

GSA Green Building Advisory Committee November 9, 2011 Meeting Materials

Summary of Meeting Materials

- I. **Background**
- II. **Project Summaries**
 - Levers for Change
 - High Performance Green Building Demonstration Projects
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- III. **Appendix**
 - GSA Office of Federal High-Performance Green Buildings Team Member Biographies

Note: Meeting Agenda and Green Building Advisory Committee Member Biographies will be provided separately.

Background

General Services Administration (GSA)

As the Federal government's landlord and the nation's largest civilian public real estate organization, GSA has significant influence over the construction, design and real estate marketplace. GSA's portfolio includes more than 9,600 properties – over 1,500 owned and over 8,000 leased – constituting an inventory of more than 370 million square feet of workspace for 1.1 million Federal employees at 400 agencies, commissions and bureaus. In 2009, the Agency procured goods, services, and workspace valued at \$62

billion, approximately 11 percent of the Federal government's total procurement spending.

GSA Office of Federal High-Performance Green Buildings

Sustainable marketplace leadership by example is an increasingly central focus of GSA's mission, following the direction of Administrator Martha Johnson and a series of laws and Executive Orders mandating the greening of the Federal government. The Energy Independence and Security Act (EISA) of 2007 created GSA's Office of Federal High-Performance Green Buildings ("the Office") and mandated the formation of the Green Building Advisory Committee.

The mission of the Office is to catalyze and facilitate the Federal government to operate more efficiently and effectively, and lead the marketplace to sustainability, by minimizing the Federal footprint through efficient use of energy, water, and resources, and by creating healthy productive workspaces. The Office works to promote, coordinate and stimulate green building across the **entire** Federal government – which includes over 400,000 owned or leased buildings containing over 3 billion square feet of space. Fundamentally, this requires finding innovative opportunities to save the taxpayers money and maximize the nation's investments through the most efficient, effective and sustainable approaches to building design, construction and operation.

The Office was fully staffed in 2010 with funding from the American Recovery and Reinvestment Act. The Office has become a key player in the Federal government's implementation of Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy and Economic Performance*, along with Federal partners including the Office of the Federal Environmental Executive, U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (EPA).

This Office works with all real property-managing Federal agencies, and with GSA's Public Buildings Service (PBS), Federal Acquisition Service (FAS), and other GSA programs to identify and expand opportunities for, and remove barriers to, sustainable facilities and to lead the marketplace by piloting and adopting transformative sustainable practices.

GSA Green Building Advisory Committee

The Committee's mission is to provide advice to the GSA Administrator to accelerate the successful transformation of the Federal building portfolio to sustainable technologies and practices. The Committee will review the strategic approach, projects

and activities of the Office in order to provide expertise and guidance on how the work of the Office may be better geared to ensure success in its government-wide greening mission. We also look to the Committee members and your organizations as strategic partners and collaborators in our work. We plan to have two face-to-face meetings of the Committee per year, in spring and fall. The fall meetings will be your opportunity to review and comment on GSA's green building work over the past fiscal year, while the spring meetings will allow you to view and comment on our plans for the upcoming fiscal year. Interactions with the Office between these two formal meetings will be on a project or topic-specific basis, and occasional teleconferences may be scheduled, if necessary. The initial kickoff meeting will focus on both past and present work. We are requesting a two year commitment and in person attendance at Committee meetings – no substitutions please. Per the requirements of the Federal Advisory Committee Act (FACA), all Committee meetings will be open to the public.

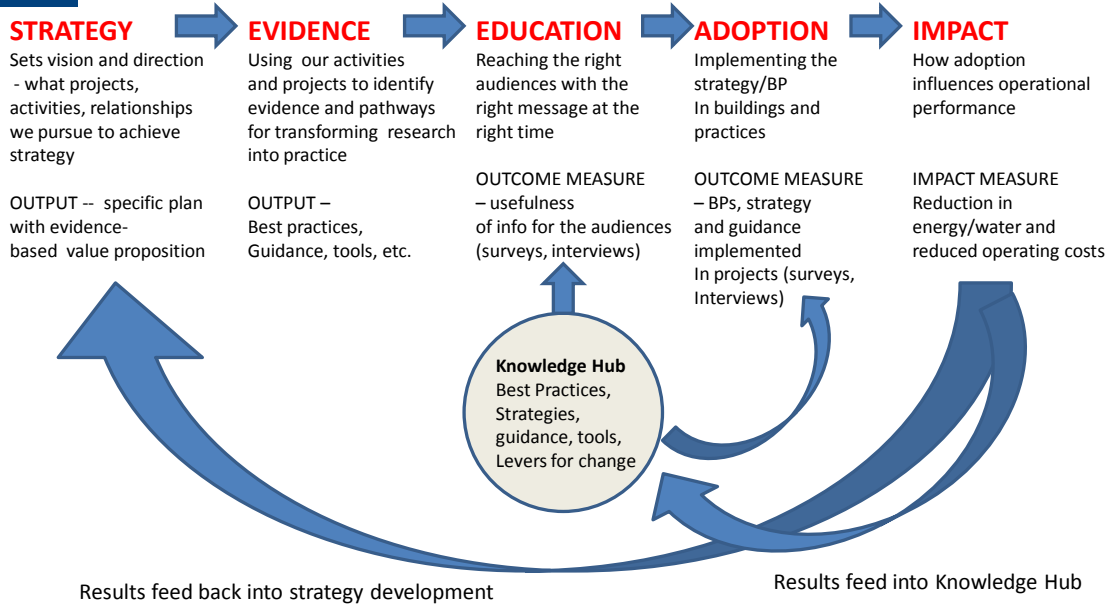
Office of Federal High-Performance Green Buildings Projects

Projects of the Office are organized to move optimal green building technologies, strategies and practices into widespread Federal use through a progression from research to application in the field, as illustrated in the graphic on the next page:

- The evaluation, demonstration and proof of innovative sustainable building strategies and technologies – to see what works most effectively.
 - Examples: High-performance building demonstration research projects including sub-metering and behavioral research; GSA Energy Savings Performance Contract (ESPC) Net Zero Energy Retrofit Challenge, Adaptation and resiliency planning.
- The translation of these technologies and approaches into standards, guidance and other means for incorporation into daily operations.
 - Examples: Sub-metering for leased facilities, Revisions to the Federal Guiding Principles for High-Performance and Sustainable Buildings, Guidelines for use of eco-labels in Federal procurement, Federal Building Personnel Training Act (FBPTA) implementation
- The targeted transmission of information and practice to customers within GSA, throughout the Federal government and in the marketplace
 - Examples: Sustainable Facilities Tool; Research into Practice Knowledge Hub; Interagency Sustainability Working Group



OFHPGB Organization to support Research Into Practice



PROJECT SUMMARIES

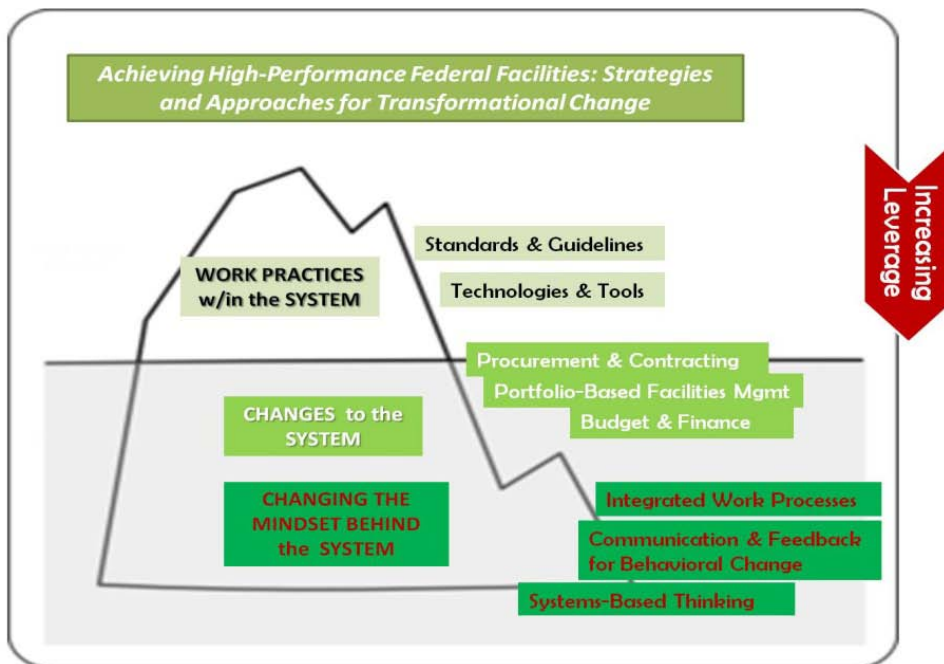
Levers for Change Project Summary

Background: National Academies' Expert Report

Meeting the Federal government's ambitious sustainability goals requires moving beyond incremental changes to identifying alterations in Federal practices that are truly transformative. To this end, the Office commissioned the National Research Council of the National Academies to convene an expert panel and produce the April 7, 2011, report "*Achieving High-Performance Federal Facilities: Strategies & Approaches for Transformational Change.*"¹ This report was developed through interagency collaboration and calls for bold thinking and specific reforms to deliver aggressive advances toward a *zero environmental footprint* across the Federal government while simultaneously creating economic value and healthier, more productive buildings for their occupants. This report revolved around the theme of systemic strategies it called **levers for change**. The Office has adopted this concept as a central organizing principle to accelerate the transformation of the Federal portfolio to high performance buildings.

The National Academies' panel, comprised of nationally-recognized green building experts, identified eight Levers for Change to spur transformative change across the Federal buildings portfolio. As shown in the iceberg illustration below, leverage over the system increases as you move below the surface with systems-based thinking, feedback for change, and integrated work processes.

¹The National Academies, [Achieving High Performance in Federal Buildings: Strategies and Approaches for Transformational Change](http://www.nap.edu/catalog.php?record_id=13140), http://www.nap.edu/catalog.php?record_id=13140



Four Key Themes

Over the next year, the Office plans to work with the National Academies to bring industry and academic experts together with Federal communities of practice to identify actionable strategies and projects to facilitate transformation within the four themes outlined below.

Systems Thinking. Transformative change requires changing the way we do business across major Federal business systems. Systems thinking requires going beyond piecemeal approaches to identify integrated solutions that shrink the Federal footprint while delivering greater value. To achieve transformational change, we need to *change the mindset behind the system*. Sample strategies include:

- Develop *integrated* work practices and change the focus from *project* to *process*
- Reduce handoffs by using integrated teams
- Make reduced O&M costs an evaluation and selection criterion
- Move beyond the concept of owned buildings to shared infrastructure (among Federal agencies and with communities)

Portfolio-based Facilities Management. We need to plan, design, construct and operate the Federal building portfolio more systematically, rethinking how the government uses resources, develops tools and interacts with communities. The focus

needs to shift to *portfolio* strategies to reduce energy and water use, and make effective use of resources – including the workspace. This strategy aligns strategically with Federal portfolio disposition directives and potential “civilian BRAC” legislation. The Federal government has shown leadership as an early adopter of green building; now we need to spur the market to more profound change at a broader level than building by building. Sample strategies include:

- Create an integrated strategy to attain a zero environmental footprint in Federal buildings
- Roll up business goals to the portfolio level including metrics for sustainability, occupancy and mobility
- Categorize buildings by type (building systems) & identify strategies (like bundling technologies) by building category
- Develop workforce competencies for portfolio management and effective building operations

Procurement and contracting. What we buy and how we buy it is at the heart of sustainability. We need to internalize life cycle thinking in all aspects of the procurement process, create innovative procurement strategies and tools and reduce handoffs to increase contracting effectiveness while using the Federal government’s spending power to move the market towards sustainable products and services. We also need to mitigate tendencies towards risk aversion by providing safety nets for people who dare to try innovative procurement approaches.

Sample strategies include:

- Establish holistic, integrated performance-based objectives early and collaboratively, then use them to manage execution of the contract
- Include evaluation criteria that favor integrated design and create openings to implement current technology
- Create government centers of excellence for business-based core contracting processes. Consider a GSA procurement service offering around master agreements, checklists and questions, strategic central procurement, performance-based specifications and controls and integrated acquisition
- Convene communities of practice to:
 - Eliminate common barriers like:

- Accounting frameworks that don't take into account other values
- Disjointed supply chain
- Lack of expertise throughout the process
- And implement systemic solutions including:
 - Buy creativity and innovation – the product should be less important than a strategy to adopt solutions
 - Eliminate the substitution lane

Budget and finance. Integrating life cycle costing into budget scoring and planning would bring first costs and operating costs together, outlining the path to reduced operating costs for the Federal government as a whole. Rolling up integrated business goals (including occupancy, mobility and sustainability) to the portfolio level would help to overcome challenges posed by the current budget process and segmented work processes. Sample strategies include:

- Introduce life cycle costing as part of the budget scoring process
- Provide working examples of LCC methods and LCA capital costing tools

Project Execution to Date

On September 19-20, 2011 the National Academies convened a *meeting of experts* focused around procurement practices in portfolio management. The workshop's primary objective was to identify how performance-based contracting and integrated work processes can be rapidly adopted by GSA to manage its facilities portfolio and meet its goal for a zero environmental footprint. Participating experts included owners and contractors who have successfully used performance-based contracting and integrated work practices for the design, construction and rehabilitation of Federal buildings (National Renewable Energy Laboratory's (NREL) near-net-zero facility and the Pentagon); former owners/managers of large facilities portfolios (U.S. Navy, DuPont); and researchers who have developed best practices for pre-project planning, project delivery; and performance-based contracting. GSA staff participating in the workshop included design and construction program managers; contracting and acquisition officers; real estate, leasing, and legal experts; sustainability champions; and budget and policy makers from GSA's various offices, headquarters, and regions.

Several categories of strategies and actions emerged from the workshop, including:

- Initiate a “Planning Excellence Program” encompassing the elements of a performance-based program
- Champion training efforts on performance-based best practices, promoting an environment of shared learning within and across government agencies. Bring existing tools together and engage others to understand how the information is effectively communicated.
- Work with GSA Leadership to create and communicate a clear, unambiguous leadership vision similar to the ARRA vision of “on budget, on time, on green.”
- Improve the Design Excellence Program to incorporate sustainability as a primary objective
- Integrate Performance Criteria into the *Facilities Standards for the Public Buildings Service* (P100)
- Research and propose a revised policy that facilitates lifecycle resourcing

A second expert meeting is planned for early February focused around how technology can be used to leverage change in existing buildings at the portfolio scale. We anticipate convening this workshop in collaboration with the Department of Energy (DOE), Department of Defense (DOD), other Federal portfolio managers and the National Academies’ Federal Facilities Council. Invited experts will be asked to address technologies that are transferrable, replicable and scalable, using strategies such as technology bundling. Topics tentatively slated for expert meetings later this calendar year include budget & finance barriers and regenerative building design, construction and operations.

High-Performance Buildings Demonstration Research Project Summary

Background

Consistent with EISA §§ 491-492, the Office has developed guidelines and initiated demonstration research projects that will advance understanding of high performance in buildings. The Office works with researchers and facility operators to establish research protocols that will help us better understand which technologies & operational practices result in improved building performance, and how to foster associated changes in behavior for both operators and occupants. The program's scope includes building energy use (overall, by subsystem, and by specific components such as data centers), water use, indoor environmental quality, emerging technologies and practices (such as vegetated roofs) and workplace functionality. Research results from the first project are currently being finalized in a technical report, with data directed into DOE's High-Performance Federal Buildings database. These results will also be formulated into best practices for facility managers, guidelines & recommendations for portfolio managers and recommendations for additional research, which will be disseminated through the "Research into Practice Knowledge Hub." This program is undertaken in collaboration with the DOE Commercial Buildings Initiative.

First Demonstration Project: EPA Region 8 Headquarters

The current demonstration project focuses on the EPA Region 8 Headquarters, located on Wynkoop Street in Denver, CO. Researchers include GSA, NREL, Pacific Northwest National Laboratory (PNNL), EPA, and specialized contractors. Research activities include:

- Testing three scenarios aimed at understanding the most effective strategies to manage plugload energy use at the desktop (occupant behavioral change).
- Evaluation of dual flush water closet performance relative to modeling assumptions used in design, with follow-on testing of a retrofitted flush handle.

- Field testing of the effectiveness of sound masking in an underfloor air distribution system, with follow-up testing of improvements in performance achieved through a speaker “boot” retrofit;
- Capturing best practices employed in reducing energy use in a small data center, with recommendations on most effective next steps;
- Analysis of workplace functionality in the context of the existing furniture layout, with recommendations around how to reconfigure space and deploy technology to facilitate transition to a mobile work environment.

The technical report also includes results from previous research undertaken at this facility by GSA and EPA, including underfloor air distribution system performance (including thermal comfort and air leakage) and operation and maintenance of the vegetated roof in a high mountain desert climate (including development of an irrigation protocol with native and adaptive xeric plant species).

EPA Region 8 Demonstration Project Highlight:

Plugload Energy and Occupant Behavior

Research design The project employed submetering, occupancy sensors and an energy management system to test three different strategies for reducing desktop plug loads using a subset of workstation clusters (total of 126 EPA staff participated). After establishing the baseline, GSA and the NREL research team tested three experimental conditions:

1. Automatic shutoff: The energy management system automatically turned off non-critical equipment after 15 minutes if the workspace cluster was not occupied
2. Dashboard data: Occupants were given access at their desktops to an energy dashboard displaying real time energy use, asked to reduce their energy use and provided with information on how much energy the various desktop devices used.
3. Competition: In addition to the information provided in test 2, occupants were given access to data about energy used by other workstation clusters and to reduce their energy use relative to their peers.

Summary findings and observations. Energy reductions achieved varied substantially by intervention strategy:

- Automatic turnoff of desk top devices – 20% savings compared with the baseline
- Information strategy – 0% savings compared with baseline
- Competition strategy – 6% savings compared with baseline

Energy dollars saved (extrapolated to annual cost savings):

- Automatic turnoff – estimated \$3476 savings annually
- Information – no savings
- Competition – estimated \$991 savings annually

Return on investment (ROI):

- The biggest initial cost was the energy management system
- Dashboard set up time (facility staff resources) and cost was significant due to barriers encountered with LAN security and (ultimately) the need for a dedicated DSL line to feed data to the dashboard

Portfolio management conclusions:

- A simpler, more cost effective technology is needed for desk top plug load reduction
- Access to information alone does not necessarily result in changed behavior
- Using combined methods such as auto turnoff and competition may be more effective than either one alone.

Additional research: The “three test” research protocol developed for this project will be used in the GSA Green Proving Ground using a low-cost, non-invasive submetering technology that also can be used to turn off plugs. Results will be compared with findings from the EPA study.

Plans for Second Demonstration Research Project

The Office has begun developing partnerships and plans for a second demonstration project. While many details still need to be worked out, the basic outline for the project to date is as follows:

- Following the recommendation of the National Research Council’s Levers for Change report to shift Federal attention from single building approaches to portfolio strategies, the Office plans to focus this year on multiple buildings in a campus setting, specifically a military base. GSA is in discussions with the Army,

and Fort Carson in Colorado has been recommended as the strongest candidate for a demonstration project, based on the progress it has made to date on green building and other sustainability projects, and its commitment to become a net zero energy, water and waste installation. The project will support the Army's Net Zero Installation Strategy.

- The Office has initiated contracts with three parties to conduct the research and compile the findings from this project:
 - The National Renewable Energy Lab (NREL) will gather baseline data and conduct analyses related to energy and water usage and indoor environmental quality.
 - The Pacific Northwest National Lab (PNNL) will conduct research on the impact of operations and maintenance and the behavior of both occupants and building operational staff on green building performance, with a focus on changing behaviors to achieve higher environmental performance.
 - LMI will support the translation of the labs' findings and related research into scalable, replicable forms designed for the sustainable transformation of Federal portfolio management.

- Field work on this project will begin in early 2012, and it is projected to require two years of effort.

Research into Practice Knowledge Hub Project Summary

Background

Many technologies, practices, and strategies that would significantly reduce the environmental footprint of Federal buildings do not get implemented, despite research validating their effectiveness. A major contributor to this problem is that key information (including training and demonstrations) does not reach the people who are responsible for a range of decisions that affect implementation – from purchasing and contracting to construction and facility management.

To address this problem, the Office supported three keystone activities in 2011 that laid the foundation for the *Research into Practice Knowledge Hub* initiative:

1. Commissioned a report by the National Research Council of the National Academies to identify building technologies, practices and strategies that have the greatest potential for creating replicable and scalable transformative change in Federal buildings.
2. Convened a cross disciplinary community of practice to identify ways to overcome barriers and create adoption pathways to expand the purchase, installation, and effective use of thermal and lighting technologies that are known to produce significant energy savings.
3. Created a communications plan that identifies target audiences, communications pathways, messages and media for reaching the right people at the right time to enhance adoption of sustainable practices and technologies.

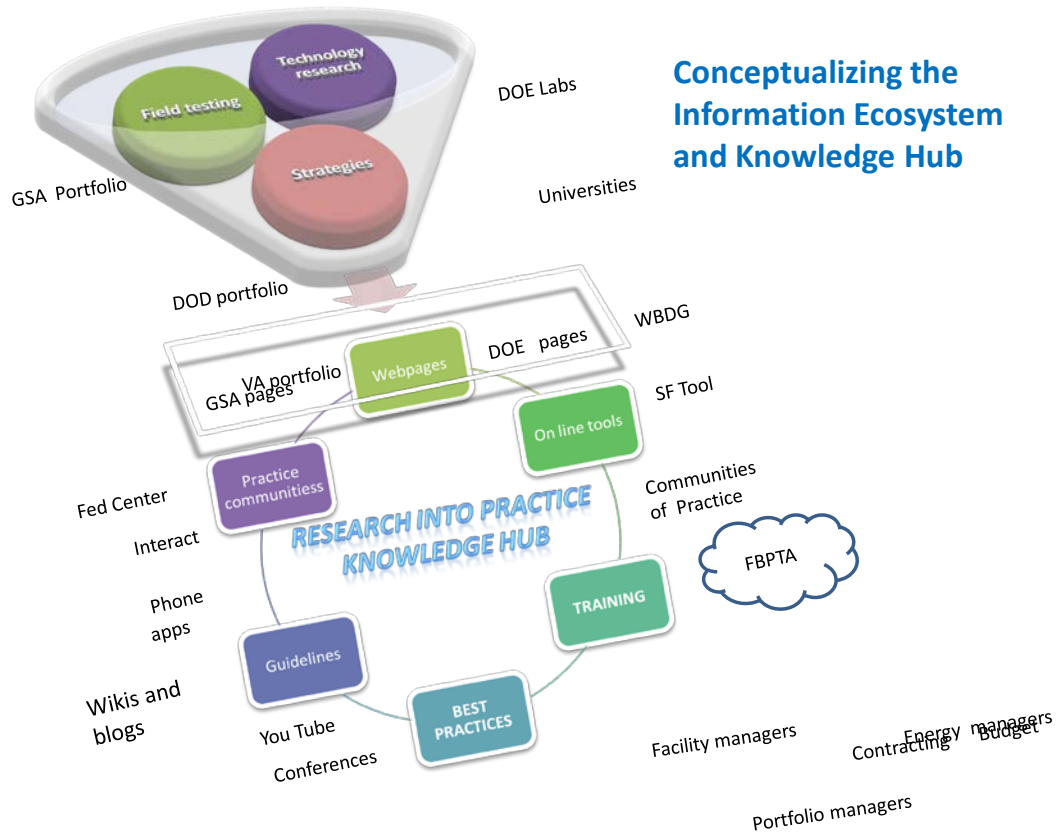
These activities led to the creation of what we call the *information ecosystem* to facilitate the dispersal and adoption of technologies, practices, and strategies focused around sustainable and cost effective building operations. This is not a typical “post it and leave” approach to information dissemination. Rather, it builds off of the above keystone activities by creating multiple relationships, mixed modes of communication and learning, continuous adaptation, and feedback for improvement. The approach facilitates *learning by using*, adapting and changing similar to how a living system learns and adapts. Through the use of social media and interactive communities of practice, we hope to facilitate *swarm intelligence* – which promotes the collective intelligence of best practices through collaboration and pooling of expertise.

The key components of the information ecosystem, which will be implemented in FY 2012, include:

- A living **Knowledge Hub** that organizes information and facilitates sharing, collaboration, and interaction among users
- A communications plan targeted at people who can implement new strategies and technologies – from purchasing through installation and operations.
- Additional modules for GSA's **Sustainable Facilities Tool** to reflect recommendations from the National Academies' report as well as on-going research and results from the Office demonstration projects and other high priority GSA sustainability work.
- Feedback loops with regularly updated information on technologies, practices and strategies.
- Strategic partnerships with Federal agencies and private sector organizations to identify replicable and scalable sustainable strategies, practices, and technologies that can be fed into the Knowledge Hub for distribution to a wide array of user groups.

The Conceptual Framework for Research into Practice

The illustration below shows the conceptual framework for the information ecosystem and Research into Practice Knowledge Hub. As can be seen, this effort involves partnerships with Federal agencies, national laboratories, and universities.



Conceptualizing the Information Ecosystem and Knowledge Hub

The Research into Practice Knowledge Hub

A key priority for 2012 is the development of pilot content for the Knowledge Hub using the communications strategy developed in FY 2011 to establish a multi-channel education and outreach platform. The platform will be used to disseminate best practices, guidelines, standards, decision tools and educational content focused around sustainable and cost effective operation of facilities to targeted audiences within GSA, the Federal sector, and private industry. Targeted audiences include facilities managers, energy and project managers as well as procurement and budget personnel in the technology adoption decision-making chain. The objective of this effort is to facilitate adoption of technologies and strategies that are known to improve building performance by getting the right information in the right format to the right people at the right time.

Evidence based findings and recommendations from several high priority FY 2011 projects will provide the first content for this integrated platform. This includes findings from the 2011 demonstration project at the EPA regional headquarters in Denver, findings from an office lighting demonstration project, results from submetering pilot

projects, recommendations from the Green Building Certification System review, and best practices (including procurement) identified by the NAS expert convenings in 2012. Peer reviews of these major activities will be conducted prior to releasing best practices and guidance to the Knowledge Hub.

Channels to disseminate information include expansion of the successful online Sustainable Facilities Tool to include a whole building capability, use of collaborative social media sites, the GSA webpage to reach mixed government/non government and government-only communities of practice, specific outreach through educational sessions at targeted conferences, and educational modules for established and emerging training programs, including Federal Energy Management Program (FEMP) webinars, on-line training through the Federal Acquisition Institute (FAI), and content developed as a component of the Federal Buildings Personnel Training Act (FBPTA) implementation.

The Research into Practice platform will include monitoring and measuring effectiveness that will evolve as components are built out and implemented. Key methods include feedback on the usefulness of best practices and guidance as well as evidence of successful adoption by interviewing targeted users.

Green Building Certification System Review Project Summary

Background

The Office has a mandate to provide an objective, independent evaluation of green building certification systems for use by the Federal government. EISA sections 433(h) & 436(h) require identification of “*a green building certification system [deemed] to be most likely to encourage a comprehensive and environmentally sound approach to ratification of green buildings*” in the Federal sector. The Director of the Office of Federal High-Performance Green Buildings is charged with identifying the certification system and level based on a comparison of systems, using specified criteria. Based on this review, DOE, in consultation with GSA, is to identify the system (through a rulemaking) for use across the Federal government

This review is to be conducted every 5 years. The first review was performed in 2006, focused around certification systems for new construction and major renovation. The present review and report evaluates certification systems for existing buildings, new construction and major renovations (commercial buildings only).

The Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings were created in 2006 and Executive Orders 13423 and 13514 enacted to establish high performance requirements for new and existing Federal facilities. 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. These mandates informed the development of additional performance criteria for this review.

Process

1. Screening criteria were used to identify which systems met the minimum expectations of a green building certification system:
 - Systems must employ whole building evaluation, addressing key sustainable design and operations metrics,
 - Systems must be available in U.S. market,
 - Systems must have third party certification.

Three systems survived screening:

Certification System	Owner	Whole-building sustainability	Building Types	Third-party Certification
LEED®	U.S. Green Building Council (USGBC)	LEED is comprised of five key areas: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.	LEED certifies commercial new construction and major renovations, existing buildings, commercial building interiors, core and shell construction, schools, retail, healthcare, and homes.	The Green Building Certification Institute (GBCI) provides third-party certification services.
Green Globes™ US	Green Building Initiative (GBI)	Green Globes U.S. is comprised of seven key areas: energy, indoor environment, site, water, resources, emissions, and project/environmental management.	Green Globes U.S. certifies new buildings and signification renovation, and management and operation of existing buildings.	Green Globes Assessors (GBI contractors) provides third-party certification services.
Living Building Challenge	International Living Building Institute (ILBI)	Living Building Challenge is comprised of seven performance areas: site, water, energy, health, materials, equity and beauty.	Living Building Challenge certifies development at four scales: building, neighborhood, village/campus, and city.	A third-party auditor is responsible for performing document review and onsite verification.

2. Review criteria for systems passing the screening stage are 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 the Office of Management and Budget (OMB) circular A-119
- Robustness - efficient and sustainable use of water, energy, and other natural resources; criteria for these and following categories meet Federal requirements: IEQ, building system controls, siting, integrated design, renewable energy
- System Maturity – effective links to latest tools & standards; components to track performance post occupancy; consistently updated
- Usability – affordable, technical knowledge to use the system is readily available, well defined & easily understood, with professional rigor
- National Recognition – recognized academically, within private market & Federal sector

3. Publically available information was reviewed for each system, then mapped to review criteria

4. This mapping was shared with system owners, with an opportunity to provide additional information (included in appendix). If the information provided by the system owner was not independently verifiable, the tables source the information as “system owner provided.”
5. Federal users (at the portfolio and facility level) were surveyed regarding their experiences with these systems; that information was included in the analysis.

Definitions of Performance

- **Measured Use** - Measured Use requires quantitative information about the applicable metric based on measured or monitored consumption or generation data.
- **Calculated Use** - Calculated Use requires calculations of consumption or generation based on assumptions about the design or operation of the applicable metric.
- **Evidence of Intent or Actions** - Evidence of Intent or Activities requires documentation of plans, policies, or implementation activities.

Example of Report Findings Regarding Performance

Table 4-7 Robustness Codes



































































	Solid circle	Meet the requirement – required by standard
	3/4 circle	Meet the requirement if points are achieved (points are optional)
	Half circle	May meet the requirement (metrics cannot be compared directly) or partially meets the requirement

Table 4-10 Meet a Current Federal Requirement for EB

Robustness - Others			
Integrated Assessment, Operation and Management			
Commissioning			
Robustness - Water			
Indoor Water			
Process Water			
Outdoor Water			
Stormwater			
Water-Efficient Products			
Robustness - Energy			
Energy Efficiency			
On-Site Renewable Energy			
Measurement and Verification			
Benchmarking			
Robustness - Materials			
Recycled Content			
Biobased Content			
Environmentally Preferable Products			
Waste and Materials Management			
Ozone Depleting Compounds			
Low-Emitting Material			
Robustness - Indoor Environment			
Ventilation			
Thermal Comfort			
Daylighting			
Environmental Tobacco Smoke Control			

Next Steps

- Draft report to the Office
 - QA, frame questions for discussion of recommendations
 - PBS National Sustainability Council representation welcome
- Convene interagency group, including major portfolio holders, to review final draft report
 - 2-3 hour virtual “slam”
 - Green Building Advisory Committee input
- Continue discussion with interagency group to formulate recommendations, including relationships with
 - ASHRAE 189.1 and other standards
 - Revisions to the Guiding Principles for High-Performance and Sustainable Buildings
- Recommendation to DOE by December 30, 2011

APPENDIX

GSA Office of Federal High-Performance Green Buildings Team Member Biographies

Kevin Kampschroer is the Director of GSA's Office of Federal High-Performance Green Buildings. This new office has consolidated and is coordinating Federal efforts in the broad realm of building sustainability, acceleration of industry capability and adoption of sustainable principles across all aspects of asset creation, operation, maintenance and disposal. In response to the 2005 and 2007 Energy Bills & Executive Order on Federal Leadership in Environmental, Energy and Economic Performance, Kevin has created the framework for which GSA responds to the challenges of greenhouse gas emissions reductions and of the American Recovery and Reinvestment Act's mandate to move GSA's Federal building inventory toward high-performance green buildings.

Kevin was the Project Manager for the Ronald Reagan Building & International Trade Center, which was then the 2nd largest office building in the United States at 3.2 million square feet. He has been the Industry Research Chair for both the Center for the Built Environment (at UC Berkeley) and the Advanced Building Systems Integration Consortium (at Carnegie Mellon University). He created and ran the Public Buildings Service research program from 2000 through 2008.

He has lectured at MIT, Harvard School of Design, Yale, Stanford, John Hopkins, University of Chicago and Georgia Tech. He has worked for GSA for over 35 years and is a graduate of Yale University.

Don Horn is Deputy Director of GSA's Office of Federal High-Performance Green Buildings, where he develops and implements green building policies and standards for new construction, repair and alteration, facility management, and leasing. Prior to the creation of this office, Don developed and managed GSA's Sustainable Design Program for the Public Buildings Service, providing expert advice to GSA's National Office business lines and 11 regional offices for implementation of sustainable design principles. He has worked nationally and internationally to influence green building guidance and policies.

Don is a member of the ASHRAE Standard Project Committee that created and now maintains Standard 189.1 for the Design of High-Performance Green Buildings. He has served on numerous work groups, committees and boards including Federal Advisor on the U.S. Green

Building Council Board of Directors. He is currently co-lead for updating the Guiding Principles for Federal Leadership in High-Performance and Sustainable Buildings through the Interagency Sustainability Working Group.

Don has over 20 years experience at GSA in both sustainability and historic preservation. Previously he worked with private sector architecture firms. He has a Bachelor of Science in Architecture from the University of Virginia and a Master of Architecture from the Georgia Institute of Technology.

Michael Bloom is a Sustainability and Green Building Program Advisor with the U.S. General Services Administration, Office of Federal High-Performance Green Buildings. He is the lead Project Manager for GSA's new Sustainable Facilities Tool (www.SFTool.gov), a workplace strategist, team lead for Education and Outreach, and champion for creating interdisciplinary Subject Matter Expert networks throughout GSA and the Federal Government.

Michael's 10 years with GSA were punctuated by the opportunity to lead the GSA team that established and managed the Obama/Biden Presidential Transition offices in Chicago as well as his experience as a core team member on the \$103M Recovery Act initiative to "green" the historic Chicago Federal Center. Mr. Bloom earned two National Environmental Awards including one for the first Workplace 20.20 project, a prototype of GSA's National initiative to treat office space, workplace technologies, and work processes as an integrated system strategically designed to enhance organizational effectiveness.

Michael graduated summa cum laude in Political Science and Communication from University of Colorado and attained a Masters in Political Science from the University of Chicago where he is currently a PhD candidate. Michael teleworks 80% of the time and is a year-round cyclist in Chicago.

Judith Heerwagen is an environmental psychologist whose research and writing focus on the human factors of sustainable design, including psychosocial well being, work performance and health. Before joining GSA in 2010, she had her own consulting and research business in Seattle for 10 years. She has also served as a staff scientist at the Pacific Northwest National Laboratory and a research faculty member in the UW College of Architecture and Urban Planning. In 2009, she was a Distinguished Visiting Scholar at Portland State University's Center for Sustainable Processes and Practices. She is a member of the Technical Advisory committee for the Lawrence Berkeley National Laboratory project on Healthy Zero Energy Buildings. She is also a member of the NIH Health in Buildings Roundtable, an interdisciplinary group of experts in government and academia.

Dr. Heerwagen has written and lectured extensively on the links between sustainable building design and occupant experience, including comfort, health, and productivity. In 2005, she was one of 25 people in the US named as Environmental Champions by EnvironDesign magazine. She has a Bachelor's in Communications from the University of Illinois and a PhD in Psychology from the University of Washington.

A.R. Ann Kosmal, A.I.A., LEED A.P.: 15+ years of diverse architectural experience from Capital One to Walt Disney Imagineering and the Culver City colony with Eric Owen Moss have tuned Ann's insights to outcome delivery. Ann has specialized knowledge in high performance ecological design from her work implementing the requirements of LEED® and an extensive study of resiliency. She recently returned from staff extension to GSA's Recovery Program Management Office where she was accountable for sustainability quality assurance, focused on deployment and performance verification of energy/water reduction technologies, advanced lighting systems and renewable energy systems. She employs her knowledge of integrated design and strengths as an integrator and technical resource to guide stakeholders, characterize building performance measures for project delivery and hone processes toward a sustainable enterprise.

Ann is a vital contributor to strategies and initiatives for: building and design team assessment standards, asset management of resilient buildings for climate adaptation, green lease language, transformation of A/E solicitations and the refresh of PBS's P-100 facilities standard. She builds partnerships to learn to live off the sun in real time and for all things durable, sturdy, robust and stable. She is a graduate of Harvard University's Senior Executive Fellows program, GSA's Advanced Leadership Development Program and a licensed architect in California and Virginia.

Kinga Porst serves as an energy and water efficiency expert with particular focus on submetering, green data centers, renewable energy, indoor environmental quality and ASHRAE Std 189. Kinga is a member of the Interagency Energy Management Task Force, Interagency Energy Efficient Product Procurement Working Group, Federal Partnership for Green Data Centers, CREEA, Building Technology Research and Development, and the GovEnergy Planning Committee.

Kinga has over 15 years experience in the public and commercial building industry with extensive knowledge in energy management, energy analysis, air conditioning and green building practices and policies coupled with 10 years experience in sales and marketing management. She worked for Johnson Controls prior to joining GSA. She sold comprehensive energy performance contracts to local and state government agencies in MD, VA and DC. Kinga was responsible for conducting energy audits and analyzing facility improvement measures.

Last year, Kinga served as the elected President of the National Capital Chapter of ASHRAE for a one year term. Kinga has an MBA from Case Western Reserve University and a Masters in Engineering from the Technical University of Budapest. Kinga is a CEM and a LEED-AP.

Steve Rosen began his career at GSA serving as the Property Manager for the Los Angeles Federal Building. In 1992, Steve was appointed to the San Francisco Regional Office as a Buildings Management Specialist, serving as the Quality Management Development Specialist. Steve also served as Project Manager for the newly renovated Ninth Circuit Court of Appeals building and Program Manager for the US Custom House renovation and relocation programs in San Francisco.

In March 2003, Steve was appointed as National Accounts Director, Law Enforcement with account oversight for the FBI Field Office Program responsible for planning and executing 35 build-to-suit FBI Field Offices. In March 2008, Steve served as Director of Performance and Strategic Planning responsible for migrating excess personal and real property onto the GovSales.gov website. Currently, Steve is a Program Expert to the Office of Federal High Performance Green Buildings providing expert knowledge and expertise in the development and execution of a GSA enterprise, sustainable environmental management system.

Steve has a B.S. degree, Penn State University; an M.B.A., National University, San Diego, CA; and a Ph.D. candidacy, Golden Gate University, San Francisco, CA. Steve graduated from the GSA, Advanced Leadership Development Program, a joint OPM/GSA training program for employees possessing top leadership skills and the GSA Property Management Career Intern Development Program.

Ken Sandler is a Sustainability and Green Building Advisor for the Office, with responsibilities that range from managing the High Performance Building Demonstration Research Project with the US Army to serving as Co-Chair of the Interagency Sustainability Working Group, which includes 30 Federal agencies.

Ken has over 20 years of experience in the environmental field, mainly at the US Environmental Protection Agency, where he founded and for seven years co-chaired EPA's Green Building Workgroup, led development and implementation of EPA's Green Building Strategy and developed and managed numerous projects on green building, indoor air and recycling. He has advanced Federal green building policy through details to the U.S. Department of Housing and Urban Development and the White House Office of the Federal Environmental Executive, where he drafted an influential report on Federal green building. He has served on numerous sustainability and buildings committees including as a major participant in the development of green building research agendas for the U.S. Green Building Council and White House Office of Science and Technology Policy.

Ken graduated cum laude in English and Political Science from the University of Illinois and attained a Master's in Political Science from the University of North Carolina.

John Simpson P.E., LEED AP: During his career in the US Navy and while at Rocky Mountain Institute – the internationally recognized “Think and Do Tank” – John led multi-disciplined, multi-national, teams of professionals working with clients, cities, campuses and military bases across the globe, to provide analysis of their resource flows to reduce costs, gain competitive advantage, create wealth, and strengthen environmental performance through the application of a whole-systems approach that not only recognizes the underlying causal linkages, but sees places to turn challenges into opportunities.

John joined GSA's Office of Federal High Performance Green Buildings to apply his experience, knowledge and skills in every aspect of sustainable design and program implementation. The OFHPGB at GSA, along with its sister office at the DOE, will drive sustainability and energy independence for the Federal Government.

John is currently leading several initiatives for the OFHPGB: Zero-Net-Energy/Zero-Environmental-Footprint, Update of the GSA Water Guide, Water-Energy Nexus, Geo thermal Acceleration Plan, A/E Procurement Training, Green Retrofit/O&M, and Sustainable Consulting Contract Vehicle.

He is a Registered Professional Engineer and a LEED Accredited Professional. He holds a Masters Degree from Stanford University and a Bachelors Degree from the University of South Carolina – both in Civil and Environmental Engineering.

Bryan Steverson is a Sustainability and Green Buildings Program Advisor in GSA's Office of Federal High-Performance Green Buildings where he manages green building legislative analysis to include legislative impact analysis, researching emerging Congressional issues as they relate to high-performance green buildings and tracking pending legislation as it moves through Congress. Bryan has worked on over 30 hearings where GSA has testified in front of the House and the Senate. He has also conducted research on emerging legislative issues concerning various environmental topics including energy efficiency and conservation. Bryan is also involved in the communications and outreach for the office.

Bryan joined GSA in 2002 as an Environmental Protection Specialist in GSA's Public Buildings Service. His primary role was to support the work of various national environmental programs including environmental management, liabilities from subsurface contamination, indoor air quality, and compliance with the National Environmental Policy Act (NEPA). Bryan has conducted research and has written numerous policies and documents on indoor air quality, mercury containing equipment, mold, subsurface contamination, underground storage tanks, and refrigerant management.

Bryan holds a Bachelor's Degree in International Affairs from James Madison University and a Masters Degree in Environmental Policy and Natural Resource Management from George Washington University.

Katharine (Joni) Teter is currently engaged in the High Performance Building Demonstration Research project; submetering activities; green building certification systems review; development of guidelines for green product standards and ecolabels in Federal procurement; performance metrics & tracking systems; greenhouse gas emissions accounting; and development of the Research into Practice Knowledge Hub.

Before joining GSA, Joni spent 20 years at EPA as a lawyer and project manager, including serving as project coordinator on the Denver EPA building team; post-occupancy, she developed and implemented programs using the Denver facility as a learning lab and teaching tool, including operational research and integration of green building standards with environmental management system requirements. Past EPA work includes complex negotiations in large Superfund sites, wetlands enforcement and environmental impact assessments. During the 1990's she worked with government agencies and businesses to integrate technical, environmental, scientific and legal considerations in business planning and implementation, including at Yellowstone and Grand Teton National Parks and environmental auditing support to Malaysia's Department of Environment.

Joni teaches part time at Colorado State University in the Global Social & Sustainable Enterprise MBA program. As a Fulbright Scholar and Specialist, Joni has worked to develop green building programs in Egypt. Joni has a BA in political science and JD from the University of Colorado, earned a Green Building certificate from Colorado State University, and is a LEED Accredited Professional.

Patrick R. Dale is a program analyst playing a supporting role in the Office of Federal High Performance Green Buildings (OFHPGB) communications efforts, SME survey, and plays a leading role in the Federal Buildings Personnel Training Act (FBPTA) Interact webpage development. Recently joining GSA In July of 2011, Patrick brings over 10 years of industry experience with business development/account capture and account management of commercial and Federal civilian and DoD customers with requirements definition, pricing, design and implementation of converged IP communications solutions providing the backbone for increased telework and home worker deployment. Patrick also brings experience and working technical knowledge of solar photovoltaic systems and components and current state and Federal rebate procedures and guidelines.

Patrick is a former US Navy communications technician serving onboard the AEGIS guided missile cruiser USS Princeton (CG-59). He received his communications degree from the University of California San Diego and is currently pursuing COTR and LEED certifications to be completed by early 2012. Patrick teleworks and commutes via bicycle to the Schwartz Federal building in downtown San Diego.