

## **Energy Efficiency Program Options for Local Governments under the 2009 Stimulus Package**

The American Recovery and Reinvestment Act of 2009 (ARRA) included several key funding opportunities for energy efficiency projects at the local level, including monies for energy efficiency and conservation block grants (EECBG)<sup>1</sup> for the first time. Also, funding was provided for state energy programs, weatherization assistance, and efficient transportation efficiency among other initiatives. The EECBG program alone covers a range of projects that reduce energy use and greenhouse gas emissions, some of which we will discuss here. In addition to the various program funds, ARRA also extended and expanded federal energy efficiency tax incentives, discussed later in this document.

In this paper we give a sampling of existing programs and practices that municipalities have implemented to save energy and create jobs. It is not meant to be an exhaustive list of all possible options, but a starting point for communities interested in implementing substantial energy-saving programs today. We have listed them alongside the DOE-issued guidance where appropriate as examples of eligible activities that might be more quickly ramped up and executed as the ARRA program demands.

### ***Energy Efficiency and Conservation Block Grant Program Guidelines***

The Department of Energy (DOE) will issue grants to states, U.S. territories, local government entities and Indian tribes through the Energy Efficiency and Conservation Block Grants (EECBG) Program, part of the American Recovery and Reinvestment Act of 2009.

States, U.S. territories, Indian tribes and certain local government entities may apply for funding. Only cities that have a population of at least 35,000 or that are one of the 10 most populous cities in their respective states may apply for direct funding from the EECBG program. Likewise, county-level applicants must be one of the 10 most populous counties in their state or have a population of at least 200,000 to qualify for direct grants.

The EECBG program aims to reduce fossil fuel emissions, total energy use in states and municipalities and improve energy efficiency primarily in the building and transportation sectors. To qualify, individual projects must provide maximum benefits over the long term and should incorporate energy efficiency efforts into community economic development goals, poverty reduction efforts and other identified long term goals.

Projects that receive funding from the EECBG program must not only increase energy efficiency and reduce overall energy consumption and costs; these projects must also

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<sup>1</sup> The EECBG was authorized as part of the Energy Independence and Security Act of 2007 (EISA)

create new jobs and increase productivity to spur economic growth as well as improve air quality and improve coordination between jurisdictional offices involved in energy efficiency programs.

## **Eligible Activities from DOE EECBG Guidance**

*A list of eligible activities for use of program funds is contained in Sec. 544 of the Energy Independence and Security Act of 2007 (EISA). Additional activities may be eligible pending final approval by DOE. The activities below are therefore not an exhaustive list and should be used as a guide as to the intent of the program. DOE encourages each locale to develop a strategy, including its component activities, that is likely to result in maximum energy efficiency improvements, fossil-fuel emission reductions, economic benefits and total energy use reduction.*

Below are each of the fourteen DOE-designated categories for EECBG funding, with examples culled from existing programs in cities and towns across America and additional resources where appropriate.

### **RDEE Toolkit**

EPA has developed a Rapid Deployment Energy Efficiency Program Toolkit (RDEE Toolkit), covering ten EPA programs that qualify under EECBG funding. These program types follow the DOE criteria and considerations, and are meant to be sustainable beyond the initial stimulus funding. In addition, they are “tried-and-true” programs with case study examples. You can access the Toolkit here:

[www.epa.gov/cleanenergy/energy-resources/ee\\_toolkit.html](http://www.epa.gov/cleanenergy/energy-resources/ee_toolkit.html).

EPA additionally provides information from a forthcoming publication, *Local Government Clean Energy Strategies*, including best practice program information. See [www.epa.gov/cleanrgy/energy-programs/state-and-local/local-best-practices.html](http://www.epa.gov/cleanrgy/energy-programs/state-and-local/local-best-practices.html) for more information.

***1. Development of an Energy Efficiency and Conservation Strategy: Entities may use a grant received under this part to develop and/or implement a strategy for energy efficiency and conservation and to carry out activities to achieve the purposes of the program. All entities receiving direct formula grants from the DOE are required to submit a proposed strategy for approval.***

*Note: Block Grant funds will be disbursed to each municipality in stages based on the amount of the award and acceptance of the Energy Efficiency and Conservation Strategy (EECS). DOE’s EECBG Guidance has a complete description – [www.aceee.org/energy/national/DOE\\_EECBG\\_Guidance\\_2009.pdf](http://www.aceee.org/energy/national/DOE_EECBG_Guidance_2009.pdf).*

### **Sustainable St. Paul**

In the early 1990s, St Paul, Minnesota joined the International Council for Local Environmental Initiatives (ICLEI) as part of the Urban CO<sub>2</sub> Reduction Project. The city’s CO<sub>2</sub> Reduction Plan, a 20-year implementation project, includes six strategies with

corresponding carbon reduction targets, including a municipal action plan for improving the energy efficiency of city-owned buildings, equipment, and vehicles; diversification of the transportation sector to increase public transit options; and reducing energy use by installing energy-efficient measures such as lighting, air-handling, and insulation in the residential, commercial and industrial sectors.

More information on the *Sustainable St Paul* initiative can be found at <http://ci.stpaul.mn.us/index.asp?NID=429>, including the 2008 Annual Report and information on an innovative green manufacturing initiative:

- Making It Green Report:  
<http://ci.stpaul.mn.us/DocumentView.asp?DID=5758>
- GreenCities - GreenJobs:  
<http://ci.stpaul.mn.us/DocumentView.asp?DID=5757>

### ***Mission Verde***

San Antonio, Texas is also developing a community-wide energy saving plan, recognizing that “saving energy saves money.”<sup>2</sup> The Mission Verde initiative includes eleven steps toward saving money and creating jobs through reduced energy consumption. The program would develop a new urban energy infrastructure, create financing options through venture capital funds, establish high-performance building codes and retrofit programs for existing building stock, pursue public transportation options, and provide educational outreach to the community. San Antonio estimates that if all of the initiatives are successful, the city will realize millions of dollars in avoided energy costs and thousands of permanent local jobs, not to mention substantial reductions in CO<sub>2</sub> emissions. For more information about this program, and to read the Mission Verde plan, go to [www.sanantonio.gov/mayor/SustainabilityPlan.asp](http://www.sanantonio.gov/mayor/SustainabilityPlan.asp).

*General Resources for Developing Community Energy Efficiency Plans:*

- Rocky Mountain Institute's [Community Energy Opportunity Finder](#)
- Minnesota Project Clean Energy Resource Teams:  
[www.cleanenergyresourceteams.org/publications](http://www.cleanenergyresourceteams.org/publications)

***2. Technical Consultant Services: Entities may retain technical consultant services to assist the eligible entity in the development of such a strategy, including formulation of energy efficiency, energy conservation, and energy usage goals; identification of strategies to achieve those goals through efforts to increase energy efficiency, reduce fossil fuel emissions or reduce energy consumption through investments or by encouraging behavioral changes. Entities may develop methods to measure progress in achieving the goals. Entities may develop and publish annual reports to the population served by the eligible entity describing the strategies and goals and the progress made in achieving them during the preceding calendar year.***

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<sup>2</sup> [www.sanantonio.gov/mayor/SustainabilityPlan.asp](http://www.sanantonio.gov/mayor/SustainabilityPlan.asp)

### ***NYSERDA FlexTech***

The New York State Energy Research and Development Authority (NYSERDA) runs a Flexible Technical Assistance program (FlexTech) for all New York state industrial and commercial facilities, state and local governments, nonprofits and private institutions, public and private K-12 schools, colleges and universities, and healthcare facilities. The program works to implement energy efficiency measures as a way of increasing productivity and economic competitiveness. NYSERDA contracts with engineering firms to provide technical assistance services to the entities listed above, including:

- Engineering feasibility and technical assistance studies,
- Analysis of specific energy efficiency projects,
- Process improvement,
- Energy service aggregation,
- Development of long-term capital budget strategies for upgrade/replacement of equipment, and
- Retro-commissioning of energy efficiency measures in existing buildings, among other projects

Read more about FlexTech, including success stories:

[www.nyserda.org/programs/flextech.asp](http://www.nyserda.org/programs/flextech.asp).

- More information about NYSERDA technical assistance programs:  
[www.nyserda.org/programs/Technical\\_Assistance/default.asp](http://www.nyserda.org/programs/Technical_Assistance/default.asp).

### ***Mentoring Programs***

One way to share expertise is to facilitate direct business to business discussions of energy efficiency best practices. Larger or more established companies can act as mentors to smaller or less experienced companies, providing a range of services from advice to energy auditing services. Municipalities should encourage these types of relationships by taking advantage of existing programs at the state level or by developing networks within the county or state.

#### **Manufacturing Networks: Maine “Environmental Leaders”**

The Maine Department of Environmental Protection has developed a program joining “Environmental Leaders” to share their sustainability and smart growth goals with the greater Maine business community. The program establishes a thorough set of smart production pathways and metrics, such as the certification of an environmental management system, to measure a business’s environmental and economic sustainability performance. The mentoring network is a crucial piece of the program that allows Environmental Leaders to share methods of energy- and resource-efficient production and experiences implementing innovative technologies with smaller businesses. Visit the Environmental Leaders web site for additional details:

[www.maine.gov/dep/innovation/elm](http://www.maine.gov/dep/innovation/elm).

#### **Texas EnviroMentor Program**

Managed by the Texas Commission on Environmental Quality’s Small Business and Local Government Assistance section, the EnviroMentor program connects

volunteer mentors with small businesses or local governments. The EnviroMentors are qualified professionals, including consultants, engineers, systems operators and others who help their designated mentees by sharing technical or legal expertise on environmental issues. For more information, see [www.tceq.state.tx.us/assistance/sblga/envimntr.html](http://www.tceq.state.tx.us/assistance/sblga/envimntr.html).

**3. Residential and Commercial Building Energy Audits: Entities may support the conduct of residential and commercial building energy audits.\***

**4. Financial Incentive Programs: Entities may establish financial incentive programs and mechanisms for energy efficiency improvements such as energy saving performance contracting, on-bill financing, and revolving loan funds.**

\*DOE suggests audits, retrofits and incentives as eligible activities. As many programs incorporate multiple elements, we have chosen to present them together.

## Commercial Business Initiatives

### **Competitive Edge**

One path local governments can take is to partner with Energy Star to reduce energy use in public buildings and throughout the community. Energy Star provides a number of options for local governments, from tracking building energy use using their Portfolio Manager tool to taking the “Energy Star Challenge,” a pledge to improve energy efficiency in buildings by 10% or more.

- Visit the Energy Star Challenge web site to learn about how your community can take the challenge and read about current challenge participants:  
[www.energystar.gov/index.cfm?c=challenge.bus\\_challenge](http://www.energystar.gov/index.cfm?c=challenge.bus_challenge).



The Louisville “Kilowatt Crackdown” is a competition within the business district, urging building owners and operators to “take energy management to the next level.” The 2008-2009 competition includes 240 buildings that, using Energy Star’s Portfolio Manager to track building efficiency, will compete for prizes including most improved and most efficient building. The contest is a part of Louisville’s larger “Go Green Louisville” initiative. For more details see [www.louisvilleky.gov/GoGreen/metro\\_go\\_green.htm](http://www.louisvilleky.gov/GoGreen/metro_go_green.htm).

### **Audits & Direct-Install Programs: Focus on Small Businesses**

The city of **San Jose, California** partnered with Pacific Gas & Electric to provide incentives and installations of energy efficiency measures to more than 600 small businesses, which saved more than 1,163 kW of energy.<sup>3</sup> Through the RightLights program, small businesses receive free energy assessments, including instant rebates for targeted recommendations that can save 81% of the installed cost for lighting,

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<sup>3</sup> From US Conference of Mayors Best Practices Guide 2007: p. 49  
<http://usmayors.org/bestpractices/EandEBP07.pdf>

refrigeration, and vending equipment. The program, which can potentially reduce energy costs by 50%, recommends trained local lighting contractors, providing jobs within the community. See [www.rightlights.org](http://www.rightlights.org) for more information.

### **Building Retrofits: Incentivizing Progress**

There are several different approaches to retrofit projects:

- Elements of *equipment incentive programs* covering prescriptive and custom measures. Some programs have special features or requirements for comprehensive retrofits; others cover comprehensive projects, but have not included particular features supporting them. In some cases, these programs interact with energy analysis programs that provide financial incentives and/or technical assistance for building energy studies and project feasibility studies.
- *Standard performance contracting (or standard offer) programs* designed to encourage customers to work with energy efficiency service providers (energy service companies [ESCOs] or others). Like the conventional incentive programs just described, these programs may or may not include specific features or requirements to encourage comprehensiveness.
- *Building performance programs* that promote a whole building approach to maximize energy savings and non-energy benefits by addressing equipment upgrades, operations and maintenance (O&M) improvements, and retrocommissioning, as appropriate. While these programs tend to concentrate on building O&M, there is room for addressing comprehensive retrofit opportunities within the whole buildings approach.<sup>4</sup>

### *Equipment Incentives*



#### **Cloverdale, California**

In 2007 the Cloverdale City Council and Chamber of Commerce approved the Small Business Energy Alliance's Energy Savers Program, and began working to ensure

100% participation among the city's small businesses. Participants receive free energy audits, and significant incentives toward implementing the recommended energy efficiency improvements. Rebates include \$0.13/kWh saved up to 100% of the installed cost for lighting improvements, and \$0.18/kWh saved up to 100% of the cost of air conditioning tune-ups. For more information on the program, including success stories for area businesses, see [www.sbeaonline.com](http://www.sbeaonline.com).

#### **Austin, Texas**

The City of Austin works with municipal utility Austin Energy to offer utility customers rebates and incentive packages covering appliances, lighting systems, and envelope improvements for commercial buildings, multi-family properties, small businesses, and others under the Commercial Power Saver™ Program. See [www.austinenergy.com/Energy\\_Efficiency/commIndex.htm](http://www.austinenergy.com/Energy_Efficiency/commIndex.htm) for more information.

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<sup>4</sup> Amann, J. and E. Mendelsohn. 2005. *Comprehensive Commercial Retrofit Programs: A Review of Activity and Opportunities*. Washington, D.C.: American Council for an Energy-Efficient Economy.

## **Seattle, Washington**

Residents of Seattle, Washington benefit from a variety of energy-efficient equipment incentives through Seattle City Light, including rebates for:

- Multifamily window, insulation and lighting upgrades ([www.seattle.gov/light/Conserve/Resident/cv5\\_mfc.htm](http://www.seattle.gov/light/Conserve/Resident/cv5_mfc.htm))
- VendingMiser™ Vending Machines ([www.seattle.gov/light/Conserve/business/cv5\\_vm.htm](http://www.seattle.gov/light/Conserve/business/cv5_vm.htm))
- Commercial upgrades, including lighting fixtures, controls, HVAC equipment, transformers and more ([www.seattle.gov/light/Conserve/business/cv5\\_fi.htm](http://www.seattle.gov/light/Conserve/business/cv5_fi.htm))

### *Working with Energy Service Companies or ESCOs:*

ESCOs can work with municipalities and other entities to develop, design and arrange financing for reasonably sized energy efficiency projects. ESCOs can install, own, and maintain the necessary equipment, measure the project energy savings, and assume project risks under agreed-upon contracts. ESCO customers save money on their energy and maintenance costs, and the projects create private sector jobs. ESCOs can invest in providing comprehensive energy efficiency solutions – their compensation is often based on energy saved allowing for a pay off over a given number of years.

NAESCO, the National Association of Energy Services Companies, provides a number of municipal case studies on their web site: [www.naesco.org/resources/casestudies/default.aspx](http://www.naesco.org/resources/casestudies/default.aspx). For example, the City of Laurel, Montana is working with Johnson Controls to install new water meters as well as energy efficiency upgrades to twelve city buildings, including efficient lighting and lighting controls, programmable thermostats, improved insulation and an energy management control system.<sup>5</sup> NAESCO also provides basic information about ESCOs, and a search engine to find the right ESCO for your project: [www.naesco.org/providers/default.aspx](http://www.naesco.org/providers/default.aspx).

One area to observe is how best to create an effective relationship with an ESCO. Good contracts with ESCOs are essential and having a well crafted contract that covers the necessary areas of risk allocation and defines which entity controls the project is critically important. Municipalities should get as much information as possible on the reputation of a given ESCO, and then work with an experienced firm or professional with a track record for developing solid contracts to put together the project contract with the ESCO.

### *Additional Resources:*

- Energy Services Coalition: Provides model RFPs and contracts: [www.energyservicescoalition.org/resources/model/index.html](http://www.energyservicescoalition.org/resources/model/index.html)
- NAESCO Resources: [www.naesco.org/resources/default.htm](http://www.naesco.org/resources/default.htm)

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<sup>5</sup> [www.naesco.org/resources/casestudies/documents/City\\_of\\_Laurel.pdf](http://www.naesco.org/resources/casestudies/documents/City_of_Laurel.pdf)

## *Whole Building and Facility Projects*

### **Seattle City Light**

Seattle City Light, the city's public power resource since the early 1900s, provides a comprehensive suite of options for commercial and industrial customers interested in making their facilities more energy-efficient. As a brief glimpse, entities (businesses, manufacturers, institutions, government facilities) can receive incentives of up to 70% of the installed cost of their improvements. City Light's "Energy Smart Services" for large businesses and industrial customers cover audits, rebates and building commissioning. For small businesses, City Light offers educational materials and a "\$mart Business Program" which provides rebates for improved lighting efficiency. Overall, Seattle City Light programs have saved 10 million megawatt hours of electricity.

#### *More information about Seattle City Light programs:*

- Energy Smart Services Program Manual: includes an overview of business energy conservation services, specifications, sample forms, instructions and other information. [www.seattle.gov/light/consERVE/business/programmanual](http://www.seattle.gov/light/consERVE/business/programmanual).
- \$mart Business Program details: [www.seattle.gov/light/consERVE/business/cv5\\_sbiz.htm](http://www.seattle.gov/light/consERVE/business/cv5_sbiz.htm)
- Seattle City Light "Customer Achievements" Case Studies: [www.seattle.gov/light/consERVE/business/customerachievements](http://www.seattle.gov/light/consERVE/business/customerachievements)

#### *Beyond EECBG*

The Real Estate Roundtable and NRDC have developed a proposal to establish a program that would encourage the near term launch of large scale, deep retrofitting of private and publicly owned commercial buildings or portfolios of buildings. The program would provide an incentive to building owners for efficiency improvements based on demonstrated energy savings of no less than 20% with incentives calibrated to encourage 30% savings or greater. The Energy Star Portfolio Manager benchmarking program would be used to document and verify performance and the incentive would take the form of a rebate per square foot. A loan guarantee, proportional to the targeted energy savings level, would be established to enable upfront investment in energy efficiency projects. Partial payment of the incentive would be granted upon completion of the efficiency project and with the remainder of the incentive conditioned on verification of actual performance over a three year period. This would be another program for which initial incentives might come out of stimulus or regular budget funds, with long-term funding incorporated into climate legislation. The Real Estate Roundtable has more information in their *2009 Policy Agenda*: [www.rer.org/site/c.hsJRKYPFJrH/b.3895237/](http://www.rer.org/site/c.hsJRKYPFJrH/b.3895237/).

## Energy-Efficient Homes

*The implementation of new, effective energy efficiency programs does not require state policymakers to re-invent the wheel. The Home Performance with ENERGY STAR Program (HPwES) presents an established system of comprehensive home assessment and energy services currently utilized by 22 states. The program fosters local economic growth and provides typical energy savings of around 20 percent or more for consumers. Sponsored nationally by the U.S. EPA, the program provides technical resources and tools to state-level sponsors, which include state energy offices, utility public benefit funds, and nonprofit organizations. State-level sponsors are financially responsible for their programs and oversee the implementation of energy services by third-party contractors. HPwES promotes a comprehensive “house-as-a-system” approach, which increases energy savings and comfort by implementing a range of complementary energy efficiency measures at once. [More on why HPwES is a viable option.](#)*

### **Kansas City, Missouri**

The Kansas City Home Performance Network, a Home Performance with Energy Star program overseen by the Metropolitan Energy Center, is a great example of a city working to provide its residents with the necessary resources to improve home energy efficiency. The Network performs home systems analyses for homeowners and provides a list of Building Performance Institute-certified contractors who can carry out the home audit recommendations. Although the audits are not free, costs can be partially defrayed through a rebate for Kansas City Power and Light customers who have the audit and implement at least one of the recommendations.<sup>6</sup> For more information on this program, see [www.kcenergy.org/hpeshome.html](http://www.kcenergy.org/hpeshome.html).

### **Austin, Texas**

The City of Austin and Austin Energy work together to use Energy Star and other programs to help businesses and consumers save energy where they live and work. According to the Austin Energy [web site](#), *Austin Energy’s energy efficiency programs and offerings ... have saved more electricity than the annual output of a 500 megawatt power plant. A 500 megawatt power plant can power 50,000 homes.*

The Power Saver™ Program covers a suite of energy efficiency incentives, beyond residential retrofits:

- *Austin Energy Green Building™* – offers [consulting](#), [resources](#), and [education](#) to help customers build environmentally-sound homes and workplaces: [www.austinenergy.com/energy%20Efficiency/Programs/Green%20Building/index.htm](http://www.austinenergy.com/energy%20Efficiency/Programs/Green%20Building/index.htm)
- *Residential Power Saver™ Program* – includes free home improvements for low-income customers, peak demand management through the Power Partner Thermostat initiative, and Home Performance with ENERGY STAR™ rebates and loans for energy-efficient appliances and home envelope improvements: [www.austinenergy.com/Energy%20Efficiency/resIndex.htm](http://www.austinenergy.com/Energy%20Efficiency/resIndex.htm).

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<sup>6</sup> [http://apps1.eere.energy.gov/state\\_energy\\_program/project\\_brief\\_detail.cfm/pb\\_id=1367](http://apps1.eere.energy.gov/state_energy_program/project_brief_detail.cfm/pb_id=1367)

## Low-Income Initiatives

### ***Expanded Weatherization***

Every state has existing weatherization programs for low-income families, funded through the federal Weatherization Assistance Program (WAP). The stimulus package provided an additional \$5 billion to this program, allocated by formula. WAP enables low-income families to permanently reduce their energy bills by making their homes more energy efficient—on average, 30.5 million MBtu of energy per household is saved as a result of weatherization—a 23% reduction in primary heating fuel use, saving low income families hundreds of dollars.<sup>7</sup> Under the stimulus legislation, each qualifying home may receive up to \$6,500 in assistance for energy retrofits. WAP directs funds to states, which allocate its share of funding to local governments and jurisdictions.

### ***Community Outreach***

One of the applications of EECBG funds is a grant to nonprofits organizations for the purpose of performing energy efficiency retrofits. One idea for municipalities is to galvanize community groups, religious or interfaith groups, and others to lead the charge in performing energy audits and basic retrofits.

For example, the *Greater Washington Interfaith Power and Light* (GW IPL) organization advocates for their member groups (churches, temples, and other religious groups) to identify low-income or in-need communities in their area that the faith community has or would like to have a relationship with, and determine their interest in participating in a light bulb swap. GW IPL members can then buy discounted CFLs through the Interfaith Power and Light shop and have volunteers perform the physical swap-out of old bulbs. This not only has the potential to educate both the volunteer and the recipient of the CFL about energy efficiency, but it also saves energy and money for the recipient. Check out GW IPL's web site: [www.gwipl.org](http://www.gwipl.org) and the Interfaith Power and Light shop: [www.theregenerationproject.org/shopipl.htm](http://www.theregenerationproject.org/shopipl.htm).

### ***Green Affordable Housing***

Historically, affordable housing has been characterized by a focus on minimizing construction costs and capital investments. Unfortunately, low-quality materials and systems tend to fail in the long-run, resulting in increased building operating costs that negatively impact both owners and residents.

Until recently, there has been little incentive for developers to “go green” when planning for both commercial and residential structures – green buildings have higher initial costs, and historically the materials have been more difficult to source. There is the further issue of the split-incentive, or principal-agent problem, where the owner of the building makes decisions that affect the tenant’s energy bill and living environment. The owner does not reap the reward for increasing a unit’s efficiency, and the tenant often cannot afford nor has any incentive to make a long-term investment in the necessary upgrades.



Green Affordable Housing Program

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<sup>7</sup> [www.waptac.org/sp.asp?id=1437](http://www.waptac.org/sp.asp?id=1437)

Green buildings, despite their higher up-front costs, have lower operating and maintenance costs, and can lower energy and water bills by 20-50%.<sup>8</sup> And the payoff is not just on the utility bills – improved air quality can translate into better health, new construction creates jobs, and allows developers to learn new building techniques. Although more and more businesses and residential developers are building green today than ever before, there still exists to some extent a programmatic void in the area of multifamily housing. Multifamily buildings and manufactured homes account for more than a quarter of all US housing, and 20% of housing energy use. Eighty percent of residents in multifamily buildings are renters, and 71% of multifamily building households are low-income.<sup>9</sup>

Many cities and towns are working to address the green affordable housing issue with innovative strategies and coordinated initiatives including improved building codes, legislative efforts, and incentives. A good example of this is the City of Boston's Green Affordable Housing Partnership, a joint effort of the Department of Neighborhood Development, Boston Housing Authority, Boston Redevelopment Authority, Boston Public Health Commission, the Mayor's Office and the Environmental and Energy Services Cabinet.

- *Boston's Green Affordable Housing Program Challenges and Opportunities:*  
[www.law.nyu.edu/journals/legislation/issues/volume11number1/index.htm](http://www.law.nyu.edu/journals/legislation/issues/volume11number1/index.htm)



There are also online resources that promote green homes for low-income families, such as Green Communities ([www.greencommunitiesonline.org/local/](http://www.greencommunitiesonline.org/local/)), a project providing financial support, technical expertise, and other resources to developers, state and local governments. Green Communities must meet a number of criteria which address aspects of design, development, and operations, including:

- Integrated Design
- Site, Location and Neighborhood Fabric
- Site Improvements
- Water Conservation
- Energy Efficiency
- Materials Beneficial to the Environment
- Healthy Living Environment
- Operations and Maintenance<sup>10</sup>

Green Communities has a number of current state/local programs, including:

- **Seattle, WA:** The SeaGreen Program (launched in 2002) promotes sustainability and environmental justice by promoting green affordable

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<sup>8</sup> Journal of Legislation and Public Policy Fall 2007 Vo. 11 No. 1 – “Boston's Green Affordable Housing Program: Challenges and Opportunities” Burke, P., G. Nelson and W. Rickerson  
<http://www.law.nyu.edu/journals/legislation/issues/volume11number1/index.htm>

<sup>9</sup> ACEEE Multifamily PDF - <http://aceee.org/energy/national/multifamily.pdf>

<sup>10</sup> <http://www.greencommunitiesonline.org/tools/criteria/>

- housing. Read about the program, their rationale and resources at [www.seattle.gov/housing/SeaGreen/Default.htm](http://www.seattle.gov/housing/SeaGreen/Default.htm).
- **San Francisco, CA:** Mayor Newsom championed children's health in 2005 by mandating that city-financed affordable housing developments must meet Green Communities criteria. Read more about it here: [www.greencommunitiesonline.org/local/sf.asp](http://www.greencommunitiesonline.org/local/sf.asp).
  - **Washington, D.C.:** Private developers are required by District law to meet US Green Building Council LEED standards for commercial projects, and Green Communities Criteria for housing projects. The Washington Post covered the Council's action here: ([www.washingtonpost.com/wp-dyn/content/article/2006/12/06/AR2006120600165.html](http://www.washingtonpost.com/wp-dyn/content/article/2006/12/06/AR2006120600165.html)) and see [www.greenhome.org](http://www.greenhome.org) for additional details.

## Financing Options

A recent study<sup>11</sup> examined 18 residential efficiency financing programs in the U.S. and Canada to determine best practices and lessons learned, particularly with regard to the use of on-bill financing. The report also discusses several barriers to improving energy efficiency in homes, including transaction costs, consumer education, uncertainty of energy savings potential, split incentives, initial investment costs and specific issues with regard to low-income housing. The programs discussed include 15 existing programs and 3 terminated programs, with detailed information about each, including the financing mechanism, program goals or results. We briefly highlight three programs discussed in the report, below:

### ***Off-Bill Financing***

In 2007 the City of Cambridge, Massachusetts launched the Cambridge Energy Alliance (CEA), a non-profit organization that provides the services and financing necessary to upgrade homes and commercial buildings within the city, as well as city-owned buildings, and install renewable and combined heat and power systems. The ultimate goal is to retrofit 50% of Cambridge buildings (of all types), decreasing emissions by 10% and electricity use by 15% over a period of 5-6 years. The program arranges free audits for small residential and small commercial participants, and the majority of larger residential or commercial buildings, and uses ESCOs and utility vendors to implement retrofit projects, depending on building size. CEA offers financing via two loan options based on income level. Currently, an NSTAR program provides 0% interest loans for small residential projects. See [www.cambridgeenergyalliance.org](http://www.cambridgeenergyalliance.org) for more information.

### ***Clean Energy Municipal Financing***

The City of Berkeley, California recently instituted the Berkeley FIRST initiative ("Financing Initiative for Renewable and Sustainable Technology"). The program

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<sup>11</sup> Fuller, M. 2008. *Enabling Investments in Energy Efficiency: A Study of Energy Efficiency Programs that Reduce First-Cost Barriers in the Residential Sector*. Oakland, California. Energy and Resources Group, UC Berkeley for California Institute for Energy and Environment. [www.ucop.edu/ciee/energyeff/documents/CA\\_ResiFinancing.pdf](http://www.ucop.edu/ciee/energyeff/documents/CA_ResiFinancing.pdf)

works through a Clean Energy Municipal Financing (CEMF) plan, where property owners (both residential and commercial) pay for the cost of installed energy efficiency, solar thermal or photovoltaic measures over a twenty-year period via a line-item on their property tax bills. Although only in the pilot stage (currently solar only), eventually the program expects to cover a range of energy efficiency improvements. For more information see <http://rael.berkeley.edu/berkeleyfirst>.

### ***On-Bill Financing***

Manitoba Hydro's Power Smart Residential Loan program has been in place since 2001, and has a high loan volume in comparison to other programs reviewed in this study. Many U.S. on-bill financing programs are for renewables, however Power Smart focuses almost exclusively on energy efficiency improvements, including: insulation, ventilation, sealing air leaks, replacing windows and doors, lighting, electrical services and wiring, upgrades to heating systems, installation of heat pumps and water heaters. The program has given out 41,000 loans since 2001, a value of \$167 million dollars, the bulk of which has gone toward energy-efficient replacement doors and windows. The above-mentioned report provides a sample loan agreement that municipalities may find useful. Additional program details can be found on the Manitoba Hydro web site, at [www.hydro.mb.ca/your\\_home](http://www.hydro.mb.ca/your_home).

### **Tax Incentives**

As a complementary effort to direct federal stimulus appropriations, a number of federal-level incentives are currently in effect. For existing homes, homeowners can take tax credits of up to 30% of eligible costs (capped at \$1,500) for upgrading windows and other envelope components, and HVAC appliances such as furnaces and water heaters. Commercial building owners can apply for a tax deduction of up to \$1.80/sq foot for reducing energy costs across three building systems – lighting, HVAC and building envelope. In addition, there are incentives for builders of energy-efficient homes, for manufacturers of energy-efficient equipment and several new incentives for residential and commercial solar photovoltaic and hot water systems, small wind systems and geothermal heat pumps. For more information on federal tax incentives, visit the *Tax Incentives Assistance Project* (TIAP) at [www.energytaxincentives.org](http://www.energytaxincentives.org).

Some states and many utilities also offer incentives. The *Database of State Incentives for Renewables and Efficiency* (DSIRE) is a good source of information for state, local and utility incentives: [www.dsireusa.org](http://www.dsireusa.org).

### ***Beyond Rebates: Twist & Save***

Seattle City Light has partnered with the Energy Star “Change a Light Change the World” campaign and Seattle Climate Action Now (SeattleCAN) to make swapping incandescent bulbs for CFLs even easier for consumers. By working directly with participating retailers to offer CFLs at deeply discounted prices, Seattle avoids potential complications with coupon or rebate programs. Find out more about this innovative approach to promoting community lighting efficiency at [www.seattle.gov/light/conserv/cv5\\_lw1.htm](http://www.seattle.gov/light/conserv/cv5_lw1.htm).



#### ***Additional Resources***

- ACEEE Fact Sheet on Home Retrofits:  
[www.aceee.org/energy/national/residentialretrofits.pdf](http://www.aceee.org/energy/national/residentialretrofits.pdf) (PDF, 14 KB)
- ACEEE Fact Sheet on Buildings Training and Assessment Centers (BTACs):  
[www.aceee.org/energy/national/btac\\_policy.pdf](http://www.aceee.org/energy/national/btac_policy.pdf) (PDF, 46 KB)
- ACEEE Fact Sheet on Multifamily Housing:  
[www.aceee.org/energy/national/multifamily.pdf](http://www.aceee.org/energy/national/multifamily.pdf) (PDF, 26 KB)
- ACEEE Buildings Program: [www.aceee.org/buildings/index.htm](http://www.aceee.org/buildings/index.htm)
- DOE’s Building Technologies Program: [www1.eere.energy.gov/buildings](http://www1.eere.energy.gov/buildings)

***#5: Energy Efficiency Retrofits: Grants may be made to nonprofit organizations and governmental agencies for the purpose of retrofitting existing facilities to improve energy efficiency.***

### **Energy-Efficient Schools**

US public schools average \$250 in energy costs per student, and nearly a third of the energy consumed is used inefficiently.<sup>12</sup> By cutting energy costs, schools could pay for new teachers, new textbooks, and new technology in the classroom. Although traditional funding for the construction and operation of public schools comes from bonds and property taxes, increasingly this is supplemented by state funds. Public school green construction and energy efficiency retrofits are also excellent candidates for stimulus funds. There are a number of existing programs for towns and cities to implement, join or partner with in an effort to improve school energy efficiency. We have highlighted a few useful resources here:

#### **Collaborative for High Performance Schools**

CHPS is a national effort to impact the design, construction and operation of high performance schools – schools that are energy- and resource-efficient. CHPS offers resources to municipalities, counties, or school districts, including directories of green school building services and products, online trainings, presentations, specifications and fact sheets. Current CHPS school projects are underway from Washington to New Hampshire, and there are state-specific criteria for California,

<sup>12</sup> Schools for Energy Efficiency® [www.seeprograms.com/overview.htm](http://www.seeprograms.com/overview.htm)

Massachusetts, New York, Texas, Colorado and Washington, and a broader Northeast set of criteria as well. For more information see: [www.chps.net](http://www.chps.net).

### **Alliance to Save Energy's Green Schools Program**

The Alliance to Save Energy (ASE)'s Green Schools Program works to improve education through hands-on energy efficiency projects, and to strengthen schools by reducing energy-related costs. The program works with school districts of 5-15 schools to develop a customized teaching plan, including topics such as saving energy in school, creating energy awareness, and spreading the word about efficiency in the students' homes and in the community. The Alliance claims that schools can realize up to 25% energy savings through the program, depending on local energy costs and consumption patterns. Energy savings data from a number of northern California schools can be found on the [web site](#). The program is currently being implemented in about 200 schools all across the country, and is funded through grants from utilities, state energy offices, private foundations or energy savings performance contracts, depending on the district. For more information, see [www.ase.org/section/program/greenschl](http://www.ase.org/section/program/greenschl).



ALLIANCE TO SAVE ENERGY'S  
**Green Schools Program**  
Empowering Schools through Energy Efficiency

### **Schools for Energy Efficiency<sup>®</sup>**

Schools for Energy Efficiency<sup>®</sup> is another comprehensive K-12 program aimed at helping school districts change their energy behavior to reduce consumption and save money. SEE's goals for school districts include reducing annual energy use by 10%, achieving Energy Star recognition for building improvements, and engaging students and staff. The SEE program provides customized plans for schools, energy cost savings, and a multi-year approach for a sustainable program.

In addition, SEE provides the benefits of a national award-winning program, as they were awarded Energy Star Partner of the Year for 2007, and many of their school districts have received Energy Star awards of their own. For example, the [Austin, MN Independent School District 492](#) was named a Top Performing 2008 Energy Star Leader. This particular school district utilized comprehensive retrofit planning for all buildings; increased the focus on energy system and equipment maintenance, upgraded the lighting systems, and upgraded to Energy Star equipment where possible.

SEE currently operates in Minnesota, Louisiana and New Jersey; however their program is available to school districts nationwide. Visit them on the web at [www.seeprograms.com](http://www.seeprograms.com) for more information.

## CEE Information on Energy-Efficient Schools

The Consortium for Energy Efficiency (CEE) has put together some online resources aimed at allowing program administrators and others to share information about high-performance schools. In addition to a number of useful links and a [fact sheet](#) that makes the case for why energy efficiency in K-12 schools is a good investment. CEE also convenes biannual roundtable discussions within their membership to discuss program innovations, challenges and successes. See [www.cee1.org/com/bldgs/schools.php3](http://www.cee1.org/com/bldgs/schools.php3) for additional information.



### **Dollars and Sense**

Lights for Learning™ is a program aimed at helping educate students about energy efficiency while serving as a fundraiser. Students sell Energy Star-rated compact fluorescent light bulbs (CFLs), and then use the proceeds for classroom projects or community programs. To date, students have sold 70,000 CFLs for a profit of \$87,500, saving communities nearly 5 million dollars in energy costs.

The program is currently operating in Connecticut, where it is sponsored by Connecticut Light and Power and the United Illuminating Company, and administered by the Connecticut Energy Efficiency Fund, and in Illinois where sponsors include the Illinois Department of Commerce and Economic Opportunity, ComEd, and Ameren Illinois Utilities, and is administered by the Midwest Energy Efficiency Alliance. See [www.lights4learning.org](http://www.lights4learning.org) for details.

**6. Energy Efficiency and Conservation Programs for Buildings and Facilities: Entities may develop and implement energy efficiency and conservation programs for buildings and facilities within the jurisdiction of the entity. The range of activities includes the design and operation of the programs; the identification of the most effective methods for achieving maximum participation and efficiency rates; public education; measurement and verification protocols; and identification of energy efficient technologies.**

A number of municipalities have passed ordinances and resolutions mandating LEED certification for new city-owned buildings and green retrofits for existing public buildings. We list a few examples below:

#### ***Durham County, North Carolina***

As part of the county's commitment to cutting greenhouse gas emissions in half by 2030 (2005 baseline), the county passed a resolution establishing a new High Performance Building Policy in 2008. The resolution mandates that new city

buildings meet LEED certification levels: new public buildings of greater than 10,000 sq. feet must meet LEED Gold standards and new public buildings of 4,000-10,000 sq. feet must meet LEED Silver. In addition, building renovations of more than 25% of the existing building or upgrades to two out of three of the major building systems (HVAC, lighting, and plumbing) must also be LEED-certified.

- Durham County Resolution:  
[www.dsireusa.org/documents/Incentives/NC19R.htm](http://www.dsireusa.org/documents/Incentives/NC19R.htm).
- Durham County Greenhouse Gas Inventory and Local Action Plan information: [www.durhamnc.gov/ghg](http://www.durhamnc.gov/ghg).

### ***Los Angeles, California***

Partnering with the Los Angeles chapter of the Apollo Alliance, the LA City Council passed a “Green Building Retrofit Ordinance” in April, 2009. The measure requires all city-owned buildings larger than 7,500 square feet, or those built prior to 1978 to be retrofitted to achieve LEED-EB Silver certification or higher. The city is planning to prioritize buildings within or connected with low-income communities, such as libraries and recreation centers. In addition, the ordinance requires the city to further invest in urban communities, by establishing training programs for disadvantaged, unemployed or underemployed workers to enter the “green jobs” economy, and then hiring the new green workforce to perform the necessary retrofits. The program will not only save energy and money via the retrofit projects, but reinvests it within the community by emphasizing local purchasing, green manufacturing, and the “training pipeline.” For more information, see:

- Overview of the Ordinance: [www.greenerbuildings.com/news/2009/04/09/la-building-retrofit-boost-green-jobs](http://www.greenerbuildings.com/news/2009/04/09/la-building-retrofit-boost-green-jobs)
- Apollo Alliance Fact Sheet:  
[www.scopela.org/downloads/2009%20Apollo%20factsheet%20-%20ordinance.pdf](http://www.scopela.org/downloads/2009%20Apollo%20factsheet%20-%20ordinance.pdf)

## ***7. Development and Implementation of Transportation Programs: Entities may develop and implement programs to conserve energy used in transportation. A few examples of possible programs:***

- **Employee flex time programs**
- **Promoting use of satellite work centers**
- **Energy-efficient zoning**

### ***Largo, Florida***

The city of Largo, Florida recently modified its zoning to encourage the development of denser, mixed land-use projects. Zoning relief is provided if certain compact growth aspects of development are established and met. The city eventually hopes

to establish a concrete set of performance measures in its zoning packages that will shift the focus from sprawl to smart growth.

- For more information: “Getting to Smart Growth II: 100 More Policies for Implementation” – pp.10, [www.smartgrowth.org/pdf/gettosg2.pdf](http://www.smartgrowth.org/pdf/gettosg2.pdf)

- **Development of bike and pedestrian lanes**

- Cambridge, Massachusetts***

- The Vehicle Trip Reduction Ordinance enacted by the Cambridge City Council in 1992 called for the creation of more livable communities in the greater Cambridge area. As a result, the city established a Bicycle and pedestrian Mobility Program to encourage greater use of bicycles instead of single-occupancy vehicles as a primary mode of transport. Bike lanes are regularly created and rehabilitated to promote safe cycling throughout the city.

- For more information:  
[www.cambridgema.gov/~CDD/et/bike/bike\\_lanes.html#implanes](http://www.cambridgema.gov/~CDD/et/bike/bike_lanes.html#implanes)

- **State/Regional/Local Integrated Planning**

- San Diego Association of Governments (SANDAG)***

- The San Diego Association of Governments (SANDAG) developed a regional growth plan in 2004 that integrated land use and transportation decisions in an effort to curb sprawl and focus resources in already developing urban areas and new mixed-use, compact communities. The initiative involved the development of a regional funding program for alternative transportation options and a smart growth concept map to identify potential sites of compact communities.

- For more information:  
[www.sandag.cog.ca.us/index.asp?projectid=1&fuseaction=projects.detail](http://www.sandag.cog.ca.us/index.asp?projectid=1&fuseaction=projects.detail)

- **Incentive Programs to Reduce Use of Single Occupancy Vehicles**

- **Improvements in the Operational and System Efficiency of the Transportation System**

- **Anti-Idling Programs**

- Beaumont, Texas***

- The city of Beaumont, Texas successfully implemented a freight truck anti-idling program in collaboration with the South East Texas Regional Planning commission to address their non-attainment status in the Beaumont Port Arthur Ozone non-attainment area. 532 truck-stop electrification units were set up to reduce freight diesel consumption and the subsequent emission of carbon monoxide, nitrous oxides, particulate matter and hydrocarbons.

- For more information: [www.michigan.gov/documents/deq/deq-ess-tas-micdi-workshop-CMAQ-ProgramOverviewHandout\\_269007\\_7.pdf](http://www.michigan.gov/documents/deq/deq-ess-tas-micdi-workshop-CMAQ-ProgramOverviewHandout_269007_7.pdf)

- **Diesel Initiatives**

Additional stimulus funds are available for diesel-related transportation initiatives through the National Clean Diesel Funding Assistance Program. The following medium and heavy duty diesel emission reduction projects are eligible:

- Implementation of verified emission control technologies including retrofit devices, clean fuels and engine upgrades
- Implementation of idle reduction technologies
- Vehicle or equipment replacement

***Pueblo, Colorado***

The community of Pueblo, Colorado undertook a diesel retrofit project in 2008 targeted at reducing diesel emissions from municipal school buses. 120 buses at 2 school districts were outfitted with engine pre-heaters, diesel oxidation catalysts and advanced filtration units to minimize the emissions of health-affecting pollutants such as carbon monoxide and nitrous oxides.

- For more information on Colorado's green fleets:  
[www.betterrecycling.com/GreeningFleets/Colorado%20Clean%20Diesel%20Program%20Oct08.ppt](http://www.betterrecycling.com/GreeningFleets/Colorado%20Clean%20Diesel%20Program%20Oct08.ppt)
- For more information on the National Clean Diesel Funding Assistance Program:  
[www.epa.gov/otaq/eparecovery/prognational.htm](http://www.epa.gov/otaq/eparecovery/prognational.htm)

***8. Building Codes and Inspections: Entities may develop and implement building codes and inspection services to promote building energy efficiency.***

A number of towns and counties have established efficient energy building codes to improve on state-wide standards. There are several places to find information on municipal "best practice" building code news.

- The Building Codes Assistance Project (BCAP) provides a Policy Action Tool on their web site, <http://bcap-energy.org/node/156>, which includes several steps to strengthen local energy building codes, and examples of best practices.
- The Database of State Incentives for Renewables & Efficiency (DSIRE) lists pertinent municipality building codes under each state, at [www.dsireusa.org](http://www.dsireusa.org), under Summary Tables, Rules, Regulations & Policies (Energy Efficiency) – and click on the Building Codes table header.
- The Southwest Energy Efficiency Project (SWEET) has developed a guide to developing "Beyond Code" programs for the southwest region. SWEET also provides a number of case studies, including the City of Albuquerque's Energy Conservation Code, and information on building code best practices for Arizona and the southwest region. See [www.swenergy.org/buildingefficiency/codes/commercial/index.html](http://www.swenergy.org/buildingefficiency/codes/commercial/index.html) for details.

For additional information regarding energy efficiency building codes policy, see [www.aceee.org/buildings/codes.htm](http://www.aceee.org/buildings/codes.htm).

## **Energy Star Towns**

Some towns are fully embracing Energy Star, by passing legislation mandating Energy Star standards for all new homes. Montgomery County, Maryland, will require this of new homes starting in 2010, and a cluster of towns on Long Island passed this legislation starting in 2006. The town of Babylon on Long Island has gone a step further, creating the “Long Island Green Homes Program” which provides financial help to homeowners interested in increasing efficiency in their existing homes.

- More information on Long Island Energy Star towns: [www.longislandnn.org/energy/eshomes.htm](http://www.longislandnn.org/energy/eshomes.htm).
- NYT Article: *Where Energy Efficiency Is the Law*: [www.nytimes.com/2006/09/10/realestate/10lizo.html](http://www.nytimes.com/2006/09/10/realestate/10lizo.html)
- Long Island Green Homes Program: [www.ligreenhomes.com](http://www.ligreenhomes.com)
- Montgomery County, Maryland:
  - Announcement of code change: [www.bcap-energy.org/node/221](http://www.bcap-energy.org/node/221)
  - Washington Post article: [www.montgomerycountymd.gov/Content/infocentral/ClipFTP/01/2008/04.23.08-wp.pdf](http://www.montgomerycountymd.gov/Content/infocentral/ClipFTP/01/2008/04.23.08-wp.pdf)

## **9. Energy Distribution: Entities may implement distributed energy resource technologies that significantly increase energy efficiency.**

### **St. Paul, Minnesota**

District Energy St. Paul is the largest biomass-fueled hot water district heating system in North America. Originally developed as a pilot project to combat the energy crises of the 1970s, today District Energy provides heating to over 180 buildings and 300 single-family homes, equaling 31.1 million square feet of building space, or 80% of commercial, residential and industrial buildings in downtown St. Paul.<sup>13</sup> District Cooling St. Paul, the affiliate, serves approximately 60% of downtown buildings. Most of the hot water for District Energy comes from a biomass-fueled Combined Heat and Power (CHP) power plant, using 100% wood waste from the Twin Cities metro area. The CHP plant has reduced District Energy’s coal consumption by 70%.<sup>14</sup>

For more information on district energy systems:

- [www.districtenergy.org/what\\_is.htm](http://www.districtenergy.org/what_is.htm)
- International District Energy Association – Best Practices Guide
  - View Table of Contents: [www.districtenergy.org/Best\\_Practice\\_Guide/Contents\\_pages.pdf](http://www.districtenergy.org/Best_Practice_Guide/Contents_pages.pdf)

For information on CHP systems: [www.aceee.org/chp](http://www.aceee.org/chp).

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<sup>13</sup> [www.districtenergy.com/services/heatingfacts.html](http://www.districtenergy.com/services/heatingfacts.html)

<sup>14</sup> [www.stpaul.gov/index.asp?NID=501](http://www.stpaul.gov/index.asp?NID=501)

**10. Material Conservation Programs: Entities may implement activities to increase participation and efficiency rates for material conservation programs, including source reduction, recycling, and recycled content procurement programs that lead to increases in energy efficiency.**

One way for communities to encourage recycling is by instituting a “pay-as-you-throw” program. Generally, these programs charge residents for the amount of trash they put out on the curb, either by the bag/can or by weight. The EPA describes it thusly:



*Traditionally, residents pay for waste collection through property taxes or a fixed fee, regardless of how much—or how little—trash they generate. Pay-As-You-Throw (PAYT) breaks with tradition by treating trash services just like electricity, gas, and other utilities. Households pay a variable rate depending on the amount of service they use.<sup>15</sup>*

This program provides a different incentive for recycling – wallet-conscious residents will think twice about putting recyclable materials in with non-recyclable refuse. The EPA provides a breakdown of states with participating communities here: [www.epa.gov/epawaste/consERVE/tools/payt/states/06comm.htm](http://www.epa.gov/epawaste/consERVE/tools/payt/states/06comm.htm).

More specifically, a number of Massachusetts communities have PAYT programs already underway: [www.mass.gov/dep/recycle/reduce/paytfact.htm](http://www.mass.gov/dep/recycle/reduce/paytfact.htm). For basics on the program, including an [implementation guide](#), see: [www.mass.gov/dep/recycle/reduce/paytmuni.htm](http://www.mass.gov/dep/recycle/reduce/paytmuni.htm).

EPA has additional resources and ideas for communities to ramp up their recycling efforts: [www.epa.gov/osw/consERVE/tools/localgov/sectors/index.htm](http://www.epa.gov/osw/consERVE/tools/localgov/sectors/index.htm).

**Innovative Ideas: RecycleBank**

*The RecycleBank company helps municipalities increase recycling by rewarding households for the amount they recycle. The company identifies which households recycle and in what amounts by providing every household with a recycling container embedded with a chip that is read by the mechanical arm retrofitted onto the city's recycling truck. Households can then log onto the Web site ([www.recyclebank.com](http://www.recyclebank.com)) and see each week how much they recycled and how many points they have earned. The company compares this with looking at a bank statement. Points can be redeemed at local and national stores, or for specific brands.*

*Program participants can also see how many trees and gallons of oil were saved through their recycling efforts. According to the company, households benefit because they are rewarded for recycling, and participating towns and cities save money because they pay less to landfills.*

For information about RecycleBank and success stories from participating communities, visit <http://corporate.recyclebank.com/municipalities>.

<sup>15</sup> [www.epa.gov/epawaste/consERVE/tools/payt/index.htm](http://www.epa.gov/epawaste/consERVE/tools/payt/index.htm)

More Information on Materials Conservation:

- Container Recycling Institute: [www.container-recycling.org](http://www.container-recycling.org)
- Institute for Local Self-Reliance “Waste to Wealth”:  
[www.ilsr.org/recycling/recordsetters/index.html](http://www.ilsr.org/recycling/recordsetters/index.html)
- Municipal Composting, Yard Waste Recycling
  - Berkeley, CA: [www.ci.berkeley.ca.us/ContentDisplay.aspx?id=5606](http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=5606)
  - Scituate, MA: [www.earth911.com/blog/2009/04/08/mass-town-launches-yard-waste-recycling-program/](http://www.earth911.com/blog/2009/04/08/mass-town-launches-yard-waste-recycling-program/)

**11. Reduction and Capture of Methane and Greenhouse Gases: Entities may use grant funds to purchase and implement technologies to reduce, capture, and, to the maximum extent practicable, use methane and other greenhouse gases generated by landfills or similar waste-related sources, such as wastewater treatment plants, operations producing food waste, dairy farms and other animal operations.**

There are a number of cities already using methane capture technologies to reduce landfill emissions. ICLEI’s Local Governments for Sustainability web site ([www.iclei.org/success-stories/cool-infrastructure](http://www.iclei.org/success-stories/cool-infrastructure)) lists a number of communities in the United States which are improving waste water treatment efficiency and utilizing landfill gases.

For example, *Albuquerque, New Mexico* reduced city operations-related emissions by two-thirds from 2000-2005 in large part by capturing methane landfill gas. *Sacramento County, California* uses their captured methane to power nearly 9,000 homes. The county of *Lexington-Fayette, Kentucky* has upgraded several water treatment plants, installing low flow pumps and using biogas produced at plants to heat boilers, shrinking their costs and emissions by reducing their dependence on fossil fuels.

Another useful resource for information on reducing emissions via landfill gas can be found on the EPA’s Landfill Methane Outreach Program (LMOP) web site, at [www.epa.gov/lmop/overview.htm](http://www.epa.gov/lmop/overview.htm). A voluntary assistance program for communities and others, the program helps overcome barriers to landfill methane projects, providing technical expertise, economic feasibility advice, educational materials, networking opportunities, and information on financing options.

**12. Traffic Signals and Street Lighting: Entities may use grant funds to replace traffic signals and street lighting with energy efficient lighting technologies, including light emitting diodes; and any other technology of equal or greater energy efficiency.**

The Energy Policy Act of 2005 set new efficiency levels for traffic signals, paving the way for LED (light emitting diode) traffic lights to be implemented in towns and cities across the country. As an example, *Louisville, Kentucky* has installed more than 300 signals, and *Medford, Massachusetts* has converted all of their traffic lights to LEDs as

part of their broader climate action plan. Medford estimates that since the switch to LEDs, they save \$15,000 on annual energy costs.<sup>16</sup>

For more information on LEDs:

- The Institute of Transportation Engineers: [www.ite.org/standards/Led.asp](http://www.ite.org/standards/Led.asp).

**13. Renewable Energy Technologies on Government Buildings: Entities may use grant funds to develop, implement, and install on or in any government building of the eligible entity onsite renewable energy technology that generates electricity from renewable resources, including solar energy; wind energy; fuel cells; and biomass.**

The following are sources of information for renewable energy technologies, projects and programs:

- [DOE's Solar America Initiative: Solar Cities](#)
- [DOE's Wind Powering America](#)
- [DOE's Clean Cities program](#)
- [Database of State Incentives for Renewables & Efficiency \(DSIRE\)](#)

**14. Any Other Appropriate Activity: Entities may submit any other appropriate activity for approval in the Energy Efficiency and Conservation Strategy.**

## Community College Training Programs

### **Hudson Valley Community College**

The Workforce Development Institute of the Hudson Valley Community College offers valuable training through their Center for Energy Efficiency and Building Science (CEEBS), one of seven CEEBS-managed Energy Smart training centers throughout the State of New York. Partnering with the Building Performance Institute (BPI), the New York State Builders Association, and the New York State Energy Research and Development Authority (NYSERDA), the center offers a variety of training classes specializing in building science and focusing on whole-house diagnostics and performance. Participants are ultimately prepared for BPI certification through the Building Performance Institute, which sets the national technical standards for contractors in the performance contracting field. Jobs are provided for BPI-certified contractors through NYSERDA's Home Performance with Energy Star program.

For more information:

- CEEBS overview: [www.dps.state.ny.us/07M0548/workgroups/WGVII\\_The\\_Center\\_for\\_Energy\\_Efficiency\\_and\\_Building\\_Science.pdf](http://www.dps.state.ny.us/07M0548/workgroups/WGVII_The_Center_for_Energy_Efficiency_and_Building_Science.pdf)
- Hudson Valley Community College course offerings: [www.hvcc.edu/wdi/index.html](http://www.hvcc.edu/wdi/index.html)
- NYSERDA: [www.getenergysmart.org](http://www.getenergysmart.org)
- BPI Training information: [www.bpi.org/content/contractors/training.php](http://www.bpi.org/content/contractors/training.php)

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<sup>16</sup> From US Conference of Mayors Best Practices Guide 2007: p. 16  
<http://usmayors.org/bestpractices/EandEBP07.pdf>

**Central Carolina Community College**

This community college has offered a [Green Building and Renewable Energy program](#) since 2002 as part of the effort to train “a new workforce for the green economy.” The college is also offering a continuing education program for 2009 specifically focusing on sustainable, green programs. Classes cover green building, energy-efficient home construction, renewable energy technology, and sustainable communities. See [www.cccc.edu/ce/schedule/schedules/summer2009](http://www.cccc.edu/ce/schedule/schedules/summer2009) for class specifics.

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