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The Compelling “Hard Case” for “Green” Hotel Development

by JIM BUTLER

Hotel developers and managers may be wary of the current emphasis on “green” hotel development, because such trends have come and gone in the past. This time, however, consumers will almost certainly continue to demand that hotels join other commercial real estate operators in constructing and operating their buildings in accordance with standards established by the U.S. Green Building Council. The so-called LEED standards (Leadership in Energy and Environmental Design) are the basis of certification for qualifying buildings. Governments are beginning to mandate reduced energy use and emissions. Whereas building a green hotel used to cost a premium, current studies show that the cost of building to LEED standards is not greater than conventional approaches, while those buildings are healthier for occupants and less expensive to operate. Although retrofitting buildings does save energy, a better approach is to construct green hotels. Current incentives for energy-saving construction and operation

may diminish, and early adopters will have the best chance at those incentives.

Keywords: green hotel development; LEED certification; environmental awareness

Green development and sustainable operations are certainly getting the attention of everyone in the hotel industry, but developers and operators alike must wonder whether consumers’ current interest in green hotel operation will soon wane, as has happened in the past. I don’t think so this time. In this article, I offer hard evidence that green or sustainable development will be the new norm—and a norm is something enduring. Here’s some of the evidence that the demand for green operation is a long-term trend and not just a brief fad, as occurred in the 1970s:

- It is hard to pick up a newspaper or magazine, or to watch television, without seeing coverage of some new "green" development or event. Every publication, from *Vanity Fair* to *Kiplinger*, now has a "green" issue.
- Consider Al Gore's Academy Award-winning *An Inconvenient Truth*, Leonardo DiCaprio's film *The 11th Hour*, and Sheryl Crow's "Stop Global Warming College Tour."
- Look at Governor Arnold Schwarzenegger's AB-32 California Global Warming Solutions Act and actions being taken by at least 21 states and hundreds of municipalities.
- Consider that Toyota has reached a milestone of more than a million hybrid vehicles sold.
- Perhaps even more telling is the announcement by General Motors that it will permanently close four plants that produce SUVs and other large vehicles. This portends a far-reaching change in the company's business model.
- Thomas Friedman wrote powerfully on April 15, 2007, in *The New York Times*, "The Power of Green." Friedman wrote that his motto is "Green is the new red, white, and blue. . . . Green really has gone Main Street."
- Even without new tough legislation, *The New York Times* reported that carbon trading is a \$30 billion market that could grow to \$1 trillion in a decade.
- Institutional investors with more than \$45 trillion in assets want the Securities and Exchange Commission (SEC) to mandate detailed disclosures on the financial and legal implication of compliance with global warming and other environmental regulation.¹

The development community has long been involved in environmental issues, and the U.S. Green Building Council (USGBC) has taken an important leadership role in certifying the design and construction of

sustainable buildings. This organization was founded by a developer more than a decade ago. High-performance buildings that meet USGBC standards have sprung up around the country at a rapid pace—but few of them have been hotels, until lately.

I now see significant hotel mixed-use projects in the pipeline that have registered with the USGBC and are building "green" to achieve some level of status for Leadership in Energy and Environmental Design (LEED; see the sidebar on the USGBC and LEED.) These projects include notable developments like the W Hotel & Residences at Hollywood and Vine and the world's largest hotel mixed-use project—the \$9.2 billion, seventy-six-acre MGM Mirage CityCenter in Las Vegas. The developers of both projects are widely respected for their fiscally responsible approach to business. Let's examine why they seek LEED certification.

LEED standards were first promulgated in 2000. As of August 1, 2007, there were approximately 900 LEED-certified buildings or projects in the United States, and another 8,503 projects have registered (taken the first step) to become LEED-certified. As of August 1, 2007, only 4 of the LEED-certified projects were hotels, but at least another 60 hotel projects (including the aforementioned W Hotel & Residences and CityCenter) have registered to become LEED-certified. The USGBC estimates that by 2010 there will be 100,000 LEED-certified commercial buildings and more than 1 million LEED-certified homes.

In the hotel industry, the major hotel brands, including Marriott, Hilton, Fairmont, and Starwood, are launching initiatives and announcing environmental programs that are likely to have sweeping effects on the development and operation of their properties. Many of the new hotel

brands coming on stream, such as Barry Sternlicht's new "1" Hotels and Residences, are stressing environmental friendliness. There's little question that Sternlicht—the inventor of the W hotel brand—is one of the biggest trendsetters in the industry, not to mention one of the savviest financial guys out there. All of these trendsetting changes will undoubtedly promote the development of green hotels. That said, sustainable development is still new to the hospitality arena, and those who get in now are likely to reap the biggest rewards, because incentives are only awarded to encourage people to take action before it has become the norm.

Governments Are Leading by Example

In the United States, almost every major federal agency has committed to building LEED-certified or LEED-equivalent buildings.² The same goes for some twenty-three states, including such diverse locations as Arizona, California, Florida, Massachusetts, Nevada, Oregon, Virginia, and Wisconsin. Some state regulations require all public buildings to be LEED-certified or LEED-equivalent, and some only require such standards for certain types of buildings (such as schools or structures over a certain minimum square footage). Still others seek to encourage such green development or offer various tax or other incentives.

Beyond the actions of the federal government and the states that I mentioned, hundreds of cities, counties, and other local governments are also active. San Francisco, long known for its environmental consciousness, is being joined in requiring green

development by Los Angeles, where Mayor Antonio Villaraigosa has vowed to make Los Angeles the greenest city in America. A long list of other cities, starting with Mayor Daley's Chicago and including Portland, Austin, and Taos, are all bound to give Mayor Villaraigosa some serious "green" competition.

Government Regulation to Control Global Warming

Aside from the decision to make public buildings and government offices green or to offer incentives to private developers, California is at the forefront of some forty U.S. states taking action to deal with concerns about global warming and climate change. Adopted approximately one year ago, a new California law (commonly known as AB 32) amended certain provisions of the California Health and Safety Code and sent ripples through California's business community. Many experts believe that AB 32 will become something of a national model or standard, as have many of California's other environmental initiatives. Even by itself, however, AB 32 will dramatically affect the price of the fuels and electricity in California; the price of raw materials and consumer goods; and the urban fabric, design, and "feel" of California's cities.

AB 32 establishes a goal of reducing California greenhouse gas (GHG) emissions to 2000 levels by 2010 (11 percent below business as usual), 1990 levels by 2020 (25 percent below business as usual), and 80 percent below 1990 levels by 2050. AB 32 represents a sea change in regulatory policy, roughly bringing California's climate change regulations into parity with the regulatory efforts made in other developed nations through the international Kyoto Protocol on climate change.

How This Could Affect Your Hotel

Looking at the provisions of AB 32, imagine maintaining your hotel's current economic levels over the next twelve years, while being mandated to emit 25 percent less carbon than you currently do to reach 1990 levels. Then imagine a further 80 percent reduction from those levels to meet the 2050 standards. You will be called on to analyze which aspects of the construction and operation of your hotels emit greenhouse gases. Do you know the extent of your GHG emissions in 1990? Do you know what your mandated level would be if your hotel did not exist in 1990? In that case, who decides how much carbon you can emit now and how much you need to reduce? Where do your most cost-effective GHG reductions come from? For that matter, which gases are considered to be greenhouse gases?

While many of you may not do business in California, I argue here that if you are only now beginning to consider all of this, you are (way) behind the curve. As a hotelier in today's world, the time is now to consider the means by which you can meet the aggressive standards set by AB 32, even if you are not operating in California, because those in other locations will face like-minded legislation in the future (see Exhibit 1). Already certain industries (such as power generation, petrochemical refining, cement manufacturing, industrial and commercial combustion, and landfills) are beginning to shoulder greater responsibility for reducing GHG emissions, and their increased costs and limitations are bound to affect the hospitality industry at large. Looking beyond your own operations, what happens when your electricity or concrete costs increase by 50 percent or if they double due to greenhouse gas legislation?

Why the Hotel Industry Has Delayed

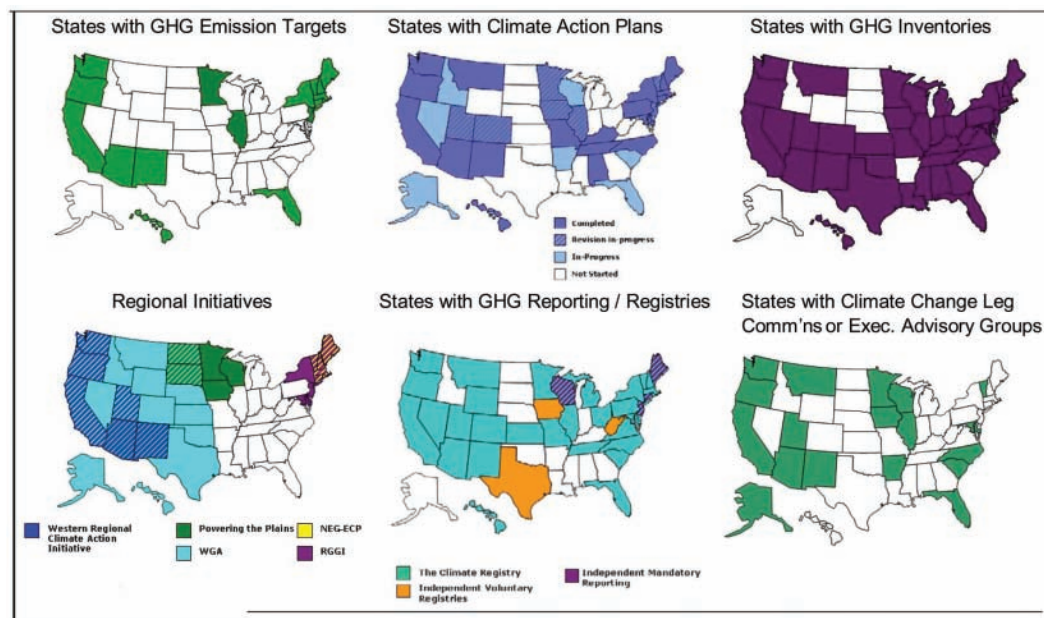
It's clear that the hospitality industry has been waiting for increased consumer demand and lower costs before it fully embraced green operation. In part, the slow adoption of green building standards has followed the sense that most hotel guests really didn't think that being green was that important, particularly if recycling or other green activities increased room rates or was inconvenient. Without consumers demanding green hotels, the perception of greater cost for green hotel development was an obstacle to the industry's adoption. There may have been a time when hoteliers faced a 10 or 15 percent cost premium for building a green building. That was true when energy-saving or alternative technologies, from solar panels to wind turbines and from building materials to hybrid automobile engines, were in their first generation—expensive and relatively ineffective.

Just as Toyota's sale of 1 million hybrids has brought down the cost of the technology and improved it greatly, so have other steps, such as GE's advanced technology with compact fluorescent lights (CFLs).³ Here's another technology example: your hotel could install shower systems that inject air into low-water-flow showers that nevertheless create the stimulating sense of ample water flow. These are just a few examples of improving technology that brings down the cost to go green and improves the experience.

The Real Costs of a Green Building: Less Than You Think

Serious current studies show green building costs are cost neutral to negligible. More than forty California state agencies formed the California Sustainable

Exhibit 1:
State-Based Climate Change Regulatory Initiatives



Source: The Pew Center on Global Climate Change, http://www.pewclimate.org/what_s_being_done/in_the_states/state_action_maps.cfm.

Note: As shown, at least forty states have taken some action to reduce greenhouse gas (GHG) emissions; nineteen have established GHG reduction targets; and fourteen have, or are developing, legislation to set GHG reduction targets. At least five states apart from California passed GHG legislation in 2007, five have set administrative GHG reduction targets, and three new states without GHG reduction targets are considering GHG legislation. WGA - Western Governors Association; NEG-ECP - New England Governors and Eastern Canadian Premiers; RIGGI - Regional Greenhouse Gas Initiative

Building Task Force and joined with the USGBC to commission a detailed report, which was issued in 2003.⁴ The report documented that the minimal premium for building LEED-certified, LEED-Silver, and LEED-Gold buildings. Most critically, the report documented the declining cost of green design and construction over the past few years, which seemed to be associated with increased experience in green building. For example, in studying three completed LEED-Silver buildings in Portland, Oregon, finished in 1995, 1997, and 2000, the cost premiums over conventional construction dropped from 2 percent on the first one, to

1 percent on the second, and to no premium at all on the third. Similarly, Seattle's cost premiums dropped from 3 or 4 percent several years ago to 1 or 2 percent by 2003.

The report found that energy savings for green buildings ranged from 25 to 30 percent, with an average of 28 percent. Combined with other savings on emissions, water, operations and maintenance, and better productivity and health benefits, there is evidence of the impressive financial benefits of green building. Specifically, the report stated,

Green Buildings provide financial benefits that conventional buildings

do not. . . . Financial benefits of green design are between \$50 and \$70 per square foot in a LEED building, over ten times the additional cost associated with building green. The financial benefits are in lower energy, waste and water costs, lower environmental and emissions costs, and lower operational and maintenance costs, and increased productivity and health.

The study also noted that green buildings seem to show noticeable improvements in the health and productivity of people working in them. Beneficial features include better siting (e.g., avoiding locating air intakes next to outlets such as parking garages); better use of daylight (e.g., more natural light, better use of shade, less glare); improved thermal comfort and better ventilation; reducing use of toxic materials; and use of low-emission adhesives, sealants, paints, carpets, and other materials. The report noted that there have been thousands of studies finding significantly reduced illness symptoms, reduced absenteeism, and increases in perceived productivity, as compared to workers in buildings without green features. The report particularly cited two European studies of more than eleven thousand workers in 107 European buildings. Based on these studies, the report concluded that there was ample evidence of improved health and productivity of people in green buildings. The report also commented on how the users of such buildings enjoy significant benefits in attracting and retaining a committed workforce.

As a convincing epilogue, shortly after the bulk of this report was prepared, California Governor Arnold Schwarzenegger signed Executive Order #S-20-04 on December 14, 2004, requiring that all new and renovated state-owned facilities be

LEED-Silver and that all existing buildings pursue LEED for existing buildings certification.

Each year, the economics become even more compelling. Today, USGBC statistics report an even more dramatic change in the cost-benefit analysis of LEED-certified buildings. Improved technology, improved materials and techniques, and more experience have reduced the cost premium of LEED-certified construction to only 1 to 2 percent of the project costs. Offsetting any remaining premium are hard savings of 30 to 50 percent in energy use, 35 percent in carbon emissions, 40 percent in water, and 70 percent for solid waste. These savings produce a payback of the green premium, if any premium remains, in under twenty-four months.

The figures I just quoted are based on energy, water, and waste disposal costs in 2007, with little or no pressure yet on carbon emissions from new state or federal legislation. At this writing in 2008, we know that energy costs have increased, with costs for all related items and services soon to follow. Some think that, as laws like AB 32 gain traction, the cost of energy could increase even more. Moreover, the entire region of the Great Basin and western states are facing shortages in water due to drought. Already, water is an issue of contention among the states, notably, California, Arizona, and Nevada with regard to the Colorado River. Disposing of solid waste will become more expensive as diesel to haul the waste and locations to put it reach capacity and are closed—meaning that waste must travel greater distances. For example, New York State officials proposed in June 2008 to regulate trucks hauling solid waste from New York City to landfills upstate. In particular, consider the consumer response to hotels that are energy and water hogs.

Hotel Industry Issues

Hotel developers still face specific (though much lower) hurdles in developing and operating green properties, such as finding vendors, contractors, engineers, housekeepers, landscapers, and managers that understand new systems, products, and procedures.

Complicating matters for hotels is the overlay of the typical hotel management and franchise agreements. The highly structured arrangements negotiated between hotel owners and hotel managers have not yet addressed a number of issues raised by green development, redevelopment, or operation that affects the bottom line of both entities.

Another issue is hotel brands' design standards, which many would-be green developers find unnecessarily overrestrictive in pursuing LEED-certified, high-performance buildings. I believe that the brands need to modify their prototypes and design specifications to accommodate sustainable siting, architecture, systems, and operations. This will become more feasible when the chains engage LEED AP (accredited professional)-certified architects and construction experts.

Finally, of course, is the issue of meeting the expectations of paying guests. Although I believe guests expect hotels to operate in an environmentally conscious fashion, it may also be that those same guests may have unrealistic expectations of luxury and comfort in terms of green operation. To take a humble example, do hotels still need to put out individual shampoo bottles, and does the spa need to smell faintly like chlorine to satisfy guests' expectations?

Why Start Now?

I urge hoteliers to consider green development simply because it is cheaper and more efficient to build green to start with than it is to retrofit. Certainly retrofits are worth the effort, but I address my remarks

in this section to new construction. A compelling economic case for green development is made by the report and USGBC statistics detailed above. I argue that there is no reason not to use LEED standards, given that there is little or no cost premium, a fast payback of investment, and long-term savings. The following shows the calculation of the near- and long-term cost savings and benefits for LEED-certified buildings. Based on the USGBC's projections, the following savings should be expected:

- 30 to 50 percent in energy use,
- 35 percent in carbon emissions,
- 40 percent in water emissions, and
- 70 percent in solid waste expenses.

Stuart Brodsky, of the EPA's Energy Star program, put the energy savings into hotel terms.⁴ Every 10 percent reduction in energy consumption equates to a hotel raising its average daily rate by \$1.35 for full-service properties and \$0.60 for limited-service properties. Using the USGBC's figures, with a 30 to 50 percent energy savings, a limited-service hotel would achieve hard economic savings that would be the equivalent of increasing average daily rate (ADR) by \$1.80 to \$3.00, and a full-service hotel would have the equivalent benefit of increasing ADR by \$4.00 to \$6.75.

Those figures already underestimate the case, given 2008's energy costs. To really appreciate the full value of these savings, you also have to project the likely future cost of energy, water, and waste disposal. With laws like AB 32, and projected shortages for the long term, we know they aren't going to get cheaper.

Then there is the significant but difficult-to-quantify health and productivity improvements for hotel employees. Even a 1 percent increase in productivity has an enormous economic impact. Plus, there

are advantages in attracting and retaining employees who want to work in a green building.

Green buildings are a hedge against obsolescence as investors and capital sources increasingly prefer "safer" investments where there are no hidden costs of complying with environmental regulations or likely uncontrolled costs. Perhaps there will even be savings in insurance costs and more favorable financing. I also argue that green construction will become a safety precaution against contingent liabilities. I can envision a situation where a "toxic" building spawns lawsuits from adverse health impact on workers, not unlike the asbestos lawsuits.

We have seen how quickly consumer demand changed when gasoline prices increased. The breathtaking drop in demand for large cars was more than most manufacturers could believe. Just as the automakers required time to formulate a response to the market change, so do hotels require time and planning to build green or to retrofit green. If you are not already green when your competition is, you could lose customers and guest loyalty forever. I see considerable evidence that hotel customers are already expecting hotels to be green. Witness the following:

- The J.D. Power and Associates 2007 North America Hotel Guest Satisfaction Study shows that nearly 75 percent of all hotel guests are willing to participate in their hotel's environmentally friendly programs.
- Kimpton Hotels and Restaurants report that 16 percent of their guests stay with them because of their eco-minded practices, such as the use of nontoxic cleaning agents and in-room recycling bins.

Another reason to move quickly is that existing incentives won't be here forever.

Most observers believe that the array of energy credits, tax incentives, and entitlement benefits on the federal, state, and local levels will only be offered until green building has wider acceptance. Depending on where your project is located, some of the incentives are as follows:

- Nevada has revised its green property and sales tax incentive law after an early rush of green development indicated the existing benefits would result in more than \$900 million in sales and property tax breaks. Though the new law retains tax breaks, it is expected to cut those tax breaks in half, without taking away the benefits to those who already qualified.
- Many utility companies, builders, and even vendors have green programs and commitments that can benefit the developer's bottom line.
- Many local governments will fast-track the approval process, allow greater density, and give other coveted entitlements to green developments.

How far new regulations and codes will go in terms of mandating green development or retrofitting is anyone's guess. Everyone believes that regulations and codes are only likely to become more stringent. Currently, the EPA's State Climate Action Plans Database includes the policies and initiatives of twenty-one states (see <http://yosemite.epa.gov/gw/statepolicyactions.nsf/webpages/index.html?openDocument>). The impact of these laws is difficult to predict, but they are likely to impose a significant cost on carbon-producing activities. Some even urge a carbon tax. All of these developments will make green hotels even more valuable and profitable.

Aside from easing compliance and reducing costs, emissions reductions achieved in excess of those required under AB 32 and

similar laws may create marketable carbon credits which can be sold at a profit—depending on what kind of legislation eventually passes the U.S. Congress. Opportunities are only as limited as the capitalistic imagination.

Start Early and Hire the Best

As I have indicated here, the learning curve on green building is steep and expensive, even though the results are worthwhile. Starting with the wrong team means either retracing steps or never reaching your destination. That is why developers need to make the decision to build green before hiring an architect and other professionals. The “green technology” of experienced LEED-certified architects and consultants is critical at the outset.

Once again, if there is any cost premium, it is manageably small. As William A. McDonough, noted author and founding principal of the pioneering green architectural firm bearing his name, said,

If people have done any math, they will understand how valuable the green agenda is economically, and that if they don't adopt it, they are probably not intelligent fiduciaries as developers and owners.⁵

Beyond the profits that will surely flow to those who move early to take advantage of incentives and consumer demand, building green is the right thing to do for the hospitality industry, the public, and the planet. Developers need to spend time learning about the issues, and many smart developers are getting their own LEED certification and putting their teams through it too. Green hotel development will become easier as developers share information about green building processes, products, vendors, and contractors. As more hard data and numbers are shared, more intelligent decisions can be made. Greater flexibility will help everyone, as

owners, developers, and lenders work with hotel management companies and brands to develop standards which will facilitate green development and green operations. Finally, all of us in the hospitality industry need to educate our companies, our staffs, our business partners . . . and our public.

Jim Butler, author of www.HotelLawBlog.com, leads JMBM's Global Hospitality Group®. (jbutler@jmbm.com). JMBM's Global Hospitality Group® and the UNLV Harrah's Hotel College sponsored the world's first comprehensive conference on this topic in Las Vegas in March of 2008. All of the available PowerPoint presentations from the Conference are available for free at http://hotellaw.jmbm.com/green_hotels.

Notes

1. On September 18, 2007, a prominent group of state officials, state pension fund managers, and environmental organizations filed a petition with the Securities and Exchange Commission (SEC), requesting it to adopt guidelines requiring all public companies to disclose the risks of climate change to their business and the actions they are taking to mitigate those risks.

According to the 115-page petition, signed by the state treasurers, attorneys general, and other state officials of California, New York, Florida, North Carolina, Oregon, Vermont, Rhode Island, and Maine, as well as several state pension fund managers, “Climate change has now become a significant factor bearing on companies’ financial condition. . . . Investors are looking for the companies best positioned to avoid the financial risks associated with climate change and to capitalize on the new opportunities that greenhouse gas regulation will provide.”

The petition points out that that investors with more than \$45 trillion in assets want this disclosure and includes an extensive appendix of statements by world financial and industry leaders recognizing the critical importance of climate risk to specific industries and the global economy at large. One such quoted report was issued by Marsh in 2006, Cradle to Cradle reference: North Point Press; 1st edition (April 22, 2002). stating that climate risk cuts across almost every industry in every corner of the world, including, among many others, tourism and hospitality.

Investors want to know, the petition urges the SEC, how fully (if at all) companies are taking climate change into account in making their

strategic business decisions. Investors want to identify, and invest in, companies that are "out front" in responding to climate risks and opportunities and to avoid firms that are behind the curve.

The petitioners note that companies that do not have in place policies for reducing emissions face serious reputational risks, noting that organizations and news media are now publishing scorecards detailing the climate related practices of major retail organizations, with the goal of influencing consumer purchasing habits. Conversely, companies have the potential to build positive images with consumers and gain a competitive edge if they enact climate-friendly policies.

To give investors the information they need, the petition signers urge the SEC to adopt guidelines that require all public companies to disclose information on

- physical risks associated with climate change that are material to the company's operations or financial condition,
- financial risks and opportunities associated with present or probable greenhouse gas regulation, and
- legal proceedings relating to climate change.

The SEC has not yet responded to the petition, but the collective strength of its signers and the weight of the evidence provided in the petition make it all but certain that the SEC will take some action in the near future to require U.S. public companies to provide more information on their climate change policies and risk analysis.

2. The green building movement is certainly international. The United Kingdom was one of the early pioneers to encourage green building with its BREEAM standards (Building Research Establishment Environmental Assessment Method) adopted in 1990, and which ultimately provided something of a foundation for the U.S. Green Building Council's (USGBC's) LEED standards (Leadership in Energy and Environmental Design) promulgated in 2000. But whether you look to Australia's Green Star, Canada-LEED, Mexico-LEED, Japan's CASBEE, or European Union standards, governments are leading the charge to set up standards.

3. In fact, compact fluorescent lights (CFLs) have gotten so good that GE recently announced that its sales of traditional incandescent light bulbs was down by more than 10 percent and CFL sales were going up by double-digit increases. Congress is considering legislation that may do away with incandescent lights.
4. Remarks made in his address to The UNLV-JMBM Hotel Developers Conference, March 2008. At the time the comments were made, Stuart was National Program Manager, Commercial Properties ENERGY STAR. He has since left the EPA and is now Sustainability Leader, GE Real Estate North America Equity, Norwalk CT 06854.
5. A more recent report, "Energy Performance of LEED for New Construction Buildings," prepared for the USGBC by the New Buildings Institute in March 2008, includes a larger sample size than the 2003 Report, but the conclusions were similar: on average LEED buildings' energy usage is 25 to 30 percent better than the national average. Some LEED buildings, however, perform lower than the national average, and this report includes cautionary language that reminds developers that LEED status alone does not ensure energy savings. Operational practices, local climate conditions and other issues factor into the energy-savings equation.
6. William A. McDonough is the author of *Cradle to Cradle: Remaking the Way We Make Things*, which promotes the transformation of human industry through ecologically sensitive design. He is widely recognized as a pioneer in green buildings and sustainability and is the founding principal of William McDonough + Partners, Architecture and Community Design with offices in Charlottesville, Virginia, and San Francisco, California.

USGBC and LEED

The U.S. Green Building Council (USGBC) is a nonprofit organization committed to expanding sustainable building practices. USGBC is composed of more than fifteen thousand organizations from across the building industry that are working to advance structures that are environmentally responsible, profitable, and healthy places to live and work. Members includes building owners and end-users, real estate developers,

facility managers, architects, designers, engineers, general contractors, subcontractors, product and building system manufacturers, government agencies, and nonprofits.

USGBC's Guiding Principles

USGBC's Board of Directors has articulated "guiding principles" that will help us all with the decisions we make every day about USGBC and its programs. In an industry predicated on innovation, the principles provide us with clarity and continuity, while also giving us the flexibility to grow and respond to a rapidly changing market. The annual U.S. market in green building products and services was more than \$7 billion in 2005, \$12 billion in 2007, and projected to increase to \$60 billion by 2010.

LEED® Green Building Rating System™

LEED (Leadership in Energy and Environmental Design) is a voluntary, consensus-based national rating system for developing high-performance, sustainable buildings. Developed by USGBC, LEED addresses all building types and emphasizes state-of-the-art strategies for sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. LEED is a practical rating tool for green building design and construction that provides immediate and measurable results for building owners and occupants.

LEED is a third-party certification program and the nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. LEED gives building owners and operators the tools they need to have an immediate

and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Who Uses LEED?

Architects, real estate professionals, facility managers, engineers, interior designers, landscape architects, construction managers, lenders, and government officials all use LEED to help transform the built environment to sustainability. State and local governments across the country are adopting LEED for public-owned and public-funded buildings; there are LEED initiatives in federal agencies, including the Departments of Defense, Agriculture, Energy, and State; and LEED projects are in progress in forty-one different countries, including Canada, Brazil, Mexico, and India.

How Is LEED Developed?

LEED Rating Systems are developed through an open, consensus-based process led by LEED committees. Each volunteer committee is composed of a diverse group of practitioners and experts representing a cross-section of the building and construction industry. The key elements of USGBC's consensus process include a balanced and transparent committee structure, technical advisory groups that ensure scientific consistency and rigor, opportunities for stakeholder comment and review, member ballot of new rating systems, and a fair and open appeals process.—From the U.S. Green Building Council website, USGBC.org.