

STATEMENT OF
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SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
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Good morning, Chairman Broun, Ranking Member Tonko and members of this Subcommittee. My name is Kevin Kampschroer and I am the Director of the Office of Federal High-Performance Green Buildings (OFHPGB) within the Office of Governmentwide Policy (OGP) at the United States General Services Administration (GSA). Thank you for inviting me today to discuss our work on the Green Building Certification System review as well as the Federal government's role in using sound science and peer-reviewed studies to evaluate and implement advanced building technologies.

Congress has set aggressive statutory goals for improvements in performance - from reducing energy and water intensity across the Federal government's real property inventory to pursuing net-zero energy buildings. In recognition of the cost savings and improved efficiency these achievements would provide, these targets have been reinforced by Executive Orders in two successive Administrations. To accomplish these goals, the Federal government will have to use every tool available to measure and improve building performance, and we must ensure these decisions are based on sound science. GSA is at the forefront of a variety of sustainability initiatives, including the Congressionally-mandated review of green building certification systems, which will help the Federal government select and use the best tools available to attain these goals and save taxpayer money.

GSA's success is measured in how well it aids other agencies in their effectiveness. GSA's broad reach over the acquisition, management, and disposal of Federal assets provides a unique opportunity to improve the performance of the entire Government. GSA owns or leases 9,624 assets and maintains an inventory of more than 370.2 million square feet of workspace for 1.1 million Federal employees. GSA recognizes that it has a responsibility to increase the efficiency and sustainability of the Federal government by reducing the cost and environmental impacts of its buildings as well as its products, services, processes, and activities.

Congress created the OFHPGB to enable and enhance Federal leadership in the field of large scale sustainable real property portfolio policy, management and operations. Chartered in December 2007 under Section 436 of the Energy Independence and Security Act (EISA), the office combines authoritative knowledge of Federal processes with multidisciplinary expertise in high-performance green buildings to provide leadership within GSA, the Federal government, and the broader commercial property market to ensure that our buildings minimize their burden on both the environment and the taxpayer. EISA also gave OFHPGB the mandate to conduct a study every 5 years to evaluate and compare available third-party green building certification systems, and requires the GSA Administrator to recommend a system(s) to the Secretary of Energy that encourages a comprehensive and environmentally-sound approach to the government-wide certification of green Federal buildings

Building Performance Goals

As noted, Congress has set aggressive goals for performance in Federal buildings that have been reinforced and expanded by Executive Order. In 2005, Congress passed the Energy Policy Act of 2005 (EPACT) that amended a number of energy management goals for Federal facilities including requirements that new Federal buildings be designed to meet the American Society of Heating, Refrigeration, and Air Condition Engineers (ASHRAE) 90.1-2004 energy efficiency standard and, if life-cycle cost-effective, to exceed these standard by 30%. In addition, EPACT required the Federal government's consumption of renewable electric energy meet or exceed 3 percent of electricity use from FY2007 – FY2009 with increases to 5 percent in FY2010 – FY2012 and 7.5 percent in FY2013, to the extent economically feasible and technically practicable.

In 2007, Congress expanded the Federal government's energy management goals and included water conservation requirements by passing the Energy Independence and Security Act of 2007 (EISA). EISA requires:

- Energy managers to complete annual comprehensive energy and water evaluations for approximately 25 percent of covered facilities, with each facility evaluated at least once every 4 years;¹
- 30 percent of hot water demand in new Federal buildings and major renovations be met with solar hot water equipment provided it is life-cycle cost effective;
- Agencies use energy-efficient lighting fixtures and bulbs in Federal buildings;
- Sustainable design principles to be applied to new Federal buildings and major renovations of Federal buildings;
- Aggressive fossil fuel-generated energy reductions for new Federal buildings and major renovations of Federal buildings, phased-in through 2030, and
- Agencies reduce total energy consumption per gross square foot in their new and existing Federal buildings by 30 percent from a FY2003 baseline by FY2015.

In 2009, the President signed Executive Order 13514 – *Federal Leadership in Environmental, Energy, and Economic Performance*, which reinforced and expanded upon the energy reduction and environmental performance requirements set in EPACT and EISA as well as Executive Order 13423. Among the expanded requirements, EO 13514 requires agencies to:

- Reduce potable water intensity by 26 percent in FY2020 compared to FY2007;
- Reduce industrial, landscaping, and agricultural water use 2 percent annually, leading to a 20 percent reduction by FY2020 compared to FY2010;
- Ensure all new Federal buildings entering the design phase in 2020 or later be designed to achieve net zero energy by 2030, and

¹ Covered facilities are those individual agency's Federal facilities that contribute at least 75 percent of the agency's total energy use. EISA requires agencies to identify all of their "covered facilities."

- Have at least 15 percent of existing buildings and leases meet the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings by 2015 with continued progress towards 100 percent.

In setting these building performance requirements and goals, Congress and the Administration realized the impacts buildings have on the environment, the economy, natural resources, occupant health, and productivity. Buildings use almost 40 percent of all energy, emit nearly 40 percent of carbon dioxide emissions, use 13 percent of our freshwater resources, generate over two-thirds of all non-industrial secondary materials, and form an indoor environment where Americans spend 90 percent of their time. If too little outdoor air enters a building, pollutants can accumulate to levels that can pose health and comfort problems².

Benefits

With these enormous impacts also comes the opportunity for a variety of benefits. High-performance buildings provide value for the taxpayer and for the public through both life-cycle cost benefits and positive effects on human health and performance. Compared to average buildings, high-performance buildings use less energy, water, and material resources; have better indoor environmental quality; reduce air and water pollution, and produce less waste; use environmentally preferable products; have integrated systems; use sites well and use local transportation to reduce adverse impacts on the local community; and improve conditions for the health and productivity of the buildings' occupants.

The life-cycle costs of well-designed and maintained green buildings are usually lower than the life-cycle costs of conventional buildings. Even the initial capital costs are not necessarily higher. When they are, GSA's study³ of the initial capital cost shows that the increase on average is about 3 percent, ranging from zero to ten percent), depending on the design. Similarly, a private sector study by Davis Langdon⁴ in 2007 shows that green building features tend to have a lesser impact on costs than other building decisions, such as which kind of finishes and amenities the building might include.

EISA states that a high-performance green building must not just perform well mechanically, but perform to improve the health and enhance the performance of the occupants.⁵ EPA has found that indoor air can contain volatile organic compounds, such as those found in paints and cleaning products, at concentrations indoors that are

² US Environmental Protection Agency, The Inside Story: A Guide to Indoor Air Quality

<http://www.epa.gov/iaq/pubs/insidestory.html>

³ GSA LEED Cost Study, 2004. <http://www.wbdg.org/ccb/GSAMAN/gsaleed.pdf>

⁴ Lisa Fay Mathiesson, Peter Morris, "The Cost of Green Revisited" Davis Langdon, July 2007,

http://www.davislangdon.com/upload/images/publications/USA/The_percent20Cost_percent20of_percent20Green_percent20Revisited.pdf

⁵ EISA Sec. 401(13).

2-5 times, and sometimes as much as 100 times, higher than outdoor air. Poor indoor air quality associated with such pollutants as mold, tobacco smoke, and radon can also increase respiratory diseases and the risk of cancer.⁶ Lighting quality, including levels of daylighting and views, have significant impacts on employee productivity and satisfaction, as the Pacific Northwest National Laboratory has found. Carnegie Mellon University has documented over 100 scientifically valid, peer-reviewed, studies that demonstrate the link between high-performance features and various aspects of productivity.

The Federal government as a whole has made tremendous strides in improving building performance. GSA has demonstrated significant progress by achieving a green score for all of the status goals included on the FY2010 and FY2011 OMB Sustainability and Energy Scorecard. GSA has reduced its energy intensity by over 19 percent as compared to its FY2003 baseline through sustainable design of new buildings, energy-efficient management of existing Federal buildings, and increased procurement of renewable energy. In FY2011, GSA purchased or generated 15.8 percent of its total electricity from renewable resources. GSA has also reduced its water intensity in covered buildings by over 13 percent as compared to its FY2007 baseline.

In 2011, GSA conducted a follow-up study to its 2007 report *Assessing Green Building Performance: A Post Occupancy Evaluation of 12 GSA Buildings*.⁷ To answer the question “do green buildings deliver the performance they promise,” GSA selected 22 of its earliest green buildings from its national portfolio and confirmed that, on average, GSA’s sustainable designed buildings use 25 percent less energy, cost 19 percent less to maintain, and have occupants who are 27 percent more satisfied than those working in typical buildings.⁸

Achieving Performance Goals

To accomplish building performance goals, the Federal government must measure the performance of the inventory and make needed improvements. GSA’s OFHPGB assists in these efforts.

Measurements

One tool used to benchmark the energy performance of buildings is Energy Star®, a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. Energy Star® Portfolio Manager is an interactive energy management tool for tracking and assessing energy and water consumption across an entire portfolio of buildings. Portfolio Manager uses building performance information that is entered into the system and compares a particular building with similar facilities. Portfolio Manager provides a score from 0 to 100 and if a building achieves a score of 75 or greater, it may

⁶ US Environmental Protection Agency, Indoor Environments Division, <http://www.epa.gov/iaq/voc.html>

⁷ Study can be found at http://www.gsa.gov/graphics/pbs/GSA_Assessing_Green_Full_Report.pdf

⁸ Follow-up study can be found at http://www.gsa.gov/graphics/pbs/Green_Building_Performance.pdf

qualify for the Energy Star® label. At the end of FY11, GSA had earned the Energy Star® label on 149 owned buildings with an additional 176 buildings that are eligible.

Green Building Certification systems are another tool agencies use to evaluate and measure achievements in the sustainable design of buildings. Section 436(h) in EISA requires that the Director of OFHPGB in GSA evaluate green building certification systems every five years to identify a system and certification level that will be most likely to encourage a comprehensive and environmentally sound approach to certification of green buildings. EISA requires the GSA Administrator to provide his/her findings to the Secretary of Energy, who consults with the Secretary of Defense and the GSA Administrator to identify the system that the Secretary of Energy determines to be the most likely to encourage a comprehensive and environmentally-sound approach to certification of green buildings. In 2006, GSA first evaluated certification systems focusing on new construction. Based on this 2006 review, GSA identified the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certification system for use in the Federal sector. Much has changed in the past half-decade, however.

My office is currently conducting its second review of green building certification systems focusing on new construction, major renovations, and existing buildings. High performance building requirements for new construction and existing buildings from EISA and Executive Orders 13423 and 13514 form the foundation for the criteria that OFHPGB is applying in this review. These requirements include performance standards relating to energy use, greenhouse gas emissions, water use, waste reduction, materials use and employee commuting for all Federal facilities. With the help of the Pacific Northwest National Laboratory (PNNL), OFHPGB completed its most recent evaluation of green building certification systems in March 2012. PNNL conducted a fact finding of all the green building certification systems and standards currently in the market and initially identified over 160 different systems and tools. Undertaking a detailed review of this large field of potentially useful tools was not cost-effective, so OFHPGB developed a set of screening criteria to narrow this field. The following screening criteria were used to identify which systems met the minimum expectations of a green building certification system with respect to EISA:

- Systems must employ whole building evaluation, addressing key sustainable design and operations metrics;
- Systems must be available in the U.S. market, and
- Systems must have third party certification.

Three certification systems passed the screening criteria: Green Building Initiative's Green Globes® (2010), U.S. Green Building Council's Leadership in Energy and Environmental Design® (2009), and the International Living Building Institute's Living Building Challenge™ (2011). Following screening, these three systems were then evaluated against a list of detailed criteria summarized below:

- Independence – assessors have no stake in outcome

- Availability – assessors are available to review buildings
- Verification – documented verification method
- Transparency – documented approach for inclusion of public comments in standard development and updates
- Consensus based – per OMB circular A-119
- Robustness – efficient and sustainable use of water, energy, and other natural resources; Federal requirements are met for resource use as well as indoor environmental quality, building system controls, siting, integrated design, and renewable energy
- System Maturity – effective links are available to the latest tools and standards; system included components to track performance post occupancy; system is consistently updated
- Usability – affordable, technical knowledge to use the system is readily available, well defined and easily understood, professional rigor
- National Recognition – recognized academically, within the private market and Federal sector

GSA recently published PNNL's Green Building Certification System Review report. Prior to its release, the report was reviewed by Federal sector peers to ensure accuracy and to gauge the completeness of the evaluation. In addition, the draft report was provided to the three green building certification system organizations for their input with comments reconciled and included in the appendices. The report shows that none of the green building rating systems cover 100 percent of Federal green building requirements for new construction, major renovations, and existing buildings.

In recognition that there is a high level of interest in the green building certification system review, both within and outside the Federal sector, OFHPGB has asked the Department of Energy and the Department of Defense to co-chair an interagency task force to work through a set of related questions and issues around building performance requirements, proposed revisions to the High Performance and Sustainable Building Guiding Principles, applicability of ASHRAE Standard 189.1, and certification systems using the recently published PNNL study on Green Building Certification System Review⁹. Agencies with large portfolio holdings such as the Department of State, National Park Service, Department of Veterans Affairs, and Forest Service, in addition to the Department of Energy and Department of Defense, have been invited to participate on the task force. There are six planned meetings for the interagency task force with the first meeting scheduled on May 17, 2012. In addition, we are planning public listening sessions where the public can provide input. Prior to submitting our recommendation to the Secretary of Energy, the OFHPGB will publish the interagency task force conclusions in the Federal Register and will solicit comments from the public over a period of 60 days. After taking into consideration the deliberations of the interagency task force and the public comments from the listening sessions and Federal Register notice, GSA will make its final recommendation to the Secretary of Energy, which we anticipate to be in the fall.

⁹ Available at <http://www.gsa.gov/gbcertificationreview>

Improvements

GSA's OFHPGB is also involved in initiatives to improve building performance such as the increased use of energy savings performance contracts (ESPCs) and implementation of the Federal Buildings Personnel Training Act (FBPTA).

An ESPC is a contracting vehicle that allows Federal agencies to accomplish energy projects for their facilities with private sector funding for up-front capital costs. The private investment is paid back through guaranteed cost savings from building improvements that save energy at the facility. OFHPGB, in collaboration with DOE's Federal Energy Management Program launched an effort in 2011 to enhance and increase the use of ESPCs at GSA buildings. This effort, the Deep Retrofit Challenge, will use GSA buildings across the country as demonstration projects for deep savings from EPSCs. The goal of the project is to achieve the maximum savings possible with no artificial limit on the use of technologies. My office convened a meeting in October 2011 of Federal contract negotiation and contract management personnel with the Energy Services Company (ESCO) providers on the DOE ESPC Indefinite Delivery Indefinite Quantity (IDIQ) contract. The meeting provided an opportunity to discuss barriers and solutions to raise the bar on the level of savings an ESPC can provide to government agencies. GSA recently announced the list of GSA buildings participating in the Deep Retrofit Challenge and issued a Notice of Opportunity for ESCOs to express their interest, approach, and preferred buildings with a goal to present the best retrofit plans that move a building towards net zero energy consumption.

GSA is also working with other Federal agencies to carry out requirements from the Federal Buildings Personnel Training Act of 2010 (FBPTA). FBPTA requires GSA, in collaboration with DOD and DOE, to identify the necessary core competencies for Federal building operations and management personnel, the methods required for demonstrating these core competencies, and a recommended course curriculum. Congress passed FBPTA to ensure the Federal building operations workforce is adequately trained and maintains certain core competencies to ensure Federal buildings are maximally productive and properly maintained in order to achieve the highest possible return on investment over the infrastructure's projected operating life.

Sound Science

As the Federal government makes decisions on which technologies to utilize, we must ensure we use peer-reviewed studies and a sound scientific foundation. The Federal government relies on the extensive work funded by DOE and their Commercial Buildings Program and Federal Energy Management Program. Many prospective green building technologies are developed, evaluated and tested by DOE's National Laboratories, which incorporate peer-review into their scientifically based studies. The Federal government relies on these studies, and others identified, to make decisions on advanced building technologies. However, there is a well-documented divide between

technologies that achieve research and development success and those technologies that do not or have not yet achieved adequate commercialization.

One role the Federal government can play is to communicate research results to practitioners so that the research findings are used in building operations.. The OFHPGB identified a method to repackage and distribute solid scientific research that has yet to be broadly practiced in the field. Effectively delivering this research to its intended audience, such as facility managers and financial decision-makers, will expedite adoption of best practices, embed sustainability in building design and operations and lead to integrated solutions that achieve continuous high performance in buildings.

Conclusion

Putting all of these tools together, and ensuring we use the best evidence available to make decisions, will allow the Federal government to make strides in achieving the aggressive performance goals set by Congress and pursued by the Administration. GSA is proud to be part of that effort.

Thank you again for this opportunity to come before you. All of us in the Federal government who are managing its vast real property inventory are excited by the contribution Congress has allowed us to make. I am available to address any questions you may have.