



**STATEMENT OF DOUG GATLIN
OF THE U.S. GREEN BUILDING COUNCIL**

**BEFORE
THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS**

**ON
OVERSIGHT OF THE GSA AND ENERGY EFFICIENCY IN PUBLIC
BUILDINGS**

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On behalf of the U.S. Green Building Council's (USGBC) more than 20,000 organizational members and 78 local chapters, I would like to thank Chairman Boxer and Ranking Member Inhofe for the opportunity to testify about the role that the U.S. General Services Administration can play in improving the energy efficiency and sustainability of federal buildings. My name is Doug Gatlin, and I am the Vice President of Market Development for the U.S. Green Building Council.

Introduction

The U.S. Green Building Council is a national nonprofit organization working to address current climate and energy challenges by advancing more environmentally responsible, healthy and profitable buildings.

Green buildings are an essential element of a climate change mitigation strategy: they reduce greenhouse gas emissions and owners' utility bills, and they have a positive and increasingly well-understood impact on health and well-being. While new buildings offer the potential to integrate innovative green technologies and practices from the start, existing buildings offer an unparalleled opportunity to transform the built environment on a massive scale.

With an inventory of more than 7,000 government-leased and 1,500 government-owned buildings representing more than 354 million square feet of space nationwide, GSA is a critical partner in the effort to reduce the environmental impact of the nation's buildings. GSA has already taken several significant steps to this end through a number of far-reaching energy efficiency and green building initiatives. We commend the Committee for its leadership in convening this important hearing to explore additional opportunities to improve oversight of energy efficiency in and the environmental performance of GSA facilities.

The Impact of the Built Environment

On the aggregate, buildings are responsible for 38% of U.S. CO₂ emissions per year.¹ In addition, buildings annually account for 39% of U.S. primary energy use;² use 13.6% of all potable water or 15 trillion gallons per year;³ and consume 40% of raw materials globally (3 billion tons annually).⁴ The EPA estimates that 136 million tons of building-related construction and demolition debris are generated in the U.S. in a single year.⁵ (By way of comparison, the U.S. creates 209.7 million tons of municipal

¹ *Energy Information Administration (2008). Assumptions to the Annual Energy Outlook.*

² *Energy Information Administration (2008). EIA Annual Energy Outlook.*

³ *U.S. Geological Survey (2000). 2000 data.*

⁴ *Lenssen and Roodman, 1995, "Worldwatch Paper 124: A Building Revolution: How Ecology and Health Concerns are Transforming Construction," Worldwatch Institute.*

⁵ *U.S. EPA Characterization of Construction and Demolition Debris in the United States, 1997 Update.*

solid waste per year.⁶) It is clear that we must act quickly to reduce the impact of the built environment on our planet.

Policymakers and building owners alike are now embracing green building as one of the most effective strategies for meeting the challenges of energy consumption and climate change. By addressing the whole building, from construction materials to energy systems and even cleaning supplies and waste management, green buildings generate opportunities to reduce emissions and environmental impact throughout the supply chain and the complete building lifecycle, targeting:

- reduced energy consumption through the use of energy-efficient heating and cooling systems, renewable power, and building commissioning;
- reduced water consumption through the use of low-flow fixtures and appliances, and the on-site treatment of storm water;
- reduced waste and improved environmental performance through the use of salvaged, recycled, and local materials, and the development of plans for managing construction waste; and
- reduced emissions and environmental impact by promoting the location of facilities near public transportation, the use of hybrid or electric cars, and the use of alternative means of transportation, such as bicycles and walking.

Importantly, the technology to make substantial reductions in energy use and CO₂ emissions in buildings already exists; modest investments in energy-saving and other climate-friendly technologies can yield buildings and communities that are significantly less carbon intensive, and are also more profitable and healthy places to live and work. In its December 2007 report evaluating potential solutions for reducing greenhouse gas emissions, McKinsey & Company highlighted improvements to the energy efficiency of buildings and appliances as a “negative-cost” option, suggesting that investments of this kind would yield positive financial returns over the course of their life cycle.⁷ The potential returns are tremendous: McKinsey estimates that improvements in the efficiency of buildings and appliances could generate some \$160 billion in cumulative savings by the year 2030.⁸

“Tune-ups” to building systems and equipment (known as “commissioning”) present similarly impressive opportunities for operational savings. According to a 2004 study of building commissioning sponsored by the Department of Energy,⁹ commissioning

⁶ U.S. EPA Characterization of Municipal Solid Waste in the United States, 1997 Update. Report No. EPA530-R-98-007.

⁷ McKinsey & Company, *Reducing Greenhouse Gas Emissions: How Much at What Cost?*, available at http://www.mckinsey.com/client-service/ccsi/pdf/US_ghg_final_report.pdf.

⁸ *Id.* at 29.

⁹ Mills, E., Friedman, H., Powell, T., et al., *The Cost-Effectiveness of Commercial-Buildings Commissioning: A Meta-Analysis of Energy and Non-Energy Impacts in Existing Buildings and New Construction in the United States (December 2004)*, available at <http://eetd.lbl.gov/emills/PUBS/Cx-Costs-Benefits.html>.

of existing buildings can improve energy efficiency by roughly 15 percent at a median cost of only 27 cents per square foot—offering an attractive payback period of roughly 6 months.¹⁰ If undertaken by all of the nation’s existing commercial buildings, building commissioning could yield a staggering \$18 billion or more in energy savings annually.¹¹

Reducing Impact through Measurement and Verification

Existing buildings present a readily available and significant resource for meeting the climate and energy challenges that are now commanding international attention. Through an integrated approach to sustainability that encompasses the day-to-day operations and maintenance of our building stock, we can not only reduce our environmental footprint in a cost-effective way, but also realize significant health and economic gains.

Recognizing this potential, USGBC has worked for more than a decade to provide building owners, operators, and users with the tools and resources they need achieve lasting environmental improvements in the places they live, work, and learn. Chief among USGBC’s suite of resources for advancing market transformation to sustainability is the LEED (Leadership in Energy and Environmental Design) rating system--a voluntary, third-party certification system for green buildings that was developed by USGBC to provide the building community with a measurable consensus definition of **l**eadership in **e**nergy and **e**nvironmental **d**esign.

LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas, with an additional category to recognize innovation: sustainable site development, water savings, energy efficiency, materials and resources and indoor environmental quality. Each category includes certain minimum requirements (“prerequisites”) that all projects must meet, followed by additional credits that are earned by incorporating green design and construction techniques. Four progressive levels of LEED certification--Certified, Silver, Gold and Platinum--are awarded based on the number of credits achieved. The Green Building Certification Institute (GBCI) provides independent, third-party verification to ensure a building meets LEED’s high performance standards.

Originally launched in 2001 for new commercial construction projects, LEED is continuously improved to ensure its responsiveness to technical innovation and market demand--seeking to make obsolete its greatest triumphs. USGBC released rating systems for the operations and maintenance and commercial interiors markets in 2006, and for the schools and residential sectors in 2007. USGBC is also pilot-testing and nearing completion of rating systems for neighborhood developments, healthcare facilities, and retail spaces.

¹⁰ *Id.* at 1.

¹¹ *Id.* at 57.

The next version of LEED, known as LEED 2009, will be released at the end of April 2009. This new version involves several key advancements, including the weighting of LEED credits based on their ability to impact different environmental and human health concerns; and the regionalization of credits to acknowledge specific environmental issues and priorities that arise in different locations. Additional improvements to the online platform for LEED and an expanded certification structure through the Green Building Certification Institute will accompany the launch of LEED 2009--together known as LEED Version 3.

Existing Buildings

USGBC's work is guided by an understanding that building performance is a process, not an isolated act. Optimal building performance hinges on a three-part foundation of good design and equipment specifications, quality construction, and effective management. Without well trained and adequately staffed building management, the best-designed buildings in the world will fail to achieve their full potential of high-performance and reduced cost of operations.

Case studies of high-performance buildings compiled by the Department of Energy underscore the tremendous importance of operations and maintenance to maximizing the energy-saving potential of sustainable design.¹² For example, although one high-performance building was designed to achieve energy savings of 50 percent when compared to the national average, it in actuality achieved energy savings of just over 10 percent—a significant achievement gap.¹³ Closing this gap is essential to meeting mounting climate and energy challenges, and to realizing the \$160 billion in potential cumulative savings that are possible through improvements to building and appliance efficiency.

LEED for Existing Buildings: Operations & Maintenance (O & M) provides building owners and managers with a set of performance targets and best practices for improving their facilities and their building management practices to yield substantial savings in energy, water, and solid waste. Participating buildings have demonstrated a 35 percent reduction in greenhouse emissions, a 35 to 50 percent reduction in potable water consumption and a 70 percent reduction in waste generation.¹⁴ Developed by industry experts from the facility and property management and engineering fields, the LEED for Existing Buildings: Operations & Maintenance rating system provides a set of best green practices in building operations, highlighting opportunities to use less energy, water and natural resources; improve the indoor environment; and uncover hidden opportunities for savings. A key requirement is that the facility manager develop a comprehensive plan for reporting, inspecting, and reviewing building operations and maintenance practices to ensure optimal performance throughout the building's life. Projects are required to submit actual performance data through

¹² See *id.* at p. 8, Fig. 1.

¹³ *Id.*

¹⁴ USGBC LEED project data.

LEED's online portal as part of the certification process to demonstrate that they are achieving the indicated performance measures.

Mindful that diligent operations and maintenance practices are an imperative for *all* buildings, USGBC encourages new construction projects certified under LEED to embrace the operational and maintenance practices set forth in LEED for Existing Buildings. Additionally, LEED 2009--to be launched at the end of April 2009—requires that all certified projects permit USGBC to access actual energy and water use data in the future to ensure performance, and to support research on best practices and building performance.

Greening Federal Buildings

As the owner, tenant, or manager of more than 3.3 billion square feet of building space valued at more than \$772 billion, the federal government has one of the country's largest real estate portfolios,¹⁵ including many of the nation's most recognized and cherished landmarks. With this vast portfolio comes the power to forge a greener, more energy efficient, healthier, and prosperous path for the nation's buildings and communities. By leveraging the unparalleled purchasing power of taxpayer dollars to support green building, the federal government can not only reduce its significant environmental footprint, but also speed the adoption of green building strategies by the private sector, and save money and resources through reduced utility bills and operating costs.

The potential environmental and economic savings are extraordinary. If the federal government were to re-commission its entire building stock and achieve the estimated 15 percent reductions in energy use,¹⁶ it could generate more than \$650 million in annual energy savings and eliminate roughly 2.7 million tons of carbon in one year.¹⁷

Recognizing the impact of the federal building sector, 12 federal agencies or departments have made policy commitments to use or encourage LEED certification. Some 18 million square feet of federally owned or leased building space is currently certified under LEED, and more than 200 million square feet of space is registered with LEED. These policies, coupled with various policies referencing LEED in 31 states and more than 180 localities, are having a marked impact on the larger green building landscape. To date, more than 19,500 building projects are registered with LEED, and more than 2,400 projects have earned LEED certification.

¹⁵ Federal Real Property Council, FY 2007 Federal Real Property Profile (May 2008), http://gsa.gov/graphics/ogp/FRPP_FY07.pdf.

¹⁶ See Mills, E., Friedman, H., Powell, T., et al., *The Cost-Effectiveness of Commercial-Buildings Commissioning: A Meta-Analysis of Energy and Non-Energy Impacts in Existing Buildings and New Construction in the United States (December 2004)*, available at <http://eetd.lbl.gov/emills/PUBS/Cx-Costs-Benefits.html>.

¹⁷ Extrapolations from federal building consumption data in the U.S. Department of Energy's Buildings Data Energy Book, available at <http://buildingsdatabook.eren.doe.gov/ChapterView.aspx?chap=4#1>. Total federal primary energy consumption in buildings and facilities for FY 2005 was .65 quadrillion Btu. The federal government spent \$4,390,100,000 in FY 2005 on energy for buildings. The above extrapolations assume that all of the energy comes from coal-fired electricity production.

General Services Administration

Known as the nation's largest civilian landlord, with some 8,600 buildings in its portfolio serving 1.1 million federal employees, the U.S. General Services Administration (GSA) is an essential partner in the effort to reduce the environmental impact of the nation's building stock.¹⁸ GSA has worked steadily in recent years to reduce the environmental footprint of federal buildings, serving as a participant in the development of interagency policies that inform federal legislation and executive orders, and highlighting sustainable design as a key agency priority. In addition to promoting the use of Energy Savings Performance Contracts (ESPCs) to generate energy savings, GSA requires that all new capital construction and major renovation projects earn LEED certification, and encourages projects to reach beyond basic certification to LEED Silver. GSA is similarly promoting the use of cost-effective technologies for reducing energy through a technology acceleration program as well as the use of other practices, including daylighting, insulation of building envelopes, and the installation of green roofs.

These projects are yielding significant environmental and economic results, and are informing the creation of best practices for sustainable construction, renovation, and operations and maintenance projects. In July 2008, GSA released a study evaluating the post-occupancy performance of 12 green building projects in its portfolio, with impressive results.¹⁹ Green buildings in the study achieved a nearly 30% reduction in average energy usage and a 13% decline in average maintenance costs, as compared to national averages.

The following additional LEED case studies highlight the potential energy and environmental benefits of sustainable practices in GSA facilities:

- ***FBI Regional Building, Chicago, IL:*** Last month, USGBC certified the world's first LEED Platinum building under its LEED for Existing Buildings: Operations and Maintenance rating system. Occupied by the FBI and leased through GSA, the building demonstrates the environmental and economic gains that can be achieved through public-private partnerships in the green building process.
- ***Potomac Yards, Arlington, VA:*** Occupied by EPA and leased through GSA, the Potomac Yards complex has twice earned LEED Gold certification—once under LEED for New Construction, and in 2008, under LEED for Existing Buildings. The building, which earned an Energy Star label in 2007, also achieved a 41 percent reduction in water use, recycled 71 percent of waste during construction,

¹⁸ General Services Administration, Public Buildings Service, *available at* http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_OVERVIEW&contentId=8062&noc=T.

¹⁹ General Services Administration (July 2008), *Assessing Green Building Performance: A Post Occupancy Evaluation of 12 GSA Buildings*, *available at* http://www.gsa.gov/gsa/cm_attachments/GSA_DOCUMENT/GSA_WBDG_Report_Final_R2-p-q5Q_0Z5RDZ-i34K-pR.pdf.

and derived 63 percent of materials through regional manufacturing within a 500-mile radius, among other green features.

- ***EPA Region 8 Office, Denver, Colorado:*** Leased by GSA and occupied by EPA, the Region 8 office achieved LEED Gold in 2007 under LEED for New Construction. The building, which earned an Energy Star label, has reduced water consumption by 36 percent through water-saving technologies, makes use of green power, diverted more than 75 percent of construction waste through recycling, and both minimizes heat island effect and manages stormwater through a 20,000 square foot green roof.

Green building efforts stand to become an even-greater focus at GSA through the work of GSA's Office of Federal High-Performance Green Buildings, which was authorized by the Energy Independence and Security Act of 2007 to both coordinate and help to define best practices for the green building activities of federal agencies. This office, coupled with the \$5.5 billion received by GSA through the American Recovery and Reinvestment Act (ARRA), promises to support significant environmental and energy-saving improvements to federal buildings. Indeed, in its report to Congress at the end of March, GSA documented how it would spend its recovery dollars, including more than \$4.2 billion for high-performance green building activities and programs, spanning facilities across the country.²⁰

Opportunities for Enhanced Performance

Energy Savings Performance Contracts

Owing to its vast and diverse portfolio, GSA enjoys a multitude of opportunities for sustainable building design and operations. In the past, however, GSA's ability to maximize such opportunities has been affected by limited funding to address building repairs and alterations. Recent funding made available through ARRA provides needed capital to undertake energy-saving and green improvements—an endeavor that can be leveraged to even greater ends through public-private partnerships.

With the support of the Department of Energy's Federal Management Program, GSA has utilized energy savings performance contracts to achieve significant gains in building energy efficiency.²¹ Under this model, the agency enters a contract with an energy service company (ESCO), which finances the upfront cost of the desired improvements, including needed equipment. The balance is then repaid by the agency

²⁰ See General Services Administration, American Recovery and Reinvestment Act Spending Plan, *available at* http://www.gsa.gov/graphics/pbs/American_Recovery_and_Reinvestment_Act_2009.pdf.

²¹ See, e.g., General Services Administration, The Impact of the Credit Crisis on GSA's Capital Program (Testimony of David L. Winstead, Commissioner of the Public Buildings Service before the House Subcommittee on Economic Development, Public Buildings, and Emergency Management, Committee on Transportation and Infrastructure (July 29, 2008) *available at* http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_BASIC&contentId=24771&noc=T; Department of Energy, Federal Energy Management Program, Awarded Energy Savings Performance Contracts, *available at* http://www1.eere.energy.gov/femp/financing/espcs_awardedcontracts.html.

throughout the contract period using the energy and other savings that are generated by the project. By providing upfront financing that can be combined with other measures undertaken by the agency, performance contracting offers the federal government a means of broadening both the scope and depth of its facility-related projects.

Most commonly used to finance water and energy improvements, performance contracting is gaining popularity as a means of supporting green improvements. Unlike traditional performance contracting, which frequently targets isolated opportunities, “green performance contracting” draws upon an integrated approach encompassing energy- and water-saving measures as well as features designed to improve indoor health and environmental quality. Green performance contracting may even be used to cover the cost of green roof retrofits, and the installation of systems to manage stormwater or other external environmental pollutants. Green performance contracting also may involve the installation of advanced meters. Advanced meters enable building owners and operators to view in “real time” a building’s energy and water consumption and also allow for peak demand reductions, reducing capacity shortages in strained utility service territories. In addition to enabling dramatic operational savings, advanced metering performs a critical educational role--helping to raise awareness among building occupants and operators about both the need and opportunities for reducing energy and water consumption.

By accounting for the interaction between building systems, materials, and operational measures, green performance contracting can deliver maximum building performance. Combining this model with third-party verification, such as that provided by LEED for Existing Buildings: Operations and Maintenance, can ensure that buildings are both sustainable and achieve optimal cost reductions.

Power Purchasing Agreements

Under current authority, GSA may enter into contracts for public utility services for a period of ten years. Absent changes to the length of contracts, however, GSA does not have the flexibility to enter into energy agreements with renewable power developers, who often require longer contract periods to deliver increased capacity. Allowing GSA to enter into contracts for renewable energy utility services for longer periods would enable GSA to benefit from continuous, local power and would help to insulate the agency from fluctuations in energy costs. Such a change also would assist GSA’s compliance with the Energy Policy Act of 2005, which requires federal agencies to purchase increasing percentages of renewable energy, up to 7.5% by 2013.

Free-standing legislation introduced in the House of Representatives this year would allow GSA to extend the length of renewable energy contracts to up to 30 years. Similar language is contained in the draft energy and climate legislation currently under consideration in the House. USGBC recommends the adoption of such policies as a powerful means of jumpstarting the renewable energy sector and leveraging the significant purchasing power of the federal government.

Cost-Effective Strategies for GSA Facilities

In March 2009, GSA's Public Buildings Service released a report highlighting seven cost-effective strategies for improving the energy and overall performance of federal buildings.²² Developed by the agency's Applied Research Program and based on GSA's Workplace Performance Survey of more than 6,000 federal workers in 22 buildings, the report highlights specific measures that can increase both energy savings and user satisfaction. The report points to seven strategies in particular that can help to deliver desired savings, including: temperature adjustments for summer months; routine replacement of HVAC filters; consolidation and reduction of printers and copiers; use of LCD monitors; upgrades to lighting and improved access to daylighting; and upgrades to windows. GSA estimates that implementation of these strategies throughout its portfolio can deliver energy savings in the order of more than 500 million kilowatt hours each year.

USGBC applauds GSA's ongoing leadership in conducting research on improved federal building performance and recommends that consistent funding be provided to GSA to ensure the continuation and implementation of this valuable work.

²² General Services Administration, *Energy Savings and Performance Gains in GSA Buildings* (March 2009), available at http://www.gsa.gov/graphics/pbs/GSA_SevenStrategies_090327screen.pdf.

About U.S. Green Building Council

The Washington, D.C.-based U.S. Green Building Council is committed to a prosperous and sustainable future for our nation through cost-efficient and energy saving green buildings.

With a membership comprising 78 local chapters, more than 20,000 member companies and organizations, and more than 80,000 LEED Accredited Professionals, the U.S. Green Building Council is the driving force of an industry that is projected to soar to \$60 billion by 2010. The U.S. Green Building Council leads an unlikely constituency of builders and environmentalists, corporations and nonprofit organizations, elected officials and concerned citizens, and teachers and students.

Buildings in the United States are responsible for 38% of CO₂ emissions, 39% of energy consumption and 15% of GDP, making green building a source of significant economic and environmental opportunity. Greater building efficiency can meet 85% of future U.S. demand for energy, and a national commitment to green building has the potential to generate 2.5 million American jobs.

About the LEED® Green Building Program

The U.S. Green Building Council's LEED rating system is the nationally recognized program for the design, construction and operation of green buildings. Every business day, \$500 million worth of construction enters the LEED pipeline. LEED has been applied to more than 20,000 projects in all 50 states in and 91 countries, covering more than 4.5 billion square feet of development.

By using less energy, LEED Certified buildings save money for families, business and taxpayers; reduce greenhouse gas emissions; and contribute to a healthier environment for residents, workers and the larger community.

Doug Gatlin

Vice-President, Market Development

As the Vice President for Market Development at the U.S. Green Building Council, Doug Gatlin has oversight for deploying the family of LEED rating systems in all the major commercial market segments and for managing overall customer relations for LEED and the Council's new pilot initiative, the Portfolio Program.

Doug has 16 years experience in energy and environmental policy and has worked on climate change response strategies and voluntary pollution prevention programs for most of his career. He has authored publications on climate change mitigation strategies, energy efficiency program design, and energy efficiency project financing.

Prior to joining USGBC, Doug worked at the US EPA for nearly 10 years. For most of his tenure there, he served as Team Leader for the ENERGY STAR Commercial Buildings program, spearheading numerous activities including the launch of the first vertical sector marketing strategy, a new public sector program for governments, K-12 schools and universities, an energy efficiency financing initiative, and the launch of new partnership program with utilities. From 1992-1996, Doug served as a project manager at the Washington, DC based Climate Institute, where he managed the Energy Smart Cities campaign and helped the U.S. Department of Energy launch the Rebuild America program.

Doug holds a Bachelor's in political science from Duke University and a Master's in public policy from Georgetown University. He lives with his wife and two children in Silver Spring, MD.