

**STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION**

**Case No. 07-M-0548 – Proceeding on Motion of the Commission  
Regarding an Energy Efficiency Portfolio Standard**

**Comments by the City of New York on  
Staff Preliminary Proposal of August 28, 2007  
Concerning Fast-Track Program Implementation Strategies**

**October 15, 2007**

The City of New York (“City”) hereby offers its views concerning the “fast-track” energy efficiency programs, or those that are candidates for early adoption or expansion in New York, as described in the Preliminary Proposal for Energy Efficiency Program Design and Delivery submitted by Department of Public Service Staff (Staff) on August 28, 2007.

## **I. Initial Comments on Staff Proposal**

The City commends Staff for offering proposals that in the main appear to be thorough and well supported. The City largely agrees with the focus and program ideas behind many of the fast track recommendations and we are encouraged to see that many of these programs are candidates to go into place immediately. To achieve the goals of PlaNYC and the Governor’s “15 by 15” target, time is of the essence, and every opportunity must be pursued to achieve world-class demand side management programs and measures.

While rapid deployment of efficiency programs is critical, equally important are the program features, funding, administration and implementation of the programs. Some programs, *e.g.*, lighting retrofits, can be scaled up and expanded relatively easily, while other more complex programs such as the direct installation program may initially need to be the subject of a pilot. This balance between rapid, large-scale deployment and a smaller-scale testing period is important to achieving our longer-term goals.

As the City emphasized in its June 11 and 25 Comments to the Public Service Commission (“Commission”), reducing energy demand in New York City is essential to achieving the Governor’s “15 by 15” goal. Fully one-third of New York State’s electricity is consumed within New York City, and aggressive demand side management programs need to be geared towards this market. While some statewide programs have been successfully implemented in New York City, the density of buildings and population in the City is unlike any other part of the State. In addition, the number of efficiency programs, the size of the target audience and the complicated tenant/landlord relationships require New York City-specific solutions.

As the City has noted previously, a New York City Energy Efficiency Authority would be the best way to implement the development and administration of energy efficiency programs to meet the objectives of New York City and New York State. At a minimum, a formalized process by which administrators of downstate energy efficiency programs work in close collaboration with the City itself is critical for both fast track programs and future longer term programs. This would help in developing tailored New York City-specific programs, and also facilitate a unified and readily comprehensible message to energy users. This connection would enable marketing campaigns such as the GreeNYC outreach effort to be integrated with comparable State and utility programs.

As described in PlaNYC, the City has been, and will continue to be, actively involved in developing more stringent buildings codes for both New York City and New York State. This is yet another reason for the City to work closely with program administrators either through the New York City Energy Efficiency Authority (“NYCEEA”) or another formalized process so that incentives, training and education programs can be coordinated with current and future

mandates. Moreover, within this proceeding, proper funding must be allocated to extensive training, outreach and quality control efforts.

## **II. Specific Recommendations for Early Implementation**

### **A. Residential Energy Efficiency Programs**

#### New Building Construction – Single and Multi-family Housing (electric and gas)

The City agrees with Staff's recommendations as presented, however, to ensure maximum market penetration and comprehensiveness, financial incentives to builders and/or buyers should cover full incremental costs of high efficiency homes.

#### Statewide Residential Point-of-Sale Lighting Program (electric)

The City agrees with Staff's lighting proposal but would suggest an expansion of this effort. Any campaign focused on displacing incandescent light bulbs should also address the halogen market. Halogens are as inefficient as incandescent lamps and cannot be changed out with compact fluorescent lamps (CFLs). Many residents have halogen lamps and ignoring this area of the market now will mean that these inefficient lamps will remain even while incandescent are phased out. In addition, a certain level of quality control should exist for CFLs receiving discounts. Poor quality CFLs may dissuade customers from purchasing these products again. Therefore, as part of the lighting program, discounts should be targeted at increasing the number of high-quality CFL's available in supermarkets, hardware stores and drug stores.

#### Residential Retrofit Program (mostly gas)

Retrofits and retro-commissioning are critical to reversing the trend of rising energy consumption in New York City. By 2030, 85% of the buildings that exist today will still be in use. Therefore, improving the energy efficiency of today's building stock will provide returns well into the future.

In addition, the City would like to see energy audits that combine retro-commissioning measures with retrofits. This helps get better paybacks and deeper cuts in energy use, by using the faster payback of retro-commissioning to help pay for some longer paybacks of the retrofits. If the customer adopted all or the majority of projects that pay for themselves within 10 years, a large incentive could be offered to lower the payback period by multiple years.

#### Residential Efficient Appliances and Equipment Purchases Program

Appliances and equipment beyond those listed by Staff should also be considered in this program and/or another program targeted at appliances and equipment. Efficient room air-conditioners, clothes dryers, dishwashers and refrigerators/freezers should be targeted and given discounts or rebates.

## New York City Apartment Building Energy Efficient Program Design (electric and gas)

Of the City's roughly 3 million housing units, between 2 and 2.5 million are multifamily units. For this reason, it is critical that more of the residential programs – not just one specific multi-family program – focus on the needs of the multifamily sector. Thus far, the vast majority of effective programs for the multifamily sector have been geared toward the low income households, but more programs will be needed to address the market as a whole with adequate funding to achieve the goals of PlaNYC and “15 by 15.” In addition, a more menu-driven approach is needed to complement existing whole-building or holistic programs, in order to take into account the needs of those consumers who cannot afford to address all their energy efficiency issues simultaneously.

The City and the New York City Economic Development Corporation (“NYCEDC”) appreciate the Staff proposal to potentially administer the “New York City Apartment Building Energy Efficient Program” as described on pages 48-49 of the Staff Report. This is certainly an opportunity that NYCEDC wishes to explore further with Staff and other active parties, and ultimately submit for Commission consideration in this proceeding. The multi-family residential sector is a challenging area to address due to the thousands of individual customers that must be reached, the relatively small individual energy bills in New York City, and the split incentives between rental residents and landlords.

Funding is a crucial factor in making headway on such a residential program as described in Staff's recommendation. Suggested program features like “free low-cost measures at the individual apartment level using a ‘blitz approach’ and “customized incentive for the installation of a combined heat and power unit...or for solar installations” will require adequate funding. If NYCEDC were to undertake such a program for the New York City multifamily sector, it would be expected that funding should come from a portion of the SBC III funds (50% of which are drawn from Con Edison ratepayers, and approximately 44% of which come from City ratepayers), or an analogous funding source.

## **B. Commercial and Industrial Energy Efficiency Programs**

### New Commercial Buildings – “Whole Building Design” (electric and gas)

Staff's proposals on electric efficiency are sound. However, the City strongly recommends that the existing NYSEDA (and LIPA programs) be broadened immediately to include natural gas efficiency savings.

The NYSEDA program should feature separate prescriptive and comprehensive paths, if it does not already do so. Prescriptive incentives should be available for individual efficiency measures for those builders or customers unwilling to pursue more comprehensive efficiency upgrades. Moreover, financial incentives should cover full incremental costs, especially for comprehensive treatment. Design incentives for a project's architects and engineers should be introduced to address the principal-agent problem discussed by Staff and more emphasis on free design assistance from qualified professionals to assist the project design team should also be added.

### Commercial Lighting Rebate Program (electric)

The City agrees with Staff's fast-track recommendations regarding the Commercial Lighting Rebate Program but believes that this program needs to go well beyond just rebates. Given recent upgrades to the lighting codes that will go into effect in January 2008 and other likely upgrades to the code that will be City-specific, an intensive effort needs to be made to train lighting design professionals on the new codes and technologies. Training should include information on not only how to meet the codes but also how to maintain lighting quality. Several thousand lighting professionals (electrical engineers, architects, interior designers, lighting designers, *etc.*) will need to be trained in New York City alone. A lighting resource center in New York City, similar to one established in San Francisco should be considered. This is a center where lighting technologies can be seen, trainings can be held, and assistance in design can be given.

The City further recommends that NYSERDA offer financial incentives for other high-efficiency electric and gas equipment purchases, including motors, HVAC, and refrigeration equipment. Both prescriptive and customized incentives should be offered. Prescriptive incentives should cover all or almost all the incremental cost of high-efficiency equipment over standard-efficiency equipment. Customized incentives should be offered for specialized equipment or for equipment whose cost-effectiveness depends on site-specific conditions.

### Commercial Building Retro-commissioning

See recommendations for Residential Retrofit Program.

## **C. Cross-Cutting Program – Residential, Commercial and Industrial Sectors**

Building codes and efficiency standards are being updated and revised on both the State and local level. As Staff's recommendations state, codes and standards can help bring New York closer to our energy efficiency goals. Nevertheless, simply writing new rules will not be enough to ensure dramatic implementation and change. Enforcement, training and education are essential to taking the codes from paper to practice. Statewide adoption of greener codes and standards will require stronger enforcement measures and also widespread training for engineers, architects, equipment vendors, building owners, *etc.*

Beyond building codes and equipment standards, benchmarking for buildings that are interested in implementing efficiency measures is a service that should be provided. Benchmarking is particularly appealing to the New York City building sector because of the high degree of interest in achieving the US Green Building Council's Leadership in Energy and Environmental Design ("LEED") standard and also because benchmarking tools, like those provided by the Environmental Protection Agency, do not take into account many New York City-specific features. Creating a benchmarking tool for New York City buildings that is tied to the LEED point system would increase interest in efficiency measures, educate building owners, developers and tenants, and reduce paperwork associated with achieving a LEED-certified building.

## Appliance and Equipment Standards and Building Codes

Increased coordination and active participation in the development of equipment standards and buildings codes is critical and urgently needed. The current cycle of New York State energy code updates are themselves being fast-tracked, and will be completed in the coming months. These codes will set the stage for energy efficiency standards for years to come. Whether it is a full-time coordinator, as Staff recommends, or increased involvement by Staff or NYSERDA until such a party is founding place, increased focus and participation in the development of the New York State Energy Code is imperative.

### **III. Additional Comments**

For maximum energy savings and cost-effectiveness, direct installation programs for small business customers should pay the full installed cost of recommended measures. Doing so means the difference between 50% and 80-90% participation, based on experience by Southern California Edison. In addition, costs can be minimized and savings maximized by deploying the program geographically in stages (as opposed to opening the program immediately to all customers). This can also help alleviate reliability constraints on stressed distribution circuits.

### **IV. Gas Efficiency Programs**

While not subject to the Commission's direct jurisdiction, oil is both an energy producing fuel and a significant contributor to pollution. It therefore seems reasonable to include oil efficiency measures as part of the dialogue in this proceeding, even if other State entities must ultimately be involved to achieve our shared goals.

As part of a parallel fast-track process, the State should begin the regulatory process to lower the maximum level of sulfur in residential home heating oil and take steps to enhance oil to gas conversion programs. Currently, many buildings have the option of using No.2 heating fuel with 15 ppm sulfur rather than the standard No.2 heating fuel with 2000 ppm sulfur. This regulation can easily be changed and lead to immediate environmental benefits. Commercial and industrial buildings burning heavier No. 6 oil (capped at 3,000 ppm) that can not easily transition to No. 2 oil with 15 ppm sulfur should be targeted for oil to natural gas conversions. Heating fuel with lower sulfur content reduces operating costs for the customer, and reduces the amount of fuel consumed.

Heating oil contains high levels of sulfur, ranging from 2,000 parts per million (ppm) to as much as 10,000 ppm and also contributes a significant amount of carbon dioxide to the atmosphere when combusted. Reducing the level of sulfur in the fuel reduces the level of sulfur dioxide and particulate matter emitted when the fuel is combusted. Carbon dioxide is a well known contributor to global warming and the pollutants in oil are associated with several serious adverse health conditions. In order to maximize carbon dioxide and pollutant reductions it is necessary to convert oil burners to natural gas, and increase the use of the most efficient boilers.

Dated: October 15, 2007

Respectfully submitted,

Michael J. Delaney

Michael J. Delaney, Esq.  
Vice President – Energy  
New York City Economic  
Development Corporation

Victoria A. Simon

Victoria A. Simon  
Assistant Vice President – Energy  
New York City Economic  
Development Corporation

John J. Plunkett

John J. Plunkett  
Green Energy Economics Group, Inc.

## **Appendix I**

Market	Residential Construction	Residential HVAC		Retail Products and Appliances	Residential Retrofit				Commercial/ Industrial Construction	Commercial/ Industrial Equipment	Large/Medium Commercial/Industrial Retrofit	Small Commercial/Industrial Retrofit Program
Type	Lost-opportunity	Lost-opportunity		Lost-opportunity	Discretionary				Lost-opportunity	Lost-opportunity	Discretionary	Discretionary
Segment(s)	All	Central AC and HP	Gas furnaces and boilers	Lighting, appliances, room air conditioners	1-4 unit	Multifamily	1-4 unit	Multifamily	VA	Motors; HVAC; Lighting	Lighting, HVAC/R, motor-drive retrofits	Lighting, HVAC/R
Existing NYS Program	NYSERDA, LIPA	NYSERDA, LIPA	Keyspan, ConEd?	NYSERDA, LIPA	NYSERDA / DHCR		None		NYSERDA, LIPA	NYSERDA, LIPA	NYSERDA	NYSERDA, LIPA
Fast-track implementation strategies	Raise financial incentives to cover full incremental costs of high-efficiency homes. Develop prescriptive incentives and comprehensive incentives for menu of packages.	NYSERDA, LIPA, and gas utilities replicate New Jersey program financial incentives and efficiency requirements		Replicate Efficiency Vermont program, stressing cooperative agreements between NYSERDA/LIPA, manufacturers, and retailers to lower retail prices for premium-efficiency products. Add non-lighting products and appliances (e.g., high-efficiency refrigerator/freezers, room AC)	Increase funding to treat more customers. Increase financial incentives to landlords	Increase financial incentives for landlords, and for high-efficiency building-wide and common-area efficiency opportunities	Unsuitable for full-scale fast-track implementation in 2008		Introduce financial incentives for gas efficiency measures. Raise financial incentives to cover full incremental costs of high-efficiency buildings. Raise incentive caps. Develop prescriptive incentives and incentives for comprehensive and customized measures. Provide design incentives and increase design assistance.	Introduce financial incentives for gas efficiency measures. Expand financial incentives to target non-lighting equipment, and increase to cover full incremental costs of high-efficiency equipment.	Raise financial incentives to buy customized projects down to 18-month payback period. Introduce gas efficiency measures. Eliminate customer co-pay for feasibility analysis if recommended measures installed. Intensify marketing.	Raise financial incentives to buy projects down to 12-month payback period. Introduce gas efficiency measures. Eliminate customer co-pay for on-site audit if recommended measures installed. Intensify marketing.
Principal changes to existing programs	Additional funding; redesign	New design for non-LIPA territory		Additional funding; redesign	Additional funding		New program design needed		Additional funding; redesign	Additional funding and redesign for lighting; new design for non-	Additional funding; redesign	New design -- unsuitable for 2008 fast-track implementation
Administration	NYSERDA, except for electric utilities with existing programs (LIPA)	Coordinated implementation between NYSERDA, LIPA, gas utilities		NYSERDA, except for electric utilities with existing programs (LIPA)	No change		Electric or gas utilities (one but not both)	NYSEEA	NYSERDA, except for electric utilities with existing programs (LIPA)	NYSERDA, except for electric and gas utilities with existing programs	NYSERDA, except for LIPA and other utilities with existing programs	Utility or joint implementation with NYSERDA and NYEEA
Electric utilities	Marketing support, information, supplemental funding, except for LIPA and other utilities with existing programs											
Gas utilities	Marketing support, information, supplemental funding, except for gas utilities with existing programs											
Over-subscription	Unknown	No	Unknown	Yes	Not applicable		Unknown	Unknown	Unknown	Unknown	Unknown	No
Demonstrated effectiveness	High	High	High	High	Mixed		High	High	High	High	High	Moderate (more aggressive program design results in higher market
Funding sources	Uncommitted SBC funds; electric and gas utility supplemental funding with deferred cost recovery	Uncommitted SBC funds; electric and gas utility supplemental funding with deferred cost recovery		Uncommitted SBC funds; electric utility supplemental funding with deferred cost recovery	Uncommitted SBC funds; electric and gas utility supplemental funding with deferred cost recovery		Electric and gas utility supplemental funding with deferred cost recover					
Barriers	Funding; integration of electricity and gas efficiency options into program design	Funding; consistency of electricity and gas efficiency incentives and efficiency requirements; expansion to areas of state without existing programs		Funding; administrative coordination in unifying statewide program design, negotiating with supply chain	Funding		New program design needed; coordination and integration of electricity and gas; funding		Funding; integration of electricity and gas efficiency options into program design	Funding; consistency of electricity and gas efficiency incentives and efficiency requirements; expansion to areas of state without existing programs	Funding; integration of electricity and gas efficiency options into program design	Funding; integration of electricity and gas efficiency options into program design; delivery efficiency and effectiveness are administrative challenges because of existing supply chain limitations, lack of experience with more aggressive program designs in NY

## **Appendix II**

**Energy Efficiency Portfolio Standard Proceeding**

**Energy Efficiency Program Best Practices Case Studies for  
Fast-Track Implementation**

**Prepared for New York City / New York City Economic  
Development Corporation**

**Green Energy Economics Group, Inc.**

**October 15, 2007**

## Table of Contents

1. Residential New Construction Programs .....	12
(i) California Energy Star Homes .....	12
(ii) Built Smart (Multi-Family).....	14
2. Residential HVAC Programs.....	16
(i) WARMAdvantage and COOLAdvantage Programs .....	16
(ii) Residential Rebates .....	17
3. Retail Products and Appliances Program .....	19
(i) Residential Efficiency Products Program .....	19
(ii) Trade Professionals and Residential Lighting Programs .....	20
4. Commercial/Industrial Construction Program.....	22
(i) New Construction Program.....	22
(ii) Building Efficiency for Commercial Construction.....	23
6. Commercial/Industrial Equipment Program.....	25
(i) CA Statewide Express Efficiency .....	25
7. Large/Medium Commercial/Industrial Retrofit Program .....	28
(i) Energy Initiative.....	28

## 1. Residential New Construction Programs

### (i) California Energy Star Homes

Provider:

Pacific Gas and Electric, Southern California Edison, Southern California Gas Company, San Diego Gas & Electric Company

Geographic Scope: California

End Use Technologies:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
Rewarding collaboration with developers, energy consultants, and Home Energy Rating Systems raters.	x	x	x
Night ventilation systems to use outside air for cooling.	x	x	
Education on the benefits and design specifications of tank-less gas water heaters, a new/emerging technology that has the potential to reduce water waste by 90%.		x	x
Quality HVAC equipment, including installation and tune-up services.	x	x	
Appliance packages that include high efficiency refrigerators, clothes washers, dishwashers, and gas clothes dryers.	x	x	x
High efficiency lighting in high utilization areas.	x		
High efficiency furnaces, which account for the highest usage of natural gas in the residential sector.		x	
Ceiling, wall, and floor insulation.	x	x	x

Decision maker:

Property owners and developers of residential single and multi family homes

Supply Chain:

Developers, builders, contractors, and trade associations

Participation Method:

Builders apply prior to start of construction. Projects must implement energy efficiency measures that are at least 15% more efficient than California's Energy Efficiency Standards for New Construction (Title 24).

After approval, a project is passed along to the California Home Energy Efficiency Rating Service (CHEERS). CHEERS sets up an inspection schedule with a Home Energy Rating

System (HERS) rater. The HERS rater checks in periodically through construction process and provides final approval before a request for payment can be submitted.

Financial Incentives:

- Prescriptive rebates
- Custom rebates
- Rebates for performance services (such a HERS rater)

Sample Incentives:

Measure	Rebate Amount
Performance:	
Developer (single-family)	\$400-\$500 per unit
Developer (multi-family)	\$150-\$200 per unit
Energy Consultant	\$50 per unit
HERS Rater	\$60 per unit
Appliance:	
Hardwired High Efficacy Interior Lighting Fixtures w/ Controls	\$10 per fixture
Energy Star Refrigerators	\$50 per unit
Natural Gas Dryers	\$50 per unit

Marketing and Business Development:

The program has an extensive partnership with the Heschong Mahone Group, Inc. (HMG), which helps to offer developer rebates, verification rebates, design team rebates, design assistance, sales staff training, as well as engineering analysis of design option paybacks and energy savings. Outreach to the California Association of Building Energy Consultants (CABEC) and the American Institute of Architects (AIA) also exist.

Other methods include intranet websites, public websites, direct mail, trade publications, and direct outreach to interested parties.

Information Management:

A sophisticated system that maintains information on:

- Basic project attributes (location, square footage, contact info etc.)
- Energy efficiency performance relative to Title 24
- Incentive payments
- Legal documents, like signed agreements and applications

The depth and breadth of information allows complex analysis of savings and project completion attributes. It also streamlines and automates a range of functions, such as audit trails providing status updates to builders and maintaining audit trails.

#### Technical Assistance:

The program offers an extensive range of free classes and seminars at several locations. The classes target various sectors of the construction process, including architects/designers, contractors, suppliers, consultants, inspectors, owners, and operators.

Extensive design assistance is offered through partnerships with organizations like HMG and CABEC.

#### Delivery:

Builders, with a target incentive level of 60% of incremental costs

#### Quality Assurance:

HERS raters inspect buildings on a regular basis during the construction process. One out of every seven homes must be inspected for subdivision development.

#### Sources:

HMG's main website:

[www.h-m-g.com/multifamily/CMFNH/default.htm](http://www.h-m-g.com/multifamily/CMFNH/default.htm)

PG&E's efficient new homes website:

[www.pge.com/res/energy\\_tools\\_resources/efficient\\_new\\_homes/info\\_for\\_builders/](http://www.pge.com/res/energy_tools_resources/efficient_new_homes/info_for_builders/)

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, California Energy Star New Homes Program, R87 (Prepared by Pacific Gas & Electric)

#### (ii) Built Smart (Multi-Family)

Provider: Seattle City Lights (SCL), Washington

#### Description:

The Built Smart program has been running for over 7 years and consists of comprehensive specifications, a rigorous inspection process, and generous incentive packages meant to guide the construction of new energy efficient, multi-family homes. The program integrates best practices and rebates along with an extensive partnership with builders, architects, and developers. Build Smart offers a particularly wide range of rebates for insulating floors, ceilings, and walls, installing energy efficient windows, and even energy efficient elevators.

Marketing materials emphasize cost savings to the developers and residents of Built Smart homes. Support is available at every level from planning to execution.

Targets:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
Energy and water efficient clothes washers.	x		x
Healthy ventilation and high-efficiency thermostats.	x	x	
Long lasting, energy efficient lighting.	x		
Energy-saving windows.	x	x	
Extra insulation in floors, walls, and ceilings.	x	x	

Sample Incentives:

Measure	Rebate Amount
Hardwired exterior fixture connected to house meter and controlled by a photocell	\$30 per fixture
Energy efficient washing machine	\$50-\$100 per unit
U-30 grade windows	\$0.57-\$0.70 per square foot
R-21 insulated walls	\$0.04-\$0.10 per square foot
Built Smart inspection	\$.08 per square foot

Sources:

Seattle Built Right Website:

[www.seattle.gov/light/conserves/resident/cv5\\_bs.htm](http://www.seattle.gov/light/conserves/resident/cv5_bs.htm)

## 2. Residential HVAC Programs

### (i) WARMAdvantage and COOLAdvantage Programs

Providers:

New Jersey Utilities, New Jersey's Clean Energy Program, State of New Jersey Board of Public Utilities, State of New Jersey

Geographic Scope: New Jersey

End Use Technologies:

Technology	Targeted Resource Savings			Rebate
	Electricity	Gas	Water	
WARMAdvantage				
ENERGY STAR® Furnace		x		\$300
ENERGY STAR® Furnace w/ Electronic Commutated Motor or equivalent		x		\$400
ENERGY STAR® Boiler		x	x	\$300
COOLAdvantage				
Central Air Conditioner	x			\$300- \$400
Heat Pump	x	x		\$350- \$450

Decision maker: Residential customers of NJ utilities

Supply Chain: Contractors

Participation Method:

Rebates are provided submission of a small application and proof of purchase. The homeowner or contractor can claim the rebate.

Financial Incentives: Prescriptive rebates

Marketing and Business Development:

Newsletters, brochures, catalogs, distribution of rebate forms on site visits, and direct coordination with manufacturers and contractors

Information Management:

Third party tracking system to facilitate cooperation of various providers

Technical Assistance: Provided through contractors and brochures

Delivery: Existing supply chain

Quality Assurance:

- 10% of electrical systems have a field inspection
- 100% of geothermal devices have a field inspection

Sources:

COOLAdvantage website:

[www.njcleanenergy.com/residential/programs/cooladvantage/cooladvantage-program](http://www.njcleanenergy.com/residential/programs/cooladvantage/cooladvantage-program)

WARMAdvantage website:

[www.njcleanenergy.com/residential/programs/warmadvantage/warmadvantage](http://www.njcleanenergy.com/residential/programs/warmadvantage/warmadvantage)

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, Residential HVAC, R22 (Prepared by Pacific Gas & Electric)

(ii) Residential Rebates

Provider: Pacific Gas and Electric Company (PG&E)

Geographic Scope: PG&E service area

End Use Technologies:

Technology	Targeted Resource Savings			Rebate
	Electricity	Gas	Water	
ENERGY STAR® Qualified Room Air Conditioners	x			\$50
Air-conditioning Duct Sealing	x	x		up to \$600
ENERGY STAR® Qualified Central Natural Gas Furnaces		x		\$200-\$300
Variable Speed Motor Air Handler Systems	x	x		\$50
Whole House Fans	x	x		\$100

Decision maker: Residential customers of PG&E

Supply Chain: Contractors and retailers

Participation Method:

Rebates are provided submission of a small application and proof of purchase. The homeowner or contractor can claim the rebate

Financial Incentives: Prescriptive rebates

Marketing and Business Development:

The program successfully cooperates with big box retailers through advertising and in-store savings notifications. PG&E maintains a central website with rebate information and application forms.

#### Information Management:

- Submitted application data is stored and converted into weekly reports
- Application distribution, from mailings and internet downloads, are tracked and used as a leading indicator
- Anecdotal and statistical information is provided to retailers

Technical Assistance: Information is provided on PG&E's website

Delivery: existing supply chain

#### Quality Assurance:

- 100% of customer installed insulation have a field inspection
- 5% of contractor installed insulation have a field inspection
- Potential random inspection for other applications

#### Sources:

PG&E's residential rebates website:

[ww.pge.com/res/rebates/](http://ww.pge.com/res/rebates/)

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, CA Single Family EE Rebates HVAC, R22 (Prepared by Pacific Gas & Electric)

### 3. Retail Products and Appliances Program

#### (i) Residential Efficiency Products Program

Provider: Efficiency Vermont

Geographic Scope: Vermont

End Use Technologies:

Mostly ENERGY STAR® certified products:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
Energy efficient bulbs, fixtures, and lamps	x		
Room air conditioners	x		
Central air conditioners	x		
Dehumidifiers	x		x
Refrigerators and freezers	x		
Clothes washers	x	x	x
Forced hot air furnace with ECM fan motor	x	x	
Programmable thermostats	x	x	

Decision maker: Property owners and managers

Supply Chain: Developers, builders, contractors, and retailers

Participation Method:

Customers benefit from point of sale rebates through participating retailers, downloading coupons for participating retailers, mail-order catalogs, and ordering over the internet.

Financial Incentives: Prescriptive and point-of-sale rebates

Sample Incentives:

Measure	Rebate Amount
ENERGY STAR® room air conditioners	\$25
ENERGY STAR® refrigerators and freezers	\$25-\$40
ENERGY STAR® bulb packs	\$1.50
ENERGY STAR® clothes washers	\$50.00
Efficient lighting fixtures	\$10.00

#### Marketing and Business Development:

Regional outreach to retailers, who then stock products and provide point of purchase displays. Through a partnership with Northeast Energy Efficiency Partnership (NEEP), the program markets using TV, radio, newspaper, and press releases. A web presence offering rebates is offered through Efficiency Vermont.

#### Information Management:

The Conservation Services Group designed a system that tracks rebate information and various performance metrics, such as MWH of savings. The access to real time information and market share data is important for the flexibility of the program.

#### Technical Assistance:

Information is available on Efficiency Vermont's website and through participating retailers.

Delivery: Customers perform installation and delivery themselves

#### Quality Assurance:

No on-site inspection process. The bulk of quality assurance comes from the ENERGY STAR® product certification, which occurs upstream.

#### Sources:

Efficiency Vermont's rebate website:  
[www.energycorps.com/pages/Residential/RebateCenter/](http://www.energycorps.com/pages/Residential/RebateCenter/)

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, Residential Efficiency Products Program, R13 Prepared by Pacific Gas & Electric

#### (ii) Trade Professionals and Residential Lighting Programs

##### Providers:

Pacific Gas & Energy, Southern California Edison, and San Diego Gas and Electric

Geographic Scope: California

##### End Use Technologies:

See section 6(i) for a list of the products offered through the utilities retail alliance.

Decision maker: Property owners and operators

Supply Chain: Manufactures, retailers, and wholesalers

Participation Method:

For lighting products, the savings are passed directly through to the customers via manufacturer buy downs.

For other products vendors may either offer goods or services without taking any rebates, or may directly claim the rebates themselves. All vendors must submit participation agreements and abide by detailed PG&E guidelines before being listed as participating vendors. Those who receive rebates must ensure that the equipment is installed before submitting rebate applications.

Financial Incentives: Prescriptive rebates and manufacturer buy downs

Marketing and Business Development:

Working with upstream manufactures and downstream vendors to pass savings directly to the customer

Information Management:

Each utility tracks the progress and characteristics of prescriptive rebates, and manufactures track the number of bulbs shipped.

Technical Assistance: Outreach through vendors and the websites of utilities

Delivery: The customer purchases and installs the appliances

Quality Assurance:

All vendors must submit participation agreements and abide by detailed guidelines before being listed as participating vendors. Manufactures are required to provide proof that discounted bulbs were shipped. Vendors must prove that discounts were applied to bulbs.

Sources:

PG&E's trade professionals' website:

[www.pge.com/biz/rebates/trade\\_professionals/professionals\\_resources/index.html](http://www.pge.com/biz/rebates/trade_professionals/professionals_resources/index.html)

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, CA Statewide Residential Lighting Program, R14 (Prepared by Pacific Gas & Electric)

#### 4. Commercial/Industrial Construction Program

##### (i) New Construction Program

Provider: NSTAR Gas & Electric

Geographic Scope: Massachusetts

End Use Technologies:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
HVAC	x	x	
Lighting	x		
Water Heating		x	
High Efficiency Motors	x	x	
Building Envelope	x	x	
Refrigeration	x		

Decision maker: Non-residential developers and owners

Supply Chain:

Manufacturers, developers, wholesalers, distributors, retailers, architecture firms, and engineering firms

Participation Method:

The first method that developers can utilize is a prescriptive method, where developers choose from a menu of predetermined incentives and receive rebates upon verification of implementation.

The other method is a broader custom incentive package. Developers work closely with the utility and third parties to design and execute a substantial and complex package of energy efficiency measures. The rebates are based on the level above energy efficiency codes that the project achieves. Special incentives are in place for projects utilizing a comprehensive chiller system.

Financial Incentives:

Prescriptive and custom rebates designed to cover 75% of the incremental cost between standard and high efficiency equipment.

Marketing and Business Development:

Since most projects are large, one-on-one communication is the primary method of bringing developers into the process.

Aggressive outreach to the engineering and design community, through meetings, trade publications, and direct mail, ensure their engagement in the process.

#### Information Management:

There is a tracking system in place for required annual reports. A sophisticated system also tracks the rebate application process for prediction of future demand.

#### Technical Assistance:

Close interaction with engineering and architecture firms enables customers to incorporate design features from the very start of a project. Contractors are retained by NSTAR to facilitate with some technical assistance and analysis.

Delivery: Existing supply chain

#### Quality Assurance:

- All projects over \$1,500 receive post-project inspections
- Formal commissioning for more complex custom measures including all controls projects over \$40,000 and all projects over \$100,000

#### Sources:

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, New Construction Program, NR86 (Prepared by Pacific Gas & Electric)

#### (ii) Building Efficiency for Commercial Construction

Provider: Idaho Power

#### Description:

This year, Idaho Power has undertaken an expansion of their Building Efficiency program. The expanded program encourages integrated, responsive energy efficiency design for commercial construction projects. Buildings of any size can qualify for up to \$100,000 in rebates.

Prior to construction, the developer submits a pre-application. Idaho Power provides the qualification details and the final design is left to the developer (with the only exception being the daylight photo control incentive, which needs to be reviewed by the Integrated Design Lab (IDL)). At the end of the construction project, the developer is responsible for submitting applications for rebates along with supporting evidence.

This program provides no direct rebates for design work, but instead promotes, through generous incentives, the construction of buildings with energy management systems that respond to

varying levels of demand throughout the structure. Long-term cost benefits to the bottom-line of the finished building serve as the project's main selling point.

Targets:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
Lighting: primarily focused on reduced power density lighting, daylight photo controls, occupancy sensors, and high efficiency Exit signs.	X		
HVAC: ranging from basic high efficiency HVAC systems and units that utilize air side economizers to individually designed complex cooling systems.	X	x	x
Building Shell: utilization of reflective roof treatments and varying levels of performance windows.	X	x	
Control: implementation of energy management control systems for lighting, heating, and cooling as well as occupancy demand ventilation control systems and variable speed drives for fans, pumps, and other motors.	x	x	x

Sample Incentives:

Measure	Rebate Amount
Wall-mounted occupancy sensors, installed where not required by building code	\$25 per sensor
Custom Complex Cooling Systems	\$250 per ton of air conditioning for each point equipment coefficient of performance exceeds code requirements
Windows with a Visible Light Transmittance of 0.50 or greater	\$1 per square foot
Energy management system for light, heating, and cooling	\$0.30 per square foot of controlled floor space

Resources:

[www.idahopower.com/buildingefficiency](http://www.idahopower.com/buildingefficiency)

<http://www.uidaho.edu/idl/index.htm>

## 6. Commercial/Industrial Equipment Program

### (i) CA Statewide Express Efficiency

Providers:

Pacific Gas and Electric, Southern California Edison, Southern California Gas Company, San Diego Gas & Electric Company

Geographic Scope: California

End Use Technologies:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
Agriculture: rebates for greenhouse heat curtains, infrared film for greenhouses, low pressure sprinkler nozzles, conversion from sprinkler to drip irrigation, and wine tank insulation.	x	x	x
Appliances and General Improvement: rebates for improved attic and wall insulation, electric storage water heaters, high efficiency clothes washers, dishwashers, room air conditions, and installation of reflective film.	x	x	x
Business Computing: rebates for network PC power management software and plug load occupancy sensors.	x		
Boilers and Water Heating: rebates for commercial boilers, commercial pool heaters, direct contact water heaters, instantaneous water heaters, installation of pipe insulation, process boilers, space heating boilers, steam trap replacements, storage water heaters, and installation of tank insulation.		x	x
Food Service: rebates for various commercial ovens, fryers, refrigerators, freezers, ice machines, steam cookers, griddles, and insulated holding cabinets.	x	x	x
HVAC: rebates for advanced evaporative coolers, AFUE central natural gas furnaces, package terminal air conditioners and heat pumps, variable frequency drives for fans, and variable speed motor air handler systems.	x	x	x

Lighting: rebates for a wide range of energy efficient fixtures, lamps, accents/directional lighting, signage, and controls.	x		
Refrigeration: rebates for a range of insulation methods, energy efficient models, and controls including (but not limited to) auto-closers for reach-in cooler or freezer doors, door gaskets on glass doors, strip curtains for walk-in boxes, and new high efficiency refrigeration display cases with doors.	x		

Decision Maker: Property owners and managers

Supply Chain: Contractors, wholesalers, and distributors

Participation Method:

Customers redeem rebates by filling out a short application form and providing proof of purchase.

Financial Incentives: Prescriptive rebates

Sample Incentives:

Measure	Rebate Amount
Conversion from a high-pressure, impact-type, sprinkle system to a micro-irrigation system	\$44 per acre
Electric storage water heater	\$30 per unit
Network PC power management software	\$15 per PC
2" insulation on hot water pipes	\$3 per linear foot
Gas commercial single rack oven	\$1,000 per oven
94 AFUE central natural gas furnace	\$300 per unit
Interior 100-399 watt compact fluorescent light fixture	\$20 per fixture
Efficient evaporator fan motor	\$20 per motor

Marketing and Business Development:

The program employs four channels for marketing:

- One-on-one contact, such as customer service representatives and account executives responsible for relationship management with vendors
- Promotional materials, like brochures and bill inserts
- Delivery methods, such as direct mail, targeted emails, and conferences
- Web tools and partnerships with other organizations

Information Management:

- Real time data base to track application information managed through a central group
- Tracking system to determine the speed of fund commitments

Technical Assistance:

Utilities help smaller businesses to develop energy efficiency plans. Most of technical assistance disseminated through the web and through partnerships with vendors.

Delivery: Existing supply chain

Quality Assurance:

- 20% of applications for over \$2,500 receive a visual inspection
- All applications require telephone confirmation

Sources:

PG&E's rebate assistance website:

[www.pge.com/biz/rebates/rebates\\_assistance/index.html](http://www.pge.com/biz/rebates/rebates_assistance/index.html)

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, CA Statewide Express Energy Efficiency, NR86 (Prepared by Pacific Gas & Electric)

## 7. Large/Medium Commercial/Industrial Retrofit Program

### (i) Energy Initiative

Provider: National Grid: Massachusetts

Geographic Scope: Massachusetts

End Use Technologies:

Program	Targeted Resource Savings		
	Electricity	Gas	Water
Lighting: a wide range of systems and controls	x		
HVAC: energy management systems, differential enthalpy economizer controls, hotel occupancy sensors, and vending misers	x	x	
Compressed Air: efficient storage and compression systems	x		
Variable Frequency Drives (VFD): for air handler fans and various pumps	x		
Custom Packages	x	x	x

Decision maker:

Facilitators of medium to large commercial, industrial, or government buildings

Supply Chain:

Wholesalers, distributors, retailers, architectural firms, and engineering firms

Participation Method:

Customers can perform upgrades from a menu of prescriptive rebates, and after completing an inspection and filing invoices, receive a rebate payment.

Customers can also opt for a custom approach, which utilizes customized analysis and rebate programs. Design documents require approval before any work can begin. National Grid provides help with technical assistance, commissioning, ballast recycling, and financing.

An accelerated program, which streamlines applications and modifies rebates, is also available.

Financial Incentives:

Prescriptive and custom rebates for up to 45% of project costs

Sample Incentives:

Measure	Rebate Amount
High Intensity Fluorescent Fixtures	\$70-\$120
Hotel Occupancy Sensor	\$75 per sensor
15 - 15 Hp Variable Speed Air Compressor	\$275 per Hp
30 Hp Motor Controlled by a VFD	max \$3,300

Marketing and Business Development:

Directly marketed through seminars, training sessions, and other approaches by National Grid's account managers

Information Management:

- The central system, tied to accounts payable, tracks projects from pre-approval to approval to completion.
- Various performance metrics as well as annual goals are evaluated from this data

Technical Assistance:

National Grid provides training and technical assistance as well as cash incentives to design teams for successful implementation of energy efficient design

Delivery:

Contractors engaged by customers

Quality Assurance:

- Prescriptive measures require post-installation inspection
- Mini-commissioning for custom projects
- Custom projects over \$100k have third-party commissioning

Sources:

Best Practices Benchmarking for Energy Efficiency Summary Profile Report, CA Statewide Express Efficiency, NR12 (Prepared by Pacific Gas & Electric)

National Grid Energy Initiative website:

[www.nationalgridus.com/masselectric/business/energyeff/4\\_existing.asp](http://www.nationalgridus.com/masselectric/business/energyeff/4_existing.asp)