STATEMENT OF

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BEFORE THE

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COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

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Madam Chairwoman, Ranking Member Bilbray, and Members of the Subcommittee, thank you for the opportunity to discuss high performance buildings practices in the Federal sector.

Preliminary Fiscal Year (FY) 2009 data indicates that the Federal Government used approximately 386 trillion British thermal units (Btu)[1] of energy in nearly 3.2 billion square feet of facility space.[2] Federal facility energy use is a little over a third of the Federal Government's total consumption.[3] The Federal Government consumed about 1.6 percent of the Nation's total energy.[4]

Within this context the Department of Energy's Federal Energy Management Program (FEMP) and Building Technologies Program (BTP) work together with other Federal agencies—particularly the Department of Defense (DoD), the General Services Administration (GSA) and the Environmental Protection Agency (EPA)—to help them adopt sustainable practices and technologies. I'm pleased to be here today to provide further information to this Subcommittee on these efforts.

Constructing and operating Federal facilities in a sustainable manner has numerous well-documented benefits, including:

- Saving taxpayer dollars through optimized life-cycle cost-effective actions;
- Enhancing employee productivity through the provision of safe, healthy and environmentally appealing workplaces;
- Reducing environmental impacts through decreased energy, water, and materials use; and
- Moving the overall market conditions toward higher performance, through the Federal demand for sustainable facilities.

Today, I will discuss DOE sustainability metrics; government performance; ongoing rulemaking at DOE; interagency coordination and cooperation, and federal investment; ongoing innovation; and the challenge of overcoming up-front costs to energy efficiency upgrades.

[1] About 37 trillion Btu of this 386 trillion Btu is excluded from the energy intensity reduction goal as allowed by statute.
[2] Primarily, this energy heated, cooled, and illuminated Federal facilities. It also fed electricity to appliances, equipment, and significant process loads.
[3] Total Federal energy consumption includes energy subject to EISA reduction targets and energy for tactical mobility purposes, which is not subject to reduction targets.
[4] Source: *DRAFT Annual Report to Congress on Federal Government Energy Management and Conservation Programs Fiscal Year 2009*, Federal Energy Management Program, July 2009.

SUSTAINABILITY METRICS

Currently, Federal building sustainability performance is rated on Office of Management and Budget (OMB) Scorecards (Energy Management and Environmental) using six primary metrics, which link to requirements under the Energy Policy Act of 2005 (EPAct), the Energy Independence and Security Act of 2007 (EISA), and Executive Order (E.O.) 13423. The six current performance metrics are:

1. Reduced energy intensity;[5]
2. Consumption of electricity from renewable sources;[6]
3. The percentage of appropriate facilities which have been metered for electricity use;
4. Reduced water intensity;[7]
5. New construction compliance with Federal design standards to be 30 percent more energy efficient than applicable code; and
6. Application of sustainability guiding principles in Federal buildings.[8]

However, OMB Scorecards are expected to be updated this year, as OMB develops performance metrics that also reflect the new requirements of President Obama's E.O. 13514 which includes ambitious new targets for agencies to meet in the areas of:

- Greenhouse gas emissions measurement and reduction;
- Pollution prevention and waste diversion;
- Regional and local integrated planning;
- Improving water efficiency and management; and
- Strategic Sustainability Performance Planning.

GOVERNMENT PERFORMANCE

The Government's performance within the key sustainability metrics continues to improve and meet targets. I will discuss the government-wide FY 2009 preliminary results on the metrics featured on OMB's current Energy Management Scorecard: energy intensity, renewable energy, water intensity, metering, and high performance sustainable buildings.

Energy Intensity

The Government has made substantial progress in reducing its energy intensity. In FY 2009, the Federal Government reported a 13.1 percent decrease in site-delivered Btu per square foot compared with baseline year 2003. This surpasses the EISA statutory reduction goal for FY 2009 of 12 percent.

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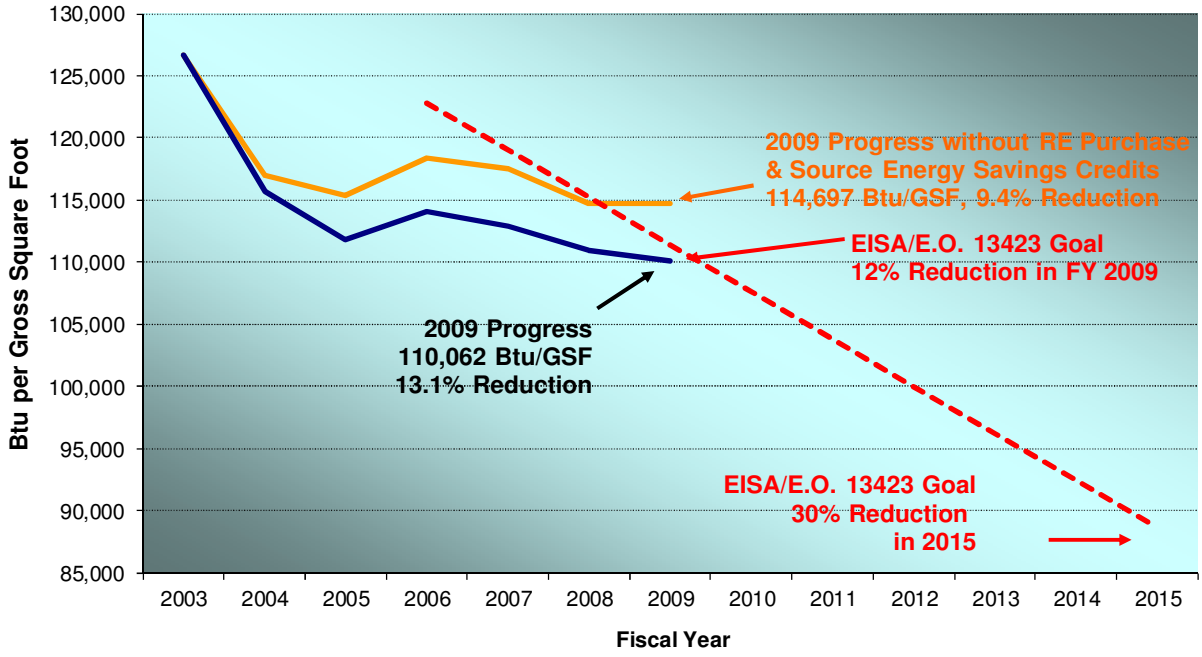
[5] Measured in site-delivered Btu per gross square foot of goal-subject facility space, compared annually with a 2003 base year.
[6] Noted as a percentage of total facility annual electricity use.
[7] Measured in terms of potable water used per square foot at facilities, compared annually to a 2007 base year.
[8] Measured in terms of percentage of buildings (this metric appears on OMB's Environmental Scorecard—the first five metrics are on OMB's Energy Management Scorecard).

Part of this decrease is attributable to subtracting approximately 14 trillion Btu for renewable energy purchases and for projects that reduce primary energy use (as opposed to site-delivered energy). These two adjustments to goal performance amount to approximately 7 trillion Btu each. Without these subtractions for credits authorized by implementing guidance, the Government's energy intensity reduction is 9.4 percent below the FY 2003 baseline.

The credits toward energy intensity reduction from the purchase of renewable energy can be attributed to the now revoked E.O. 13123[9] which permitted agencies to credit renewable energy purchases toward their performance under the energy reduction goals. During FY 2009, these credits were continuing to be phased out, per DOE's *Renewable Energy Requirement Guidance for EPACT 2005 and Executive Order 13423*.[10] The credits will be phased out completely by FY 2012.

The following chart shows the Federal Government's progress toward meeting the statutory energy reduction goal (red dashed line), with performance shown including the allowable adjustments (blue line) and without (gold line). The chart indicates the Government's overall rate of energy reduction is declining and suggests the Federal Government needs to continue to strongly emphasize energy savings and efficiency at its facilities. The energy intensity of Federal buildings is essentially the same as it was in 2005. However, the Recovery Act provided major funding for Federal investment in efficiency and should help move many agencies closer toward achieving Federal goals.

Overall Government Progress toward Facility Energy Efficiency Goals, FY 2003 through FY 2009



[9] 64 Fed. Reg. 30851 (June 8, 1999)
[10] Available at www1.eere.energy.gov/femp/pdfs/epact05_fedrenewenergyguid.pdf

Renewable Energy

In FY 2009, Federal agencies reported purchasing or producing more than 2,330 gigawatt-hours of renewable electric energy, comprising 4.2 percent of the Federal Government's electricity use and surpassing the EPAct 2005 goal of three percent. This more than doubled renewable energy use as a percentage of total facility electricity use since 2003. For FY 2010, the renewable energy goal for agencies rises to five percent of their total electricity use. The five percent goal remains in place until FY 2013, when it will increase to 7.5 percent under current statute. Not counted in this metric is the very significant amount of non-electric renewable energy produced and purchased by the Government that displaces the need for additional electric generation. This includes thermal energy, such as solar hot water and space heating, geothermal energy, steam from biomass, and landfill methane. These renewable sources of non-electric energy are often the most cost-effective means to displace fossil energy.

Water Intensity

Section 2(c) of E.O. 13423 requires agencies to reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007 by two percent annually through the end of FY 2015 or 16 percent by the end of FY 2015. E.O.13514 updated this section, requiring agencies to separate potable water intensity from industrial, landscaping and agricultural water intensity, and to achieve a 2 percent annual reduction in each.[11]

Based on preliminary data for FY 2009, the Federal Government's water intensity was 51.1 gallons per gross square foot, a reduction of 4.6 percent from the 53.6 gallons per gross square foot reported in FY 2007.[12] This reduction surpasses the 4 percent goal for the year. As reported by the agencies, the Federal Government as a whole used 160.4 billion gallons of water in FY 2009 at a cost of $476.3 million.[13]

Metering

EPAct 2005 requires all Federal buildings to be metered by October 1, 2012, and, to the extent practicable, agencies must install advanced meters that provide data at least daily while measuring the consumption of electricity at least hourly. This requirement targets larger buildings located on campuses or other installations that are not separately metered. EISA expanded this requirement to include metering for natural gas and steam by 2016. Agencies will begin reporting progress toward this goal in FY 2010.

According to preliminary FY 2009 data, agencies identified 107,250 buildings for which separate electricity meters are appropriate.[14] Of these buildings, 95,821 have standard

[11] FY 2007 serves as the baseline for potable water; FY 2010 serves as the baseline for non-potable water.
[12] Water intensity reduction requirements were set forth in E.O. 13423.
[13] Average price: $2.97 per 1,000 gallons.
[14] "Appropriate" buildings for metering include those that agencies determine meet the criteria outlined in DOE's *Guidance for Electric Metering in Federal Buildings* (February 2006), and include buildings where metering is feasible, capable of providing useful data, a sensible application of the technology, and cost-effective

electricity meters installed and 10,723 have advanced meters installed. Although there may be a few instances of counting both the advanced and standard meters in a single building, overall compliance with the metering goal exceeds 99 percent (106,544 metered buildings out of 107,250 identified as "appropriate").[15]

Energy Efficiency Performance Standards and Sustainable Buildings

To assure that all new Federal buildings incorporate the best energy efficiency techniques available, Section 109 of EPAct 2005, "Federal Building Performance Standards," amended the Energy Conservation and Production Act (ECPA) to direct the Secretary of Energy to issue a rule that establishes Federal building energy efficiency performance standards.[16] The standards require that, if life-cycle cost-effective, all new Federal buildings will be designed to achieve energy consumption levels 30 percent below those of the current version that is in effect as of the date of enactment of this paragraph of the applicable American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standard or the International Energy Conservation Code.[17] Additionally, whenever the ASHRAE or IECC is revised, the Department of Energy must determine whether the revised code would improve energy efficiency in residential buildings and must publish notice of the determination in the Federal Register. DOE will be initiating a new process to make these determinations with regard to the 2007 version of ASHRAE Standard 90.1 and the 2009 version of the IECC.

In FY 2009, only four agencies were not able to achieve full compliance with the mandate, although one of those agencies missed compliance by only a single building. Agencies also have an opportunity to revisit designs to bring them into compliance. Some agencies are also assessing performance of designs underway to determine compliance and will report these findings in future reports.

Both E.O. 13423 and E.O. 13514 require Federal agencies to demonstrate implementation of the Guiding Principles for *Federal Leadership in High Performance and Sustainable Buildings* for new, existing and leased buildings, and to ensure that at least 15 percent of their building inventory meets the Guiding Principles by 2015. For this metric on the OMB Scorecard, 10 of 25 agencies reported that more than three percent of their buildings with more than 5,000 gross square feet meet the Guiding Principles and are on track to meet the 15 percent goal by 2015.

ONGOING RULEMAKINGS

Congress provided clear direction and authorities regarding sustainable buildings. The Department of Energy responded by setting a high bar with rulemakings that can help the Government lead the way in sustainable facilities.

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within a 10-year payback period. Approximately 20 percent of all Federal buildings are determined to be "appropriate."

[15] Based on agency-reported data submitted to Federal Energy Management Program, January 2010.

[16] 42 U.S.C. 6834(a)

[17] 42 U.S.C. 6834(a)(3)(A)(i)(I)

DOE recently published a notice of proposed rulemaking (NOPR) to implement provisions of ECPA, as amended by EPAct 2005 and EISA, that require DOE to establish revised performance standards for the construction of new Federal buildings and major renovations of Federal buildings. The rule requires that sustainable design principles consistent with the Guiding Principles, be applied to the siting, design, and construction of all new and renovated Federal buildings if life-cycle cost-effective. Sustainable design principles must also be applied to the siting, design, and construction of certain new Federal buildings and major renovations.[18] This rule was published in the *Federal Register* on May 28, 2010, and is open for public comment until August 12, 2010. DOE will host a public meeting on the rule on July 28, 2010.

Another proposed rule under development outlines how the Federal Government will reduce and eventually eliminate fossil fuel consumption in new buildings and those that undergo major renovations. Section 433 of EISA requires DOE to issue revised Federal building energy efficiency performance standards that specify fossil fuel consumption reductions from "similar"[19] buildings, starting at 55 percent in FY 2010 and rising to 100 percent in FY 2030 and beyond. Like the sustainable design rule, this rulemaking will apply to certain new Federal buildings and major renovations. The rule is expected to be published in FY 2011 for public comment. This rule will represent one of the most ambitious and forward-looking EISA goals: to eliminate fossil fuel consumption in Federal buildings by FY 2030.

INTERAGENCY COORDINATION AND COOPERATION

It is appropriate that today this Subcommittee will also hear testimony from EPA's Dennis Bushta and from Kevin Kampschroer of GSA's Office of Federal High Performance Green Buildings. EPA, GSA and DOE have a long and positive record of collaborating with each other to advance sustainability within the Federal Government.

Executive Order 13514 sets aggressive goals for an integrated approach to sustainability across the Federal Government and assigns various lead and coordinating agency responsibilities in different areas. The following table highlights the key roles for EPA, GSA and DOE.

[18] The two categories as defined in Section 433 of EISA are public buildings as defined by 40 USC 3301 and new buildings or major renovations that cost more than $2.5 million in FY07 dollars.
[19] "Similar" as measured by DOE's Commercial Building Energy Consumption Survey and Residential Energy Consumption Survey.

Lead Agency	*Responsibility*	*Coordinating agencies*
DOE	Greenhouse Gas Accounting and Reporting Recommendations	EPA, GSA, DoD, Department of Interior, Department of Commerce (National Oceanic and Atmospheric Administration)
DOE	Federal Fleet Management Guidance	GSA
Department of Transportation (DOT)	Sustainable Locations for Federal Facilities Recommendations	EPA, GSA, DoD, Department of Housing and Urban Development, Department of Homeland Security
GSA	Federal Local Transportation Logistics Recommendations	DOE, DOT, OPM, Department of the Treasury
GSA	Study and Recommendations on Vendor and Contractor Emissions to the Office of Federal Procurement Policy	DoD, EPA
EPA	Federal Facility Stormwater Guidance	Existing interagency group

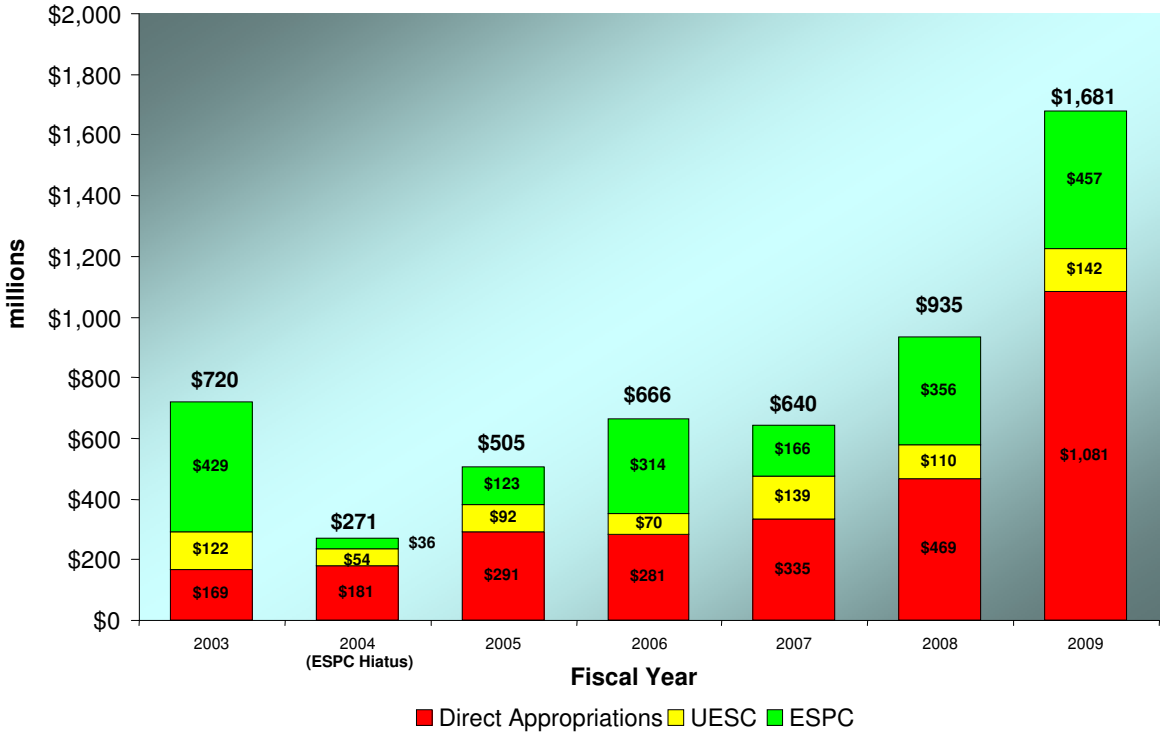
I'm pleased to report that each agency has met these coordinating responsibilities, and has delivered the required guidance or recommendations within the timeframe outlined in the Executive Order. This would not have been accomplished without close, cooperative inter-agency coordination and commitment.

The Interagency Sustainability Working Group (ISWG) co-chaired by GSA and DOE's FEMP provides additional Federal coordination. The ISWG is the coordinating body for sustainability of the built environment in the Federal sector and serves to advance the Federal Government's implementation of sustainable building laws, regulations, presidential directives, and other federal policies. Approximately 60 active members participate in the ISWG, including at least one representative from every major Federal department and agency. Key to the ISWG's success is the close collaboration between DOE's FEMP, GSA's Office of Federal High Performance Green Buildings, and EPA's Green Buildings Program.

FEDERAL INVESTMENT IN ENERGY EFFICIENCY

Preliminary agency data indicate that FY 2009 was the best year ever for energy efficiency and renewable energy investment at Federal agencies, with an 84 percent increase in overall investment and a 130 percent increase in appropriated investment, in part from Recovery Act funding. The following chart shows total agency investments over the last seven years. FY 2009 had record-setting investments in all three tracked categories: appropriations; energy savings performance contracts (ESPCs); and utility energy service contracts (UESCs).

Investment in Energy Efficiency and Renewable Energy, FY 2003 to FY 2009
(Millions of As-Spent Dollars)



ONGOING INNOVATION

In 2008, DOE announced its Net-Zero Energy Commercial Building Initiative (CBI). This initiative, led by the Building Technologies Program in the Office of Energy Efficiency and Renewable Energy, is a multi-faceted effort designed to achieve goals set forth in EISA Section 422(c) and public outreach activities in EISA Section 423. Section 422(c) establishes as goals of the CBI the development and dissemination of technologies, practices, and policies for the development and establishment of net-zero energy commercial buildings for:

(1) Any commercial building newly constructed in the United States by 2030;
(2) 50 percent of the commercial building stock of the United States by 2040; and
(3) All commercial building in the United States by 2050.[20]

The CBI is designed to overcome technical challenges, market barriers and institutional constraints inhibiting rapid and broad adoption of technologies, tools, processes and practices required to achieve net-zero energy performance levels in commercial buildings. DOE's CBI will engage in cost-shared research, development, and demonstration activities; engage and leverage the capabilities in the private sector through national energy alliances; work with commercial building partnerships with significant building portfolios; and participate in partnerships with standards and code setting bodies, as well as with State and local governments.

[20] 42 U.S.C. 17082(c)(1)-(3)

The Building Technologies Program works to accelerate the adoption of energy efficient, sustainable practices and technologies in buildings in other ways, as well. In June 2010, Secretary Chu announced Recovery Act awards totaling more than $76 million to support advanced energy efficient building technology projects and the development of training programs for commercial building equipment technicians, building operators, and energy auditors.

The 58 projects selected in June will help make the Nation's buildings more energy efficient and cost-effective. The funding will also support programs that train workers to service and operate new and existing buildings, to develop and deploy best practices resulting in fewer greenhouse gas emissions, and to increase the workforce with technical expertise to reduce energy costs for consumers. The awards for advanced energy efficient building technology projects were focused in five primary areas:

- Advanced Building Control Strategies, Communications, and Information Technologies for Net-Zero Energy Buildings;
- Analysis, Design, and Technical Tools;
- Building Envelope and Windows;
- Residential and Commercial Heating, Ventilation, and Air Conditioning and Crosscutting Air Conditioning and Refrigeration Research; and
- Water Heating, Residential, and Commercial Appliances and Miscellaneous Electric Loads.

These projects will help the U.S. lead the world in advancing energy efficient technologies and are expected to generate new knowledge and expertise to advance sustainability in the Federal Government.

COST VS. INVESTMENT

Numerous case studies and analyses demonstrate that the net benefits of incorporating sustainable practices into facility designs significantly exceed additional front-end costs. However, the challenge of overcoming higher initial costs impedes implementation of more sustainable practices that reduce total cost to the Government and to taxpayers over their lifetimes.

This is a challenge that the Government can help overcome by:

- Finding better ways to enable agencies to purchase and lease buildings with the lowest life-cycle cost especially when the initial cost of the building is higher than comparable buildings with lower initial costs but higher operating costs; and
- Identifying a source of lower-cost financing for Federal agencies, such as a Federal revolving loan fund, to utilize for investments in energy efficiency measures that would result in net savings to the taxpayer.

CONCLUSION

In conclusion, I would like to thank the Subcommittee for allowing me to update you on ongoing efforts and our collaborations with agency partners. These partnerships are bearing positive returns through the Federal facility space and encouraging more and more Federal managers to make decisions that make the Federal Government more sustainable. I would be pleased to answer your questions.