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**STATEMENT OF**

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**BEFORE THE SUBCOMMITTEE ON  
ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND  
EMERGENCY MANAGEMENT**

**OF THE  
HOUSE TRANSPORTATION AND INFRASTRUCTURE  
COMMITTEE**

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## INTRODUCTION

Madam Chair, Mr. Graves, distinguished members of the Subcommittee, I appreciate this opportunity to appear before you to discuss the Department's energy efficiency and conservation efforts.

### *ENERGY MANAGEMENT OVERVIEW*

The Department currently manages over 533,000 buildings and structures, which reside on over 51,400 square miles of real estate; and owns utility infrastructure with a Plant Replacement Value (PRV) exceeding 69 billion dollars. Installations are a critical component in the Nation's force capabilities; the quality of infrastructure directly affects training and readiness. It is imperative that the Department of Defense be a good steward of the environment and natural resources yet at the same time operate efficiently and successfully meet its missions. The Department of Defense is committed to not only reducing consumption and managing demand, but also investing in energy savings. Although the overall expenditures on energy continue to increase due to increased commodity costs, consumption has decreased from the 2003 baseline. The Department's facility energy management program includes investments in research, cost-effective renewable energy sources and energy efficient construction designs, and aggregating bargaining power among regions and the Services to achieve more effective buying power.

The Department's efforts to conserve energy are paying off. In FY 2006, military installations reduced consumption by 5.5 percent from the 2003 baseline, exceeding the energy conservation goal of two percent. Energy conservation projects accomplished through Energy Savings Performance Contracts (ESPC) typically account for more than half of all facility energy savings. Lapse of ESPC authority in 2004 negatively affected the Department's ability to reach

the 30 percent reduction goal under Executive Order 13123. However, with ESPC authority reauthorized in the FY 2005 National Defense Authorization Act and extended for an additional 10 years in the Energy Policy Act of 2005, DoD has launched an aggressive awareness campaign and is well on its way to meeting the new goals established in the Energy Policy Act of 2005. Use of ESPC for 2006 increased 316 percent, reaching an award value over \$586 million.

DoD has significantly increased its focus on purchasing renewable energy and developing resources on military installations. Renewable energy projects are consistently more expensive than similar conventional energy sources, resulting in limited opportunities that are life cycle cost effective. The Department has increased the use of Energy Conservation Investment Program (ECIP) funds for renewable energy projects from \$5 million in FY 2003 to \$17 million planned in FY 2007, and to \$24 million budgeted for FY2008 out of a \$70 million ECIP request. ECIP projects have produced an historical average savings of two and a half dollars for every dollar invested. The FY 2007 program for ECIP also contains \$2.6 million in hydrogen fuel cell projects. The Department exceeded the EAct 2005 renewable energy goal of 2.5 percent in FY 2006. The Department's total renewable energy purchases and generation accounted for 9.5 percent of all electricity use. Also, while EAct 2005 did not articulate a specific water reduction goal, Executive Order 13423 does have a goal of a two percent water reduction per year. The Department has reduced water usage by an impressive 29.6 percent from the FY 2003 baseline year.

### ***INITIATIVES***

To address the financial and operational challenges generated by cost and availability of oil and other forms of energy, the Department stood up two task forces to consider the issue from

different perspectives: the Energy Security Task Force and the Defense Science Board Task Force on DoD Energy Strategy.

The Under Secretary of Defense for Acquisition, Technology and Logistics directed the Defense Science Board (DSB) to establish a Task Force on DoD Energy Strategy. The DSB Task Force, comprised of subject matter experts external to DoD, is focused on energy strategy and policy. The Task Force re-examined DoD energy usage and is finalizing their strategies and recommendations. Specifically, the DSB Task Force will identify strategic transition opportunities through technologies, barriers to transition, systemic second and third order effects across strategic, operational, tactical, and life cycle cost performance vectors, as well as their potential for commercialization.

In April 2006, the Defense Department initiated the Energy Security Task Force, with the goal of defining an investment roadmap to lower the Department's fossil fuel requirements and to identify alternate energy sources. The multidisciplinary task force involves senior leaders from a wide range of expertise, including financial, science and technology, acquisition, logistics, installations and environment, and operational within the military departments, defense agencies, Joint Staff and the Office of the Secretary of Defense. The Energy Security Task Force reported out in late September 2006.

The Energy Security Task Force has completed a baseline analysis of ongoing DoD efforts to reduce fuel and energy consumption and will provide specific recommendations and options that will comprehensively improve energy efficiency and enable the production and use of alternate fuels. The Task Force used an analytical framework with potential cost and benefit analysis to identify and prioritize options. The Task Force has developed taxonomy to address the issue and provide a consistent terminology based on supply, demand, and availability. The

Task Force is taking the approach that the Department needs to impact the supply/demand ratio by increasing supply or reducing demand. Demand reduction can come through such efforts as increasing energy efficiency of weapons systems, support platforms, and facilities. Supply security includes future energy sources and the distribution system.

The Task Force found that the Department has not been idle; the DoD has already reduced energy consumption and increased efficiency for both installations and platforms over the past several decades. The DoD also has plans to invest over \$1.5 billion on energy-related efforts in fiscal years 2007 and 2008, including the Energy Conservation Investment Program, the Energy and Power Technology Initiative, and Defense Advanced Research Projects Agency (DARPA) programs in energy conservation and alternative energy.

**Fiscal Year 2008 President’s Budget Request for Energy-Related Programs**

<b>Appropriation</b>	<b>Fiscal Year 2007 (Approp)</b>	<b>Fiscal Year 2008 (Request)</b>	<b>Includes</b>
<b>RDT&amp;E</b>	675.7	514.8	Energy and power technologies, assured fuels, vehicle fuel cells
<b>MilCon</b>	55.0	70.0	Energy Conservation Investment Program
<b>O&amp;M</b>	10.2	182.5	Facility Energy Initiatives, Army Energy Campaign, Low speed vehicle
<b>DoD Energy Funding</b>	<b>740.9</b>	<b>767.3</b>	

The Energy Security Task Force also found that the Military Services have made significant advances in energy efficiency. Reducing energy consumption of both fuels and electricity has been, and continues to be, important to DoD. On the facilities side, by 2005, the Department reduced facilities energy use by 28.3 percent from the 1985 baseline (measured by energy use per square foot), and the Energy Policy Act of 2005 has reset the baseline and increased the target reduction. The Department implemented the use of sustainable design

practices for military construction – meaning that DoD designs, constructs and maintains facilities that minimize energy and resource consumption and use environmentally preferred products and materials. These practices will yield immediate savings and will reduce energy consumption by 30 to 50 percent.

### Renewable Energy

The Defense Department is one of the major leaders of the federal government in renewable energy. For example, DoD installations received over nine percent of their electricity from renewable sources in fiscal year 2006, which compares favorably to the national average of around six percent. In addition, the Deputy Under Secretary of Defense for Installations and Environment issued a memorandum on Installation Energy Policy Goals on November 18, 2005. Along with emphasizing the requirements of the Energy Policy Act of 2005 and the goals of Executive Order 13123, the memorandum established a goal for the Department to procure or produce renewable energy equivalent to 25 percent of the total electricity demand by 2025, where life cycle cost effective, setting the pace for the rest of the federal government and industry.

While DoD does purchase some “green energy” locally, there are a number of base-level renewable projects that are very cost effective. For instance, the Navy facilitates the operation of a geothermal power plant at China Lake, California, and is developing an additional plant at Naval Air Station Fallon in Nevada. The geothermal plant at China Lake provides enough energy to operate the entire base. In addition, there are several wind facilities in Naval Base Coronado, San Clemente Island California, FE Warren Air Force Base, Wyoming, Ascension Island, and eight additional projects are under consideration. DoD has multiple solar facilities and initiatives at several locations, including bases in California, Texas, and Arizona; and North

America's largest solar array, being constructed at Nellis Air Force Base, Nevada, which will provide one third of the base's requirement by generating at least 14 megawatts of electricity.

Finally, DoD continues to research novel forms of renewable energy. The Navy has a Small Business Innovative Research project called "OTEC," which stands for the Ocean Thermal Energy Conversion program. OTEC is being tested at Diego Garcia Naval Base in the Indian Ocean. Effectively, the OTEC project seeks to use temperature differences between the ocean surface and deeper water to produce electricity. While it is still too early to determine how effective OTEC will be, it demonstrates the Department is exploring novel ideas.

### Energy Achievements

DoD has achieved significant savings using the Energy Conservation Investment Program (ECIP), with projects saving on average at least \$2.30 for every dollar spent. The demand for renewable energy technology is keeping the implementation cost relatively high, resulting in that figure dropping over time. Regardless, a savings to investment ratio greater than two to one is phenomenal within the Federal Government. ECIP is a competitively bid program that invests in energy efficient upgrades for existing facilities. For instance, in FY 2007 the Army is programmed to implement two wind generation projects totaling nearly two megawatts of production at Tooele Army Depot, Utah and Fort Huachuca, Arizona. The success of the ECIP program led DoD to increase investment, with \$60 million requested for FY 2007, and \$70 million requested for FY 2008.

The Department has also made wide use of Energy Savings Performance Contracts (ESPCs) which allows DoD to use industry funding to pay for equipment to reduce life cycle costs of facilities and pay it back from the accrued savings. Since 1998, industry has invested \$1.7 billion across the federal government through ESPC with a net savings of \$1.5 billion; 70

percent of the activity was in DoD. As an example, in November 2006, the Air Force entered into a solar energy ESPC at Luke Air Force Base, Arizona. Under this project, the Air Force installed a 375 kilowatt photo voltaic system to power portions of the base.

### ***ENERGY STRATEGY***

DoD developed a comprehensive energy strategy and issued updated policy guidance incorporating the provisions and goals of the Energy Policy Act (EPAAct) of 2005, and is implementing the recent enactment of the new chapter 173 of title 10, U.S.C. The Department is also in the early stages of implementation of Executive Order 13423, issued by the President in January 2007 to strengthen Federal environmental, energy, and transportation management. This strategy will continue to optimize management by conserving energy and water usage, and improving energy flexibility by taking advantage of restructured energy commodity markets when opportunities present themselves.

The Installations' Community has led the way in energy efficiency by establishing and implementing a comprehensive energy strategy, with focus on improving energy conservation, reducing energy demands, higher renewable energy use, and, simply, better energy awareness for our people. Installations and facilities are in the energy security business for the long haul, as exemplified by the DoD's implementing policies directing the use of sustainable design practices. We want to "build" on their progress by increasing the use of Energy Savings Performance Contracts, enabling DoD to have more cost effective long-term facilities operation and maintenance with no up front costs. We are also exploring additional enhanced-use leasing opportunities and public/private ventures to develop cost effective renewable energy sources.

The Energy Security Task Force is considering various power systems to generate energy. We intend to build on the findings of the Rapid Equipping Force transportable hybrid

electric power stations and fund additional generators. There are also several proven commercial technologies that can turn trash into oil or energy. We are considering these technologies as a way to reduce waste and environmental hazards while creating energy that could help power our generators.

Over the next few years, the Department plans to test and demonstrate new technologies for reducing energy consumption of our weapons systems and at facilities. If the technologies are successful, DoD could realize substantial annual savings in energy costs in the long run with full implementation, and many of the programs may start yielding net savings soon. Some of these technologies may also reduce maintenance costs and the associated logistics tails. We intend to initiate procurement programs and “spiral in” successful technologies. In addition, testing and certifying energy sources for our military platforms, may help to catalyze U.S. industry to produce these fuels, enabling us to move toward the goal of energy independence.

### ***ACCOMPLISHMENTS***

Energy conservation is one of the President’s management initiatives, and the Department has made great progress in reducing energy consumption. The Department has been recognized as a federal energy leader, as evidenced by numerous federal energy awards. DoD installations have received Presidential Awards for Leadership in Federal Energy Management, recognizing projects that achieved \$9M annual savings in DoD energy use. In 2006, three of the five Presidential Awards were given to DoD installations, including the Naval Undersea Warfare Center, Division Keyport, which reduced energy consumption by 7.4 percent from the previous year, through institutionalized energy efficiency and water conservation by building these principles into its standard practices and procedures. Naval Base Coronado took a comprehensive approach to energy management, saving substantial amounts of oil, electricity

and water. Since 1985, Naval Base Coronado lowered its energy intensity by 45 percent to a remarkable 48,350 Btu per square foot in FY 2005. Finally, in 2005, Marine Corps Air Station Yuma reduced its energy use per square foot by 3.5 percent compared to 2004 and 40 percent compared to a 1985 baseline. This savings of 8.1 billion Btu represents enough energy to support 116 typical area homes for a year.

The Federal Energy and Water Management Awards are given annually by the Department of Energy to honor individuals and organizations making significant contributions to the efficient use of energy. The DoD was awarded nine of the 17 federal awards in 2006. One such award was for Hill Air Force Base, which was the first Federal installation or site to take advantage of the Department of Energy's Biomass and Alternative Methane Fuels (BAMF) program. Hill Air Force Base entered into a partnership with Ameresco Federal solutions in 2003 for construction of a landfill gas-fueled power generation facility, along with implementation of eight traditional energy conservation measures. The 1.2-megawatt on-site power generation facility was completed in 2004 at no upfront capital cost to the Air Force, with green power generation and transmission beginning in early 2005. This project reduced the base's energy consumption by more than 33 billion Btu and \$740,000 in FY 2005. Additionally, Hill AFB re-negotiated a five year steam purchase contract with the local utility to purchase steam produced from refuse incineration. The base purchased almost 485 billion Btu in FY 2005, supplying 17 percent of the base's energy load and saving more than \$200,000 in avoided natural gas purchases. Going forward, the new contract is estimated to save almost \$1 million annually. These are just a few of the numerous accomplishments within the installations' community that are reducing operating and maintenance costs over the life cycle of our facilities.

The Department recognizes the potential energy efficiency payoff associated with lightweight materials and structures and has been long investing in materials research that will provide high performance, strategic mobility, and energy savings to meet warfighting needs. Applied research in advanced cellular materials, carbon-fiber reinforced composites, and titanium manufacturing technology should provide greater strength-to-weight ratios for military platforms. Platforms using lightweight materials should benefit from improved performance and decreased fuel consumption.

### **CONCLUSION**

In closing, Madam Chair, I sincerely thank you for this opportunity to highlight the Department's successes and to outline its plans for the future. Your support of DoD energy initiatives and investments is appreciated, and I look forward to working with you as we increase energy security and reduce operating costs for the Department.