GREEN BUILDING INITIATIVE
www.thegbi.org

GSA: OPPORTUNITIES TO CUT COSTS, IMPROVE ENERGY PERFORMANCE, AND ELIMINATE WASTE

Green Building Initiative testimony to the US Senate Environment and Public Works Committee

By Ward Hubbell, President, Green Building Initiative

March 30, 2011

Chairman Boxer, Ranking Member Inhofe and Members of the Committee, thank you for the opportunity to share my views as you consider how to utilize private sector technology to improve the energy and environmental performance of the federal government's vast building portfolio.

I am President of the Green Building Initiative, a non-profit organization dedicated to accelerating the adoption of green building practices. The GBI is the exclusive U.S. licensee of Green Globes, an online green building assessment and rating system for new and existing commercial buildings. The GBI's Green Building Assessment Protocol for Commercial Buildings is now an ANSI standard which reflects our commitment to utilizing recognized consensus processes in the development of green building rating systems.

The scope of my testimony today will be to share with you how our organization has worked with federal agencies in ways I believe have resulted in improvements in the quality and value of green building assessment and certification. By sharing our experiences, it is our hope that we can encourage this Committee and the GSA to promote policies that allow competition – and all the benefits that accrue from that – in the area of green building assessment and certification.

About Green Globes®

Green Globes is an established and proven means for evaluating and improving the environmental performance of new, renovated and existing commercial buildings. Green Globes delivers a comprehensive sustainability assessment through an interactive, web enabled platform, resulting in greater ease of use, lower cost and the convenient evaluation of building performance over time. In addition, we offer what we believe is the most comprehensive third party certification process that exists today.

My organization introduced Green Globes into the US market in 2005. Since then, Green Globes has been used by a growing list of federal agencies. Green Globes has been used to certify

about 7% of the cumulative number of federal buildings certified to date. Green Globes is also used by major corporations, school districts, state and local governments and higher education institutions. It has been incorporated into law as an equivalent standard to LEED in more than 20 US States.

Green Globes is highly compatible with the Guiding Principles for Sustainable Buildings and Executive Order 13514 due to its focus in areas such as energy and water conservation, carbon emission reduction and continuous improvement.

Green Globes is recognized as an equivalent standard to LEED by the US Departments of Veterans Affairs, Interior and Health and Human Services. The US Navy and Army Corps of Engineers have broadened their LEED-only policies to allow for the use of Green Globes.

Competition Facilitates Product Innovation, Lower Cost and Better Customer Service

In my view, one of the reasons an increasing number of federal agencies are using LEED alternatives such as Green Globes is due to their realization that an approach for building assessment and certification that works under one set of circumstances may not be appropriate in another. The US Department of Veteran's Affairs is an excellent case in point.

The VA came to us in search of a cost-effective and efficient way to assess and certify their existing building portfolio. We began with a 21 building pilot project two years ago. In the course of this collaboration, we found a way to more accurately assess the unique systems within healthcare facilities and used that knowledge to create a variant of Green Globes specifically designed to meet the unique needs of these kinds of facilities. Recently, we won a competitive bidding process to assess nearly 200 additional buildings in the VA portfolio.

In addition to being able to more accurately assess and certify these unique building types, the interactive Green Globes tool will also enable VA to cost-effectively screen a large number of buildings and implement selective improvements before spending time and money on third party certification.

Another good example is the US Department of State.

Like the VA, the State Department was in search of a less costly, more user-friendly and faster way to evaluate their portfolio of buildings. They tried Green Globes on a few buildings and recently decided to use it to evaluate one of their campuses in Arlington, Virginia. They liked the ease of use of Green Globes, its low cost, and heavy emphasis on energy performance through its linkage to the US EPA's Energy Star program. They also found it useful as a benchmarking tool since it's based on 12 months of operational data, enabling them to evaluate and improve their buildings over time.

Finally, despite their current LEED-only policy, we are also very pleased to be working with several regional offices of the General Services Administration. They are using Green Globes to benchmark and certify several existing buildings and we understand they are also planning to certify one major renovation using both Green Globes and LEED.

I give you these examples not to argue that Green Globes is the only green building rating tool that federal agencies should ever use. Rather, to make the point that an open playing field has given several federal agencies much more flexibility to choose an assessment and rating tool that best fits their needs. It has also incentivized an organization like mine – and any others who wish to compete – to be innovative, to keep their costs to the consumer low and to focus intensely on good customer service in order to win and keep business. Yes, we benefit from that, but more importantly you, I and the rest of the American public benefit from that in the form of better products, better service, better prices and better outcomes.

In conclusion, I would like to leave you with the following points:

1. The federal building portfolio is exceedingly complex and assuming that there is one and only one way to fairly assess and certify the sustainability of all buildings ignores that fact.
2. Despite much public attention regarding the need to green our built environment, building assessment and certification is still in its infancy and we all have much to learn. Until then, market competition and the innovation it creates should be encouraged. Finally, given our many successful experiences with other federal agencies, we do not believe that GSA should have a LEED-only policy. If general performance goals are set as they have been, agencies, regions, and departments should have the flexibility to use a variety of tools to help them achieve their sustainability goals. In their 2010-2015 Sustainability Plan, GSA lists as one of their accomplishments that they are "a proving ground for new green building technologies." We believe their policy toward green building rating systems should reflect that.

Thank you.

Green Building Initiative Background and Relevant Information

The Green Building Initiative (GBI) is a 501(c)(3) non-profit organization based in Portland, Oregon, established to accelerate the adoption of sustainable design and construction practices by promoting credible and practical approaches to green building for commercial construction.

GBI Mission

The GBI is committed to accelerating the adoption of green building practices by offering credible and practical tools that make green design, management and assessment more accessible to a wider population of builders and designers.

GBI owns the rights to promote and distribute Green Globes®—a highly innovative green management tool that features an assessment protocol, rating system and guide for integrating environmentally friendly design into commercial buildings. It features modules for New Construction (Green Globes-NC) and the Continual Improvement of Existing Buildings (Green Globes-CIEB) and facilitates recognition of completed projects through third-party assessment.

Green Globes is successful because it is rigorous, yet easy to use and affordable. Due to its unique, Web-based platform, the detailed information and references users need to design energy-efficient, healthier and environmentally sensitive buildings are embedded in the tool, enabling it to provide relevant information as required.

Innovation and Competition

When GBI was established in late 2004, there were no green building rating systems with the specific objective of supporting mainstream design and building professionals. This is at the core of the Green Globes system and is fundamental to encouraging energy efficiency and other green building practices on the broad scale that is clearly necessary.

Of primary importance, having more than one rating system supports the diversity of buildings, design and building professionals, and budgets. It also creates an atmosphere of healthy competition, which does for green building what it has done in countless other areas—drives improvements, lowers costs and benefits the ultimate consumer, which in this case is our shared environment.

In the last six years, for example, GBI:

- Became the first green building organization to be accredited as a Standards Developing Organization (SDO) by the American National Standards Institute (ANSI),

- Completed ANSI/GBI 01-2010: Green Building Assessment Protocol for Commercial Buildings which was derived from the Green Globes environmental design and assessment rating system for New Construction and was formally approved on March 24, 2010, becoming the first ANSI green building rating standard for commercial green building,

- Introduced Green Globes-CIEB (for existing commercial buildings) to strengthen the link between sustainable design objectives and actual building performance,

- Developed the first tool for integrating life cycle assessment (LCA)—widely considered to be the most effective way to compare the environmental impacts of building materials and assemblies—into a green rating system,

- Chose to advance the green movement as a whole by supporting the development of a generic version of its LCA tool—the ATHENA® *EcoCalculator for Assemblies*—which is available free of charge from the ATHENA Institute (www.athenasmi.ca), and

- Developed a healthcare version of Green Globes for initial use with almost 200 healthcare facilities operated by the US Department of Veterans Affairs.

As evidenced by these highlights, GBI's offerings have evolved as new opportunities have arisen to help mainstream practitioners accelerate their adoption of green building practices. Our goal is for green building to become the norm and, while GBI has arguably become a leading voice in the movement, we are committed to remaining nimble and continuing our role as an agent of positive change.

Having long recognized the power of collaboration, GBI has sought to foster relationships with a variety of organizations related to the built environment with the goal of helping to accelerate the acceptance of sustainable design and construction in the marketplace. To this end, GBI has a formal partnership with the US Environmental Protection Agency's ENERGY STAR® program, as well as Memorandums of Understanding with the following organizations:

- American Institute of Architects (AIA)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Associated General Contractors of America (AGC)
- Association for Facilities Engineering (AFE)
- Building Owners and Managers Association (BOMA)
- National Association of Home Builders (NAHB)

GBI has also established collaborative relationships with, among others:

- Alliance to Save Energy (ASE)
- Architecture 2030
- Sustainable Buildings Industry Council (SBIC)

Green Globes – History and Credentials

Originally developed in Canada, the Green Globes environmental assessment and rating system represents more than a dozen years of research and refinement by a wide range of prominent international organizations and experts.

The genesis of the system was the Building Research Establishment Environmental Assessment Method (BREEAM), which has been used to certify close to 100,000 buildings in the UK demonstrating the important role of rating systems in the building sector.

Green Globes and the Green Building Initiative

In 2005, GBI acquired the rights to distribute Green Globes for New Construction in the United States. In adapting the system, the only changes made were those necessary to make the system appropriate for the US market (e.g., converting units of measurement and integration with the ENERGY STAR program).

Since then, GBI has committed itself to ensuring that Green Globes continues to reflect best practices and ongoing advances in research and technology. To that end, the GBI sought and received accreditation as an ANSI standards developer and began the consensus-based process of establishing Green Globes as the first ANSI standard for commercial green building. As part of the process, GBI established a technical committee and subcommittees featuring more than 75 building science experts, including representatives from four federal agencies, states, municipalities, universities and leading construction firms, as well as building owners. A complete list is available on the GBI Web site.

As part of the ANSI process, GBI relinquished control of the Green Globes tool to the technical committee, or consensus body, which determined the final standard. This is the first time an organization has committed its commercial building rating system to further development through ANSI's third-party codified, consensus-based committee process, which represents the ideals of balance, transparency and public input.

For example:

- In the energy section, the standard uses carbon dioxide (CO_2) as the basis for calculating the performance path instead of the previous kBtus per square foot per year of energy consumed, which requires the calculation of CO_2 equivalency. This is particularly important in the context of climate change and the need to consider buildings in terms of their total carbon footprint.

- The standard is the first green building rating system to fully integrate life cycle assessment (LCA).

  The green building movement is experiencing a fundamental shift in the way it approaches sustainable design, away from a prescriptive methodology—whereby materials are assumed to have environmental benefits based on rapid renewability, recycled content or other attributes—toward one that emphasizes measurable performance. LCA is a means to this end because it allows the impartial comparison of materials, assemblies and even whole buildings, from cradle-to-grave, in terms of quantifiable impact indicators such as embodied energy and global warming potential.

  LCA is widely accepted in the environmental research community as one of the best ways to assess building sustainability, but its use has been limited by the perception that it is too complex or time consuming for mainstream practitioners. To remedy this, GBI commissioned a tool that provides instant LCA results for hundreds of building assemblies, making it more accessible than ever before.

  Although developed for integration into Green Globes, GBI recognized the tool's importance to the broader sustainable design community and supported the development of a generic version,

the ATHENA® *EcoCalculator for Assemblies*, which is available free of charge from the Athena Web site (www.athenasmi.ca). GBI encourages the use of this tool among other green building organizations and universities, and at all levels of government.

- The standard incorporates a calculator that allows users to project water consumption of new buildings based on their designs. As with other elements of building sustainability, water use has a significant impact on energy consumption.

Green Globes and Energy Efficiency

The Green Globes system is unique in a number of ways that directly impact energy efficiency.

- Green Globes relies on information from the US EPA's ENERGY STAR program and, as such, uses data generated through the Department of Energy's Commercial Buildings Energy Consumption Survey (or CBECS). CBECS provides data on actual building performance by building type, which is the first step in determining how to achieve a building that performs significantly better than average.

- More than a third of Green Globes' point system is weighted to energy efficiency. To receive points under energy performance, a building must be compared to an average building using the ENERGY STAR system. Only those buildings projected to perform in the top 25% of buildings nationwide are eligible for points in this category.

- The two modules of Green Globes seamlessly connect new building design to existing building performance. Certification with Green Globes-NC is just the first step to achieving a truly green structure. Green Globes-CIEB has an important role to play in incentivizing the ongoing measurement and monitoring of building performance—as re-certification every three years is necessary to ensure that a building is in fact being managed in a manner that maintains the integrity of its initial assessment.

- As indicated above, changes to Green Globes made as part of the ANSI process include a shift in the way it calculates energy efficiency from kBtus per square foot to carbon dioxide equivalency and the integration of a tool that provides LCA results for hundreds of common building assemblies. Both are important in the context of climate change for determining and improving a building's energy efficiency as well as its overall carbon footprint.

- Because of its low cost, Green Globes is appealing to budget-sensitive projects such as those that utilize public funds or those that may not otherwise be considered in a green building context.

Using Green Globes for New Construction

Although many green building tools claim to be Web-enabled, this is typically limited to providing online information and templates. Green Globes' use of Web tools is far more complex and offers a fully interactive experience.

Once an online questionnaire is completed, the system generates a point score and project design highlights. The report generated includes an educational component, which emphasizes sustainability attributes of the building and provides detailed suggestions for improvements that should reduce the building's overall environmental impact. This is supported by links to further information regarding best design practices and standards or specific information on building systems and materials. Links are selected to provide educational information, government references, NGOs, and industry research relevant to each stage of project delivery and to help users achieve a higher performance design and thus higher Green Globes score.

In Green Globes-NC, projects are awarded up to 1,000 points based on their performance in seven areas of assessment:

1. **Project Management – 50 Points**

   The Green Globes system places an emphasis on integrated design, an approach that encourages multi-disciplinary collaboration from the earliest stages of a project while also considering the interaction between elements related to sustainability. Most decisions that influence a building's performance (such as siting, orientation, form, construction and building services) are made at the start of the project and yet it's common, even for experienced designers, to focus on environmental performance late in the process, adding expensive technologies after key decisions have been made. This is costly as well as ineffective.

   To ensure that all of the relevant players are involved, the system tailors questionnaires so that input from team members is captured in an interactive manner, even on those issues which may at first appear to fall outside their mandate. For example, while site design and landscaping may come under the purview of the landscape designers, the questionnaire prompts the electrical engineer to get involved with design issues such as outdoor lighting or security. Thus the Green Globes format promotes design teamwork and prevents a situation where, despite strong individual resources, the combined effort falls short.

   Also included under project management are environmental purchasing, commissioning, and emergency response.

2. **Site – 115 Points**

   Building sites are evaluated based on the development area (including site selection, development density and site remediation), ecological impacts (ecological integrity, biodiversity, air and water quality, microclimate, habitat, and fauna and flora), watershed features (such as site grading, storm water management, pervious cover and rainwater capture), and site ecology enhancement.

3. **Energy – 360 Points**

   To simplify the process of energy performance targeting, Green Globes-NC directs users to the Web interface used for the ENERGY STAR Target Finder software, which helps to generate a realistic energy consumption target. As a result, an aggressive energy performance goal can be

set—with points awarded for design and operations strategies that result in a significant reduction in energy consumption—as compared to actual performance data from real buildings.

As previously stated, Green Globes is the only green rating system to use energy data generated through the US Department of Energy's Commercial Buildings Energy Consumption Survey (CBECS), which is widely considered to be the most accurate and reliable source of energy benchmarking information.

In addition to overall consumption, projects are evaluated based on the objectives of reduced energy demand (through space optimization, microclimatic response to site, daylighting, envelope design and metering), integration of "right sized" energy-efficient systems, on-site renewable energy sources, and access to energy-efficient transportation.

4. Water – 100 Points

Projects receive points for overall water efficiency as well as specific water conservation features (such as sub-metering, efficiency of cooling towers and irrigation strategies), and on-site treatment (of grey water and waste water).

5. Resources – 100 Points

The resources section covers building materials and solid waste. It includes points for materials with low environmental impact (based on life cycle assessment), minimal consumption and depletion of resources (with an emphasis on materials that are re-used, recycled, bio-based and, in the case of wood products, certified as having come from sustainable sources), the re-use of existing structures, building durability, adaptability and disassembly, and the reduction, re-use and recycling of waste.

6. Emissions, Effluents and Other Impacts – 75 Points

Points in this section are awarded in six categories, including air emissions, ozone depletion and global warming, protection of waterways and impact on municipal waste water treatment facilities, minimization of land and water pollution (and the associated risk to occupants' health and the local environment), integrated pest management, and the storage of hazardous materials.

7. Indoor Environment – 200 Points

According to the US EPA, indoor air can be up to 10 times more polluted than outdoor air, even in cities where the quality of outdoor air is poor. This has obvious health implications, but the consequences are also economic. A study by Lawrence Berkeley National Laboratory found that improving indoor air at work could save US businesses up to $58 billion in lost sick time each year, with another $200 billion earned in increased worker performance.

This section evaluates the quality of the indoor environment based on the effectiveness of the ventilation system, the source control of indoor pollutants, lighting design and the integration of lighting systems, thermal comfort and acoustic comfort.

Projects that achieve a score of 35% or more become eligible for a Green Globes rating of one, two, three or four globes, as follows:

One Globe:	35-54%
Two Globes:	55-69%
Three Globes:	70-84%
Four Globes:	85-100%

However, buildings cannot be promoted as having achieved a Green Globes rating until the information submitted has been assessed by a qualified third party.

The Green Globes third-party assessment process features a rigorous two-stage approach. Stage I can be initiated by the design team as soon as the Construction Documents questionnaire is finalized. The completed questionnaire is assessed against the documentation generated throughout the design process and, once complete, the design team receives a Certificate of Achievement. However, a final rating cannot be achieved until after Stage II, which occurs post-construction and includes an on-site inspection by a qualified assessor. This stage can be initiated as soon as construction is complete. The GBI currently oversees a network of Green Globes-trained assessors comprised primarily of licensed architects and engineers with significant experience in building sciences and sustainability issues.

Green Globes for Continual Improvement of Existing Buildings

Considering that the United States is home to more than 100 million buildings, the need to improve the performance of existing structures is a necessary prerequisite for widespread energy efficiency. The missing element—until several years ago when GBI introduced Green Globes-CIEB—was a practical and affordable way to measure and monitor performance on an ongoing basis.

Green Globes-CIEB allows users to create a baseline of their building's performance, evaluate interventions, plan for improvements, and monitor success—all within a holistic framework that also addresses physical and human elements such as material use and indoor environment.

As in Green Globes-NC, energy is the most significant area of assessment within Green Globes-CIEB. A combined focus on energy use, building features and management helps to pinpoint where performance is lacking and what corrective action is required. The system uses the ENERGY STAR Portfolio Manager to determine a consumption target for each building type and, where appropriate, buildings must meet a minimum performance target of 75% based on the comparable ENERGY STAR building.

US Market Acceptance

To date, 147 buildings have successfully achieved Green Globes third-party certifications across the United States. An additional 50 buildings are at some stage in the certification process. Another 152

buildings are registered with Green Globes-NC (new construction) and 265 buildings are registered with Green Globes-CIEB (existing buildings).

Green Globes has also been formally recognized by the public and private sectors including the following:

- 22 states have incorporated Green Globes in law including: Arkansas, Connecticut, Florida, Hawaii, Illinois, Indiana, Kentucky, Minnesota, Missouri, Nevada, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Virginia and Wisconsin.

- Green Globes is included in insurance packages offered for green buildings by Aon Corporation, Fireman's Fund Insurance Company; Liberty Mutual; and Travelers Insurance.

- Several federal agencies—including the Department of Health and Human Services; Department of the Interior; and the Department of Veterans Affairs recognize Green Globes in their formal sustainability policies. The Department of Navy recently changed their Sustainability Policy to move away from their LEED only approach and to allow equivalent systems to be used. The Army Corps of Engineers has also begun to recognize Green Globes as a tool that can be used to certify buildings especially when LEED is not a good fit.

- To date, Green Globes certified buildings comprise about 7% of the cumulative total of certified federal buildings. This includes buildings from the US General Services Administration (GSA), the Department of Veterans Affairs (VA), the Department of State (State) and Department of Health and Human Services (HHS).

- Since the launch of Green Globes, some of the nation's premier corporations, educational institutions and foundations have chosen Green Globes to evaluate and certify their new and existing buildings. These include: Capital One, Bristol Myer Squibb, Pfizer, Whole Foods, Entergy, Drexel University, Purdue University, University of Arkansas, Arizona State University, The Clinton Presidential Library, along with many small business, local school districts and state and local government agencies. For a complete list, go to www.thegbi.org.

The Potential of Green Building Rating Systems to Accelerate Building Efficiency

In addition to the specifics associated with Green Globes, green building rating systems in general help to accelerate progress toward energy efficiency in three important ways:

1. Rating systems define achievable goals beyond mandatory codes.

    - A building must be approximately 25% more efficient than an average building built to the ASHRAE 90.1-2004 standard (or code) in order to achieve any points in the Green Globes section on energy performance.

2. Rating systems provide the means to measure progress against these goals.

- For example, the Green Globes system rates on a 1000-point scale, with points awarded based on the building's performance against a broad range of environmental and energy metrics. Using the system helps building owners set priorities during the design process, measure outcomes once the building is operational, and plan for improvements.

3. Rating systems create a market dynamic that rewards those who go beyond mandatory codes. In the private sector, this includes incentives such as green insurance products and mortgages and there is a growing body of information supporting the marketing benefits of green building certification. However, this is equally important in the public sector where buildings that perform well serve as examples for others—both at a technical level, for those who manage the performance of buildings, and as a more general encouragement to the community to follow suit.

Conclusion

We commend the Senate Environment and Public Works Committee for using its oversight authority to inquire into the role that GSA is playing in advancing the combined goal of cost effectiveness and improved energy performance of buildings.
GBI agrees that substantially improving the energy efficiency of buildings is one of the most important things Congress and the Federal Agencies can do to address climate change and other impacts associated with energy consumption. The GSA as the largest property manager in the federal sector has significant opportunity and responsibility to provide ongoing leadership in this area. One of the steps that this Committee can take is to direct GSA to open their LEED only policy and to encourage other agencies, regions and departments within the federal sector to pilot and use a variety of rating systems and tools to help them achieve functional, operational and sustainability goals in a cost effective manner. We will all benefit by this kind of leadership. Thank you for the opportunity to contribute our comments for consideration.

Speaker Biography

Ward Hubbell
President, Green Building Initiative

Since helping to establish the Green Building Initiative in 2004, Ward Hubbell has guided its evolution into a national organization promoting green building approaches in dozens of major U.S. markets across the country. Under his leadership, the GBI became the first green building organization to be certified as a standards developer by the American National Standards Institute (ANSI), and established its proprietary tool, the Green Globes environmental assessment and rating system for commercial buildings, as an official ANSI standard.

For nearly two decades, Hubbell has been a leading communicator and strategic adviser in the natural resources field, serving in a range of capacities in the public and private sectors. Hubbell also spent ten years as a communications executive in Washington, DC, working primarily in the areas of natural resources, environmental energy, transportation and health and safety policy. A native of Mississippi, Hubbell and his family reside in the Portland area, where he is very involved in the Oregon business community. Recently, he has served on the boards of the Portland Chamber of Commerce, Oregon Business Association and SOLV, one of the nation's largest volunteer networks devoted to environmental restoration and community building. He is a graduate of Mississippi State University and Wake Forest University.