**Written statement of Michael Freedberg Chair, HUD Energy Task Force Director, Division of Affordable Housing Research and Technology, Office of Policy Development and Research, U.S. Department of Housing and Urban Development Hearing before the Committee on Financial Services United States House of Representatives**

**"H.R. 6078, the Green Resources for Energy Efficient Neighborhoods Act of 2008"**

**June 11, 2008**

Good morning Chairman Frank, Ranking Member Bachus, Congressman Perlmutter and distinguished members of the Committee. My name is Michael Freedberg. I Co-Chair the U.S. Department of Housing and Urban Development's (HUD) Energy Task Force, and also am Director of the Division of Affordable Housing Technology and Research in HUD's Office of Policy Development and Research. Thank you for the opportunity to testify on behalf of Secretary Preston today.

In my capacity as Chair of HUD's Energy Task Force, I have been in a position to work with every program office on a range of efforts to promote energy efficiency in HUD's housing stock. I am trained as an architect, and before coming to HUD have had extensive experience with energy efficient rehabilitation of multifamily and non-profit housing facilities. That experience demonstrated conclusively that relatively low investments in energy efficiency can yield substantial energy savings in older housing stock. Simple paybacks and returns on investment can be rapid indeed. I also initiated one of the first urban applications of solar and wind energy in New York City.

Over the past few years, HUD has initiated a comprehensive, Department-wide effort to address the key role that energy plays in housing affordability-and the potential for energy efficiency to lower the cost of homeownership and rental housing at a time of rapidly rising housing costs in some areas.

HUD's commitment to energy efficiency has been driven by five key factors: rising energy costs; the age of the existing inventory of public and assisted housing; the disproportionate burden of rising energy prices on low- and moderate-income families; the impact of energy costs on HUD's own budget; and new opportunities for increasing energy efficiency in public housing through asset management.

Let me discuss each of these items. First, rising energy costs. According to the Energy Information Administration, from 2001 to 2007 the cost of home heating nearly or more than doubled in some parts of the country: in the Midwest, natural gas users spent 77 percent more in winter heating costs in 2006-2007 than they did in 2001-2002, while Northeast heating oil users spent 112 percent more.[1] With oil at more than $130/barrel, these costs have obviously continued to rise, especially for home heating oil users in the northeast. Combined with $4/gallon gasoline on average across the country, energy costs - for both housing and transportation - are becoming a critical household expenditure.

With regard to the age of our housing stock, approximately 65 percent of public housing units were built prior to 1970. And almost half (47 percent) of these older

units are located in climate zone 2, which, with 5,500 to 7,000 Heating Degree Days, is the second coldest climate zone in the country. [2] The majority of all housing units are located in this climate zone or in zone 5, the warmest climate zone. This indicates that the majority of public housing units are located in areas with high energy demand for heating and cooling. The assisted housing stock is also older, built at a time with less attention on energy efficiency. According to the Harvard University Graduate School of Design's (GSD) Public Housing Operating Cost Study, more than 80 percent of HUD's assisted housing stock is 15 to 30 years old. [3]

Low- and moderate-income families are especially vulnerable to rising energy prices. As noted in the President's National Energy Policy, "the energy burden on low-income households, as a proportion of income, is four times greater than for other American households. Many working households accommodate large increases in energy by cutting back on other needs. However, low-income households often have more difficult choices to make." [4]

In addition to the impact of rising energy costs on individual families, HUD's own budget is directly impacted by utility costs. HUD spends an estimated $4.6 billion on energy, more than 10 percent of its budget, either directly in the form of public housing operating subsidies or indirectly through utility allowances and Section 8 contracts in assisted multifamily housing. This is an area where significant cost savings are possible, which would result in generating revenue for other important capital investments or rental assistance needs. A modest savings, for example, of just 5 percent per year could generate a savings of $1 billion over the next 5 years.

Finally, we are responding to the shifts in the policy and regulatory environment impacting federally-assisted housing. The shift to asset management in public housing provides an opportunity for housing authorities to more directly address and monitor energy costs. As documented in the Harvard University Graduate School of Design *Public Housing Operating Cost Study*, the operating fund system was not effective in encouraging energy conservation. [5] Under asset management, tracking and management of energy consumption may be enhanced as Public Housing Authorities (PHAs) will report both energy consumption and expenditures for individual projects.

**HUD's $4 Billion Energy Bill**

As I noted above, HUD spends more than $4 billion on energy-related utilities, in direct operating grants to PHAs and through Section 8 (both project- and tenant-based) utility allowances. In addition, assisted multifamily property owners report $903 million in owner-paid utilities.

Public housing consists of approximately 1.2 million units in 13,000 properties, managed by some 3,100 PHAs. Utility expenditures are tracked and reported by PHAs in the Financial Assessment Subsystem for public housing. The overall cost of utilities in public housing (including water and sewer charges) in 2006-07 totaled $1.71 billion, including an estimated $421 million that was spent through utility allowances on tenant-paid utilities. This represented approximately 22 percent of total operating expenses. Per-unit month (PUM) utility expenditures totaled $103.21, an increase of one third since 2000.

Public housing authorities spent $462 million for electricity, $353 million for natural gas, $196 million for fuel oil, and $309 million for water - all significant increases over previous years.

HUD's assisted and insured housing stock consists of approximately 2.3 million units in 31,000 properties, of which approximately 1.4 million receive project-based Section 8 rental assistance. Each year, HUD insures a significant number of new mortgages or refinances existing mortgages. HUD also provides capital grants and rental assistance for Section 202/811 housing for seniors and disabled persons each year.

According to data compiled from HUD's Online Property Integrated Information Suite (OPIIS), average owner-paid per-unit utility costs increased by 28 percent between 2000 and 2005. This increase varied from each region of the country, from a high of 39 percent for properties served by the Seattle Multifamily Regional Office and 37 percent for Detroit, to a low of 17 percent in Los Angeles and 12 percent in Fort Worth. Natural gas costs in assisted housing increased by an average of 56 percent over the same 5-year period.

In addition to funds expended on utilities in public housing, HUD spent an estimated $3.2 billion on project- and tenant-based utility allowances in 2007, including $2.5 billion for tenant-based Section 8 vouchers, and $662 million in project-based Section 8 assistance in assisted multifamily housing. The average tenant-based Section 8 utility allowance is now $1,467/year.

**Opportunities for Energy Savings**

The opportunities for energy efficiency in public and assisted housing vary widely, depending on the climate zone where the property is located, the age of the building and the type of construction, and the requirements and incentives of the HUD program involved. Nevertheless, because much of HUD-financed housing is pre-1980 housing, there are greater opportunities for energy savings in HUD-assisted buildings than in the overall housing stock.

We believe that there is substantial potential for energy savings in federally-assisted stock. A study of energy savings in single-family homes through the Department of Energy's Weatherization Assistance Program from 1993 to 2005 found that the program achieved savings of 23 percent in gas-heated single-family detached homes. [6] The Department of Energy (DOE)'s Energy Star "Home Energy Saver" program shows a 16 percent savings, as a result of installing 10 Energy Star upgrades in a single-family home. These levels of savings can be expected in single-family homes insured or assisted through HUD programs when similar products or construction techniques are used.

A study conducted by Lawrence Berkeley National Laboratory of energy retrofits in 25,000 units of multifamily housing showed that energy savings ranged from 10 to 22 percent of pre-retrofit consumption. [7] The median energy savings was 15 percent. Simple payback on energy conservation measures was 6 years in gas- or oil-heated buildings. Increasing the energy efficiency of public housing by a similar level would save PHAs as much as $165 million per year. [8] A significant portion of these savings could be achieved through relatively low-cost measures or through sound operating and management practices.

**HUD's Energy Action Plan**

A Department- wide Energy Task Force was tasked in 2002 to respond to these challenges. The Task Force identified a series of actions that HUD could undertake to address the need for energy conservation and energy efficiency in HUD's own programs. Some of these proposed actions were specific to individual programs, while others were Department-wide or interagency in scope (in partnership with the Environmental Protection Administration (EPA) and DOE).

The Department subsequently adopted an Energy Action Plan aimed at promoting energy efficiency in public and assisted housing, as well as in housing financed through a range of competitive and formula grant programs. Many of these actions have been successfully implemented, including several Department-wide actions aimed at institutionalizing energy efficiency in HUD's programs, as well as program-specific measures for each program office. As a result of these activities, awareness of energy efficiency has steadily increased among HUD's customers and partners, and we are beginning to see results in several areas.

In August 2006, as directed by Congress pursuant to Section 154 of the Energy Policy Act of 2005, HUD submitted an expanded, 25-point energy strategy for HUD's inventory of public and assisted housing, *Energy Efficiency at HUD at a Time of Change*. The Act requires us to provide Congress with a two-year update on our progress, and we will be submitting that report in August of this year. (See Attachment 1 for a list of the 25 items).

Key offices represented on the Task Force have been the Office of Policy Development and Research, the Office of Community Planning and Development, the Office of Public and Indian Housing, the Office of Housing (Single-family and Multifamily), the Office of Healthy Homes and Lead Hazard Control, and the Office of Field Policy and Management. The Task Force also includes Regional Energy Coordinators located in, or who represent, each of HUD's 10 Regional Offices.

HUD's energy strategy includes measures identified by each of the relevant program offices, as well as policy analysis and research activities. Its goal is to provide information, incentives and technical assistance to HUD's customers and partners to make informed decisions to reduce energy costs in their buildings, either in the development or design of new housing, or in the management, maintenance, or operation of existing stock.

The Department's efforts to date include providing priority rating points for energy efficiency in HUD's annual competitive grant awards; streamlining energy performance contracting in public housing; providing successful training for multifamily building managers on energy-efficient maintenance and operating practices; and strong regional efforts hosting conferences or workshops for customers and partners.

The energy strategy addresses the following topics:

- *Implement interagency partnerships with DOE and EPA***.** HUD's Energy Action Plan includes partnerships with EPA and DOE in two key areas: increased voluntary use of Energy Star products, and weatherization

assistance for low-income families.

- *Provide information, training and technical assistance to HUD customers and clients.* In the absence of new programs or funding commitments for energy efficiency, a key objective of the Action Plan has been to provide better information and training to HUD's customers and clients, and to do so in a cost-effective and coordinated way.

- *Strengthen rewards and incentives for energy efficiency.* Although requirements vary from program to program, in general HUD's incentives for encouraging energy efficiency are relatively modest. The Action Plan provides for stronger rewards and incentives for HUD's customers and clients to reduce energy costs in their buildings.

- *Strengthen energy standards and program requirements.* Where it can be accomplished cost-effectively, the Action Plan included several measures to strengthen HUD's current energy efficiency standards, and improve compliance with program regulations.

- *Strengthen the management and monitoring of HUD's energy programs.* Better coordination, organization and staffing of HUD's energy programs, both at Headquarters and in the field, key elements of the Action Plan. A number of activities have been implemented or are underway to enable HUD to track energy efficiency trends over time.

- *Support policy analysis and technology research.* While significant gains can be accomplished working within existing programs and using existing technologies, there may be a need for additional policy analysis and limited research and development of new energy efficiency technologies.

Let me take a few moments on some of the actions that are underway, and the results that we are seeing.

**Department-wide Actions**

- Bonus points for competitive grants.

Each year HUD awards approximately $2.7 billion in competitive grant awards for a wide range of housing and community development initiatives. These funds are typically awarded through its annual Super Notice of Funding Availability (SuperNOFA). For the past four years, HUD has established energy efficiency as a policy priority in the SuperNOFA, and awarded one or more competitive rating points for energy efficiency for certain programs.

Programs providing at least 1 point for energy efficiency in the FY 2007 or FY 2008 NOFAs include Section 202 Supportive Housing for the Elderly; Section 811 Supportive Housing for Persons with Disabilities; HOPE VI; Rural Housing and Economic Development; Housing Opportunities for Persons with AIDS/HIV (HOPOWA); Self-Help Homeownership Opportunities (SHOP); the Indian Community Development Block Grant; Housing Counseling; and University Partnership programs. The McKinney Act Continuum of Care awards do not provide additional points for energy efficiency or Energy Star; instead, applicants

are required to fill out a checklist as part of their application. The Department is currently considering a regulation that would establish the standard for Energy Star Qualified Homes as the minimum requirement for the SuperNOFA and other competitive grant programs.

- Training And Capacity Building

A successful four-part on-line training program sponsored by HUD's Office of Policy Development and Research was implemented in 2007. More than 2,500 people registered for one or more of the training workshops. The training provided an introduction to energy efficiency, as well as new and emerging practices, for operators, managers and developers of affordable housing projects, both single-family and multifamily. Information and technical guidance was presented by a faculty of nationally-recognized experts in building science as well as hands-on construction experts with practical experience and demonstrated success in reducing energy costs through better design and building practices.

Four topics were covered: Multifamily Building Operations and Management: Retrofit and Remodeling Strategies for Multifamily Buildings; Single Family Rehab and Retrofits: Focus on Low-Rise Buildings; Energy Star and Green Building. It is expected that proposed discussions with national intermediaries will take place in FY 2008 and FY 2009 to explore the feasibility of standard or coordinated training programs.

In addition to this Department-wide training, more specialized training has been offered at a variety of venues. Over the past nine months, training workshops for public housing authorities on energy performance contracting have been offered in Atlanta, San Francisco, Little Rock, Honolulu, New York City, Jacksonville, Denver and Boston. The Office of Native American Programs has also sponsored a series of two-day training workshops on "Creating Energy Efficient, Comfortable and Healthy Tribal Homes" in Santa Fe, Denver, Seattle, Portsmouth, and Anchorage. A national conference is scheduled later this month on this topic in Reno, NV.

Finally, the HOME program also prepared an energy training guide for Participating Jurisdictions (PJs) and Community Housing Development Organizations (CHDOs), *Building Energy Star Qualified Homes and Incorporating Energy Efficiency and 'Green Building in HOME-Funded Affordable Housing*. The first delivery of the training is scheduled for later this year.

**Community Planning and Development**

HUD's Office of Community Planning and Development (CPD) administers the HOME and Community Development Block Grant (CDBG) formula grant programs, as well as grants for homeless assistance under the McKinney Act. HUD does not have statutory authority to require recipients of HOME and CDBG formula grant funds to adopt specific energy standards. Instead, HUD encourages voluntary adoption of Energy Star Qualified Homes as the standard for CDBG and HOME new construction and gut rehabilitation.

CPD has implemented a new reporting requirement for CDBG and HOME grant recipients that requires them to report units that meet the standard for Energy

Star Qualified Homes. The first results were reported through the Integrated Disbursement and Information System (IDIS) in FY 2007. The new reporting requirement provides extremely valuable information on the extent to which CDBG and HOME funds are supporting energy efficient construction. At the same time, HUD is working to ensure that the data reported is accurate and reliable.

By the end of the year some 4,259 new homes were certified as meeting Energy Star standard, approximately 17 percent of all new HOME-funded units. The goal for 2008 is to increase that number by 10 percent. Our New England regional office has been especially successful in encouraging HOME grantees to establish Energy Star as the standard for new construction. Eighty percent of all HOME and CDBG grantees have adopted that standard for their programs in that region.

**Public and Indian Housing**

HUD provides operating subsidies and capital grants for approximately 13,000 properties, with 1.1 million public housing units. Five actions are included in HUD's energy strategy for public housing, including the following:

- Appliance Standards

The Energy Policy Act of 2005 required public housing authorities to adopt Energy Star (or FEMP-designated products) as the standard for procuring products and appliances, unless not cost-effective. Products purchased by housing authorities likely to be impacted by this provision include lighting, refrigerators, clothes washers, windows, furnaces and other products receiving the Energy Star label. [9]

Pursuant to the provision of this Act, HUD issued a Notice in 2006 requiring that housing authorities buy Energy Star appliances, unless not cost effective. HUD is also currently revising its regulations at 24 CFR Part 965 to implement this and other provisions of the Act. It is expected that the proposed rule will be published later this year.

- HOPE VI New Construction

The Energy Policy and Conservation Act of 2005 required that all HOPE VI projects be built to an energy standard that "meets or exceeds" the standards set by the 2003 International Energy Conservation Code (IECC). Subsequently, the Energy Security and Independence Act, enacted by Congress in 2007, raised the standard even further, to the 2006 IECC. HUD is currently drafting a regulation requiring that HOPE VI projects meet this minimum standard.

Energy efficiency or green building practices beyond these minimum code levels in HOPE VI projects remains a voluntary activity, to be implemented at the discretion of the sponsoring housing authority and its developer. For the past five years, HUD has included language in its Notices of Funding Availability (NOFAs) that encourages the adoption of Energy Star and other green building practices in new HOPE VI projects, and for the past four years (FY 2005-FY 2008) has provided a rating point incentive in its NOFA for energy efficiency. In addition, HUD staff has provided information on the Energy Star Builder Option Packages (BOPs), and additional information on Energy Star for New Homes during initial site visits for

new grantees.

There are several HOPE VI projects that demonstrate what is possible, either by leveraging state or local resources or by creative use of HOPE VI funds. One project, Maverick Gardens in Boston, with support from the State of Massachusetts, is an outstanding example of energy efficiency that includes a solar photovoltaic energy component, as well as cogeneration. Several HOPE VI projects in New Jersey have adopted the standard for Energy Star Qualified New Homes (using state rebates), as have additional projects in Milwaukee, Louisville, Seattle (High Point), Tacoma (Salishan), and Portland, Oregon (Liberty Village). These projects are model projects that often tap state and/or local funding to supplement the HUD HOPE VI grant.

- Benchmarking utilities

Until recently, the only energy data reported to HUD consisted of agency wide utility *expenditures*. Under the new asset management rule at 24 CFR 1990, beginning in FY 2007, public housing authorities began to report utility *consumption* data for individual properties in an automated system, the Subsidy and Grants Information System (SAGIS). Actual consumption data reported for individual properties will provide baseline information for each housing authority to monitor the results of their energy conservation programs in future years.

HUD plans to continue its benchmarking initiative as part of the overall migration to asset management. In 2004, the Office of Public and Indian Housing (PIH) launched a three-year project to develop the Benchmarking Utility Consumption and Cost System (BUCCS) in accordance with 24 CFR Part 990.185(c). With EPA providing technical assistance, and after investigating benchmarking tools used worldwide, Regression Model-Based Benchmarking was determined to be the best and most practical methodology for meeting PIH's goals. The model correlates a statistically significant database of utility usage data and the corresponding physical building characteristics, to generate a benchmark against which a building's utility usage is compared.

The model now represents the largest data base of utility consumption of residential properties in the country. In 2005 a proof of concept model was developed using data for 595 buildings in HUD Regions II and III, and in 2006 this was expanded to eight HUD regions, for a total of 4,722 properties from 161 housing authorities nation-wide. We believe that this tool will enable housing authorities to quickly determine how well their properties are doing against a reliable benchmark for particular building types and climate zones.

- Energy Performance Contracting

Authorized by Congress in 1987, energy performance contracting is the primary tool available to public housing authorities for carrying out energy efficiency in public housing. An energy performance contract is an agreement with a private energy services company (ESCO) which, after performing an energy audit, provides financing for energy efficiency measures, oversees the installation of these measures, and provides long-term services, such as monitoring of energy use, training of maintenance staff, and energy education of residents. Typically, the company guarantees a certain level of savings and "shares" the savings with

the PHA. Under a performance contract, housing authorities are able to retain 100 percent of the savings for the duration of the contract (12 or more years, up to 20 years). For energy efficiency investments not financed through energy performance contracts, housing authorities can only retain only 75 percent of the savings, for no more than three years.

Several actions have been taken to strengthen the role of energy performance contracting as a key energy financing tool for housing authorities. These include: issuing a Notice implementing the provision of the Energy Policy Act of 2005 that extends the maximum term of a contract from 12 to 20 years; strengthening technical support to housing authorities; revising the relevant regulation on energy performance contracting; enabling smaller housing authorities to utilize energy performance contracts; and conducting training workshops for housing authorities. There are now a total of 154 executed energy service agreements, with another 41 for which an investment grade energy audit has been completed and the final agreement is in process.

Streamlined processing has resulted in a significant increase in the number of executed contracts, resulting in a significant increase in capital invested and annualized savings. Since 2006, the guaranteed savings of all Energy Performance contracts has increased approximately 81 percent overall. Documented energy conservation investments now total $471.6 million, representing an increase of almost $121 million (approximately 35 percent) since 2006. Guaranteed annual savings from existing Energy Performance Contracts now totals $67.9 million.

**FHA-Insured Energy Efficient Mortgages**

The Energy Efficient Mortgage (EEM) is an FHA product that has been on the books for many years that helps homeowners reduce energy costs by providing a means to finance energy improvements during time-of-sale, refinance, and rehab transactions. The Energy Efficient Mortgage allows homebuyers to borrow a minimum of $4,000 and a maximum of 5 percent (up to $8,000) of the home's appraised value to finance energy efficiency improvements at the time of purchase. In theory, cost-effective energy improvements result in lower utility bills, thereby freeing up additional household income for mortgage payments.

While Energy Efficient Mortgages were first authorized by Congress in 1987, and subsequently expanded to a national program, they remain an underutilized FHA product. While the theory behind EEM is sound (financing energy improvements through energy savings, at the time of sale), the practice has fallen far short, in part due to the difficulty of incorporating the energy elements of the mortgage into the standard underwriting/loan closing process.

Beginning in 2005, HUD implemented revised procedures to provide for more accurate reporting and tracking Energy Efficient Mortgages. The following numbers were reported for the past three years: 430 Energy Efficient Mortgages in 2005, 861 in 2006 and 1,066 in 2007.

**Multifamily Housing**

There are six actions in HUD's energy strategy that address our assisted and

insured portfolio. HUD-assisted and - insured multifamily portfolio consists of 31,808 privately-owned properties housing almost 2.4 million households. [10] Of these 1.58 million units in 22,725 properties receive project-based rental assistance, [11] a portion of which is used to pay for utilities.

Energy efficiency and green building are voluntary in HUD-insured multifamily housing. With the exception of a point provided for energy efficiency in Section 202 supportive housing for the elderly, and the Mark to Market green remodeling initiative discussed below, there are currently no HUD-provided incentives for property owners to invest in energy efficiency. However, HUD encourages property owners to incorporate energy efficiency in their new properties. Through electronic mailings, industry meetings, lender contacts, and industry training broadcasts to owners and agents of FHA- and HUD-affiliated privately-owned multifamily properties, HUD continues to make information available on, and encourage property owners to, use energy efficient measures in their properties.

HUD encourages energy efficiency by including the language noted below with each Multifamily Accelerated Processing (MAP) Team approval - the first step in a new application for mortgage insurance.

"HUD strongly recommends that new construction and rehabilitation projects utilize energy saving construction methods, mechanical systems, and appliances. In particular, those meeting Energy Star standards should be considered. Therefore, please encourage your mortgagors and developers to incorporate such energy saving approaches into their plans and specifications."

In addition, HUD encourages all Multifamily Housing offices to distribute the following with each request for withdrawal of Reserve for Replacement (R4R) funds:

"HUD encourages all requests for appliance disbursement and other disbursements from Reserve for Replacements that can exercise energy conservation to utilize energy saving devices, including Energy Star construction standards and appliances. Please explore such energy savings methods and devices in your property replacements."

**Section 202/811**

HUD Section 202/811 projects for elderly and disabled persons provide housing to many low-income households on fixed incomes. The primary incentive for efficiency in the Section 202 and 811 programs is to an added rating point for energy efficiency in the annual Notice of Funds Availability (NOFA). Of 320 applications for Section 202 and Section 811 funding in FY 2007, 263 indicated that they would include energy efficient measures.

In addition HUD's Region IX (California, Nevada, Arizona and Hawaii) launched a Multifamily Energy Efficiency Initiative, in partnership with Pacific Gas and Electric. Property owners requesting long-term renewal of federal rental assistance contracts are requested to undertake a project energy audit, and incorporate energy efficiency measures in the project refinancing, and project reserve for replacement plans. HUD is also assisting sponsors for Section 202 housing in that

region by identifying cost-effective energy efficiency improvements that can reasonably be included in their refinancing plans. HUD requests project sponsors to prioritize energy investments with payback period of five years or less, as part of the project's refinancing transactions, or alternatively in conjunction with project operating or reserve for replacement plans.

**New Incentives**

HUD's Office of Multifamily Housing convened a Task Force of field and headquarters staff to recommend incentives for increasing energy efficiency through its insured housing programs. In September 2007, FHA Commissioner Montgomery approved 13 incentives for implementation. Staff is currently identifying the regulation and handbook changes that will be required to implement the proposed reforms. The target date for concluding the implementation of these items is currently January-December 2009. We believe that these will significantly increase incentives for energy efficiency in HUD-assisted and -insured multifamily housing. (See Attachment 2)

**Field Policy and Management**

HUD's regional and field offices play a supportive role to HUD's program offices in leveraging local resources, providing information, training or technical assistance to HUD's grantees, customers or partners, and partnering with local communities in adopting energy efficiency measures in HUD-supported buildings. Regional Energy Coordinators in each of the ten regions have, as a collateral duty, the responsibility for coordinating regional efforts and providing support for local field offices. In some regions, these Coordinators have been extraordinarily successful in leveraging local resources, partnering with state and local agencies, and providing training and outreach.

***Energy Savings Results***

While HUD does not yet have portfolio-wide savings data, we were able to report energy savings in an estimated $33 million in four program areas: HOME, CDBG, energy performance contracting in public housing, and FHA-insured Energy Efficient Mortgages. No other HUD programs have reporting systems that enable tracking of energy efficiency improvements and resulting energy savings. Almost all of these savings were achieved through energy performance contracts in public housing, implemented by private Energy Service Companies (ESCOs) under contract to public housing authorities.

- A total of 1,066 Energy Efficient Mortgages were reported insured by FHA, for an estimated savings of $390,000;

- A total of 4,259 units of HOME-funded new construction projects were reported as having achieved the Energy Star label for new homes (15 percent over the 2004 International Residential Code), for an estimated savings of $1.2 million;

- A total of 125 units of CDBG-funded projects were reported as having achieved the Energy Star label, for an estimated savings of $36,875;

- A total of 32 new performance contracts were reported in FY 2007, involving a capital investment of $141.3 million and an estimated annual savings of $32.2 million.

***Green Building***

In addition to the energy efficiency measures that I've discussed so far, HUD is beginning to address a larger green building agenda through a variety of programs. The House Committee on Appropriations, in its Committee Report strongly urged HUD to expand its efforts in this area, and we are building on the work that we have initiated to address other green elements: health and indoor air quality, water conservation, siting and location, choice of materials, and renewable energy. Let me highlight some of these activities.

**Green Remodeling Initiative**

HUD initiated a "Green Initiative" in November, 2007 though its Mark-to-Market program. This voluntary pilot program offers strong financial incentives for private owners to adopt green building practices in both the rehabilitation and operation of their HUD-subsidized, federally insured multifamily properties. These include energy and water efficiency, use of recycled and local materials, improved indoor air quality, and the healthy housing approach developed by HUD's *Healthy Homes Initiative*. The Green Initiative focuses on immediate repairs, but also requires that owners commit to maintain green building principles for the next 30 to 50 years.

The incentive for property owners to "go green" is a reduced owner contribution, from 20 percent for standard construction to just 3 percent for green construction. In the first six months since the Green Initiative was introduced last fall, HUD's Office of Affordable Housing Preservation (OAHP) has begun processing more than 500 properties, totaling over 4,000 units, in the Green Initiative. Due diligence begins with the same physical assessment of each property required for all Mark-to-Market Program properties. In this assessment, professional engineers identify repairs and maintenance needed now and in the future.

Unique to the Green Initiative, the engineers also identify a green alternative for each line item, and then complete a cost-benefit analysis to determine the most cost-efficient recommendation. While the scope of repairs is all-inclusive, HUD expects to realize energy and water savings by focusing on: sealing the building envelope; increasing insulation; ensuring that heating and cooling systems are appropriately sized and are of an energy-efficient design; installing Energy Star appliances during replacement; installing Energy Star windows during replacement; using Energy Star compact fluorescent lighting; installing low-flow faucets, showerheads, and toilets; installing water and energy monitoring equipment

The Green Initiative also requires that owners adopt an Integrated Pest Management approach, which mitigates the need for pesticides, and requires owners to participate in future indoor air quality tests. The Initiative also requires ongoing monitoring of utility use, temperature, and humidity levels. This monitoring allows the tracking of savings and improvements, and also provides property management valuable operating information allowing them to address

potential problems when they arise.

### Indian Housing

As noted above, HUD's Office of Native American Programs has initiated an active training program on green building in Indian housing. One national training and five regional trainings have been held since December, 2007. Topics covered include: indoor air quality, mold, mildew, and moisture problems; insulation, exterior water management, residents' strategies, partnerships/financing; proper weatherization, renewable energy efficiency techniques. ONAP encourages tribes to utilize the variance provision in PIH Notice 2007-11 to increase Total Development Cost (TDC) limits by up to 10 percent to accommodate additional costs associate with the use of energy efficient and/or green materials. In addition, an incentive point is provided for competitive awards for the Indian Community Development Block Grant program for projects that meet Energy Star goals.

### Transportation and Location Efficiency

An increasingly important element of all green buildings is the location efficiency of the property. Most green building programs provide additional points for housing that is located at or near transit, or provides access to close-in or walkable amenities and services. This has become critical in light of the high and rising cost of gasoline. What appeared to be a good strategy for finding affordable housing - moving to farther out suburban or exurban locations where land and housing is relatively inexpensive - is not proving to be sustainable by many families, especially as gasoline costs exceed $4/gallon. On average, Americans spend more than half of their incomes (52 percent) on housing and transportation. The average American household spends approximately 18 percent of its annual income on transportation - and low income families spend as much as a third.

One approach to lowering the combined cost of housing and transportation is to expand housing opportunities adjacent to transit. Transit-oriented development presents unique opportunities for creating housing in proximity to public transportation, and to address the zoning, land use and financing issues that affordable housing developers typically encounter when developing mixed-use or mixed-income housing projects.

In its Joint Explanatory Statement issued with the FY 2008 Consolidated Appropriations Act, the House-Senate Conference, Congress tasked FTA and HUD to continue and expand its work in this area. Specifically, the Conference directed HUD and FTA to convene and interagency Working Group, and to:

...develop a best practices manual which will serve to assist communities as they seek to establish mixed-income transit-oriented development. FTA and HUD should also jointly report back to the House and Senate Committees on Appropriations within six months of enactment, on new ways FTA and HUD can better coordinate transportation and housing programs to promote affordable housing near transit. [12]

HUD and FTA have created an interagency Working Group as directed by

Congress, and will be submitting a report to later this month on ways that HUD and FTA can better coordinate transportation and housing programs. One of the actions that can be undertaken is to explore the feasibility of location efficient mortgages, and to assess the application of a transportation-housing index, that addresses the combined cost of housing and transportation for working families.

**Office of Healthy Homes and Lead Hazard Control**

The Office of Healthy Housing and Lead Hazard Control, by its mandate, promotes green building practices by focusing on lead hazard abatement, and providing demonstration grants that focus on improving indoor air quality and reducing health hazards in the home.

**Research and Development**

The Office of Policy Development and Research has undertaken a number of research studies on green building practices. The Partnership for Advancing Technology in Housing (PATH) has demonstrated or supported field evaluations of a number of energy efficient and/or green technologies. In the existing homes arena, the PATH program supported the initial development of protocols for energy, efficient green remodeling of existing homes. In addition, research into appropriate standards for clean-up of brownfields for affordable housing development has been conducted. A forum on this subject is scheduled at HUD tomorrow, June 12. However, these R&D activities have been constrained by limited Research and Technology (R&T) funds.

Mr. Chairman, I hope that this gives you a good overview of the challenges that we are facing as we address green building and energy efficiency in HUD-assisted properties, and what we are doing to address this critically important issue. We are still in the process of reviewing the particulars of H.R. 6078, and will be happy to provide you with more detailed comments once that review is complete. Thank you for the opportunity to appear before the committee today.

**Attachment 1 - Measures Included in HUD's Energy Action Plan**
**As Reported to Congress, August 2006**

**Attachment 1 - Incentives Under Consideration in Multifamily Housing**

**Production - Insurance Programs**

1. Reduce application and/or inspection fees by 50 percent for properties using energy conservation techniques and/or achieving an Energy Star certification. (The current application fee is $3.00 per $1,000).
2. Extend maximum term of the mortgage for up to 50 years for a project that receives an Energy Star certification. Extending the term would result in significantly lower mortgage payments.
3. Allow installation of Energy Star products to be considered a "major building component" for determination of substantial rehabilitation in order to use 221(4) mortgage insurance, instead of 223(f). This would provide a 90 percent mortgage under 221(d)4 rather than an 85% mortgage under 223(f).
4. Place a notice in REMS (the Reserve Tracking Screen) that this project used Energy Star - future replacement much achieve, at a minimum,

comparable energy efficiency levels.

5. Create a Section 241(e) loan program to finance energy efficient systems in properties that are master-metered and are currently insured by HUD The loan will be modeled on (a)7 guidelines, and be eligible for MAP (resulting in faster processing). The allowable financing fee will be increased from 1.5% to 3% to gain lender acceptance.

**Production - Section 202 and 811**

6. Add new wording to define energy efficiency in rating Section 202/811 applications. (The point for energy efficiency is currently assigned by an A&E reviewer, based on the design architect's narrative. The new approach would ensure that existing homes or new construction projects would be required to meet specific requirements).

**Asset Management**

7. Allow for increased owner distribution by increasing the amount of the initial equity by the cost of implemented energy upgrades. Increased distributions could be accrued if funds are not available to pay the distribution in the current year.
8. Allow non-profit owners a distribution based on energy efficiency for use in furthering the housing needs of the community. (HUD would allow the cost of the energy upgrades to increase the amount of the initial equity of the property, with the appropriate distribution percentage applying to the "new" equity position.)
9. Allow the management company to share in the energy savings (for a certain period - e.g. 5 years), through the use of a "Master Plan" created by the agent and approved by HUD. (The shared savings will be achieved through a management fee add-on).
10. Encourage the use of Energy Star for replacement of lighting and appliances, through normal servicing contact with owners and agents.
11. Allow the management company to share in the savings for reduction of total utility usage. (Currently, the additional work involved in energy efficient upgrade results in a reduction cost to the project, without the rent being lowered, even if the utility costs decrease).
12. Request PD&R to work with DOE to delegate to HUD the authority to quality residents for DOE weatherization funds. (Currently, residents must provide income information to qualify for low-income weatherization, even if that information is already on file with the management company.)
13. Allow owners to pay for an energy audit from surplus cash, residual receipts, or reserve for replacements, and encourage owners to utilize recognized energy experts to conduct the audi

**1** Energy Information Administration, Short Term Energy Outlook, January 2008; Prices include taxes. Compared to a U.S average rise of 65 percent for natural gas and 114 percent for heating oil in the same time period.

**2** U.S. Department of Housing and Urban Development, Energy Expenditures in Public Housing, Report to the Senate Committee on Appropriations, June 1999. For climate zone map see www.eia.doe.gov/emeu/cbecs/climate_zones.html, as defined by the National Oceanic and Atmospheric Administration (NOAA). Each NOAA climate division is placed into one of five zones based on its 30-year average heating degree-days (HDD) and cooling degree-days (CDD) for the period 1971 through 2000. Climate Zone 2 includes many cold weather states in the mid-section of the country, from New York and

Pennsylvania in the east to Illinois, Indiana and Colorado in the Midwest and west. Climate Zone 5 includes most hot weather states.

**3** Harvard University Graduate School of Design, Public Housing Operating Cost Study, June 2003.

**4** President's National Energy Policy, May 2001.

**5** Harvard Public Housing Operating Cost Study, Final Report (June 2003) p. 77. The effect of the 75/25 split is that over 4 years, a PHA that permanently reduced its consumption below the rolling base receives a 225 percent "payback" of the equivalent of retaining the consumption savings for 2 1/4 years. After 4 plus years, the lower consumption level becomes the new rolling base and the PHA no longer benefits financially from the lower savings. The study observed that none of the housing agencies it examined had a current or ongoing process to reduce utility use or costs and that as a result, the shared savings approach alone under the funding system was not an effective incentive and did not by itself make a difference in agency behavior.

**6** Schweitzer, Martin, *Estimating the National Effects of U.S. DOE's Weatherization Assistance Program With State Level Data: A Meta Evaluation 1993-2005*,Oak Ridge National Laboratory, September 2005.

**7** Goldman, *et al*. *Retrofit Experience in U.S. Multifamily Buildings: Energy Savings, Costs and Economics*, 1988.

**8** U.S. Department of Housing and Urban Development, *Energy Expenditures in Public Housing: Current Consumption And Opportunities for Savings*, Report to the U.S. Senate Committee on Appropriations, June 1999.

**9** For full list of Energy Star labeled products and appliances, see www.energystar.gov.

**10** Office of Multifamily Housing, May 1, 2006.

**11** More recent totals from the National Housing Trust (February 2007) show 22,563 properties with 1,372,235 units receiving project-based assistance.

**12** FY 2008 Consolidated Appropriations Act, Publ. L. 110-161, Joint Explanatory Statement.

Content current as of 11 June 2008