

**Testimony of Kateri Callahan, President
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Building Energy Efficiency and Utility Energy-Efficiency Programs

Introduction

The Alliance to Save Energy is a bipartisan, nonprofit coalition of more than 100 business, government, environmental and consumer leaders. The Alliance's mission is to promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. The Alliance, founded in 1977 by Senators Charles Percy and Hubert Humphrey, currently enjoys the leadership of Senator Mark Pryor as Chairman; Duke Energy CEO Jim Rogers as Co-Chairman; and Senators Jeff Bingaman, Byron Dorgan, and Susan Collins along with Representatives Ralph Hall, Zach Wamp and Ed Markey, as its Vice-Chairs. Attached to this testimony are lists of the Alliance's Board of Directors and its Associate members.

The Alliance is pleased to testify at a hearing on policies and programs to improve the energy efficiency of buildings, in particular by encouraging utility energy-efficiency programs.

The Potential Impact of Energy Efficiency in Buildings

Natural gas prices have doubled in the last few years, and electricity prices also reached all-time highs. Including gasoline as well, recent energy price increases cost American families and businesses over \$300 billion each year. The president recognized energy security as a major issue in the State of the Union message. And the world's scientists just reaffirmed the urgent need to reduce global warming. These problems are not going to go away—electricity use in the United States is projected to grow by half by 2030. Such growth will lead to higher prices, greater volatility, and increasing dependence on foreign natural gas as well as foreign oil.

Building energy use is a major factor in these linked problems of energy prices, energy security, and global warming, and must be a major part of their solution. More than one-third of all energy used in the United States, and more than two-thirds of electricity, goes to heat, cool, and power buildings. Just over half of that is for homes, the rest for a wide variety of commercial buildings.

Great strides have been made in improving the efficiency of appliances, heating and cooling systems, equipment, and the building envelope (walls, windows, doors, and roofs). At the

same time the growing size of homes and appliances, and the growth in electronic equipment have overwhelmed the efficiency savings. An even greater savings potential remains—a 2000 study by several national labs estimated that energy-efficiency policies and programs could cost-effectively reduce U.S. energy use in residential buildings by 20 percent and in commercial buildings by 18 percent over a 20-year span, essentially reversing the growth they projected in building energy use.

A combination of several policies and programs have made a real impact on saving energy in buildings, including appliance standards, building energy codes, labeling programs, tax incentives, and research and development of new technologies—I will talk about some of these later in the testimony. But one of the most effective approaches has been utility energy-efficiency programs, and I will start with these.

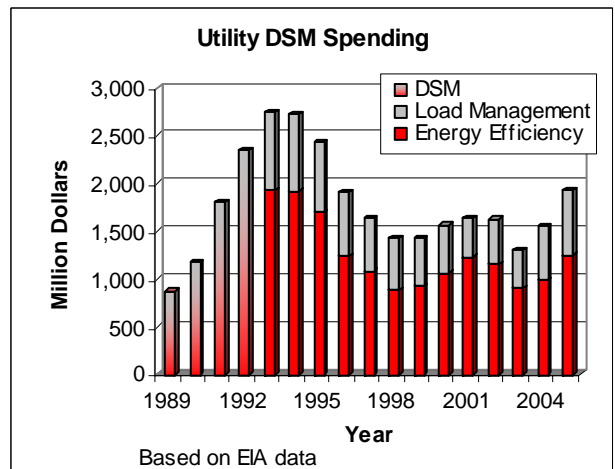
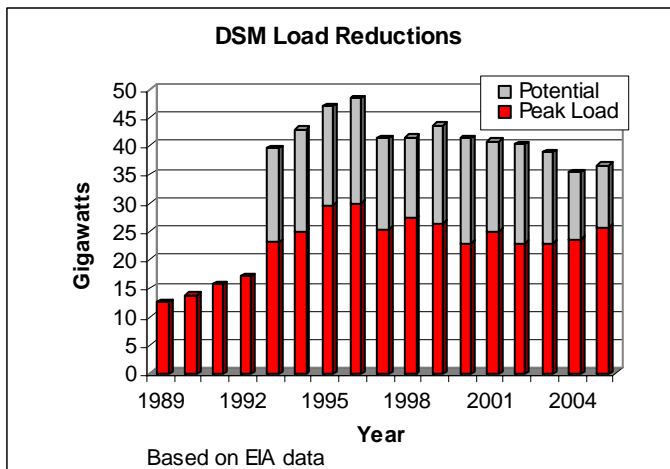
Utility Energy-Efficiency Programs

Why should utilities reduce their sales by helping their customers reduce energy consumption? Many utilities have found that helping their customers to save a kilowatt-hour of electricity is cheaper and easier than generating and delivering that kilowatt-hour. Energy efficiency is a key energy resource.

As California found out in 2001, a slight excess of demand for electricity over available supply can cause blackouts, massive price spikes, and economic turmoil. Small increases in demand have doubled retail natural gas prices nationwide over the last few years, resulting in plant shutdowns and home foreclosures. Energy-efficiency programs are the cheapest, quickest, and cleanest way to respond to these challenges. In California an aggressive campaign reduced peak electricity demand by 10% in less than one year, and thus helped avoid further shortages.

These demand-side management (DSM) programs use measures such as rebates for efficient appliances, commercial lighting retrofits, and energy audits to help their customers use less energy. The cost to the utility for the energy savings is often around 2-4 cents per kilowatt-hour (kWh), much less than the cost of generating and delivering electricity. Such efficiency investments save consumers money, increase consumer comfort, reduce air pollution and global warming, enhance economic competitiveness, and promote energy reliability and security.

Over the last two decades, states worked with regulated utilities to avoid the need for about one hundred 300-Megawatt (MW) power plants. However, utility spending on DSM programs nationwide was cut almost in half as the electricity industry was partially deregulated in the late 1990's. In the last couple years there has been a resurgence of interest



in electricity and natural gas energy-efficiency programs, with new programs in states such as Georgia and Arkansas, and added funding in leaders like California and Vermont. Some states have also chosen to run similar demand reduction programs themselves.

Utility Sector Energy-Efficiency Policies

Recommendation: Fund the Energy Efficiency Pilot Program authorized in Section 140 of the Energy Policy Act of 2005, and require states to consider adopting policies to promote utility energy-efficiency programs.

Several major new reports have focused in part on the need for new policies to promote utility energy-efficiency programs, including:

- The *National Action Plan for Energy Efficiency* brought together more than 50 organizations, co-led by Jim Rogers, who joins me on this panel. They seek “to create a sustainable, aggressive national commitment to energy efficiency through gas and electric utilities, utility regulators, and partner organizations.”
- The Western Governors’ Association Clean and Diversified Energy Initiative set an ambitious goal of a 20 percent increase in energy efficiency by 2020 in the West; the *Energy Efficiency Task Force Report* examines how to achieve it.
- The U.S. Environmental Protection Agency’s *Clean Energy-Environment Guide to Action* details many policies and practices states are adopting to manage their energy needs and air quality.
- The Department of Energy, under section 139 of the Energy Policy Act of 2005, was supposed to issue a report last August on state and regional policies that promote utility energy-efficiency programs, in consultation with the National Association of Regulatory Utility Commissioners and the National Association of State Energy Officials.

Together these reports set forth policies needed to help utilities create effective energy-efficiency programs. These policies include:

Adopt energy efficiency goals, requirements, or commitments, with reporting on progress and oversight. For example, California conducted a study of the potential savings from cost-effective energy-efficiency programs in the state, set targets for each of its regulated electric and natural gas utilities, required each utility to submit plans to meet those targets, and approved \$2 billion in funding for the planned programs over three years.

Use energy efficiency as a priority resource when planning to meet customer needs. As utilities in some regions plan to build the first new generating plants and transmission lines in years, they are showing more interest in alternatives. For example, Georgia Power in its most recent Integrated Resource Planning (IRP) process agreed to initiate the first energy-efficiency programs in a decade.

Provide robust and stable program funding. Funds can be provided as part of utility rates or through a small surcharge on utility bills (a public benefits fund or system benefits charge).

For example, Wisconsin recently increased its public benefit fund and protected it from raids to pay for state deficits.

Set rates to incentivize utilities and customers. Typically utilities earn more by selling more energy. It is important to “decouple” utility revenues from sales, or to provide utilities with performance incentives for effective energy-efficiency programs, in order to align utility benefits with customer benefits. For example, Northwest Natural, a natural gas utility in Oregon, has a “conservation tariff” that helps it promote energy savings rather than sales.

Carefully evaluate energy-efficiency programs, with measurement and verification of energy savings and appropriate cost-effectiveness tests, so all stakeholders can rely on the energy savings. For example, in Texas savings estimates used to meet the state peak load reduction requirements are verified by a contractor to the Public Utility Commission of Texas.

These policies are typically set at a state level, by public utility commissions or sometimes by state legislatures. However, as there are compelling national interests that cannot easily be addressed by individual states, federal action is needed. While most individual states are not large enough to affect the shortage of natural gas that has driven up prices, concerted federal action could have an impact. In addition, the grid failures that blackened much of the Midwest and Northeast in 2003 showed that reliability issues are not confined within state lines.

As a focus for federal policy, the energy efficiency resource has several advantages:

- It is readily available in all parts of the nation,
- It is available for direct natural gas use as well as for electricity,
- It is cost-effective today, and
- The potential savings are enormous.

The Senate recognized the potential of utility energy-efficiency programs, and the need for a federal role, in its 2005 energy bill. In addition to the required report in Section 139, Section 140 authorized \$5 million a year for five years to create state pilot programs designed to achieve 0.75% annual reductions in electricity and natural gas use. In the Senate version of the bill, Section 141 would have required state public utility commissions to consider policies to promote utility energy-efficiency programs. The Alliance urges appropriation of funds to implement Section 140, which was enacted, and thanks the Senate for including funds in its appropriations bill last year. We also strongly support enactment of Section 141. But we believe more concerted federal action is needed.

Energy Efficiency Resource Standard

Recommendation: Enact a federal energy efficiency resource standard for electric and natural gas utility energy-efficiency programs, coordinated with any renewable electricity standard.

Several states are already developing innovative policies to set performance standards for utility energy-efficiency programs alongside standards for generation from renewable sources.

Like a renewable portfolio standard (RPS), an energy efficiency resource standard (EERS) is a flexible performance-based and market-based regulatory mechanism to promote use of cost-effective energy efficiency as an energy resource. An EERS requires utilities to implement energy-efficiency programs sufficient to save a specified amount of electricity or natural gas, such as 0.75 percent of the previous year's sales. Note that an EERS is not a requirement that the utility's sales decrease in absolute terms or a limit on its sales at all; it is a performance requirement for the utility's energy-efficiency programs.

An EERS gives utilities broad flexibility about how and where to achieve the energy savings. Utilities can meet an EERS through the kinds of effective demand reduction programs that have been conducted in many states for years. They can implement their own programs, hire energy service companies or other contractors, or pay other utilities to achieve the savings by buying credits. The program savings are independently verified. Usually, the costs of the energy-efficiency programs must be recovered from energy customers through utility rates, but the savings from avoided energy supply are greater than the efficiency cost.

According to the American Council for an Energy-Efficient Economy, a national 0.75% EERS would by 2020:

- Save 386 billion kWh of electricity (8 percent of total use) and 3600 billion cubic feet of natural gas (14%) each year
- Reduce peak electric demand by 124,000 MW (avoiding about 400 power plants),
- Save consumers \$64 billion (net after investments), and
- Prevent 320 million metric tons of carbon dioxide greenhouse gas emissions each year.

An EERS and an RPS may be used in combination. Renewable and efficiency requirements reinforce each other in several ways in the states:

- *Texas* has separate renewable and efficiency requirements. The efficiency targets focus on peak demand—utilities are required to avoid 10% of the expected increase in electric peak demand through efficiency programs. They have easily exceeded these targets.
- *Connecticut* added to its RPS a separate tier under which utilities are to save 1 percent of electricity use each year through residential and commercial programs and combined heat and power. *Pennsylvania* includes energy efficiency with certain other resources in one tier of its alternative energy portfolio standards.
- *Hawaii* and *Nevada* added efficiency resources as options in their portfolio standards—with higher overall targets—after utilities claimed to have difficulty meeting renewable targets (Nevada caps the amount efficiency can contribute).
- *California* has a “loading order” that sets efficiency as the preferred resource; once cost-effective efficiency measures have been exhausted, utilities are to use renewable sources, and only then traditional sources. The PUC sets targets for utility energy-efficiency programs based on a study of their potential savings.

While there are many ways to structure an EERS, here is one approach. The EERS would apply to utilities that distribute either electricity or natural gas. Distribution utilities are regulated even in restructured markets. A size cutoff excludes very small utilities.

The EERS would have savings targets that ramp up to require new electricity savings each year equivalent to 0.75% of utility sales, and natural gas savings equivalent to 0.5% of sales. The best state energy-efficiency programs currently meet these targets.

Utilities would be allowed to achieve the required savings through a combination of customer energy-efficiency programs, customer combined heat and power, and reducing energy losses in the distribution system. Utilities also could be allowed to buy credits from other utilities, other companies with similar energy-efficiency programs, or the government. Any funds the government collects could then be reserved for state energy-efficiency programs.

The Department of Energy (DOE) would be required to issue regulations on eligible measures and on how to count the savings. States would be given the option to verify and enforce compliance or to have DOE assure compliance. Funding for the required programs would be generated from a small surcharge on utility bills, under state regulation. Under this proposed approach, it will be most important for states to set rates in a way that utilities are not financially penalized for reduced sales due to effective energy-efficiency programs.

Appliance Energy-Efficiency Standards

Recommendations for appliance efficiency standards: Strengthen appliance efficiency standards by:

- 1) adopting additional standards based on negotiated agreements,*
- 2) directing DOE regularly to review and update both test methods and standards to keep pace with rapidly changing technology, with accelerated consideration of the products with the greatest energy savings,*
- 3) clarifying DOE's authority to set standards that best serve the public interest, including multiple specifications for a single product, and regional standards,*
- 4) clarifying that federal preemption does not apply to products for which there is no federal standard, and*
- 5) providing adequate and stable funding for the DOE program.*

Appliance standards have been one of the most effective energy-efficiency programs. Standards in place today are expected to save 7 percent of U.S. electricity use and reduce greenhouse gas emissions by 65 million metric tons by 2010, and are expected to save consumers \$234 billion (this is *net* savings—after repaying any increased first-cost for more efficient appliances). Energy efficiency advocates and states have identified at least 15 appliance types with significant energy savings opportunities but no federal efficiency standards at present. Adopting efficiency standards for these 15 products alone could save 52 TWh of electricity and 340 billion cubic feet of natural gas annually by 2020, and save consumers \$54 billion in energy costs between now and 2030. Even more could be saved by updating existing federal standards.

In recent years the Alliance and other energy-efficiency advocates have focused much of our attention on lengthy delays and lack of progress at DOE in setting required appliance standards. Due to a provision in EPCA 2005—and a lawsuit—last year DOE set an explicit schedule for appliance standard rulemakings, which was later adopted in a court order. So far, they have met that schedule. However, the two new DOE-proposed standards (on distribution transformers and residential furnaces) were far weaker than we and many others believe is required by federal law, justified by DOE's own data and analysis, and needed in order to meet the energy needs of our nation.

We urge you to monitor carefully both DOE's adherence to its regulatory schedule and the actual outcome of the rulemaking process. In addition, Congress should take additional steps to strengthen the federal appliance standards and testing program and assure that it is adequately funded.

First, since EPCA 2005 we have reached additional consensus agreements with product manufacturers on new and updated standards. DOE believes it does not have the authority to adopt one of them, for residential boilers. In addition, efficiency advocates and industry groups are currently in negotiations on several other products. We urge Congress to act promptly to enact into law all negotiated agreements that are reached.

Second, at present, there is no requirement for DOE regularly to review and update all existing standards and test procedures. The existing law does require a limited number of reviews for some products, but subsequent reviews are discretionary. In addition, Congress should establish a general requirement for periodic review of all standards and test procedures every 5 to 7 years, updating them if justified, and should provide funding for DOE to maintain this schedule. In particular, DOE test methods for a number of products are seriously lagging the pace of technology development, thus preventing effective standards for those products (examples include tankless water heaters, products that use standby power even when turned "off," and many appliances with advanced electronic controls). If DOE fails to keep its standards up-to-date, Congress should consider allowing states to act to limit the demands on their energy systems from those products.

In addition, DOE has limited its schedule for setting appliance standards to congressionally mandated rulemakings with a date certain. This narrow approach has delayed consideration of some standards with the greatest potential energy savings. For example, DOE has identified furnace fans and residential refrigerators as two product standards that offer the potential for very large energy savings, but the agency has yet to even schedule these rulemakings. Congress should direct DOE to begin these two important rulemakings as soon as possible and to complete them no later than 2011.

Third, Congress should allow DOE to consider alternative approaches in setting appliance standards where these better serve the intent of the law: to maximize cost-effective energy savings. We offer several examples:

- DOE has taken a very narrow view of the statutory language regarding standards it can set. Congress should clarify that DOE may include two or more specifications for different features of the product that all contribute to energy efficiency. One example is the authority for DOE to set standards for air conditioners in terms of both average

efficiency, which reduces consumer bills, and performance during the hottest summer days, which provides added benefit by easing the strain on electric utility systems during peak demand periods. A second example is the ability to set efficiency requirements for both direct electricity use and consumption of (heated) water in the case of a dishwasher or clothes washer.

- Congress should explicitly authorize DOE to set regionally-appropriate appliance standards for climate-sensitive products such as furnaces, boilers, air conditioners, and heat pumps, since regional weather conditions can significantly affect the feasibility or cost-effectiveness of a given technology or efficiency measure. In addition, in northern states colder inlet water temperatures can greatly reduce the capacity (but not the efficiency) of certain classes of water heaters, and also affect the cost-effectiveness of some efficiency measures. The implications of these regional factors for truly comparable water heater ratings should be studied by DOE.
- In addition, expedited procedures for consideration of consensus standards proposed to DOE may speed up adoption of non-controversial standards.

Finally, Congress should make it clear that federal law does not preempt states from setting their own appliance standards, in the absence of a federal standard in place. This principle has generally been upheld in interpretation of the federal appliance standards laws, but in some cases it has been argued that the mere authority for DOE to set standards should preempt the states, even if DOE fails to exercise that authority. If DOE fails to act, or if it establishes a “no standard” federal standard, a state should be able to adopt its own energy-saving standards for that product.

Building Energy Codes

One of the most important opportunities for reducing energy use and costs is by designing and constructing a new building to be energy-efficient from the start. Every new building that is not efficient represents a lost opportunity—one that will likely be with us for another 30-50 years or longer, a time frame that will almost certainly see much higher prices and much more intense concern over energy supplies, air pollution, and greenhouse gas emissions.

There is cause for optimism in the growing interest shown by builders and developers in green buildings and rating systems such as the U.S. Green Building Council’s LEED; the bold new policy commitments to energy efficiency targets by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the American Institute of Architects, and the U.S. Conference of Mayors; and the federal government’s own commitment (in EPAAct 2005) to design new federal buildings to be 30% more efficient than current practice. But a great deal of work remains to be done. Congress can support and encourage these broader initiatives with specific actions that take best advantage of federal leverage in building codes and federal financing for home mortgages.

Recommendations for assisting state energy-efficient building codes:

- 1) *Congress should direct DOE to support a process of continuous improvement in the model energy codes for both residential and commercial buildings, targeting a 30 percent reduction in new building energy use beginning in 5 years and 50 percent savings within 10-15 years.*
- 2) *To make sure that energy codes are not just a paper exercise, Congress should fully fund the programs for state code compliance and training authorized in Section 128 of the Energy Policy Act of 2005.*

Present law requires that DOE review any updates in residential or commercial model building codes, to determine if the revision improves energy efficiency. Following that determination, each state is required to review and, for commercial buildings, update its own building code to meet or exceed the model code. However, there is no penalty for a state that fails to comply.

Two changes are needed. First, DOE should set a goal for continuous improvement of the model building codes. Rather than wait passively for action by others, DOE should instead take the initiative to engage with organizations such as ASHRAE and the International Code Council to advance the model codes steadily toward specific targets: 30 percent efficiency improvement beginning in 5 years, for both residential and commercial model codes, and at least 50 percent improvement in 10-15 years or less. ASHRAE has already adopted a similar goal, but there is no similar urgency for residential buildings, and it is hard to move diverse, consensus-based organizations to take ambitious action. DOE support is needed both for technical underpinnings and to represent the national interest in reduced energy use and greenhouse gas emissions.

Second, the federal government should adopt stronger incentives to assure state action in updating and achieving full compliance with the energy codes. States should be required to adopt strong codes for residential as well as commercial buildings. And in a recent review of residential energy code compliance studies from a dozen states, compliance rates were found to vary widely, but the average was far below 100 percent, and typically closer to 40 to 60 percent. A number of studies have pointed to the constraints, including staff time and expertise, facing many local code enforcement agencies in making sure that energy code requirements are met, both at the design and permit stage, and in verifying actual construction and installation practices on-site.

The code compliance program authorized under Section 128 of EPAct 2005 is a small but important step toward providing an incentive for states to adopt and enforce up-to-date energy codes; it should be fully funded. In addition, DOE has not made the required determination of energy savings on any recent code updates: the 2003, 2004, or 2006 residential IECC or the 2001 or 2004 ASHRAE commercial standard. Congressional oversight is needed to ensure DOE meets its important duty.

Recommendations for federal standards for manufactured homes and buildings funded by the federal government:

- 1) *Congress should require HUD to strengthen the national energy efficiency standards for manufactured housing to the same levels required by the model building code for site-built homes.*

- 2) *Congress should require that federally insured mortgages be available only for homes that meet or exceed model energy efficiency codes.*
- 3) *Congress should require that all DoD Privatized Military Housing not yet constructed be designed to meet or exceed the current efficiency levels for an Energy Star home.*

About one in 12 new homes in the United States is a manufactured housing unit (147 million in 2005). Because these homes are factory-produced with many standardized components, manufactured housing units should be inherently more energy-efficient than their site-built counterparts. For example, it is much easier and more cost-effective to achieve an air-tight duct system in the factory than on a construction site. Instead, manufactured homes are generally much less efficient than site-built homes, due to poorly insulated walls and roof, single-pane windows, and inefficient heating and cooling systems. A 2004 Pacific Northwest National Laboratory report found that improving the energy efficiency of a manufactured home, not even to the current IECC, would save an average of \$150-\$180 per year. The initial cost would be about \$1000 to \$1500.

Congress directed that the manufactured housing efficiency standards be based on life-cycle cost analysis, but HUD, which is responsible for adopting the Manufactured Housing Construction and Safety Standards (MHCSS), has not updated these standards to keep up with changing energy prices and advances in energy-saving materials and equipment. As a result, the “HUD-code” standards are now well below the comparable energy efficiency code requirements for new site-built homes. For example, a new manufactured home built for Minnesota today is required to have only as much wall insulation as a site-built home in Miami—and the ceiling and floor insulation levels required by HUD code for that Minnesota manufactured home wouldn’t even meet the site-built model code requirements for Miami.

Many of these manufactured units are sold to low and moderate income families – those who can least afford to pay the rising utility bills for gas, electricity, and in some cases propane heating. And often taxpayers end up subsidizing the ongoing costs to operate these inefficient housing units through the Low-Income Home Energy Assistance Program (LIHEAP) or through the Low-Income Weatherization Assistance Program, which helps pay for energy-saving retrofits. It is far easier and cheaper to make these manufactured homes more efficient in the first place.

To qualify for a federally insured mortgage, a new home should be required to meet or exceed the efficiency levels of the model energy code (currently the 2006 IECC). This will assure that federal taxpayer funds are not used to underwrite inefficient new homes with higher utility bills – a different kind of hidden, long-term “mortgage.” Updated standards would affect a lot of housing: a 2003 U.S. Census Bureau survey found, for homes constructed in the previous four years, 486,000 FHA mortgages, 225,000 VA mortgages, 29,000 USDA mortgages, and 38,000 public housing units.

Current law requires HUD and the Department of Agriculture (USDA) to set energy-efficiency standards for:

- Public and assisted housing,

- New homes (other than manufactured homes) with mortgages insured by the Veterans Administration and Federal Housing Administration, and
- New single-family homes with mortgages insured, guaranteed or made by USDA.

However, the agencies have never changed the standard from the legislated backstop of the 1992 Model Energy Code (the predecessor to the IECC) and ASHRAE Standard 90.1-1989. EPAct 2005 only required public and assisted housing with HOPE VI grants to meet the 2003 IECC.

In order to move military service members and their families out of outdated housing units, Congress authorized the Department of Defense (DoD) to enter financial partnerships with builders to construct an estimated 185,000 homes using joint funding. DoD is leasing the homes for up to 50 years, and will pay the energy bills through utility allowances to the military personnel. DoD imposes many standards on these units, and energy efficiency criteria are established for some projects, but there are no uniform energy standards applied to all Privatized Housing projects.

If these homes are built to ENERGY STAR® Homes criteria, each military family – and ultimately the federal taxpayers – will save an average of \$300 a year in energy bills. The added initial cost of Energy Star homes is about \$1,500 to \$3,000.

Energy Efficiency Tax Incentives

Recommendation for energy-efficiency tax incentives: Provide long-term extensions, with improvements, of tax incentives for highly efficient new homes, home improvements, commercial buildings, and appliances.

Other important measures to save electricity and natural gas are outside the jurisdiction of this committee. But the Alliance will not let an opportunity go by to emphasize the importance of extending and building on the tax incentives for energy-efficient new homes, home improvements and heating and cooling equipment, commercial buildings, and appliances that were in EPAct 2005. These incentives have great potential to transform markets for energy-efficient technologies, but they are in effect for too short a time. A large commercial building initiated when the bill was signed last August will not be finished before the commercial buildings deduction was set to expire in December, 2007. While it was extended late last year, a building initiated now could not be finished before the new expiration date in 2008. The Alliance strongly supports long-term extensions of the tax incentives, with some improvements that have been worked out with other stakeholders— notably a performance-based incentive for whole-home energy-efficiency retrofits that picks up where the current home improvements credit leaves off.

Increasing Energy Efficiency in Federal Facilities

When working to address inefficient energy use, the federal government needs to look no further than its own buildings to start reducing wasteful energy consumption. The Alliance to Save Energy estimates that the federal government wastes one billion dollars a year in its

buildings alone through inefficient energy use. This occurs despite long-standing executive orders and federal legislation. The problem is three-fold:

- The federal agencies do not have sufficient appropriations to make the necessary upgrades to reduce building energy use. Because of this historical problem, the unique Energy Savings Performance Contracts (ESPC) were created. With an ESPC, a federal agency can contract with a private energy service company to have the facility efficiency improved without any up-front cost to the federal taxpayer because the contractor pays the initial cost and is repaid out of guaranteed energy savings provided by the improvements. Unfortunately, this program authority lapsed in 2003-2004, and, while now reinstated, agencies are not taking full advantage of these contracts, leaving needed improvements lingering.
- The federal agencies do not have adequate oversight and pressure to meet their statutory energy saving goals. While the federal agencies are required by law to reduce their energy use, they are not held to task by the White House or by Congress. The missions of the agency are always paramount; however, a concerted commitment from the President and his cabinet is needed so that the agencies will place enough focus and priority on achieving energy savings in their facilities.
- The Department of Energy's Federal Energy Management Program (FEMP) is the primary resource for federal agencies to turn to for technical guidance and assistance with energy improvements. Unfortunately, the FEMP program continues to receive funding cuts although its mission and responsibilities were increased in EPCA 2005. Congress and the administration need to recognize the benefits of FEMP and provide the much needed funding increases.

Technologies and Integrated Systems for Low-Energy, High-Performance Buildings

Recommendation for a buildings RD&D program: Establish and fund a program to develop and establish in the market net-zero energy buildings, with an emphasis on commercial buildings.

To create the technology and knowledge base needed to achieve the long-term goal of net-zero energy ("carbon-neutral") buildings, the federal government needs to make a substantially greater commitment—in close partnership with states, utilities, and the private sector—to a comprehensive, multi-year program to transform building technologies and practices. This transformation must go well beyond individual technical measures to include a design process that integrates sustainability from the start, and effective means of managing construction and building operation to assure continued high performance over the lifetime of the building and systems.

The need is especially acute in the commercial buildings sector, where the challenge of maintaining performance, comfort, occupant health, and amenities while radically reducing energy consumption or significantly increasing costs is even greater than for smaller residential buildings. Yet it is "net-zero energy homes" rather than commercial buildings

which have received the lion's share of funding and program attention to date by DOE, utility and state programs, and private partnerships.

Investing 1/10 of one percent of the \$135 billion in annual energy costs for all U.S. commercial buildings would represent a substantial increase over the current federal efforts by DOE and all other agencies. But this is the equivalent of less than a half-day (12 hours) of energy costs for the nation's commercial building stock—a reasonable price to assure that we really have the technology to cut energy use by more than half over the next two decades. To be effective, these funds would need to be directed toward a well-orchestrated plan to address *innovation* in technology and practices, strategic and well-monitored *demonstrations* of these new methods, and paths to effective large-scale *deployment* in new and existing commercial buildings.

Such an integrated strategy requires careful preparation and broad engagement of the building industry, the design professions, financial institutions, government policy-makers, and private owners and developers. There is growing interest in sustainable design but the industry is fragmented, risk averse, and driven largely by short term economic interests. By itself the federal government cannot create the needed technologies, nor force the market to accept them. But it can and should be the catalyst in partnering with industry, states, and utilities for these essential steps.

Conclusion

The Energy Policy Act of 2005 included some important measures to reduce building energy use, including new appliance standards and tax incentives. But, while helpful, they were not aggressive enough to address the critical energy issues facing our nation. In the last year and a half, concern about the linked issues of energy prices, energy security, and global warming has only grown. There are measures we could and should take, such as consumer education, that would have an immediate impact. But polls also show that a large majority of Americans are rightly more concerned that Congress find long-term energy solutions than that Congress quickly address current prices. There is an opportunity now to enact significant energy-efficiency measures that will benefit the economy, the environment, and energy security for years to come. The buildings being designed and constructed today will determine our energy use for decades to come. The Alliance urges you to seize the opportunity to reduce energy waste, supply shortages, price volatility, pollution, and global warming, to transform energy crises into economic opportunities.