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EXECUTIVE SUMMARY

The financing of “Green” and “Sustainable” building has been, until recently, almost exclusively underwritten by private investors, either through individual equity or by corporate or government entities in owner-occupied real estate. The traditional primary source of funding, institutional investment, has been all but absent from the field. There is now a window of opportunity for current and future owners and developers of green real estate to leverage the nascent interest of major institutional investment funds and have a marked advantage in financing a short–term wave of green and sustainable buildings versus traditional brown buildings. Legislation and building code changes are poised to soon level this opportunity by requiring an ever greater percentage of buildings to be sustainable or have green features, thus removing this first-out-of-the-box advantage.

“Green” and “Sustainable” are terms that are now part of mainstream vocabulary and are actively used in marketing in virtually all economic sectors. With respect to the real estate industry, though somewhat loosely defined, they embody a set of practices and the utilization of resources, technology and materials that has only recently begun to be codified. The advent, at least in the United States, of organizations such as the United States Green Building Council’s “Leadership in Energy and Environmental Design” certification and the United States Environmental Protection Agency’s “Energy Star” Program have facilitated this clarification. The consolidation of these terms and an unequivocal understanding of what constitutes Green and Sustainable buildings is fundamental to the buy-in of potential users, funders, investors and owners green projects.

Traditionally, the three most significant sources of funding for any type of real estate development have been either private equity, local and national banks, or institutional investors. Until just recently, the investment for green buildings has come almost exclusively from private equity (primarily owner-occupied buildings such as corporate headquarters or schools) and construction and permanent financing bank loans. Institutional investors have been reticent to fund green buildings due to the lack of
empirical data on the economic performance of green buildings, which interfered with their stringent fiduciary responsibility to their constituencies.

The drivers for implementation of a green or sustainable building project have until now been mission-related investment in owner-occupied properties, or mandated by local authorities in the case of schools and other local government initiatives. At this time we are witnessing a switch from owner-occupied properties to speculative properties constructed to satisfy a rapidly increasing tenant demand for leasing in green and sustainable buildings. The overall marketplace is changing and moving towards a more sustainable tenet, as exemplified by the growth of socially-screened or triple bottom line investment vehicles.

The global movement toward triple bottom line returns – taking into account, not only the traditional profit parameters but also the social and environmental impact of one’s investment choices, has had governing bodies and shareholders alike urging and requiring larger investment funds to provide transparency and include environmental and social balance sheet disclosures to their constituencies. This international focus, spearheaded in part by the United Nations Global Development Fund, will now provide developers of green and sustainable properties in the United States with an opportunity to seek and receive funding from both domestic and international institutional investors.

Beyond the triple bottom line, there are other motivations and drivers that are gearing more developers toward green buildings: local, state and federal incentives and requirements, which range from tax credits, rebates, and expedited processing for green buildings to the implementation of legislation requiring a minimum level of certification; increased market demand from tenants that are becoming more and more savvy as to the cachet of relocating not only in new Trophy Class A buildings, but to Green Trophy Class A buildings, (one could postulate that in the future it might not be classified as a Trophy Class A building if it is not green) and an increasing body of evidence that can now document and support assertions as to the improved human experience within green and sustainable buildings.
Large investment entities are thus beginning to explore adding green real estate holdings to their portfolios and owning and occupying green buildings for themselves, such as Bank of America’s new headquarter building in NYC which is slated to achieve LEED Platinum certification to PNC’s branding of its “Green Branches”, and CalSTERS’ new LEED headquarters addition in Sacramento, CA. The embracing of green building for their own employees and the implementation of green building resolutions from such investors and entities shows that there will be a current upsurge in green buildings also tailored to such investor’s requirements in the near future. The creation of new green building funds that are now available to be part of the portfolio holdings of these entities is going to become more prevalent, and will offer individual investors and conservative institutional entities a chance to also show their commitment by increasing the size of their equity in such funds.

Overall, the aggregation of these factors, coupled with ever–rising energy costs, a move toward a more global platform for carbon and greenhouse gas emission trading, and greater investment in alternative and sustainable technology will only make green buildings more accessible, affordable and thus more attractive to the portions of the institutional investor market that has yet to venture into this section of the real estate market.
Chapter I
Green and Sustainable Real Estate

Defining “Green” and “Sustainable” Building Practices

“Green”, “Energy-efficient” and “Sustainable” are often viewed as separate potential features in a building. These three labels speak to separate focuses within a building’s design and intent, but their implementation should be considered in an integrated manner to arrive to a prototypical “TrueGreen” building.

Within the real estate community, “Green Building” is a still a loosely defined concept, which is often summarized as the environmentally correct practices and the employment of sustainable materials and resources within the construction process as well as attention to the human experience within the buildings themselves, such as the air quality and natural lighting coefficients for employees, residents, and users of such buildings.

“Sustainability” is comprised of both the sourcing of the components of the green features in a building, and their long-term impact on the environment and on people. These concerns and sustainability strategies are envisioned to go hand in hand with the social responsibility of the building itself. Sustainability could be thus described as the future or legacy of these green choices.

High-performance, and particularly energy efficiency, is the third primary component of green buildings, and it affects both the short-term and long-term operational choices made by developers and owners/landlords for their projects. Choosing energy-efficient solutions—from the type of insulation to a cogeneration plant or a photovoltaic array as a power source used to operate the building—can have a high first costs impact on the budget. Committing to these tenets also addresses the life-cycle costs of the building, which, if properly chosen, will easily be amortized over the life of the building, even if
they are higher, due to efficiency savings and longer lifespan of the products used. The more energy efficient the building is, the faster the amortization period for the initial investment in the technology, especially in light of ever-rising energy costs. The consideration that buildings in general use 70% of US consumption of electricity and 39% of US primary energy use, shows how high-performance in these areas (most LEED and Energy Star certified buildings operate at a minimum of 20% higher efficiency than the AHSRAE benchmark) could significantly lower operating costs.1

As green architecture and green technology have evolved, the concept of what is “Green” or what constitutes a green material is also evolving. There are more and more renewable or recycled or recyclable green materials – from photo-kinetic concrete which is self-scrubbing in direct sunlight to soybean-husk board that can be used as both a finish and construction material to recycled content, carbon-neutral carpeting and zero Volatile Organic Compound paint and materials (VOC are often described as “new car smell” or “fresh paint smell” which release toxins into the air both immediately after application or over the long-term) that are being brought to market, with increased options and availability and at reduced costs over those of a few years ago. These options are also finally giving consumers the choice between an overt “green” and “techie” look or are available in a more “classic” look, making such choices easier for more traditional owners and tenants, and widening its appeal.

Throughout this paper, the term “green” and “sustainable” will be used interchangeably, unless otherwise specified. Any discourse on buildings or practices that address solely energy efficiency issues will be addressed as such.

The Size of the Green Building Market

Although it appears as if there is not a cover story on any architectural, real estate and mainstream magazine that does not taut “Green” in some way, or that a project not only

1 2003 U.S. Department of Energy Buildings Energy Data Book
is the greenest, but also the first/highest rated/most innovative building for the area or its type, the overall size of the green building market is still very small.

McGraw-Hill’s Smart Market Trends Report 2008 shows that the value of green building starts in 2008 exceeds $12Billion, and is projected to increase to $60Billion by 2010. If we use the 2006 US DOE Buildings Energy Databook’s figure that the construction market accounts for approximately 14.2% of the $10Trillion US Gross Domestic Product, the portion of the market that is represented by green buildings is still very small, just under 1%, although it is growing exponentially - at more than 200% per year\(^2\). The sectors that are expected to have green building growth are, in order of growth percentage:

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>64%</td>
</tr>
<tr>
<td>Government</td>
<td>62%</td>
</tr>
<tr>
<td>Institutional</td>
<td>53%</td>
</tr>
<tr>
<td>Office</td>
<td>49%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>45%</td>
</tr>
<tr>
<td>Hospitality</td>
<td>21%</td>
</tr>
<tr>
<td>Retail</td>
<td>20%</td>
</tr>
</tbody>
</table>


Based on the chart above, the residential market appears to be still lagging behind other areas. This might be due to the slowdown of the residential market in all metropolitan areas, as well as a lack of public funding and incentives specifically tailored

\(^2\) USGBC data from www.usgbc.org
to residential green building. Should one wish to seek incentives such as green residential mortgages, there are only very few on the market today, and most offer less than a 3/8 interest rate “bonus” or slightly reduced closing costs as will be detailed later in this paper.

Green Building Organizations and Certification Programs

The United States Green Building Council

The United States Green Building Council (“USGBC”) was founded as a loose association of interested parties in 1997. USGBC is now a nonprofit organization committed to expanding sustainable building practices, and to advance structures that are environmentally responsible, profitable, and healthy places to live and work. Membership in the USGBC is currently comprised of more than 13,500 organizations including 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. Its Leadership in Energy and Environmental Design or LEED, was created by the USGBC as a voluntary, consensus-based point rating system for developing high-performance, sustainable buildings. LEED now tries to address all building types and emphasizes state-of-the-art strategies in five main categories: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. It further tries to spur technological development by allowing additional possible points for innovation.

Certification under the USGBC scorecard system is a matrix of point accumulation under each of the different categories (site, energy, indoor air quality, water, and materials). A minimum of 26 points are required to be at the Certified level, 27-33 for Silver, 34-39 for Gold, and 40 and up for the Platinum level. This certification approach applies to different building types, each with slightly different requirements – the options currently offered by the USGBC are detailed in the following table:
<table>
<thead>
<tr>
<th>LEED Designation</th>
<th>Application</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEED EB</td>
<td>Existing Buildings</td>
<td>Retrofit, Remodel, Renew</td>
</tr>
<tr>
<td>LEED NC</td>
<td>New Construction</td>
<td>Commercial and Multi-Family Residential, including interiors Residential, including interiors</td>
</tr>
<tr>
<td>LEED CS</td>
<td>Core and Shell</td>
<td>Commercial and Multi-Family Residential core and shell only Residential core and shell only</td>
</tr>
<tr>
<td>LEED CI</td>
<td>Commercial Interiors</td>
<td>Tenant work both within a LEED certified building or a non-LEED one Tenant work both within a LEED certified building or a non-LEED one</td>
</tr>
<tr>
<td>LEED for Homes</td>
<td>New Construction</td>
<td>Single and Multi-Family (4 or fewer units) Single and Multi-Family (4 or fewer units)</td>
</tr>
<tr>
<td>LEED ND</td>
<td>Neighborhood Development Schools and Higher Education Under Pilot Program at this time K-University level, classrooms Under Pilot Program at this time</td>
<td></td>
</tr>
<tr>
<td>LEED for Schools</td>
<td>Hospitals and Health Facilities</td>
<td>Under Pilot Program at this time K-University level, classrooms Under Pilot Program at this time</td>
</tr>
</tbody>
</table>

New certification categories are being developed as separate needs are being assessed for special building types, such as the new health laboratory and morgue in Washington, DC designed by HOK: slated to obtain a LEED Silver certification, it presented sufficient idiosyncracies that it will help tailor a new scorecard for such facilities.

Still, the certification process is viewed by developers as onerous and expensive, both due to the types of credits that achieve the most points (such as energy efficiency) and the additional fees that are charged by the USGBC, and has stemmed controversy for items such as the requirement having a USGBC LEED Accredited Professional on each project (which has further spawned a new type of consulting firm, specializing in LEED project administration). The number of LEED Accredited Professionals has grown from fewer than 1,000 in 2000 to over 49,000 in 2008, and have warranted the USGBC’s creation of the Green Building Certification Institute to administer the accreditation process of such individuals. This new type of consultant, specializing in maximizing the LEED scorecard matrix is seen as a scourge to the through and through environmental organizations (the Rocky Mountain Institute for one) who would like to push innovation,
creative thinking and further sustainable measures in buildings, and not just minimum compliance. The establishment of the GBCI has aided in creating a stronger semblance of arms-length to the certification process, and GBCI is now overseeing items such as developing a professional continuing education program for Accredited Professionals so that they may be up to date on such the latest developing technologies.

The LEED program is thus becoming the primary standard by which green buildings are measured in the United States, and, along with the Energy Star Program, is more and more often referred to by legislation as different local, state and government entities are adopting it as a standard to grant tax credits, incentives or introducing it as part of their requirements for their own occupancy of government buildings. As the LEED certification is becoming part of the best-of-breed standard in the commercial world, its codification is a subject of great discussion among private builders, academics, and legislators. Whether such standards should be incorporated into the International Building Code (“IBC”) is another topic of discussion.

The Environmental Protection Agency - Energy Star Program

The Energy Star Program is an energy efficiency and certification program that is overseen and administered by the United States Government’s Environmental Protection Agency. The program’s inception in 1992 was a voluntary, market-based partnership between the Environmental Protection Agency, the Department of Energy, and private and public building owners and end users, and was designed to reward and certify reduced energy consumption in buildings and appliances. Residential multifamily and single-family homes as well as all manners of commercial buildings and government structures may qualify as Energy Star buildings, based on the energy savings they provide. On average, Energy Star Registered Buildings use 40% (or more) less energy than comparable commercial buildings, and have a reduction of up to 35% in their Greenhouse Gas Emissions. The Energy Star website offers a registry of labeled homes and other structures, as well as products and equipment that are certified by Energy Star.
to save and conserve energy. To qualify for the Registry, the buildings must score in the top 25% of the EPA’s National Energy Star Performance Rating System³.

**EarthCraft House**

EarthCraft House is a certification system based in Atlanta that focuses on residential, single family and multi-family dwellings. After their initial success in certifying new residential development, in 2003 they expanded to provide sustainable community guidelines. The “EarthCraft Community” program was developed by the Urban Land Institute, the Atlanta Regional Commission, and local government and development communities. The program has a reach in the new community development sector and is considered to date the best new development program in the country. The new LEED ND certification (still in the pilot program phase) is in the process of addressing this same area. The fees for the EarthCraft House are over 50% lower than those for the LEED certification, and to date, EarthCraft House has certified over 4,000 single family homes and 1,500 multi-family units. EarthCraft is used as a benchmark in some green residential mortgages.

**International Programs and Certifications**

**BREEAM**

The Building Research Establishment’s Environmental Assessment Method, or BREEAM, is based in Great Britain and labels itself as the longest running program for determining the sustainability and the environmental impact of buildings and their environmental performance. BREEAM is run by the Building Research Establishment and the certification is completed by qualified assessors that have a minimum 6-month training period based upon their prior experience. To date, BREEAM has qualified the largest number of sustainable buildings in the world, boasting a database of over 127,000

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³EnergyStar data from [www.epa.gov](http://www.epa.gov)
buildings. BREEAM programs cover many building types, from offices to prisons to courts, industrial structures and schools. They even have a “bespoke” model, whereas a custom assessment program can be created for unusual or one of a kind buildings, such as specialty laboratories and opera houses (this specific model might also be fueling the need for the USGBC to come up with a similar certification option). Funding for government buildings in Great Britain and other European and international locations now has BREEAM as a fundamental compliance requirement for permitting and for any cash funding by the government. According to Rogers Stirk Harbour + Partners, a leading British architectural firm, BREEAM is now so integrated into the building system in the UK that all manufactures, suppliers, and consultants are able to provide BREEAM related materials and expertise that there is no additional cost to develop a building to this standard4.

**Green Globes**

Green Globes is a Canadian assessment and rating system that originated through the adoption of BREEAM in Canada in 1996. The system evolved and now encompasses Existing Buildings and New Buildings. Through collaboration with the University of Arizona, the Building Owners and Manufacturers Association (“BOMA”) of both the United States and Canada and the Canadian Department of Public Works, Green Globes is now also available in the United States through the Green Building Initiative.

Although less known than the USGBC, Green Globes was the first green building organization to be accredited as a standards developer by the American National Standards Institute (ANSI) in 2006. Since then, the USGBC has gained much ground and is the leading candidate for green building standards development in the United States.

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4 Interview with Ivan Harbour, Rogers, Stirk, Harbour, April 2008
Other Organizations

In the United States there are other players in both the certification arena, and in the proactive endorsement arena, such as Earth Advantage on the certification side, the Continental Automated Building Association or CABA – which endorses GreenGlobes, and organizations such as BOMA and NAIOP which endorse the LEED system, as well as a local focus groups such as the Green Builders Council of DC. Other well known international rating systems include the World Wildlife Fund’s OnePlanetLiving, which in collaboration with BioRegional developed BedZED, the largest ecovillage in the United Kingdom. OnePlanetLiving standards were also used on the GOA 2010 project in India, focusing on the entire region’s sustainability pattern, and GreenStar, the certification process used by the Green Building Council in Australia.

Seeking an energy efficient qualification vs. a green building certification

The choice to concentrate a development effort toward the fully-integrated green versus the solely high energy-efficient side of the building scale is affected by three factors: incentives, mandates, and ease of attaining certification. For a while longer, building owners will benefit from federal, state, and local incentives to build green projects of any ilk, while the market continues to expand and there is pressure from different constituencies on their public representatives. To be able to reap these benefits, owners and developers will need to measure their success and compliance by obtaining some type of certification or qualification. Although there are many projects that are trying to address both high energy efficiency an green building at the same time, it appears that obtaining green building incentives is easier (and has a considerable lower first cost) and more quantifiable under the LEED system than higher or highest energy-efficiency for the same structure. After this initial period, it would appear that the incentive focus will shift to more and more efficient buildings, as the green designation will either be legislated or required as a matter of course for market reasons.
Green Building Data

New Construction

The USGBC states that it has at this time over 3.2 Billion square feet of building space submitted, under review or already certified within the LEED program. According to the USGBC’s April 2008 Green Building Facts, there are currently 1,327 projects certified under the LEED system, mostly found within mixed-use projects, followed by civic buildings and educational facilities, with 10,310 more buildings under construction and review for certification, divided as follows:

<table>
<thead>
<tr>
<th>LEED</th>
<th>NC</th>
<th>CI</th>
<th>EB</th>
<th>CS</th>
<th>ND</th>
<th>School</th>
<th>Retail</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered</td>
<td>6442</td>
<td>1001</td>
<td>979</td>
<td>1341</td>
<td>234</td>
<td>227</td>
<td>86</td>
<td>10,310</td>
</tr>
<tr>
<td>Certified Projects</td>
<td>980</td>
<td>216</td>
<td>70</td>
<td>59</td>
<td>2</td>
<td>1,327</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Besides the buildings under certification with the USGBC, which are concentrated in the new construction area, the EPA as of December 2007 maintained a list with more than 4,100 Energy Star Registered Buildings, ranging from government office buildings to manufacturing plants and schools. The Energy Star buildings are for the most part existing buildings, but of the 1,400 that were added in 2007 alone, some of them shared their designation with a LEED certification – although the overlap is still minor at this time.

Green Building Cost Studies

Determining the potential cost premium for both soft and hard costs of a green building versus a comparable brown building has been the crux of its lackluster financing appeal problem. If all things were equal or perceived to be so, there should be no hesitation in the acceptance of developers to choose to build a high-performing, green building over a peer traditional brown building. The learning curve in the design and development of green building projects has been very steep, while the lack of materials and technologies suited to the commercial arena further increased costs and hindered the adoption of green building over the last few years. Anecdotally, between 2003 and 2007, green building costs were perceived to be anywhere around 10%-25% higher than a comparable structure – for almost any level of certification. Lack of available data made this worse to disprove (note the total number of LEED certified buildings grew at a 200% rate every year over the previous year until 20076.)

Beginning in 2003, cost studies focusing on green buildings began to appear, first with Capital E’s examination of 33 green buildings and their cost differential versus traditional brown buildings. The study only included offices and schools, and in the subject buildings, the data showed a premium of 0.7% for Certified, 2.1% for LEED Silver, 1.8% for LEED Gold, and 6.5% for Platinum-level certification7. The Capital E study, as it included only 33 buildings (there were not many more available to be analyzed at the time) was widely considered biased toward green buildings. Then in 2004, Peter Miller of Davis Langdon produced a more comprehensive cost study for commercial projects seeking LEED certification. At the time, the Davis Langdon cost study showed that there was indeed a cost premium for LEED certified buildings, but that it was more dependent on the building type and the certification level than an across the board cost increase. The Davis Langdon study was cited by many as proof that a green building need not cost more for its type, but was dismissed in some circles as still lacking substantial data. Later, the engineering company Morrison Hershfield reviewed several

6 USGBC data from www.usgbc.org
United States cost studies and compared them, publishing these following results in 2005: for LEED Certified 0.08%; Silver 3.5%, Gold 4.5%, and an 11.5% premium for Platinum\(^8\).

Since then, there has been much more scrutiny of costs for the green features found within a building, and the average added premium that has been circulated and used as a basis for comparison has diminished from the previous 10%-25% of both soft and hard costs to cost–neutral for Certified to Silver levels, and up to 3%-5% for Gold, with the sky being the limit for Platinum. The wider understanding of integrated design and the early adoption of a green building standard for a project by the development team has helped substantially reduce costs, while the understanding that green features do not have to cost more but might be simply the choice of a different HVAC system, site and building orientation, and materials that would still need to be included in the building’s construction cost.

Davis Langdon published an updated study in the summer of 2007 using the same metrics as the original study and analyzed the cost per square foot of LEED-certification-seeking buildings with comparable non-LEED-seeking building across various building types, and found the four following key conclusions:

- There is a very large variation in costs of buildings, even within the same building program category.
- Cost differences between buildings are due primarily to program type.
- There are both low cost and high cost green buildings
- There are both low cost and high cost non-green buildings.

All in all, they conclude that there is a “lack of statistically significant differences between LEED-seeking and non-LEED seeking buildings.”\(^9\) The study does state that there is still the strong perception that green is always at a premium, and that it is _______________________

\(^8\) Morrison Hershefield, as cited in Turner Construction

\(^9\) Davis Langdon Cost of Green Revisited, page 10
considered an additional feature by most users, and that there is thus an inherent assumption that there will be an added premium. Although simplistic, the assertions above show that there is no conclusive evidence that green, LEED certified buildings need cost more to the attentive developer.

One can assume that there will continue to be a cost associated with the learning curve that developer and builder teams must overcome to acquire sufficient knowledge to run their first LEED certified building, be it a Silver or Platinum level project. Even according to the USGBC, there are some real costs associated with obtaining a LEED certification as detailed below:

![Extra Costs in Percentage to Build Green](image)

Meanwhile, architects and engineers that are involved in the business are already moving ahead of that curve and in many cases capable of integrating LEED design for Certified and Silver level into their basic architectural and engineering fees as a matter of course. Creating and finding extraordinary energy, materials and technological improvements still comes at a soft cost premium, without even addressing the potential hard cost premium in constructing one-of-a-kind systems.

Nonetheless, the main question still remains as to whether we can build a direct relationship between a specified level or type of certification and a change (hopefully an increase) in a building’s worth under the same financial metrics that lenders and appraisers will use to evaluate the building’s earning potential.
Chapter II

Traditional Green Building Financing Sources

Banks

Banks have been the financing resource most used in construction and permanent lending for commercial and multi-family green buildings, with very few also addressing individual residential green mortgages. These same banks are now beginning to tout all the loans they have made in the past in the area to show their commitment to environmental stewardship, such as Wells Fargo and PNC have done just recently. The creation of the Environmental Bankers Association, and the signing on to the World Bank’s International Finance Corporation’s Equator Principles by many international banks, from CitiGroup to ABN AMRO, are a further indication of this converging toward a sustainable banking environment. In abiding by the Equator Principles, banks can mitigate some of the risks associated with the changing global climate and its potential environmental risks, by committing resources and funding to cleantech and greentech firms, clean and renewable energy projects and their end users, including real estate\(^\text{10}\). A few examples of these programs include the following:

CitiGroup
In May of 2007, CitiGroup announced that it would invest and finance more than $50Billion to address global climate change, including for clean and alternative energy projects and real estate projects.

Wells Fargo Bank
Wells Fargo has provided more than $1.5Billion of construction and permanent financing for LEED-certified buildings, but has done so within its regular lending practice, and to date does not disclose having a separate set of standards for underwriting green buildings.

\(^{10}\) CERES Corporate Governance and Climate Change: The Banking Sector
Still, it committed another $1Billion to finance the broad category of environmental businesses, including a pledge to continue to lend on renewable energy projects\textsuperscript{11}.

\textbf{PNC Financial Services Group}

PNC Financial Services Group ("PNC") has recently begun been educating its loan officers on green building and energy efficiency programs such as Energy Star, and created environmental responsibility guidelines for the bank.

In November of 2007, PNC was granted a trademark for the term “Green Branch” by the US Patent & Trademark Office. The Patent Office granted the trademark stating that financial and banking services are not generally associated with environmentally friendly or ecologically efficient characteristics. This perception is exactly what is beginning to change at this time, and the simple application for such a trademark shows the need and the desire to obtain the market advantage resulting from the market’s perception of the Bank’s environmental sensitivities.

PNC at the time stated in its press release that it had “more certified, environmentally friendly buildings than any other company on earth\textsuperscript{12}.” Although a somewhat misleading statement (PNC had 42 LEED certified buildings, including 40 environmentally-friendly bank branches, so in absolute numbers, the square footage owned by PNC might not compare favorably to other companies’ holdings, even including the PNC Center, which at 650,000sf was at the time the largest financial institution-owned and occupied LEED building) the marketing opportunity in making such a statement shows the interest of traditional banking and finance institutions to be part of the green building movement. The only reason they would do so would be if green buildings were financially viable investments.

\textbf{Wachovia Bank}

\textsuperscript{11} \url{www.wellsfargo.com}
\textsuperscript{12} \url{www.environmentalleader.com} November 13, 2007
Wachovia Bank, not to be surpassed with respect to PNC, has now pledged it will have over 300 bank branches LEED-certified by 2010, and that its 1.2 Billion square foot new building at headquarters in Charlotte, NC will be built to LEED-gold standards, and that it would pursue LEED-CI designation for newly leased locations. Wachovia has assets of over $809 Billion and a market capitalization of $105.3 Billion, so it could be well-poised to dive into the green financing arena.  

Residential Green Mortgages

As PNC and other Banks strive for the marketing advantage associated with “being green”, they have to yet transfer any economic benefit to their Borrowers for similar sensitivities in their investments. According to Beth Mattson-Teig’s recent article in National Real Estate Investor, “Of course, borrowers would love to be rewarded for green building efforts with tangible financial discounts. But the reality is that few commercial lenders offer specific green mortgage programs. Those programs that do offer financial incentives for sustainable construction are scattered among small, local banks or boutique lenders.”

It appears that at this time the still rather narrow category of Green Residential Mortgages is developing, possibly integrating and overlapping with Energy-Efficient Mortgages, but slowly: according to another article, this time in the Boston Globe on October 17th 2007, NE Moves LLC, the residential mortgage arm of Coldwell Banker, and MassHousing have only funded fewer than 50 mortgages since the inception of their respective programs. In the residential arena, the entire issue is leverage of the energy efficiency of the property to allow for a larger loan – a savings of $50 a month can translate in up to $15,000 more in available principal for borrowers.

Bank of America, for example, launched a residential “green mortgage” in the fall of 2007, which specifically addressed energy credits through the mortgage program by

13 Data and press releases from www.wachovia.com
14 The Green Lending Debate Beth Mattson-Teig National Real Estate Investor February 2, 2008
15 The Boston Globe, October 2007
offering $1,000 back to buyers of new construction homes that meet Energy Star requirements. This was in addition to its commitment of $20Billion to encourage the growth of environmentally sustainable business practices through lending, investing and philanthropy, which could make Bank of America another good candidate for financing of commercial green real estate. Meanwhile, Countrywide Financial Mortgage announced a reduction for Green and LEED certified homes of .0125% on their listed mortgage rates for residential products on March 19, 2008, which could be considered almost a non-incentive, but which shows the value and the market appeal of having some type of green credential to offer one’s clients.

Beside the larger banks beginning to buy into these mortgages, there are banks such as the New Resource Bank in San Francisco which are created specifically to target and provide services for sustainable clients. Opened in 2006, New Resource Bank has grown to a deposit base of $125Million. The Silicon-Valley funded bank has its lending program focused on loans between $500,000 and $5Million with participation loans up to $10Million. Properties that are following LEED standards have discounts available of _ to 1/8 of a point on their rates.
The existing marketplace for green buildings can be divided into three basic groups of tenant and owner drivers: mission-driven, government-mandated, and speculative. The motivations for seeking one company’s occupancy in green buildings include the basic economic case, an environmental or sustainability mission, and the marketing goodwill that is generated by choosing to be in a green building. Each of the three types of tenants above is now in a green building somewhere in the United States. Their embracing of green building practices has changed in percentage and focus over the last few years, with the mission-driven companies making the choice earlier, followed by the government and now by both owners and tenants seeking to cash in on the goodwill side of green building. The economic case and the emphasis on energy efficiency and energy savings vis-à-vis rising energy costs has only made the choice for the latter easier.

Mission-Driven Owner-Occupied Properties

There has been a symbiotic relationship between the LEED program and the involvement on the part of the early owners and developers in green buildings. These owners were most often not-for-profit organizations, and those that incorporated the triple bottom line, and consequently green building, into their mission statements. This is exemplified by the very first LEED Platinum building, the Chesapeake Bay Foundation’s Philip Merrill Center in Annapolis, Maryland. The building was over budget by $6.5 Million dollars, a fact that was pointed to as a financial disaster by its detractors. This did not appear to concern the Chesapeake Bay Foundation, which used the Merrill Center as proof of its commitment to its sustainability mission and as a living classroom. The building has generated much interest and is used as a calling card and a potent marketing piece for the Foundation’s zero impact on the Bay policy, as well as having
spawned a whole cottage industry of tours and lectures on how to build sustainably which is still part of their offerings at the Center today\textsuperscript{16}.

In the case of corporate entities, their office location, and especially their headquarters offices are an important symbol of their status, image, and beliefs. While it would seem that companies such as Whole Foods and Recreational Equipment Inc. would be the best suited candidates for a LEED-certified building, which they have, large financial companies such as Bank of America and Goldman Sachs are now building to LEED Platinum for their new buildings. JP Morgan has hired Kohn Pederson Fox to design two new towers for them, one in London and one in New York - and each of these two towers is slated to both obtain the highest BREEAM certification, “Excellent”, and to achieve LEED Platinum certification.

A similar viewpoint is that taken by local government entities, especially for schools and children-related structures. In government green building, educational facilities were some of the first implementers of green building and to obtain LEED certification. One interesting implementation fact that was crucial within the local political arena was that the sustainability and the environmental friendliness of the schools should be visible on the exterior of the building to justify the cost premium to their constituencies, along with the improved interior learning environment. This ultragreen look of the earlier educational buildings is now becoming more of a standard look in elementary school construction, and is percolating up through secondary education facilities.

The emphasis on sustainability has since then increased to a much larger scale, where both private and public educational facilities (from the University of California system to Middlebury College in Vermont) have agreed to implement campus-wide green and sustainable building policies, from new buildings to retrofits of existing structures. These entities are motivated, once again, by their stated mission, and also reap the benefits of the goodwill and progressive image that adopting sustainability as one of their criteria creates in the market. The strict business case is, according to their published materials,

\textsuperscript{16} Chesapeake Bay Foundation  \url{www.cbf.org}
secondary – they want to do the right thing (although one would not discount in the slightest the fact that they could have implemented lesser measures if they realized they would only have losses from such a program\textsuperscript{17}.)

\textbf{Purely Speculative properties}

According to Sarah Sayce and her colleagues,\textsuperscript{18} their research among UK investors, property developers, bankers, and consultants showed that most investors in green real estate who were pursuing sustainable properties from a purely speculative standpoint were doing so to reduce their downside risk in the case of retroactive stringent regulation from government authorities at all levels (adopting a beyond compliance approach); to decrease property vulnerability in the face of obsolescence and loss of value when competing against brown properties (increased potential holding value) and to address the change in average tenant lease times, which has decreased from 15.8 to 9.2 years in the UK. This trend could foreshadow a similar decrease in lease term for the United States as technology and company structures continue to evolve.

In the US, keeping tenants in place is also becoming a greater concern and will most likely require increased attention to tenant needs as well as their pass-through costs in a rising energy market. The 2007 MacGraw-Hill \textit{Green Building SmartMarket Report} showed that overall operating costs in commercial properties that were at least LEED Certified were reduced by a minimum of 9\% versus comparable brown properties. These savings can be used as leasing incentive for tenants that are undecided or who do not want to pay higher rents that are associated with a newer building, which they may deem a green-building related rent premium. This is true in a gross lease environment, where expense stops are negotiated between landlords and tenants and even more painfully so in a triple net lease environment, as the portion of the rent that is directly related to operating costs increases.

\textsuperscript{17} University of California \url{www.cal.edu} and Middlebury College \url{www.middlebury.edu}

\textsuperscript{18} Sayce, Ellison, Parnell: Understanding Investment Drivers for UK Sustainable Property, 2007
New Commercial Office Development

The McGraw-Hill report mentioned earlier also stated that returns on the buildings themselves increased as the certification level increased, and it showed that rents increased in certified buildings by 3%, with occupancy rates 3.5% higher than comparable brown buildings. This increased the overall value of the properties by 7.5% improving the return on initial investment by 6.6%\textsuperscript{19}.

Another study published by CoStar in March of 2008 based upon tracking in their listings of EPA EnergyStar and LEED buildings (973 and 355 respectively, with a total 284 square feet) since 2006, gave similar results: EnergyStar and LEED certified buildings had higher occupancy rates (3.6% and 4.1% respectively); higher direct rental rates ($2.4/sf and $11.33/sf respectively) and higher sales prices ($61/sf and $171/sf respectively)\textsuperscript{20}. Still, when looking at the measures used to find peer buildings for the basic comparison, only 392 of the 973 EnergyStar buildings in the database had a direct peer, and the study’s qualification had to then include lower standards, older construction and a wider area to satisfy the comparison requirements; for LEED buildings, CoStar simply used buildings built after 2001 as a direct comparison, although almost 90% of all LEED certified green buildings have been completed within the last 24 months. The lack of true available depth of data to date notwithstanding, one can see how the trending is encouraging for speculative investors and developers of green buildings. Taking these numbers and even discounting them to 10% of their stated number above, the additional cost for construction – a premium that is becoming smaller and smaller, is well worth the while in potential returns.

These numbers are difficult to set in stone, as the database is still very shallow, and not many transactions have occurred in sales of green buildings to date, thus reducing the


\textsuperscript{20} CoStar Green Building Study and Report, CoStar Group, March 2008
dataset for a calculation of whether or not there is a cap rate differential between green and brown buildings.

**Hotels**

Even in lodging, there is a shift that is occurring by hoteliers at all levels. The new Green Hotel Association’s membership is increasing steadily, and large firms with many brands, such as Hyatt, are beginning to retrofit properties – beginning at the top, where they can achieve the highest Average Daily Rate, and thus a better return on their investment, and then letting the implementation trickle down to their other brands²¹. Entire lines of new hotels and eco-resorts are also coming online, and will According to Helen Hatch, a principal at the hospitality consulting firm Thomoson, Ventulett, Stainback and Associates, one is seeing "a big shift among hotel owners and operators toward green design… the hospitality clients are not often coming to us requesting a LEED certified hotel, as are many of our office and institutional clients. But we are close to a tipping point.²²"

**Existing Buildings**

The Washington Real Estate Investment Trust and other REITS such as Boston Properties are looking at their current portfolios to create a policy for retrofitting existing buildings, and in each case above they have hired individuals with exactly that mandate. Furthermore, Boston Properties, which until last year had not embraced green building, is now showcasing its three buildings under construction that are seeking LEED certification (under 500,000square feet out of a portfolio 43.8Million square feet) as evidence of their sustainability and environmental policy initiatives in their 2007-2008 annual report²³. A visible commitment to greening existing building stock is a concern among large and small property owners. Sarah Sayce and her colleagues in the UK showed that investing into improvements in the sustainability and energy efficiency of

²¹ [www.hyatt.com](http://www.hyatt.com) and [www.andaz.com](http://www.andaz.com)
²² [www.vtisa.com](http://www.vtisa.com)
²³ [www.bostonproperties.com](http://www.bostonproperties.com)
their stock of buildings only makes sense if it has a direct impact on the risk of falling occupier demand and consequently investor returns. This fear of obsolescence is part of the drivers that are causing these large real estate holding companies to reevaluate their real estate portfolios.

**Government as a Tenant**

According to David Winstead, GSA’s Commissioner of the Public Building Service, the General Services Administration is working to comply with the 2007 Energy Independence and Security Act (EISA) to reduce energy consumption in new public buildings and major renovations by 55%. This goal will be met primarily in complying with the agency’s own mandate to relocate or expand only to LEED-certified buildings for their occupancy in new or newly leased buildings. The visibility and need for the government to take the lead in addressing energy efficiency and to provide for the well-being of its civil servants and of citizens in public buildings will be crucial to its credibility and to garner support for its energy-related initiatives.

**Tenant Drivers**

Tenants in commercial office space have many of the same considerations as owner-occupiers: reducing utilities costs, employee retention, and goodwill. The combination of these three drivers, in any balanced format, is the key to tenant interest in locating in a green building, as few would have access to incentives and credits that are targeted to building owners.

There have been many studies on the effect of green features on employees in the buildings from access to natural daylight to better indoor air quality. According to an article in the Harvard Business Review by Charles Lockwood, these benefits are
measurable, from productivity gains to employee retention, reduced absenteeism, and even the engagement of potential employees to come to the company\textsuperscript{24}. As better air circulation and filtering is made available to employees through advanced indoor air quality monitoring, as employees experience a more active and stimulating environment with the aid of daylighting, and they experience a reduced level of toxins by the use of low or zero VOC choices in interior finishes, sick days and absenteeism diminish.

As payroll is the single largest expense line item on most companies’ income statement, employee productivity can translate into substantial dollar figures. Lockwood’s studies documented gains of 15\% in productivity within green buildings, as well as increased employee wellbeing and retention. This was further addressed by PNC Bank in its 2007 published materials, when they stated that at their PNC Firstside Center, a 650,000sf LEED certified building, employee retention and satisfaction was 50\% higher than in their traditional facilities\textsuperscript{25}.

Attracting the best employees, and not just retaining existing employees, is also a big cost and burden to companies, from law firms to plumbing companies. If managed correctly, this could be made easier by locating in a green building. According to Rogers, Stirk + Harbour, British companies are asking architects to include visible features that employers can use during office tours with prospective employees (and with clients).

Showing a commitment to environmental transparency and social responsibility is a requirement for many corporate entities from their clients, employees, and even suppliers all the way down the chain, from janitorial services companies to manufacturing plants. Furthermore, tenants that are subsidiaries of a larger company headquartered elsewhere will eventually also need to comply by the same tenets for their satellite location as is their corporate parent, so as companies embrace or convert to sustainability codes, lease renewals and new location scouting will need to also take green building into account to maintain the parent company’s goodwill and image.


\textsuperscript{25} \url{www.pnc.com}
Tenants in locations with net leases will look for higher energy efficiency labels and performance for reduced utility bills. This simple factor can also address owner concerns as the tenant could have more flexibility to spend on their rent instead of paying a utility company.

**Renewable Energy Credits and Carbon Offset Trading**

It seems feasible that as the domestic and international regulation of all types of Greenhouse Gas (“GHG”) emissions increases and becomes more stringent, the current nascent market for GHG credits and offsets will provide an additional income stream and value for sustainable and energy efficient buildings and their owners and investors. The carbon trading market is still in its infancy, but as it becomes more sophisticated, the availability of credits and pass-throughs to investors and their funding sources will increase in value. As stated earlier, buildings consume 39% percent of primary energy in the United States, and are responsible for 30% of all greenhouse gas emissions. GHG emissions from buildings have been growing steadily over time, especially since 1990, while they have begun to outpace transportation emissions since 2000. This would indicate a probable focus change from transportation to building GHG emissions by environmental activists over the very short term\(^26\).
The opportunity for investors to choose carbon and other GHG-reducing strategies and technology in their buildings would also allow for a faster return on the investment in such technology’s first cost, improving returns for developers and lightening the onerous guarantees or holdbacks often required during lease-up by lenders. For larger real estate holding groups or REIT, this might include being able to trade within their own holdings, allowing for deductions and credits to be passed to needier properties.

One stated negative on the Carbon Trading concept which has been voiced by environmentalists and legislators alike is that there is a possibility of aggregating the carbon producing properties in lower income areas where local legislators and constituencies have traditionally been less vocal and therefore creating the equivalent of Carbon Ghettos. This concept would be counter to the sustainability and social responsibility goals of triple bottom line funds, spearheading an effort to distribute the location and type of green, and low GHG buildings throughout their portfolios.

Overall, what is being billed as a carbon-constrained future will find value in carbon projects, and investing in neutral or carbon-positive buildings and projects is a safe bet for institutional investors for positioning themselves for participation or at a minimum, exemption from the constraints of a carbon legislation. As other types of carbon projects such as forestry and avoided deforestation, clean energy, biofuel, etc. develop, the positive addition of real estate carbon offsets will be a cash stream for the next few years.
Chapter IV
The global trend towards socially responsible and sustainable investment

The Triple Bottom Line

The Triple Bottom line is often defined as a bottom line that includes “the People, the Planet, and Prosperity.” The triple bottom line evolved from a balanced accounting that took into consideration the social impact of investment choices, and was championed by organizations such as the Social Venture Network throughout the 1980s and early 1990s. Investment vehicles that focus on socially-screened funds are now including additional environmental requirements that can and should be fulfilled by investing in green-certified real estate.

A large portion of the Standard and Poor’s 100 companies are now offering some type of social accountability measures in their reporting, such as adhering to the “Global Reporting Initiative”. This transparency only increases the need to address the greening of one’s real estate holdings. While funds that focus solely on the triple bottom line are beginning to emerge in the investment landscape, while funds that also include some type of double or triple bottom line are becoming the norm.

In a recent interview on www.globest.com, Kirk Sykes, president of Urban Strategy America Fund, a New Boston Fund vehicle, explained how USA Fund is hitting a niche market that was not being met previously – the financing of redevelopment of urban locations into workforce and affordable housing. The Fund was created by bringing together 15 institutional investors, a mix of pension funds, banks, and insurance companies that were also seeking, beyond their blended average return rate of 15% for all types of plays, a triple bottom line fund – economic development, environmental sustainability and smart growth. The fund has a relatively small investment capacity - $190 Million - and according to Sykes’ guidelines, will invest on average in 20-25 properties at any time, but it is symptomatic of the types of financial structures that are
emerging at this time, and that are looking for joint ventures and green building development investment opportunities.\textsuperscript{27}

**Purely Socially Responsible Investment Funds**

The increased focus on the triple bottom line has translated directly in the increase of Socially Responsible Investment Funds. Between 1995 and 2005, investment in these funds grew from approximately $162Billion to over $1.6Trillion, as detailed below, and is still growing.

![Exhibit 1: Socially Responsible Investing in the US - 1995 to 2005](chart.png)

Sources: Social Investment Forum and LIPSE Research

If one were to add to these the funds that practice shareholder advocacy for environmental and social issues, the amount under professional management in this arena would grow to $2.3Trillion, or 10% of total assets under management\textsuperscript{28}. As these funds increase in size, the type of real estate held in their portfolios will become more and more important, as well as increasing in absolute size. The real estate allocation will no longer be able to be held in brown buildings as the public continues to focus and educate itself on the carbon footprint of such structures, and there will be thus be an additional push to

\textsuperscript{27} [www.globest.com](http://www.globest.com) February 15, 2008 Urban Strategy America Fund’s Kirk Sykes

\textsuperscript{28} “2005 Report on Socially Responsible Investing Trends in the United States -10 Year Review” Social Investment Forum, January 24, 2006
invest in more efficient buildings, or to upgrade them to current green and sustainable standards. The trend toward greater transparency is being addressed at all levels, from shareholder forums to Security and Exchange Commission- required disclosures.

**New Advisory Firms**

As the assets placed in triple bottom line funds increase, specific advisory firms are being created to address the issues and the needs of institutional investors and equity managers to remain current in the sustainable real estate arena. These range from the Institute for Responsible Investment at Boston College, an academic research group spearheaded by Prof. Spivo of the University of Arizona, which is committing to providing timely and pertinent information to real estate investors on trends and social responsibility issues, to the expansion of CERES, the large fund advisory board that works with most, if not all, pension funds in the United States on all matters social and sustainable. The Pension Real Estate Association, United Fund Advisors, and all the way again to boutique advisory firms that walk small and larger private equity through the potential pitfalls of failing to invest in sustainability, such as Galley Eco Capital LLC, based in San Francisco.
Chapter V
Incentives and Legislation

Incentives

Incentives provided by public and private entities for green building began with energy-efficiency related perks, and then widened to a more general green building emphasis. One could postulate that soon, after legislation catches up with the green building movement, the incentives will be transferred back towards almost a purely energy-related issues. Meanwhile, federal, state, and local governments, are offering a plethora of incentives that include rebates, tax credits, tax abatements, density bonuses, and expedited permitting, while private foundations are providing grants for both technology development and implementation. These targeted incentives, if taken advantage of by developers can virtually offset any additional premium that the higher-efficiency systems might cost.

Federal Incentives and Programs

The Energy Act of 2005

The Energy Policy Act of 2005 for real estate projects completed between January 1, 2006 and December 31, 2008 provides for up to $1.80 tax deduction per square foot for specific energy cost reductions above ASHRAE 2001’s building energy code performance standards. The $1.80 mentioned above is the maximum amount available for the deduction, comprised of 60cents for each of three building subsystems: Lighting, HVAC, and Building Envelope. As LEED certification requires compliance with ASHRAE’s 2004 standard, which is more stringent than the 2001 standard used by EPAct, any building that is certified under LEED should in effect be able to obtain the

\[ \text{29 Internal Revenue Code, Section 179D (d) (4)} \]
EPAct tax benefits. There are now bills in Congress to extend the EPAct through December 31, 2013.

This would mean that the 2.2 Billion square feet of projects currently registered with the USGBC as seeking certification should be able to obtain almost $4 Billion in EPAct tax deductions. The largest tax deduction and credit opportunities tied into LEED certification involve energy points – and are also the largest first-cost items in the construction budget, as they usually are HVAC and power generation systems – once again, providing a series of direct cost offsets available to developers.

The EPAct requires building energy modeling, which is already a LEED requirement. On a related point, in government buildings, as the government cannot take advantage of the tax credit itself, it is the architect or engineer effectuating the energy efficient design that is entitled to the EPAct tax deduction benefits, further stimulating and incentivizing different professions to encourage green building.

**State Incentives**

Initial adoption of Green Building standards and its incentives started primarily on the west coast (California and Oregon) and then jumped across the country to the east coast, and is now filling in throughout the country. Some incentives that are available in the Greater Washington Metropolitan Area are reviewed below.

**Maryland, Virginia and the District of Columbia**

The State of Maryland Energy Administration passed its Green Building Tax Credit for the benefit of developers in 2001. The fund was allocated $25Million, which was to be credited towards costs incurred for new or major renovations of qualifying green buildings over a period of 10 years. By 2006, the fund was essentially out money and was turning away applicants. No new funding has been allocated by the state of Maryland since then to extend the Green Building Tax Credit. From statements made by the administrators of the Credit, there seems to be a perception that there is now a diminished need for incentives to encourage green building, and that developers will
continue to build green buildings based upon their positive economic model, and through market pressure without substantial underwriting by the state or other similar entities.

The Commonwealth of Virginia has adopted a statewide policy whereas it will give leasing preference to buildings that meet LEED standards or are Energy Star Certified for state use facilities.

With the passage of Bill B16-0515, the District of Columbia implemented an expedited permit review process for projects seeking LEED certification. The mayor will also establish a Green Building Fund to finance technical assistance, monitoring, education and the expedited permitting process. Direct district grants might also be made available to the public, meanwhile the District is working with local organizations to provide green building grants.

Local Government Incentives

Maryland Counties

The City of Baltimore has passed legislation whereas commercial or multi-family residential buildings larger than 10,000sf that request a permit after July 1st 2009 must achieve a minimum of LEED Silver. There is further legislation pending to allow a 10 year tax credit for any commercial LEED Silver buildings and for the implementation of photovoltaic arrays on commercial structures.

Baltimore County passed Bill #85-06 (2006) that gives any commercial building that achieves LEED NC Silver a county property tax credit for 10 years; the County also introduced a bill that would require new or remodeled school buildings to meet LEED Silver, with a threshold cost of $350,000.

Howard County allows expedited permitting for projects seeking LEED Gold or Platinum, and established a five-year property tax credit for projects that achieve LEED NC and LEED CS. Tax credits for buildings certified under LEED EB will extend for 3 years. These credits increase with each level of LEED certification achieved and will be available for tax years beginning after June 20, 2008.
Virginia Counties

Arlington County, VA: on the commercial side, the County gives bonus FAR to private development/commercial and multifamily residential projects earning LEED certification, from .15FAR for Certified to over .35FAR for Platinum. On the single-family residential side, the County offers builders of new single-family homes to incorporate energy-efficient and other green building components in their projects. The County offers “front of the line” plan review, site signs, and publicity to program participants who achieve a given number of points as outlined by Arlington’s Green Home Choice Program.

Private Incentives

Private incentives are mainly comprised of smaller grants in the $5,000 to $50,000 range provided by foundations and local organizations that address very specific aspects of green building, such as the Kresge Foundation’s green building initiative, the Casey Tree Foundation Greening and DC Greenroof’s grant to retrofit green roofs on existing buildings and provide funding for newly installed green roofs within Washington DC30. These grants tend to be sought after by smaller entities and non-profits to supplement the bottom line and should not be regarded as true incentives that would apply to speculative office developers.

Green Building Legislation

Green building legislation to date has primarily taken place in the state, county and city level, as opposed to deriving from a top-down mandate at the federal level. This is changing with the General Services Administration requirements under EISA as discussed earlier, but has not occurred yet at the Federal level as a distinct construction or location requirement although there is a bill in the Senate, discussed below. The specific mandates have been drafted by local county and city administrations which have adopted

30 www.caseytrees.org
green legislation – and who, interestingly, appear to be vying for the title of “greenest jurisdiction” as is occurring between counties in Maryland. A sampling of existing green building and energy efficient construction legislature in this area is reviewed below.

**Federal Legislation**

The Senate is currently considering legislation that would require achieving the LEED Silver certification standard for buildings 7,500 square feet or larger to be renovated or constructed using solely federal funds. If Senate Bill 208 is approved, it would become effective in July 2008.

**Maryland, Virginia and the District of Columbia**

The State of Maryland’s Legislature has proposed requiring schools that receive State school funding for construction to use LEED Silver, effective Fiscal Year 2010 to 2014. This proposal is still under consideration.

The District of Columbia passed Bill #B-16-0515 in 2006, requiring publicly-owned, non-residential, commercial projects to achieve either LEED NC or LEED CS Silver Certification beginning in 2009; after 2007, new public schools are now required to achieve LEED for Schools certification or an equivalent rating system that includes commissioning; as of this year, each tenant of a commercial building that improves a District-owned space of 30,000sf or more will be required to achieve LEED CI; in 2009, all new construction or major renovation to non-residential, private buildings 50,000sf or more must submit a green building checklist; after 2012, non-residential and post-secondary facilities shall achieve LEED NC or LEED CS certifications.

The Commonwealth of Virginia has passed legislation that requires state agencies and institutions constructing state-owned facilities over 5,000sf (and renovations of such buildings valued at 50% of assessed building value) to be designed and constructed in accordance with energy efficiency and performance standards at least as stringent as LEED or Energy Star ratings.

**City and County Legislation**
Maryland

Howard County, MD – All new County projects are to achieve LEED Silver. Private projects of more than 50,000sf are required to achieve a minimum of LEED Certified, whether or not they are related to the County (landlord or tenant or funding).

The city of Bowie, MD – City council passed Resolution #R-15-03, requiring all municipal projects to follow green building criteria and to use LEED guidelines on a project by project basis.

Montgomery County, MD - Bill #17-06 was passed in November of 2006 to require publicly-financed buildings greater than 10,000sf to achieve LEED Silver or an equivalent standard. Private-sector, non-residential or multi-family residential buildings of at least 10,000sf are required to achieve LEED Certified or equivalent standard. In early 2008, Montgomery County passed further legislation requiring more stringent standards and now bills itself as the greenest county in Maryland.

Virginia

The City of Alexandria, VA – The department of General Services developed a Green Building Policy adopted by the Manager in 2004 – the policy establishes a procedures for analyzing LEED feasibility for facilities 5,000sf of greater. This policy is under review at this time for stronger implementation.

Arlington County, VA- The county requires all applications for commercial projects to include a LEED Scorecard and have a LEED Accredited Professional on the project team regardless of whether or not the project is seeking LEED certification. All projects must contribute to a green building fund for county-wide education and outreach activities. The contribution is refunded if projects earn LEED certification.

TRENDS

The legislation listed above in the greater Washington Metropolitan Area demonstrates that there is a strong interest by local jurisdictions to both encourage and to mandate some level of green building for themselves and for any development within their constituencies. As this type of legislation has progressed, the initial approach - to have green requirements for county/city owned or leased property - has evolved to, and
through, private development with county funding, and is now moving towards a policy whereas any type of development will need to show some form of green building. There are similar requirements by local jurisdictions that all government buildings meet some form of LEED standard across the United States, ranging from Arizona, to California, to Vermont and to New Jersey, and they seem to all be evolving following the same pattern.

The likelihood that there will be a sunset of existing incentives and tax credits that are currently offered within these same programs as legislation begins to mandate green and sustainable building, making the adoption of green building more onerous for developers. This would especially true for latecomers to green building, who will not be able to use the incentives to offset their learning curve costs, and thus would imply that earlier adoption of green building would be most economical.
Chapter VII
Large Institutional Investors

Overview of Institutional Investors in the Market

As mentioned earlier, large institutional investors have been largely absent from the financing of green buildings to date. The business case for green buildings – especially as it is primarily based upon the structure’s efficiency and operating performance, has only recently gathered sufficient depth of evidence to truly entice institutional investors into the arena based solely on its financial performance. This lack of data and the novelty of the building type – if one were to separate it out as such, has been counter to the conservative fiduciary mandate imposed either by the Retirement Security Act or by the board governance of these institutions. Outside of partnerships already formed with developers or within developers’ existing funds or credit lines, large institutional investors have not been one of the available sources of financing options for green building developers.

There are a plethora of large institutional investors and large financial entities that are beginning to focus portions of their holdings and their funds towards sustainability in one form or another. When applied to the real estate allocation of their portfolios, this can be achieved through direct investment – the purchase or the financing of a green building – or through an investment into a fund that focuses on green, or on carbon-neutral buildings. There are four criteria that are causing these entities to want to allocate toward green real estate:

In September 2007, pension plans lobbied the Security and Exchange Commission to require enhanced disclosures with respect to sustainability and environmental policies for publicly traded companies (in the neighborhood of $2Trillion in assets). This was promoted to allow them to reference the policies when divulging the pension plans’ actual holdings of these companies. A similar measure will be in place for their real
estate holdings – they are now disclosing the environmental impact of their real estate holdings in their quarterly and annual report, usually based upon their carbon footprint. Among these pension funds are three of the largest, CalPERS, CalSTERS and TIAA-CREF.

The sustainable investment parameters that firms supported even as recently as two years ago are being continuously updated and widened as more companies achieve or promise to achieve goals, leveling the competitive playing field. Furthermore, the investment parameters of the green funds themselves are redefining themselves, seeking an ever growing number of potential investments to place into their holdings.

The pension funds and the institutional investors are also investing in green real estate to hedge their risks and lower the obsolescence aspect ratio of the rest of their portfolio. The choice to do so either directly, indirectly, or both, gives them unparalleled options for diversifying ageing and browning risk. To take care of this need, and to capitalize on the opportunity, the number of REITS being formed – both public ad private that are interested in pursuing a green is increasing every day. Of the over 300 existing REITS in the US, 41% are pursuing green strategies. Furthermore, in December of 2007, there was a filing of an S11 by Green Realty Fund, seeking to raise a $1Billion fund focused on both rehabbing (greening) existing buildings and on new green construction projects, foreshadowing the onset of larger Green Funds in the market.

As the federal Employee Retirement Security Act requires that social objectives of their subject pension funds be subordinate to the return objectives, competitive green building financing or an investment in a green fund can play a special part in their investment allocation, by satisfying both requisites contemporaneously. Investment opportunities in green real estate are becoming more attractive although there is still a debate as to whether green buildings should be viewed, analyzed, underwritten and capitalized as a separate investment product. A discussion of the current strategies of three entities in this area, JP Morgan, TIAA-CREF, and CalPERS, follows.

31 RREEF Research, February 2008
JP Morgan Asset Management

JP Morgan Asset Management is a leading global investment manager with over $1.1 Trillion under management. JP Morgan’s Real Estate and Infrastructure division, whose clients are comprised of institutional clients and high net worth individuals, was founded 38 years ago with a mission to increase both value and returns. The Real Estate and Infrastructure division now has assets under management of $56.2 Billion, where the tactical allocation is to balance between Strategic Property Strategy – core, stabilized and high-quality properties; Special Situation Property Strategy – value added development and opportunities; and US Real Estate Securities Strategies – which invests in publicly traded real estate shares, such as REITS.

In 2007, JP Morgan announced a capital call to raise a $500 Million Green Urban Renaissance Fund, focused on real estate in major tier cities and first tier suburbs. They require all projects in the fund to be LEED certified. Although at this time they have $3 Billion invested in green buildings across their entire Real Estate and Infrastructure division’s assets, this is the first fund that will be solely focused on green and sustainable projects. According to David Butler, the VP of Real Estate for the Green Urban Renaissance Fund, JP Morgan has now chosen its first two projects, the ARTERA in Mission Bay in San Francisco, a LEED certified condominium tower, and the Greery in Portland, another residential project. Discussing JP Morgan’s retrofitting of its headquarters on Park Avenue in New York, Butler stated that “. . . it is the largest retrofit of a non-LEED to LEED Platinum and will be completed at a cost of over $200 Million. To date we have not done much as far as retrofits are concerned, and we are looking more at new buildings for green.”

32 Interview with David Butler, February 2008
TIAA-CREF

TIAA-CREF, founded by Andrew Carnegie in 1918 as a not for profit, is a financial services company for employees of more than 15,000 institutions. As of 12/31/2007, TIAA-CREF had over $435Billion in combined assets under management. Their investments include the CREF Social Choice Account, a fund that according to company materials, is the largest, most comprehensive socially screened investment vehicle in the United States.

The Social Choice Account had assets of $9.2Billion as of 12/31/07, and in late 2007, split off to create a new vehicle, the Social Choice Fund. According to Cherie Santos-Wuest, director of corporate and socially responsible real estate, her portfolio in the Social Choice Fund inherited the real estate portion of the larger social investment portfolio, and that it is a sector that TIAA is currently seeking to expand - due to both individual participant and institutional investor interest. The Energy Star standard is what will be used initially to evaluate whether the portfolio’s allocation and performance meets their environmental criteria, while mixed income, mixed use economic development and social development measures will help to establish the social impact of the portfolio.

At the time these real estate assets were moved over to the Social Choice Fund, they were valued at $500Million, mostly in direct equity stakes, a mere fraction of the overall real estate holdings. A stated belief and goal for TIAA-CREF is that to be competitive, they will need to address sustainability. And thus they are actively looking to expand or transform their holdings through the entire spectrum of their holdings. In March of 2008, the Social Choice Account added international sustainable funds to its investments such as the KLD Global Sustainability Index to their holdings, to offer its investors more choices and exposure to both international and to more sustainable and social investments. The Social Choice Account already participates in the Phoenix Realty

33 www.tiaa-cref.org
34 Interview with Cherie Santos-Wuest, February 2008
Group’s urban fund capitalization, as part of TIAA’s *Global Social Real Estate program*. With an overall balance of 60 percent equity securities and 40 percent fixed income securities, the Social Choice Account and the Social Choice Fund can both benefit from investing in green and sustainable properties.

Beyond its investment measures, TIAA-CREF states it intends to improve the energy efficiency of its entire real estate portfolio across all funds by 10 percent by the year 2010. To meet this goal, TIAA-CREF’s Global Real Estate group is going through its 43 million square foot portfolio to find opportunities to reduce energy consumption. Thus far, the buildings that comprise the office portfolio have reduced energy use by 125 Kilo BTUs, and its next target is its 12,000-unit multifamily portfolio. This type of commitment, above and beyond the allocated special focus funds, is indicative of the opportunities that are present for those who are interested in providing development projects or who are seeking construction, retrofitting, or permanent financing from institutional investors. When put into perspective, the $500 Million in the Social Choice Fund is 0.00115% of the $435 Billion in assets under management at TIAA-CREF. So even a fraction of a percent increase in their allocation of assets dedicated to sustainable and green real estate can make a huge difference in the funding availability for owners and developers.

**CalPERS**

The California Public Employees’ Retirement System or CalPERS, is the nations’ largest public pension fund with current investment portfolio value of $245 Billion as of March 2008. TA review of the overall portfolio “Asset Class by Category” in their documentation shows that Real Estate currently comprises 8.5% of its holdings, or approximately $20.7 Billion. Their target for Real Estate is 10% of assets, an increase in that category, vs the decline or diminishing of equities holdings that they are targeting for 2008. Furthermore, the type of holding is targeted to be 94.8% active, so that there

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35 [www.calpers.org](http://www.calpers.org)
will be a reduction in the passive hold of the financing of their existing properties. This emphasis of an increase in Real Estate holdings is also visible in their Social Fund.

CalPERS began to address the energy efficiency of its core real estate holding by adopting its Energy Efficiency Plan in 2004, which covered all their core industrial, office, retail and apartment properties. These holdings were already valued at over $5 Billion in 2004. Among other criteria, the plan called for efficiency increases of 20% across all properties within five years. According to current CalPERS disclosures, they have been able to achieve that initial goal, mostly through retrofitting and energy conservation measures.

Other CalPERS initiatives, as part of their corporate governance, include supporting national regulations and environmental disclosure policies such as the Investor Network on Climate Risk (“INCR”), the Environmental Company Engagement Program, the Carbon Disclosure Project, and the Environmental Shareowner Resolutions for Improved Disclosure. For all the reasons stated at the beginning of this section, abiding by these policies creates a framework for their own social and governance responsibility within their holdings, and will foster further investment in green and sustainable buildings when these are at a par with peer brown buildings.

In 2006, CalPERS created a Real Estate Environmental Strategies component of its investments, which focuses on “generating attractive returns while adopting environmental and green building technologies in areas, such as energy efficiency, water conservation, waste stream management, and indoor air quality, within the overall real estate portfolio.” These goals are very much aligned with LEED scorecard emphasis, and seem to prepare CalPERS for using the USGBC’s standards as a measure of their success. The creation of these Environmental Strategies was prior to the announcement of their joint fund with Hines.

The new fund CalPERS created with the Hines Group shows the third type of solution mentioned earlier, as they drew from their prior relationship with Hines to form another fund, the Green Development Fund, which will be initially exclusive to CalPERS. The
Fund was capitalized with a base of $120 Million, and has a mandate to invest in LEED-certified green buildings to be procured by Hines, and can be properties that will either be developed, retrofitted or purchased outright.

**Large Institutional entity financing outlook**

Beyond the individual funds created by and within large institutional investors and their initiatives or investments as discussed above, there has been an upsurge in the creation of green real estate funds over the last year, with new ones appearing more and more frequently. These funds are tapping into the investment potential from institutional entities, but their combined equity requirements so far only cover a very small portion of the real estate portfolio of such investors. The funds include Revival Fund Management, with a $150 Million urban real estate fund, the Green Living Fund, at $100 Million, focusing on residential and mixed-use projects, while Koll Development Co. and Prudential have two funds at $200 Million each. CalSTERS, the third largest pension fund in the US, created a $500 Million fund with the Thomas Properties Group to enhance their green building portfolio. There are also internationally managed domestic funds being created, such as the April 1st, 2008 announcement of the Pax World Global Green Fund.

Real Estate Investment Trusts are focusing larger portions of their assets on green buildings, as has ProLogis, the world’s largest owner, manager and developer of distribution and warehousing facilities. ProLogis has signed on to several green building and carbon emission pacts, and AMB Property Corp has begun to unveil new projects, such as their 3 million square foot green distribution center in Savannah, GA. Other players, such as Simon Property Group and Regency Centers, are also actively pursuing green building. The REITS, which cannot take direct advantage of the Tax Credits due to the nature of their entities, are focusing on the business case for green, and betting on the added returns they will be able to obtain from the high-efficiency
advantage inherent in these buildings, as well the longer life span they will have versus the comparable obsolescence of a brown building. The above entities will not develop all the properties themselves, and will need to have savvy developers and owners produce buildings that they will be able to acquire and add to their portfolios.

Assuming that the green funds described above only represent a fraction of the known green funds available in the market at this time focusing on sustainable real estate, and that their combined assets are at a basic $3Billion, these funds, with outside leverage, in the current credit market can thus support assets of up to $10Billion, still below the $12Billion amount of green starts in the US for 2008 discussed earlier. The $12Billion figure for green construction is also a portion of what will be necessary to green the real estate portfolio of even the top three large institutional investors. This would indicate a need for both more green funds and for more green development to occur to fill the need for and by large institutional investors.

Global considerations

Widening the view of what entities are available to provide funding for green building, one factor that should be taken into account is international investment interest in the United States. These funds come from all manner of sources, including international banks such as RREEF Deutsche Bank, which holds $40Billion in assets in the United States out of its total $90Billion. According to Andrew Nelson, Vice President of Research at RREEF, their clients mandate green building, and RREEF complies by investing in new buildings, as there are few available certified green buildings for sale36. Meanwhile, their group is concentrating on energy-efficient assets and on reducing their carbon footprint, which is one of the ways they measure their performance against their standards.

As mandates in their countries of origin evolve, international companies might also be forced to choose investments in the United States that mirror the requirements for corporate governance and sustainability that are placed upon them from headquarters.

36 Andrew Nelson, Presentation to the Green Building Investment Forum, February 2008
Assuming that legislation and mandates become stricter at faster rate abroad than in the US – a trend reflected in the adoption of higher environmental standards in all G8 countries than in the United States, the choices available to foreign investors will narrow to the most energy efficient and sustainable products. Bringing their investments in the US in line with such mandates earlier rather than later may help them stay ahead of the curve with respect to their disclosures and compliance requirements, and would provide developers and owners of green buildings yet another financing venue.

**Labor Unions : The AFL-CIO**

Labor Unions leaders recognize that in the changing economy, they need to invest in strategies and developing technology that will assist them in remaining competitive at a global level. A large portion of retirement income available for investment in the market comes from union members - at the tune of $5Trillion – and the labor unions do not want to be left behind the international move towards cleaner, more sustainable economy. Recognizing that they need to provide new technology employment for their members, labor unions such as the AFL-CIO are addressing their economic job base, recognizing that employers of their members will need to reduce energy consumption from manufacturing facilities to offices to remain competitive, and the AFL-CIO is also proactively investing its assets in a more sustainable manner. According to John Sweeney, president of the AFL-CIO, the AFL-CIO Building Investment Trust, which has financed $3Billion in construction projects since 1988 is looking into new green projects, while their AFL-CIO Housing Investment Trust, a core-plus, fixed income investment company with over $2.3Billion in assets, has helped finance more than 75,000 housing units, including One River Terrace, in NY’s “green” Battery Park district.  

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37 Sweeney, President of the AFL-CIO, to the United Nations Summit on Climate Risk
Chapter VIII
The Five Year Window

There is now an opportunity for developers and owners of new green buildings to maximize the confluence of several positive factors and to leverage them into a market edge over comparable brown buildings when seeking funding over the next five years. Especially in period where the real estate industry is experiencing a credit crunch, lending for construction or permanent financing for green or energy efficient building over a comparable traditional building seems to be the most logical type of investment for a lender. This is true even when one does not take into consideration the corporate governance mandates that some of the investors need to abide by, as the economic model for green buildings shows increased occupancy, higher returns, and lower utility costs versus their peers. These factors, when added to the legislative incentives offered by local, state, and federal jurisdictions present a rosier picture than that of a comparable brown building.

Meanwhile, the window of opportunity to capitalize on the market edge over brown buildings is set at a not too far time in the future –green building legislation will become more stringent, and as time passes, will cause all buildings to be sustainable, as is already beginning to do in some jurisdictions. At that point, there will no longer be an advantage in being sustainable, and green buildings will compete against each other. When it becomes a question of how green, the competition will return to that of today, peer to peer, and investor’s emphasis might choose to focus on the greening of their existing building stock.

The development process for most speculative office projects - from site acquisition, entitlements, design, permitting, construction, and occupancy - lasts between three and five years. It will probably take five years minimum before the next set of developers, those that need to be convinced of the need and of the opportunity to be found in green building, will be able to produce their first building. Five years is also the minimum time it will take for both new legislation to come into effect (all the examples mentioned
earlier show a phase in period over several years) and for incentives available now to run out or their funding to be exhausted.

The critical mass of investors interested in green and sustainable real estate opportunities has arrived, and they have quotas to fill in their portfolios. With only 10,310 currently buildings registered under the USGBC certification process, the void is very tangible, and coupled with existing incentives, the possibility of future carbon trading or offsets, and ever-rising energy costs, this is the time to spearhead green development and position it for preferential selection during this first wave of large institutional investment into the sustainable building arena.

“The economy is a wholly-owned subsidiary of the environment”
Senator Gaylord Nelson
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