utilities can offer each other unique skills and tools, which when combined through sustained program partnerships can provide a significant program delivery opportunity.

The goal of this paper is to, first, briefly describe the characteristics and potential contributions of both local actors and utilities as they relate to implementing energy efficiency. Next it describes two different roles for local governments and civil society in implementing energy efficiency—(1) enabling policies and (2) program partnerships—including several detailed case studies for each. Finally, this piece concludes by describing some of the trends and challenges in local implementation of energy efficiency. This paper is not comprehensive in its discussion of opportunities for local implementation of energy efficiency or related partnerships. Rather, it is a brief introduction to the concept, a collection of case studies, and reflections on lessons learned and trends of potential importance.

ACTOR ATTRIBUTES AND ENERGY EFFICIENCY IMPLEMENTATION

In most states in the United States, energy utilities are the primary providers of energy efficiency services. This prominence is primarily the result of the public regulation of utilities and the interpretation by regulators of energy efficiency as an important component of ensuring that utilities meet their public service mandate. Many utilities have become very effective at delivering energy efficiency. However, there is still a role for other public or private actors to enable or deliver energy efficiency, particularly in pushing beyond the relatively modest level of savings achieved through utility programs to date compared to the cost-effective savings available.[1] At the metropolitan, municipal, or community scale, many local governments and nonprofit organizations have begun efforts to improve energy efficiency. Many states have implemented programs or policies to enable action by local governments and communities to improve energy efficiency (Sciortino 2011; Reul and Michaels 2011). As more actors enter the field of energy efficiency, it is important to identify what attributes and competencies different actors contribute to the goal of improving energy efficiency and, where appropriate, to identify opportunities for collaboration that may help to achieve greater energy and economic saving, as well as other non-energy benefits.

There are characteristics of local actors—including their authorities, competencies, human and financial resources, information, and relationships—which are of value to energy utilities, and vice versa. In many cases, greater collaboration between local actors and utilities and the coordinated application of the attributes and competencies of both institutions may lead to better program and policy implementation and greater energy savings.[2]

[1] See Nowak et al. (2011) for a discussion of strategies that can allow utilities to achieve greater energy savings through efficiency. For information on the long-term cost-effective savings available from efficiency in the United States, see Laitner et al. (2012). Neubauer et al. (2011) and the other individual state studies from ACEEE's State Clean Energy Resource Project (aceee.org/sector/state-policy/scerp) provide a more detailed look at the economic potential of efficiency and the policies and programs that will help to achieve the identified potential savings.

[2] This concept has been previously identified in MIT EEP (2009), in which it is termed the Utility-Community Energy Efficiency "Deal."

Local Governments and Community Organizations

Local governments and civil society organizations have three general attribute types that can contribute to energy efficiency implementation: regulatory mechanisms; financial incentives; and local relationships. Local governments have direct influence over policies in their community and also have strong local relationship in many communities. Local non-governmental organizations only have indirect influence over policy, but have direct abilities to leverage relationships within the community for outreach and workforce purposes. There are many community and economic development benefits that result from energy efficiency that, in many cases, may be of greater interest to local actors than the energy savings themselves.[3] Specific examples of the attributes of local government or local organizations include:

- *Energy codes and upgrade requirements*—Many local jurisdictions have adopted building energy codes that exceed state policies. Likewise, several communities require energy performance improvements in existing buildings at time-of-sale or other trigger points.
- *Disclosure and information requirements*—Some localities require energy performance assessments (audits, benchmarking, or ratings) and energy use disclosure (either publicly or to parties to real estate transactions) of residential and commercial buildings. Energy information can influence market values and encourage participation in utility programs.
- *Regulatory and tax incentives*—Non-financial incentives, such as expedited permitting or prioritization in access to public services, have little cost to the public sector but financial value to the real estate industry. In some communities, there may also be state or regional policies to encourage local efficiency policy adoption.
- *Existing networks/outreach*—Local governments and organizations are often trusted messengers in their communities and have access to low-cost communications channels that result in high participation for the investment.
- *Skilled residents*—Employment is a top issue in many communities. Incorporating local employees into utility program delivery can provide opportunities for job training and employment, improve trust in the community, and increase participation of hard-to-reach populations.

Energy Utilities

While many states have established energy efficiency programs run by regulated utilities and as a result have the skills and resources needed to advance energy efficiency efforts, many other utilities in the country have little or no experience or resources for providing energy efficiency services. The local policy and program environment for energy efficiency varies from state to state and sometimes from community to community.[4] Because of their regulatory environment and their responsibilities to maintain reasonable energy rates for their customers, the cost-effectiveness of energy saving from efficiency programs is usually a top priority for utilities.[5] Several specific resources provided by utilities that are involved in energy efficiency implementation include:

- *Program delivery*—Utilities with established energy efficiency programs have financial resources and an infrastructure for program delivery. These programs are a valuable starting point for localities implementing their own energy efficiency programs, but may not be entirely appropriate for local needs without customization or partnership.
- *Program/marketing funds*—Funds for marketing, outreach, and program implementation are available from public benefit funds, and sometimes directly through rates. In some cases these

[3] For a discussion of the variety of non-energy benefits from energy efficiency and how they are accounted for in some efficiency programs, see Amann (2006).
[4] For details on the energy efficiency activities of utilities on a state-by-state basis, see Chapter 1 of Sciortino et al. (2011a) or the Utility Policies section of the ACEEE State Energy Efficiency Policy Database (aceee.org/node/174/all).
[5] For a detailed discussion of utility energy efficiency cost tests and related issues, see NAPEE (2008).

funds may be able to be used more cost effectively by local partners and result in higher program participation.

- *Incentive funds*—Utility budgets for decreasing the private cost of energy efficiency measures can be aligned with, and leveraged by, local policies to better target buildings and measures with the largest and most cost-effective energy saving potentials. An example of such a local policy is assigning a level of utility incentive eligibility based on the building energy ratings that result from locally mandated benchmarking.
- *Energy efficiency targets*—Many states have set utility energy efficiency savings goals, also known as Energy Efficiency Resource Standards or tailored utility targets (Sciortino et al. 2011b). Helping to contribute to these goals can focus and motivate local efforts. Targets can also provide motivation for utilities working with local governments and organizations.

CASE STUDIES

To provide a more tangible understanding of the variety of initiatives being undertaken by local governments and community organizations, we have developed short case studies of eight different local efforts. For each case we briefly describe the policy or program, its management, the public and private costs and benefits associated with the policy, the impact of the policy, and lessons and best practices identified in the case.[6]

We have organized these cases into two categories: enabling policies and program partnerships. *Enabling policies* are typically regulatory requirements or incentives put in place by a local government to improve market conditions for energy efficiency investments. The policies can be implemented with or without coordination with utilities. *Program partnerships* are arrangements between one (or more) energy utility and one (or more) local government or community organization to implement an energy efficiency program. Partnerships usually identify specific contributions and roles for each of the parties involved that, when applied to the program, may improve program delivery, participation, and energy savings beyond a utility-only program.

The location of each of the case studies is identified in Figure 1. The jurisdictions and names of the policies or programs in the case studies are as follows:

Enabling Policies

A. New York City, NY—Green Codes Task Force
B. Berkeley, CA—Residential Energy Conservation Ordinance (RECO)
C. Austin, TX—Energy Conservation Audit and Disclosure (ECAD) Ordinance
D. Washington, DC—Energy Benchmarking and Disclosure for Public and Large Commercial Buildings

Program Partnerships

E. Portland, OR—Clean Energy Works Portland
F. Chicago area, IL—Energy Savers multifamily existing buildings program
G. New Bedford, MA—Community Mobilization Initiative
H. Marshfield, MA—Marshfield Energy Challenge

[6] Five of these case studies—New York, Berkeley, Austin, Portland, and Chicago—were derived from more detailed case studies, which are available on the ACEEE website at aceee.org/sector/local-policy/case-studies.

Figure 1. Map of Case Study Locations

Summary

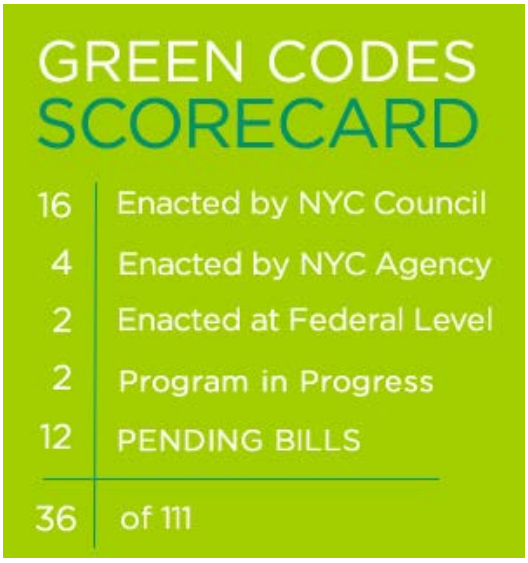
Each of these case studies is described in more detail in the following sections. By way of summary, Table 1 presents the characteristics exhibited in each of the case studies as compared to the list of actor attributes described in the previous section. Each of the initiatives exhibited at least three of the attributes. Existing local actor networks or outreach capacity, utility financial incentive funds, and utility energy efficiency targets were applied in all or nearly all of the cases. The two initiatives that leveraged the largest number of attributes to their work—Austin ECAD and Clean Energy Works Portland—are also, arguably, the two initiatives that have made the most progress toward market transformation in their regions. While these two initiatives are still young, they have made considerable progress toward developing a policy and market environment that encourages systematic and sustained improvement of energy efficiency. This relationship is not coincidental. In both cases, utility, local government, and civil society organizations have combined efforts and applied their institutional attributes toward a common goal of improving efficiency.

Table 1. Actor Attributes Exhibited in Case Studies

		Enabling Policies				***Program Partnerships***			
		A. NYC Green Codes Task Force	B. Berkeley RECO	C. Austin ECAD Ordinance	D. DC Benchmarking	E. Clean Energy Works Portland	F. Chicago Energy Savers	G. New Bedford Community Mobilization	H. Marshfield Energy Challenge
Local Gov't or Org	Energy codes and upgrade requirements	X	X	X					
	Disclosure & information requirements			X	X				
	Regulatory and tax incentives	X		X		X			
	Existing networks/outreach	X	X	X	X	X	X	X	X
	Skilled residents					X		X	
Energy Utility	Program delivery			X		X			X
	Program/marketing funds			X		X		X	X
	Incentive funds	X	X	X	X	X	X	X	X
	Energy efficiency targets	X	X	X		X	X	X	X

Enabling Policies

NYC Green Codes Task Force



Location: New York City, New York

Lead Organization: Mayor and City Council Chair in partnership with the Urban Green Council

Start Date: 2008

Policy Type(s): Building Codes, Building Rating and Disclosure, Retrofits

Sector: Residential, Commercial, Industrial

Policy: A comprehensive review of city codes, resulting in 111 recommendations to reduce greenhouse gas emissions and energy use, and improve environmental health. Nearly half of the recommendations relate directly to energy and energy efficiency

Management: The Task Force was charged with identifying changes to NYC codes that could bring buildings to the next level of energy and sustainability performance. The Urban Green Council assembled more than 200 leading thinkers to make recommendations related to building codes, zoning, health, environmental, and other codes. Each of the 111 proposals includes sample statutory language, an explanation of the background issues and rationale, analysis of costs and savings, precedents from other jurisdictions, comparison to LEED credits, and implementation information.

Public Cost/Benefit: The Task Force's efforts, entailing eighteen months of work and more than 70 meetings, was funded entirely by private and nonprofit sources, including the Mertz Gilmore Foundation, New York Community Trust, and the Steven L. Newman Real Estate Institute. Fried, Frank, Harris, Shriver & Jacobson LLP provided pro-bono legal review of the recommendations. Bovis Lend Lease analyzed the cost and payback period for each proposal.

Private Cost/Benefit: The total cost of implementing all recommendations was not analyzed because they influence different buildings and activities over different time periods. However, nearly all of the policies adopted have low or no upfront cost with considerable energy and monetary savings potential.

Impact: One year after the release of the report, 36 recommendations have been implemented or are actively under consideration. These include 16 enacted by the New York City Council, 4 enacted by a New York City agency, 2 enacted at the federal level, 2 programs in progress, and 12 pending bills.

Lessons and Best Practices:

- *Partnerships between government, nonprofit organizations, and industry maximize resources and bring credibility*—Because the project was initiated by the Mayor and City Council Speaker, it obtained legitimacy, recognition, and industry buy-in from the outset. The Urban Green Council was critical as an independent advisor and convener for the project because it has strong ties with both government and industry, and is seen as having a practical approach. As a result, the Council's report was able to identify many changes that city agencies or the real estate industry may not have considered. In addition, the Technical

Committee and Industry Advisory Committee members ensured that the recommendations were feasible and executable. While architects and engineers identified potential changes, the real estate industry provided important feedback relating to the feasibility of implementing changes in construction and ongoing building operations.

- *The recommendations' a-la-carte design enables changes to be implemented incrementally as feasible*—The Urban Green Council recognized that each recommendation would be considered independently by the city, so the report provides a justification and explanation for each recommendation, along with statutory language and implementation guidance. This last step of developing easily understandable explanations along with code-level language was one of the most resource-intensive, yet valuable, steps in the process.

Berkeley Residential Energy Conservation Ordinance (RECO)

Location: Berkeley, California

Lead Organization: City of Berkeley

Start Date: 1987

Policy Type(s): Energy Improvement Requirement, Building Energy Disclosure, Building Codes

Sector: Residential, including all single-family and multifamily, and rental and owner-occupied units sold, transferred, or undergoing substantial renovations in Berkeley

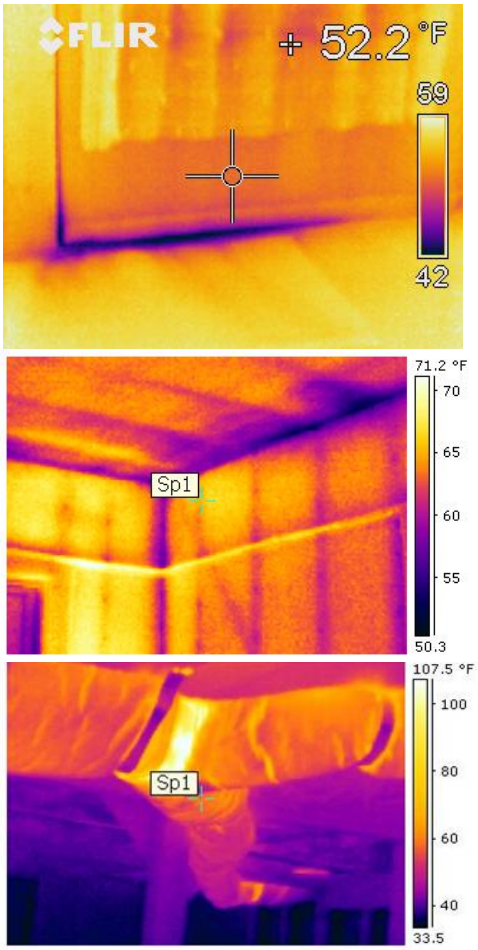
Policy: RECO prescribes ten compliance measures required of homeowners that reduce energy used for space heating, hot water, and lighting.

Management: The City of Berkeley administers the program compliance, and the Community Energy Services Corporation (CESC), a nonprofit licensed general contractor, is the only authorized RECO auditor.

Private Cost/Benefit: The average cost of compliance, not including labor or attic insulation, is $800. Costs of meeting RECO requirements are capped at 0.75% of the home's final purchase price. Average annual cost savings are estimated at $698.76. RECO compliance audits cost $100 for the first unit and $50 for each unit thereafter in multifamily buildings. Federal, state, local, and utility programs offer a variety of loan, rebate, and assistance programs to help cover the costs of compliance measures.

Public Cost/Benefit: Staff time is the sole public cost of operating and maintaining RECO, much of which is recouped by a $20 form filing fee.

Impact: Total savings over the past 22 years are estimated at 811,800 therms of natural gas, 1.32 MWh of electricity, and 132 million gallons of water.



Infrared images of common home energy problems in a Berkeley home, each of which can be addressed through the RECO. Top: Heat loss under an exterior door. Middle: poorly insulated attic. Bottom: leaky forced air HVAC ducts.

Lessons and Best Practices:

- *Involvement of an independent auditor*—The program is structured so that there is no opportunity for the auditor to receive financial gains from selling additional services.
- *Working with realtors*—Realtors have been key to program success as they help clients to identify when compliance activity is needed and find funding.
- *Regional market consistency*—A hybrid approach, combining prescriptive and performance building measures, is being studied now in cooperation with neighboring jurisdictions. If adopted, it would be implemented in Berkeley, Oakland, and San Francisco to offer greater regulatory consistency in the area's housing market to the benefit of realtors, contractors, and residents.
- *Prescriptive- vs. performance-based*—RECO's prescriptive nature emphasizes adoption of the same measures in every home. However, a shift to a performance-based approach could result in greater energy savings and participant satisfaction. A more comprehensive, whole-house approach, such as that promoted by the Building Performance Institute (BPI), with a focus on the installation of the best energy savings measures as custom-identified for each home, could include additional measures not currently covered by RECO such as energy-efficient windows, wall insulation, floor insulation, etc.
- *Start with commercial buildings*—Berkeley first implemented a Commercial Energy Conservation Ordinance (CECO) in 1984 that requires thirty-two energy conservation measures upon sale or renovation. The CECO's energy-saving success helped build support for the RECO.

Austin Energy Conservation Audit and Disclosure (ECAD) Ordinance

Location: Austin, Texas

Lead Organization(s): City of Austin and Austin Energy

Start Date: June 2009

Policy Type(s): Building Rating and Disclosure, Building Codes, Retrofits, Utility Regulation and Policy, Multi-Family Homes

Sector: Residential, including single-family and multi-family residential properties and both owner- and renter-occupied, and commercial properties

Policy: ECAD requires properties within Austin and served by Austin Energy, the municipal utility, to undergo energy audits or ratings before the sale of the property or at other specified trigger points (Coleman 2011).

Management: For single-family residential properties, an energy audit must be performed before being sold and disclosed to potential buyers. For multifamily residential properties, ECAD requires an energy audit to be performed and results posted in the buildings, disseminated to tenants, and sent to Austin Energy in the calendar year in which the property is ten years old. If the multifamily property has a high energy use per square foot (exceeds 150% of average energy use of multifamily properties), owners have 18 months from the date of the notification to make energy efficiency improvements. Commercial properties ten years or older are required to determine an energy rating annually and submit it to the City of Austin. Austin Energy maintains records of energy audits and energy efficiency improvements made by registered Austin Energy contractors.

Private Cost/Benefit: The price of residential audits is established by the auditor and is dependent on the size of the property. The estimated cost of an ECAD audit is $200–300 for a typical single-family

home of 1,800 square feet or less with a single air-conditioning system. Each instance of violation is a separate offense and is subject to a fine of $500–2,000.

Public Cost/Benefit: To provide a smooth transition between requiring improved information on energy use and voluntary action by owners to improve energy efficiency, Austin Energy makes available energy efficiency rebates and education for residential, multifamily, and commercial property owners. Since ECAD was enacted, Austin Energy has increased its budget for building energy improvement rebates and low-cost loans by $1 million. The average rebate varies by improvement, but may cover up to 60% in single-family homes. For multi-family buildings, rebates will cover up to 80% of the installed cost of air duct sealing, ceiling insulation, and solar screen or window films for a limited time.

Impact: The average potential annual savings from the measures identified in the ECAD residential audits include savings of $723,650, 7,788,000 kWh, and 4,897 tons of carbon dioxide.

Lessons and Best Practices:

- *Working with a peer learning network*—ECAD took advantage of knowledge gained through discussions with other jurisdictions that have implemented energy disclosure laws (such as Seattle; Washington, DC; Washington State; New York City; and San Francisco), which identified the amendments below to improve the ordinance.
- *Understanding of real estate transactions*—Originally, ECAD required audit results of single-family properties to be provided "before the time of sale." This resulted in energy disclosures at the end of a real estate transaction, often too far into the transaction process to negotiate prices or purchase improvements. As a result, the City Council made an amendment to require sellers of single-family homes to provide audit results at least three days before the end of the "option period" during which a potential buyer can cancel the contract to purchase the home.
- *Clear definitions of policy scope*—Amendments were made to include condominiums, which were originally not addressed in the ordinance. Owners of four or fewer condominiums must meet the requirements for single-family homes. Owners of condominiums of five or more units at one location must meet requirements for multifamily properties.

Washington, DC: Energy Benchmarking Requirement

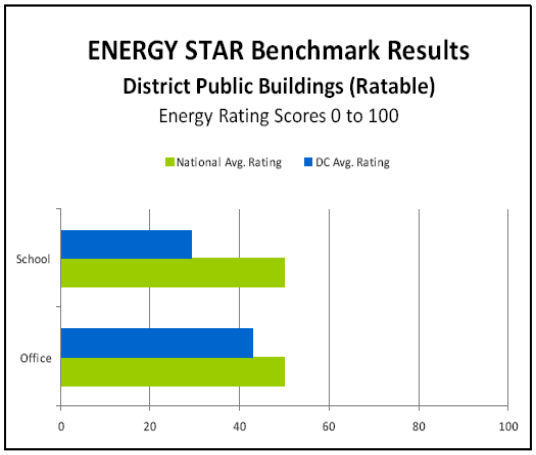
Location: Washington, DC

Lead Organization: District (of Columbia) Department of the Environment (DDOE)

Start Date: 2010

Policy Type(s): Building Rating and Disclosure, Public Buildings

Sector: Commercial buildings, including public buildings over 10,000 square feet and private buildings over 50,000 square feet



Policy: The Green Building Act of 2006 and the Clean and Affordable Energy Act of 2008 require that owners of large commercial buildings in the District of Columbia annually rate and disclose their building energy performance on a public website.

Management: Building owners are expected to use the ENERGY STAR® Portfolio Manager (for existing buildings) or ENERGY STAR Target Finder (for new construction) to conduct building energy

assessments. The District Department of the Environment (DDOE) is responsible for publishing the resulting Statements of Performance on the Internet. Public building benchmarking results were first disclosed in November 2010. The largest private buildings (200,000 ft^2 or more) are required to begin reporting in 2011 and performance disclosure begins in 2012. The reporting and disclosure requirements for buildings as small as 50,000 ft^2 will be phased in by 2015 (Burr et al. 2011).

Private Cost/Benefit: Building owners are responsible for covering all costs associated with rating and disclosure. Now that energy performance information is publically available, parties can consider building energy consumption before even entering a transaction, whereas previously energy information was not available until well into negotiations, if at all. Shareholders, institutional investors, and other financial actors will have a better idea about how their buildings compare to similar buildings in terms of energy costs. Ultimately, property values should come to account for energy performance.

Public Cost/Benefit: The primary costs to the District government will be the maintenance of the disclosure database. Energy benchmarking also creates demand for many of the district's other energy efficiency initiatives such as the newly formed DC Sustainable Energy Utility (SEU). Funds for training building owners on the benchmarking requirement may be made available by the SEU and it may tie ratings to incentive funds for energy improvements. In 2012, DC will begin requiring all new public and private commercial buildings to meet LEED green building standards; benchmarking will allow more competition between new high-performance buildings and existing buildings.

Impact: Energy assessments completed for public buildings show that the District has plenty of room for energy improvements. FY2009 data for 194 district government buildings show that they were overall less efficient than similar buildings on average in the United States. The benchmarking revealed DC's schools are in the 29th percentile in comparison to schools across the country and that libraries and offices are close to, but still under, their average counterparts across the country. The District is currently conducting more detailed audits to identify the most appropriate energy savings measures for individual buildings.

Lessons and Best Practices:

- *Engage the real estate industry from the start*—Though building owners were initially skeptical of the policy, because of effective engagement in the process they are now vital partners in the implementation. DDOE is partnering with the regional Apartment and Office Building Association to provide trainings to owners on their responsibilities.
- *Additional measurement and verification of ENERGY STAR scores is needed*—Portfolio Manager was initially designed as a voluntary self-analysis tool, but now that its use is mandated by law in some jurisdictions, some adjustments have been needed. These adjustments include ENERGY STAR staff creating an automated reporting tool for use by building owners in DC.

Program Partnerships

Clean Energy Works Portland

Location: Portland, Oregon

Lead Organization: Portland Clean Energy Works

Start Date: 2009

Policy Type(s): Behavior & Human Dimensions, Energy Efficiency Financing, Energy Efficiency Workforce, Financial Incentives for Energy Efficiency, Local & Community Initiatives, Low-Income Programs, Retrofits, Utility Regulation & Policy

Sector: Single-family residential

Policy: Clean Energy Works provides personal guidance and bundled services to simplify the process of energy efficiency improvements. The program provides an Energy Advocate to assist each homeowner, schedules a diagnostic audit, provides access to low-interest financing, and oversees implementation of whole-home energy upgrades designed to reduce energy consumption between 10 and 30%.

Management: Clean Energy Works was started by a sizable public-private partnership between the City of Portland Bureau of Planning and Sustainability (BPS), with the Energy Trust of Oregon (the state's energy efficiency entity), Enterprise Cascadia (a CDFI), the three investor-owned utilities that serve Portland residents, Portland Development Commission, Portland Housing Bureau, home performance contractors, and local labor unions and community-based organizations.

Private Cost/Benefit: The average loan size is $12,500, with monthly payments around $70. Depending on the size of the project, the rate is typically 4–6% for a 20-year term.

Public Cost/Benefit: The city's initial $2.5 million investment (using $1.1M EECBG funds and other city resources) leveraged additional funds, resulting in an $8 million pilot loan portfolio to serve 500 homes. In 2010, the city received an additional $20 million from the DOE's EECBG program to expand to other areas of the state. Clean Energy Works Oregon now aims to serve 6,000 homes in the next three years.

Impact: As of February 2011, more than 500 loans have been signed, representing a 66% conversion rate from audits to implementation. The approximate annual savings include: electricity savings of 700,000 kWh; natural gas savings of 180,000 therms; total household utility bill savings of $312,000; and avoided greenhouse gas emissions of 1,350 metric tons of carbon dioxide.

Lessons and Best Practices:

- *One-stop-shops help ensure audits turn into projects*—Participants receive intensive handholding from Energy Advocates with credible technical expertise. Energy Advocates pre-screen potential participants for basic feasibility requirements, then help them through each step of the process and use the highest quality vetted contractors.
- *Simple, affordable financing enables implementation*—The program eliminates upfront costs and offers loans based on packages of improvements (such as "basic weatherization," "extended weatherization," and "extended weatherization + space heat or hot water"), which use basic assumptions to simplify payback analysis. The loan is then repaid through the monthly utility bill.
- *Community Workforce Agreements can effectively spur local job growth*—PCEW's CWA lays out clear job-quality and access requirements for all participating contractors. It also provides support to disadvantaged businesses and to training programs targeting disadvantaged populations. None of the original contractors were women or minority-owned businesses. As of February 2011, five of sixteen participating contractors are minority- or women-owned, and over half of the field workforce hours have been performed by individuals from historically disadvantaged populations. Contractors report hiring 27 entry-level weatherization workers from designated training pools and over 344 workers have drawn a paycheck from working on Clean Energy Works projects.

Chicago Area Energy Savers Program

Location: Chicago area, Illinois

Lead Organization: CNT Energy

Start Date: 2007

Policy Type(s): Energy Efficiency Financing, Low-Income Programs, Multi-Family Homes, Retrofits

Sector: Multi-Family Residential, Affordable Housing.

Policy: The Energy Savers program offers free energy audits, custom technical support, and retrofit financing for building owners of affordable, multi-family residential buildings.

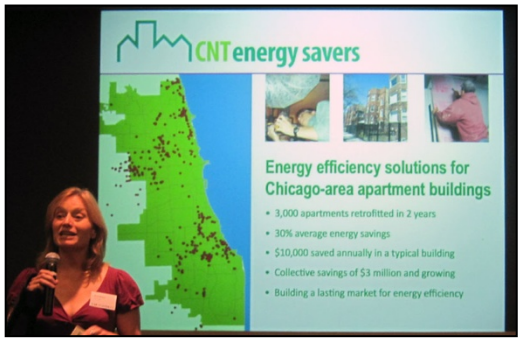
Energy improvements made through Energy Savers improve the comfort of affordable apartment buildings such as this one on South Parnell Avenue in Chicago

Management: CNT Energy, a Chicago-based nonprofit, administers the program with the Community Investment Corporation as its primary partner.

Private Cost/Benefit: CNT Energy Savers is funded by a combination of sources, including private foundations and local natural gas utilities. The building retrofits are privately financed through the Community Investment Corporation or other lending institutions. Participants also take advantage of incentives offered through the gas and electric utilities. Each retrofit project yields an average savings of $10,000 per year.

Public Cost/Benefit: The program is also supported by the City of Chicago and the Chicago Region Initiative for Better Buildings. The program will help the City achieve the stated goal of retrofitting 400,000 units by 2020, as written in the Chicago Climate Action Plan.

Impact: Over 5,000 rental apartment units in the Chicago region have been retrofitted through the program. On average, improvements have cut energy costs by 30% and saved building owners and tenants $10,000 per year. Other results include 1,000,000 therms saved, 5,000 metric tons of carbon dioxide emissions avoided, direct creation of 75 jobs, and preservation of affordable rental housing through reducing utility bills.



Lessons and Best Practices:

- *Relationship management is key*—Program managers must be good communicators and sympathetic to the needs of owners. The program managers must have the right temperament to shepherd owners through the many phases of making technical decisions.
- *Prioritize cost effectiveness*—In low-income properties, even those that are cash flow positive, there is not as much money available to make improvements, so program managers and analysts must focus on communicating to owners about what is cost-effective, rather than the latest or most efficient technology.

- *Partner with an expert lender*—The Community Investment Corporation maintains its commitment to making rehab deals that work for multifamily owners. The CIC's investment in the program has been important for ensuring that the process doesn't die after the audit.
- *Diversify funding sources*—The program has demonstrated success in lowering energy consumption, maintaining affordable housing, and returning value to investors; as a result, it receives utility, public, and philanthropic support. These varied supports make the platform more robust and allows program managers to bundle services and incentives in order to meet each building owner's needs.

New Bedford Community Mobilization Initiative

Location: New Bedford, MA

Lead Organization: Marion Institute and NSTAR

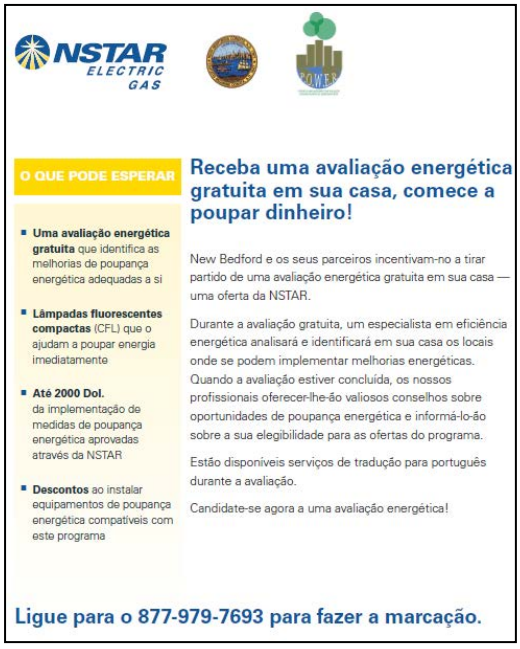
Dates: July 2010 – April 2011

Policy Type(s): Energy Efficiency Workforce, Financial Incentives for Energy Efficiency, Local & Community Initiatives, Low-Income Programs, Retrofits

Sector: Residential and Commercial

Policy: The New Bedford Community Mobilization Initiative (CMI) was a pilot program that aimed to increase energy efficiency efforts for households that had incomes between 60% and 120% of state median income, and create green jobs in New Bedford.

Management: The main sponsor, NSTAR, facilitated program design and implementation. NSTAR was responsible for bringing all of the program partners together, including the local contractors (New Bedford YouthBuild), the primary program manager (CSG), and the various community leaders (City of New Bedford and the Marion Institute). NSTAR designated community representatives from Marion Institute's POWER Project to be responsible for designing the program outreach strategies and coordinating basic training sessions.



Outreach Flyer in Portuguese

Private Cost/Benefit: The New Bedford CMI offered the energy efficiency services and incentives that NSTAR already offered its customers through the state efficiency program, MassSave, and through NSTAR's existing commercial programs. NSTAR did not provide any additional services or incentives.

Public Cost/Benefit: All residents who participated in the program contributed to MassSave through a systems benefits charge on their monthly utility bills. Out-of-pocket expenses for residents varied depending on the type of retrofit work completed and pre-weatherization (non-energy building code compliance) issues.

Impact: The New Bedford CMI aimed to weatherize 50 residential homes, 25 small business, and 4 multi-unit buildings. The program exceeded its small business goal by weatherizing 33 small

businesses and came close to meeting its multi-family goal with 3 multi-family weatherization projects. Although the New Bedford CMI was less successful in the residential sector, with just 16 residential weatherization projects, the program was influential in that it informed stakeholders of the multifaceted challenges to weatherization in the residential sector, which include pre-weatherization barriers, financial barriers, and program logistic barriers. The pilot helped shape New Bedford Energy Now, the next phase of weatherization efforts in New Bedford, which includes all of the CMI partners, has more than 20 new program partners, and has the goal of weatherizing 5,000 units by 2015 (Lydgate 2011). Further, as a result of the CMI pilot, state policymakers and utilities have launched a review of pre-weatherization barriers with the goal of adjusting policies and programs to address them.

Lessons and Best Practices:

- *Making it local*—Local leaders helped to develop and implement program marketing. Through the Marion Institute's P.O.W.E.R. project, New Bedford residents were hired to lead outreach efforts in two low-income neighborhoods. All weatherization work generated by the CMI leaders' outreach went directly to New Bedford YouthBuild, a nonprofit organization that provides construction training and jobs to local youth.
- *Community outreach*—Door-to-door canvassing was P.O.W.E.R.'s primary outreach strategy; however, other outreach methods included: making phone calls to residents; participating in community events and meetings; and advertising on local radio stations, the local public access television channel, and social network websites.
- *Strong stakeholder partnerships*—Program partners had a productive and cordial relationship. However, the team had to deal with program complications, including a scheduling backlog and general misinformation and miscommunication regarding outcome expectations and how barriers to weatherization would be addressed.
- *Awareness of barriers and resources*—Program partners in the CMI were not adequately aware of potential program barriers, such as pre-weatherization needs, or the amount of funds need to address such barriers.
- *Measuring success*—Although the program did not realize its participation goals, the program was successful in developing an effective outreach strategy for making contact with residents who are often considered hard to reach, including those households with incomes between 60% and 120% of state median income. Further, the program shed light on the additional barriers that program partners must address, such as pre-weatherization costs and scheduling/logistic problems that prevent weatherization work from moving forward (Brandt 2011).

Marshfield Energy Challenge

Location: Marshfield, MA

Lead Organization: NSTAR

Dates: Spring 2008 – Fall 2009

Policy Type(s): Financial Incentives for Energy Efficiency, Local & Community Initiatives, Retrofits

Sector: Residential and Commercial

Policy: The Marshfield Energy Challenge was developed to address increasing electricity demand in Marshfield and to relieve peak loads in the town by using demand-side resources, including energy efficiency, renewable energy, and direct load control.

Management: The program was sponsored by NSTAR, the electric utility servicing Marshfield, and the Massachusetts Technology Collaborative, a public economic development agency. NSTAR

oversaw the program's design and implementation. Conservation Services Group was the residential program delivery contractor responsible for formalizing and implementing the marketing strategies conceptualized by program partners. NSTAR worked closely with consultants, as well as municipal and community leaders, to develop and implement the program's community outreach component.

Private Cost/Benefit: The Marshfield Energy Challenge built upon the energy efficiency services and incentives that NSTAR already offered its customers through the state efficiency program, MassSave, and existing commercial and industrial programs. NSTAR further expanded its service and incentive offerings, including paying for the purchase and installation of three photovoltaic panels on town facilities, covering the MassSave co-payment for residential customers, and offering a 70% rebate on energy efficiency measures for businesses and a 100% rebate for schools. The program undertook extensive outreach and marketing, which cost $195,000 more than its standard programs.

Direct mail flyer

Public Cost/Benefit: All residents who participated in the program contributed to MassSave through a systems benefits charge on their monthly utility bills. Out-of-pocket expenses for residents varied depending on the type of retrofit work completed, as discussed above.

Impact: The Marshfield Energy Challenge sought to deliver 2 MW of peak demand savings (728 kW in the residential sector and 1,274 kW in the commercial sector). However, the realized savings from efficiency, direct load control, and solar photovoltaic installations were only 385 kW in the residential sector and 450 kW in the commercial sector, little more than 40% of the program's original energy reduction goal. Participation rates for the residential program were high compared to traditional programs, with 15% of all households in the community receiving an audit. Ninety percent of participating households made lighting improvements, 20% improved insulation, 19% received air conditioning tune-ups, 16% improved air sealing, and 14% installed heating measures. Reasons for such shortfalls in realized savings include a lack of large commercial customer participation in the direct load control program and that lighting measures were predicted to achieve greater energy efficiency in the residential sector than was realized. Annual electric savings are estimated to be 1.5 million to 2.1 million kWh from commercial customers and 0.6 million kWh from residential customers, representing about 1.7% of Marshfield's electric use (Brandt 2011).

Lessons and Best Practices:

- *Community marketing*—The marketing campaign promoted a theme of "community" and used both traditional (e.g., direct mail) and non-traditional outreach strategies (e.g., tabling at community events, offering a community incentive) to increase program participation. Branding helped create a buzz about the program.
- *Engaging community leaders—C*ommunity members (such as Marshfield selectmen, the school committee chair, a public librarian, the town planner, environmental group local representatives, a church minister/pastor, and a radio station owner) lacked formal power in the program, yet still played an important role by serving as "Program Ambassadors." They increased the program's exposure and legitimacy and helped address residents' concerns or questions about the program. As a result of the program, the Marshfield Energy Committee was established to expand local energy efforts.
- *The high cost of effective outreach*—Nevertheless, evaluators found that the main barrier to participation was lack of awareness, with 78% of the non-participants noting that they had not heard of the challenge. No formal analysis of the costs of the program was made public, but

the known costs of marketing and the level of lack of awareness suggests that it would likely not be financially feasible to replicate this program on a wide scale.

CONCLUSION

An increasing number of local governments and organizations are undertaking policies and initiatives to promote energy efficiency, but are not necessarily coordinating with utilities. At the same time, utilities are looking for methods to increase program participation and energy savings. Well-designed partnerships can leverage the skills and resources of utilities, governments, and nonprofits, while tailoring programs to local needs and goals. Some findings and best practices to consider for future enabling policies and program partnerships include:

- *Public utilities leading the way*—Jurisdictions with municipal utilities (Austin Energy in Austin) or energy efficiency utilities (the Energy Trust of Oregon in Portland and the Sustainable Energy Utility in DC) have been more active in leveraging the institutional attributes of both utility and local actors. More efforts toward sustained partnerships between investor-owned utilities and communities (such as the Massachusetts examples) are needed.
- *Leveraging existing community resources*—Partnerships with local governments, nonprofits, and businesses bring credibility, momentum, access to existing social networks, and often greater participation.
- *Incentives and mandates for greater efficiency and partnerships* – Nearly every jurisdiction we looked at was covered by some form of energy efficiency target at the state level. These targets encourage utilities to adjust their business model and invest in efficiency systematically. Even in most states with efficiency targets, incentives and enabling policies for local partnerships are not yet in place. Utility regulators may need to make policy adjustments to encourage an ecosystem of collaboration and innovation.
- *Innovative funding models*—True partnerships may require utilities to view local actors as contractors and pay, or otherwise reward, them for their contributions toward fulfilling utilities' energy efficiency responsibilities. Further experimentation with these models is needed.
- *Understanding the real estate market*—Implementing policies that help to integrate energy efficiency characteristics into property values or through intervening at key transaction points (such as sale, finance, or rent) can increase adoption.
- *Balancing innovation with consistency across jurisdictions*—Programs must strike a balance between tailoring to each locality and developing scalable programs. Therefore metropolitan area or state initiatives may be preferable to municipal efforts to maximize policy impacts and to make management less expensive and/or compliance simpler. Alternatively, program structure could be statewide, while marketing and outreach can be localized.

The reflections and lessons from the case studies included in this paper are only a sampling of the opportunities and challenges provided by local energy efficiency implementation. Some of the other existing research on this topic is summarized in Michaels et al. (2011). But more research and practice are still needed in this area. There is an appetite among utilities and communities for new approaches to efficiency. As a result, regular innovations are being made around the country, should be documented, and, where appropriate, should be broadly integrated into energy efficiency practices elsewhere.

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