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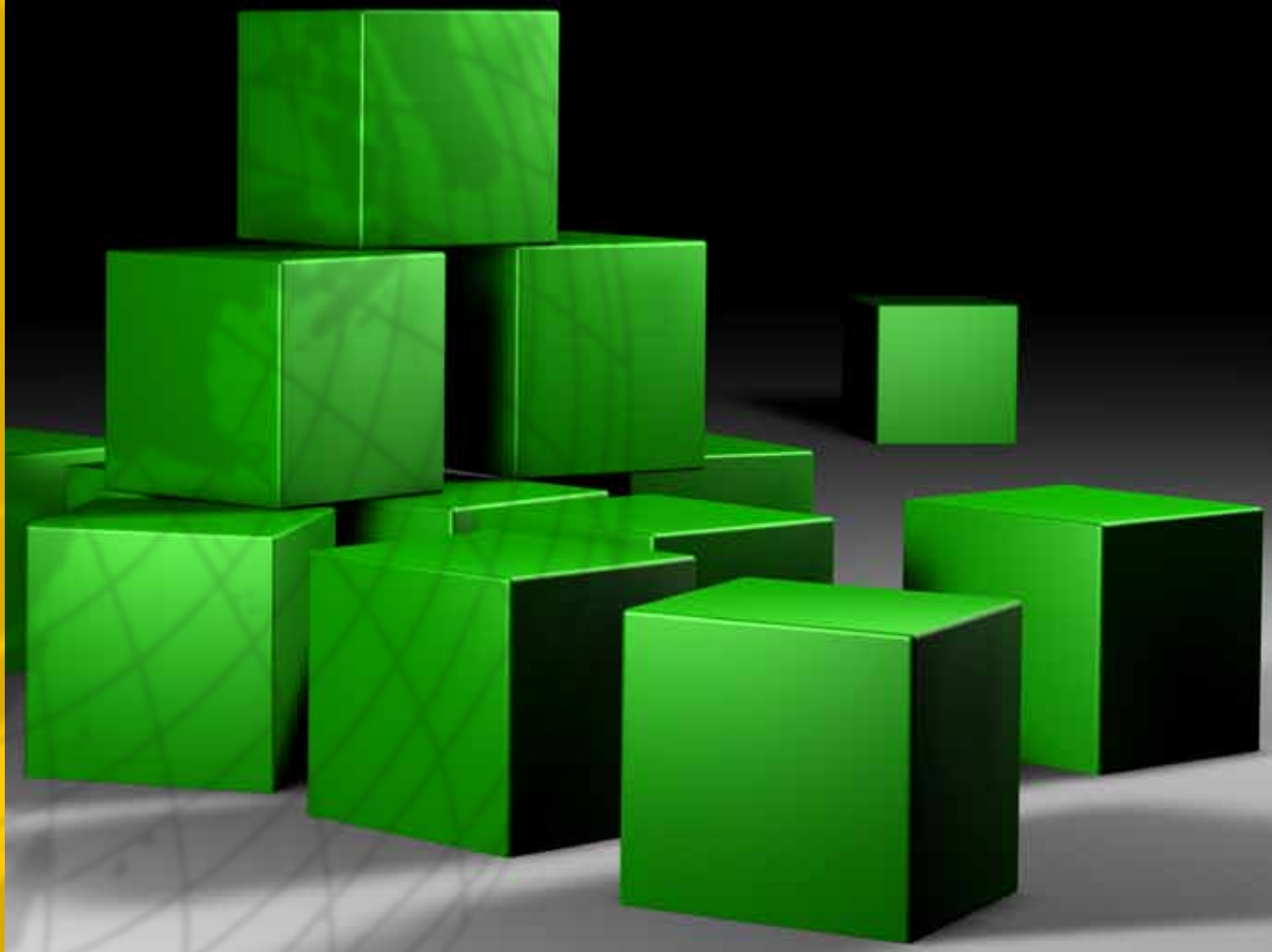
Green Buildings and the Finance Sector

An Overview of Financial Institution Involvement in Green Buildings in North America

A Report Commissioned by
North American Task Force, UNEP Finance Initiative



UNEP Finance Initiative
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Green Buildings and the Finance Sector

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A report commissioned by the

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List of Acronyms

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BOMA	Building Owners and Managers Association
CaGBC	Canadian Green Building Council
CalPERS	California Public Employees' Retirement System
CMP	Capital Markets Partnership
GBS	CMP's Green Building Security
GDP	Gross Domestic Product
GSF	Gross Square Feet
LEED	Leadership in Energy and Environmental Design
LEED-CI	LEED for commercial interiors
LEED-CS	LEED for new core and shell construction in speculatively developed buildings
LEED-EB	LEED for existing buildings operations and maintenance
LEED-NC	LEED for new construction and major renovations
NAHB	National Association of Home Builders
RPI	Responsible Property Investment
USGBC	United States Green Building Council

Executive Summary

This report is intended for financial institutions in the United States and Canada that are interested in becoming involved or have started to get involved with green buildings. It is meant to provide an overview of the relevant facts and issues related to green buildings, the roles that the financial sector can play, and the potential barriers and benefits to financial sector involvement. It also offers some guidance and strategies for financial institutions preparing for greater involvement with green buildings.

Broadly speaking, a "green building" is one that incorporates environmental and health concerns and resource efficiency throughout its life cycle – from siting and design to operation and maintenance, all the way through to deconstruction. For many people, however, a "green building" is one that has received some sort of third-party certification that validates its green features. While there are several certification systems available, the dominant system in the U.S. is the Leadership in Energy and Environmental Design (LEED) system from the U.S. Green Building Council (and adopted by the Canadian Green Building Council), while the dominant system in Canada is the Building Environmental Standards from the Building Owners and Managers Association (BOMA BESt).

These systems have become increasingly common due to rising concerns about buildings' environmental impact – i.e., their significant water use, waste generation, energy use, and greenhouse gas emissions. Office buildings, for example, one type of building with which financial institutions are most often involved, consume more energy than any other type of commercial building. Similarly, low-income housing, which tends to be very energy-inefficient, is responsible for a sizable portion of greenhouse gas emissions. Greening these and other types of buildings can therefore have a profound impact on environmental quality.

Elevated concerns about the environment – and climate change in particular – have been one of the key elements driving the recent surge in green buildings, generating billions of dollars in gross domestic product and millions of jobs over the past few years, and the market for green buildings in the U.S. and Canada is expected to continue to grow despite the current economic recession. Governments have also been an important driver of the burgeoning green building market, setting green requirements for their own buildings and providing incentives and requirements for the private sector. Another critical element, and perhaps the one of greatest importance to the financial sector, has been the increasing awareness that green buildings have significant economic benefits in addition to their environmental benefits.

These and other drivers have led to gradually increasing involvement by the financial sector in green buildings. There are four principal roles that financial institutions play in the green building process: owner or user, investor or private developer, lender, and insurer. The owner/user role, which is the least unique to financial institutions, is often their most direct involvement in green buildings, with many institutions seeking third-party certification for the office buildings and branches that they own or lease. Investor participation in green buildings began slowly but has been accelerating rapidly, with increasing project development, investment in green real estate funds, and attention to Responsible Property

Investing strategies. Financial institutions are also increasingly moving in the direction of incorporating green buildings into their mainstream lending practices, and growing numbers of insurers are offering green buildings products and services.

While financial institutions are involved in green buildings in a variety of ways, several barriers and risks remain that hinder broader and deeper involvement. For instance, the incentives for building owners and building tenants to improve energy efficiency, make green improvements, and seek or maintain third-party certification are often misaligned, suggesting a need for new types of "green leases" that align incentives, clearly allocate responsibility, and set rules for various sustainable practices. Lack of data is another important obstacle to greater financial sector involvement, as there is little solid information available that clearly defines the value proposition for high-performance certified green buildings, which can lead to missed opportunities and inconsistent valuations. Other barriers include the range of ratings systems and processes that exist, the general lack of knowledge among financial and appraisal professionals about the opportunities presented by green buildings, the common impression that green buildings involve significantly greater upfront costs, and potential liability and litigation issues.

These barriers and risks require attention, but they should not obscure the numerous benefits that accrue to financial institutions from involvement in green buildings. In fact, some observers suggest the greater risk with green buildings is not getting involved, particularly given a policy environment that is moving strongly in the direction of requiring green buildings and energy efficiency and given market trends indicating that green buildings may become the standard for quality real estate in the near future. Additional benefits for financial institutions include reduced operating expenses (such as energy and water), lower default risk and liability from issues such as mould and indoor air quality, improved risk profiles for insured buildings (and owners and tenants), and higher value buildings that have premium occupancy rates, sale prices, and rental rates.

As green buildings increasingly become the standard, and as non-green buildings risk becoming devalued in the marketplace, financial institutions should prepare for the green building transformation by considering four basic strategies:

(1) broaden the green building commitment across the organization;

(2) invest in green building expertise;

(3) analyze data resources and identify data needs; and

(4) evaluate exposure to non-green assets and markets. Implementing these strategies can help the financial sector seize the opportunities presented by the rapidly expanding North American market for green buildings.

Introduction to Green Buildings

Before providing an overview of the financial sector's current and potential involvement in green buildings, it is important to first identify and address some of the fundamental issues and questions that surround such targeted investments, such as:

- What are "green buildings"? Who determines what counts as a "green building"?
- Why do we care about buildings, from an environmental perspective?
- Which types of green buildings might be of particular interest to the financial sector, and why?
- What has the recent history of green buildings been? What is the outlook for investments in green buildings, and why?

What Are "Green Buildings"? Who Determines What Counts as a "Green Building"?

There are many definitions of *green building*. According to the U.S. Environmental Protection Agency, green building is "the practice of creating structures and using processes that are environmentally responsible and resource–efficient throughout a building's life–cycle from siting to design, construction, operation, maintenance, renovation and deconstruction."[1] The U.S. Office of the Federal Environmental Executive defines green building as "the practice of (1) increasing the efficiency with which buildings and their sites use energy, water, and materials, and (2) reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal – the complete building life cycle."[2]

A growing number of approaches, criteria, and standards for certifying green buildings have emerged in recent years, but the dominant certification system in the U.S. is the Leadership in Energy and Environmental Design (LEED) Green Building Rating System from the U.S. Green Building Council (USGBC) (and adopted by the Canadian Green Building Council (CaGBC)).[3] (Energy Star is the dominant labeling programme for actual energy performance in existing buildings and for developing energy targets in new construction, and it is thus an important part of an overall operations and management strategy for any commercial building, but it is not in itself considered a green building certification.)

As of August 2009, 35,000 projects were participating in the LEED system, comprising over 7.1 billion square feet (653 million square metres) of construction space in 91 countries.[4] The LEED programme provides third-party review and certification of buildings' design, construction, and performance. Buildings have to meet certain minimum requirements to start the process and can then acquire points by incorporating green design and construction techniques in five key areas: energy efficiency, water efficiency, materials and resource use, sustainable site development, and indoor air quality. Based on the total number of points, a building can obtain one of four levels of certification: LEED, LEED Silver, LEED Gold, or LEED Platinum. There are currently nine programme areas eligible for LEED certification: new construction and major renovations (NC), existing buildings operations and maintenance (EB), new

core and shell construction in speculatively developed buildings (CS), commercial interiors (CI), schools, retail, healthcare, homes, and neighborhood development (in pilot).[5] LEED thus provides specific certification avenues for a wide range of projects.

The USGBC is starting to emphasize performance in its LEED certification, as there has been controversy and concern surrounding the actual energy usage of LEED-certified buildings. In particular, there have been concerns about the energy performance of buildings that achieve LEED certification by accumulating points in non-energy areas, as well as concerns about the real-world energy usage of LEED-certified buildings based on how occupants actually use the building.[6] The USGBC began addressing these concerns in the LEED version that launched in 2009, with a greater emphasis on energy efficiency, climate change, and measurement and verification of building performance.[7]

While LEED is growing in Canada, the dominant system for commercial buildings in Canada is BOMA BESt, the Building Environmental Standards (BES) from the Building Owners and Managers Association (BOMA). BOMA BESt used to be known as BOMA Go Green; in the United States, the system goes by the name Green Globes. BOMA BESt has certified five times more buildings in Canada than LEED.[8] BOMA BESt certification, which is based on compliance with a set of best practices and a self-administered online assessment process, is available for office buildings, shopping centres, open air retail, and light industrial properties in Canada. There are four levels of certification, Level 1 being the lowest and Level 4 the highest; more than 450 office buildings and 132 million square feet (12.15 million square metres) have achieved Levels 2, 3 and 4 and- as of the end of 2009, more than 1,100 buildings held BOMA BESt certification. The online assessment categories include energy, water, waste reduction and site, emissions and effluents, indoor environment, and environmental management system.[9]

It is important to note that both the U.S. and Canada are home to other notable certification systems, such as the National Green Building Standard (developed by the National Association of Home Builders (NAHB) Research Centre).[10] (*See the Appendix for a comparison of some of the major certification/labelling systems.*) There are also other operational standards, programmes, and attributes that can help "green" the performance of buildings, such as environmental management systems, ISO 14001 standards, recycling programmes, and green roofs. At times, some of these systems and standards converge. For instance, LEED incorporates technical standards from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) as well as Energy Star's Portfolio Manager rating.[11] ISO 14001 calls for development of an environmental management system, and "LEED EB is designed to integrate effectively within an ISO 14001 framework."[12]

Why Do We Care about Buildings, from an Environmental Perspective?

Buildings have a profound impact on the environment, using significant water, resources, and energy; buildings' energy use also makes them responsible for a significant amount of the greenhouse gas emissions, like methane and carbon dioxide, that cause climate change. Globally, buildings consume around 40 per cent of the world's materials and energy.[13] In the U.S. alone each year, buildings are responsible for approximately 39 per cent of carbon dioxide emissions, 72 per cent of electricity consumption, 13 per cent of water consumption, and about

66 per cent of non-industrial solid waste generation.[14] In Canada, buildings account for 35 per cent of greenhouse gas emissions, 33 per cent of energy consumption, 50 per cent of natural resources consumption, 12 per cent of non-industrial water use, and 25 per cent of waste going to landfill.[15] These are only estimates, and the precise figures vary from source to source (depending on definitions, the year from which the data came, etc.), but the figures above provide a sense of the important role buildings play in the pursuit of improved environmental quality in the U.S. and Canada.

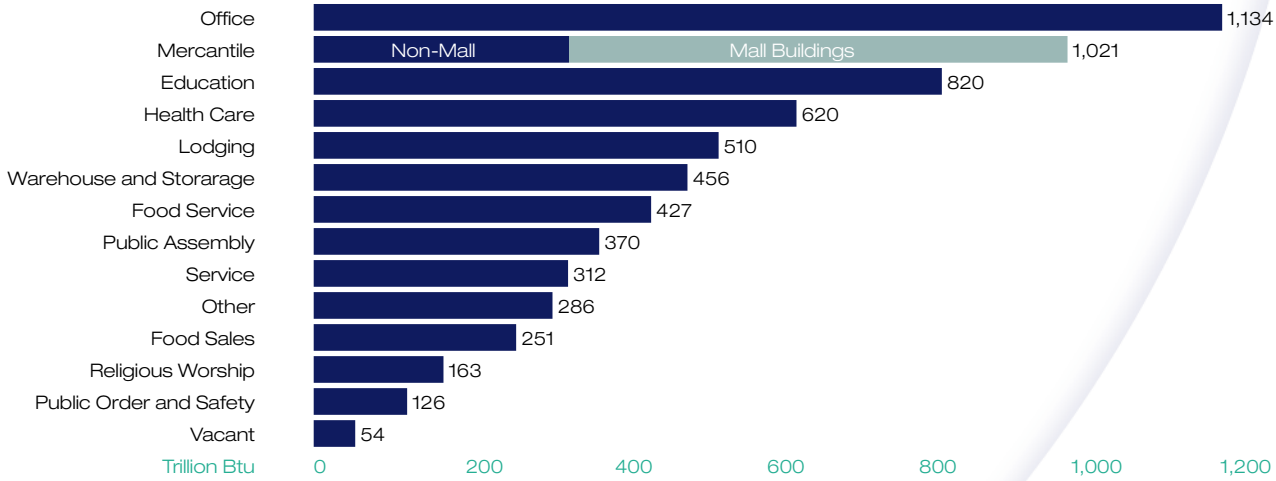
This vital role involves both new and existing buildings. New buildings account for only about 2–3 per cent of the stock of existing buildings each year; most current buildings will still be around in 2015, and at least half will still be standing by 2050.[16]

Which Types of Green Buildings Might Be of Particular Interest to the Financial Sector, and Why?

Green building certification is available for a wide range of building and development types that could be potential investment properties, including high-rise residential buildings and retail developments. While financial institutions could play an important role in virtually every kind of green building, two types in particular – office buildings and affordable housing – may be of particular interest to the sector.

Commercial office buildings are one type of buildings with which financial institutions are most often involved – as owners, tenants, investors, lenders, insurers, etc. Green office buildings are particularly important because conventional office buildings have a very broad impact, as they are the most common and consume the most energy of all commercial buildings.[17]

2003 U.S. Commercial Building Energy Consumption



Source: EIA 2003 CBECS, 2008

Involvement with affordable housing, meanwhile, represents one of the key ways that financial institutions can demonstrate their commitment to their communities. It is also a particularly challenging sector, given the numerous types of buildings involved, how they are metered, incentive problems of tenants versus owners, and other hurdles discussed later in this report. As with office buildings, the environmental impact can be significant. For instance, the almost 34 million low-income households eligible for federal home energy assistance in the United States generate 276 million tonnes of carbon dioxide emissions, 27.5

per cent of the total emissions from all U.S. households.[18]

Since these green building types may be of importance to financial institutions for very different reasons and present different types of challenges and opportunities, they provide useful reference points throughout this report.

What Has Been the History of Green Buildings?

Past & Projected U.S. Green Building Impact

Type of Impact Supported by Green Construction Spending	Cumulative Net Impact	
	2000-2008	2009-2013
GDP (millions US$ 2009)	$172,864	$554,057
Employment (jobs)	2,459,891	7,902,466
Labour Earnings (Millions US$ 2008)	$123,248	$395,662

Source: Booz Allen Hamilton, USGBC Green Jobs Study 2009

Green construction has had a growing impact on the North American economy. According to Booz Allen Hamilton, from 2000–2008, the green construction market in the U.S. generated US$ 173 billion in gross domestic product (GDP), supported over 2.4 million jobs, and provided US$ 123 billion in labour earnings; between 2009 and 2013, green building construction could generate an additional US$ 554 billion in GDP, support over 7.9 million jobs, and provide US$ 396 billion in labour earnings.[19] RREEF (the real estate, infrastructure, and private equity division for the asset management activities of Deutsche Bank AG) notes that "the amount of green building area has been growing at about a 50 per cent compounded growth rate since 2000 [in the U.S.] – about 25 times the growth rate for commercial real estate overall in this country, which averages a bit under 2 per cent annually."[20] McGraw-Hill Construction has a similar assessment of green buildings' past and future in the U.S.:

In 2005, green building was a small, burgeoning market, approximately 2 per cent of both non-residential (commercial and institutional) and residential construction, valued at a total US$ 10 billion – US$ 3 billion for non-residential and US$ 7 billion for residential. … Green seems to be one area of construction insulated by the downturn, and we expect green building will continue to grow over the next five years despite negative market conditions to be a US$ 96-$140 billion market.[21]

Looking just at U.S. commercial office buildings, the amount of green office space constructed in 2008 "was about 25 times the amount in 2000 and is now growing at 50 times that rate … At the same time, overall office construction in the nation has been flat, so there has been a decisive swing from conventional to greener construction."[22] More than 80 per cent of commercial building owners in the U.S. allocated funds to green measures and programmes in 2008, and nearly 45 per cent planned to increase that funding in 2009.[23]

Green buildings have also been growing rapidly in Canada. The number of LEED-certified projects has risen steadily over the past few years, from eight projects prior to 2005 to more than 200 in early 2010.[24] The number of BOMA BESt certifications (under its various names) has also been rising, from 86 buildings in its

first year in 2005 to 1,100 in mid-2009.[25]

There are a number of factors driving the interest and growth in green-certified buildings,[26] including:

- Elevated concern about environmental issues in general and climate change in particular. As the debate surrounding climate change has largely moved from whether it will happen to how businesses should address it, companies have started trying to establish themselves as leaders in an environment where "market forces compelling action outpace regulatory requirements."[27] A 2008 Deloitte/Lockwood study polling organizations involved in at least one green property retrofit (either LEED-EB or LEED-CI) found that one of the two main drivers behind pursuing green retrofits (cited by 88 per cent of respondents) was "corporate environmental commitment" (the other was "greater indoor air and environmental quality").[28] There are signs of heightened interest and awareness in the investment community as well. At the third annual Responsible Property Investment (RPI) Forum held in Boston in March 2008, "panelists and participants pointed to the increased focus on environmental concerns, above all climate risk, as the central motivating factor for RPI strategies."[29]
- Governments' lead in setting green building requirements for their own facilities. As the largest real estate player in the U.S., occupying nearly 500,000 buildings, the federal government's actions exert influence on the building and construction industry. For instance, in January 2010, the Obama Administration announced its goal of reducing the federal government's greenhouse gas emissions to 28 per cent below 2008 levels by 2020.

The target represented an aggregation of targets from 35 agencies, each of which will be taking actions like becoming more energy efficient.[30] When signing the October 2009 executive order that led to this announcement, President Obama stated, "As the largest consumer of energy in the U.S. economy, the Federal government can and should lead by example when it comes to creating innovative ways to reduce greenhouse gas emissions, increase energy efficiency, conserve water, reduce waste, and use environmentally-responsible products and technologies."[31] The U.S. General Services Administration already requires all its new buildings to achieve LEED Silver certification.[32] The federal government in Canada has made similar efforts to reduce its footprint. Since April 2005, all new government office buildings have had to meet LEED Gold standards, and in April 2007, Public Works and Government Services Canada began using BOMA Canada's Go Green Plus environmental assessment programme (a predecessor of BOMA BESt) to assess and benchmark its existing buildings.[33]

Canada's ecoENERGY Retrofit Incentive for Buildings

Available Funding:	Who Can Apply:
■ CAN$10 (approx US$ 9.5) / gigajoule (277.8 kWh) of estimated annual energy savings ■ 25 per cent of eligible project costs; or ■ CAN$50,000 (US$ 47,600) per project (CAN$250,000 (US$ 238,000) per organization)	■ Organizations that own, manage, or lease: ■ Commercial and institutional buildings ■ Provincial, territorial, and municipal buildings ■ Multi-unit residential buildings (with a common entrance and at least four stories or a footprint of 600 sq. metres or more) ■ Mixed-use commercial/residential buildings

Source: Natural Resources Canada

Sub-national governments are taking action as well. For example, in December 2004, California Governor Arnold Schwarzenegger signed Executive Order S-20-04, which requires the State to implement all cost-effective energy conservation measures in its own facilities to reduce energy consumption 20 per cent by 2015. The executive order calls for designing, constructing, and operating all new and renovated state-owned facilities paid for with state funds as LEED Silver or higher, and it encourages the private sector to follow the state's lead for commercial buildings.[34] Similarly, the City of Ottawa passed a policy in 2005 requiring all newly constructed municipal buildings greater than 5,400 square feet (497 square metres) to be LEED-certified and to incorporate energy efficiency features that meet the standards required by Canada's Commercial Building Incentive Programme.[35]

- Governments providing incentives and requirements for the private sector to promote green buildings. Governments at all levels have passed or are considering measures that would encourage or require green buildings. At the national level, for example, the American Recovery and Reinvestment Act (i.e., the stimulus package) put US$ 250 million into a Green Retrofit Program for Multifamily Housing, providing loans and grants for energy and green retrofits in the multifamily assisted housing stock. Owners could receive up to US$ 15,000 per residential unit to reduce energy costs, reduce water use, improve indoor environmental quality, and provide other environmental benefits. The programme estimated it would fund 25,000 units or roughly 300-350 projects. Within five months, the Department of Housing and Urban Development had to cease accepting all applications.[36] Similarly, Canada offers the ecoENERGY Retrofit Incentive for Buildings, which provides owners of small and medium-sized buildings in the commercial and institutional sectors, homeowners, and others with financial incentives for retrofitting existing buildings to make them more energy efficient. Organizations that own, manage, or lease commercial and institutional buildings can receive the lowest of: US$ 10 per gigajoule of estimated annual energy savings, 25 per cent of eligible project costs, or US$ 50,000 per project.[37]

Further national incentives and requirements could be coming. In the U.S., for instance, the American Clean Energy and Security Act of 2009 (ACES), which passed the House of Representatives in June 2009, has several elements that may drive more green building development, including: Section 201, establishing a national energy efficiency building code for homes and commercial buildings, setting a target for those codes (30 per cent savings by one year after enactment, 50 per cent savings by the end of 2014 for residential buildings and 2015 for commercial buildings, and 5 per cent savings every three years thereafter through 2029 and 2030 respectively), mandating standards for a new Retrofit for Energy and Environmental Performance programme, and providing for strict enforcement of the codes; Section 204, requiring the U.S. Environmental Protection Agency to develop a building energy label for new residential and commercial buildings that displays achieved and designed performance data; and Sections 281–308, encouraging the use of energy efficiency mortgages to assist homeowners with financing efficiency improvements to homes they purchase, setting greater incentives for efficiency in buildings financed by the Federal Housing Administration, and increasing the standards for single and multi-family structures to receive such incentives.[38] While the fate of climate and energy legislation in the U.S. is as yet unclear, the regulatory trend is clearly heading in the direction of greater energy efficiency.

State and local authorities are also working to make buildings in their communities more sustainable. For example, in December 2009, the New York City Council passed four bills to boost energy efficiency in buildings, including measures requiring owners of buildings larger than 50,000 square feet (4,600 square metres) to conduct energy audits every 10 years (with certain upgrades and retrofits required in some city-owned buildings), requiring large building owners to keep an annual benchmark analysis of energy and water consumption, and establishing a New York City Energy Code that buildings will have to meet when they undergo major renovations.[39] Mayors across the country are also encouraging or requiring green affordable housing.[40]

According to the University of Wisconsin-Extension's Government Green Buildings Inventory Program, green building programmes and policies have become prevalent in the U.S.: "As of June 2009, 194 municipalities have passed green building policies. These represent 322 programmes that address one or more building sectors including municipal, commercial, multifamily, residential and industrial. Of the 194 municipalities, 184 use the LEED Green Building Rating System as their benchmark for at least one sector. LEED third party certification is required in 210 programmes. This includes 47 voluntary programmes where certification is a basis for receiving incentives."[41]

- Increasing awareness of the business case for green buildings. Green buildings offer not only strong environmental benefits, but also strong economic benefits. According to RREEF, "[t]he business case for green buildings by now is widely accepted by academics and researchers, if not the broader investment community. The available data suggests that sustainable buildings command higher rents and lower vacancies, lease quicker than conventional buildings, and have lower energy and other operating expeses, together yielding greater net incomes."[42] A four-year, US$ 500,000 due diligence effort by Capital Markets Partnership found that "green buildings and sustainable investments are more valuable than conventional, substantially reduce risk, and provide much needed social benefits", with the data suggesting that green buildings command higher rents and sale prices and that the green building sector will be characterized by strong growth, limited supply, and strong demand over the next several years.[43] The President of the National Association of Industrial and Office Properties has stated that "[t]he business case [for LEED] is so strong that you would be foolish to ignore it."[44]

The business case [for LEED] is so strong that you would be foolish to ignore it.

President, National Association of Industrial and Office Properties

Given these factors and trends, the future for green buildings looks strong. In fact, some speculate that green buildings will become the new standard. For instance, one New York environmental lawyer argued that green buildings "are slowly redefining what constitutes a "Class A" office space. As a result, owners and investors of conventional buildings have become concerned that they may soon be perceived as holding obsolete or inefficient buildings that will be at a competitive disadvantage as green buildings become the preferred choice of tenants."[45] A real estate consultant at Deloitte Financial Advisory Services similarly suggested that green buildings "may become the standard instead of the outlier. Both real estate practitioners and their analyses have communicated that there is only a short window of time before incentives and rebates for green buildings transform into requirements and penalties for non-compliance."[46] As stated back in 2007 by the head of corporate services and real estate at Goldman Sachs, "No fundamental change in the building industry has moved as quickly as sustainable building."[47]

Involvement of the Financial Sector in Green Buildings

There are four principal roles that the financial sector plays in the green building process:

- Owner and/or user of the building;
- Investor in or private developer of the building;
- Lender for the building; and
- Insurer for the building.

This section explores and provides examples of each of these roles in turn.

Financial Institutions as Owners and/or Users

This is something that our customers care about, and it's also a source of pride for our employees.

President and CEO,
CitiFinancial North America

The most direct ways that financial institutions play a role in the green building arena are by owning and/or using those buildings. Of the four roles discussed in this section, however, this role is also the least unique to the financial sector, as there are a wide range of institutions that own and use green buildings. Nevertheless, it is a valuable role and one that financial institutions are playing with increasing frequency. For exampe:

- In April 2009, as part of its goal to reduce its greenhouse gas emissions 10 per cent below 2005 levels by 2011, Citi announced that it had become the first company in the world with more than 100 LEED-certified retail branch offices. "CitiFinancial works to make a positive impact in the cities we serve through our employees, products and services, and we're also working to ensure that our buildings have a positive impact," stated the President and CEO of CitiFinancial North America. "This is something that our customers care about, and it's also a source of pride for our employees." Citi has also received LEED certification for two office parks in Texas, a New York City skyscraper, and data centres. [48]
- In 2002, PNC Bank became the first American bank with LEED-CI-certified bank branches in the U.S.; PNC's 64 "Green Branch" locations reduce energy use by almost 35 per cent and water use by almost 4,000 gallons a year compared to traditional branches. PNC also has two LEED-certified office buildings, and about 20 other branches and two major buildings were under construction or awaiting LEED-certification as of September 2009. The company claims it has "more newly constructed buildings certified by the United States Green Building Council under its LEED programme than any other company in the world." [49]
- In 2009, the LEED-Gold RBC Centre opened in Toronto with the Royal Bank of Canada as the anchor tenant. The RBC Centre is the first triple-A building over one million square feet (92,000 square metres) in Canada to achieve LEED Gold NC. To secure the Bank as the major tenant, the Bank insisted that environmental sustainability be a key element of the design and construction.[50] RBC's vice president of corporate real estate explained that "the RBC Centre provides us with an opportunity to address our premises' needs by providing a quality, energy-efficient work environment for our employees. Further, its environmental standards will help to reduce our operational footprint, which is good business sense and is the smart thing to do."[51]

Financial Institutions as Investors and/or Private Developers

Participation in the green building arena by investors and developers has lagged many other financial sectors. Despite the slow start, however, investors and developers are now aggressively pursuing and promoting green building. "More than half (53 per cent) of all LEED–certified building area developed by investors and private developers [was] certified after mid-2007, compared to just over a third (38 per cent) for all other owners, who came earlier to the party."[52] Responsible Property Investing, which focuses on the triple bottom line (economic, social, and environmental), is growing.[53] In particular, public pension funds are driving a demand in green building investment, due in part to their longer time horizon (which allows them to better value the benefits of a green building and compound small annual savings over time). In addition, there has been a rise in green real estate funds, which are estimated to be close to US$ 2 billion in announced plans.[54] For example:

- In 2006, the California Public Employees' Retirement System (CalPERS), which is the largest U.S. public pension fund, selected Hines, an international real estate firm, to create the Hines CalPERS Green Development Fund. The private equity fund, which was initially capitalized with more than US$ 120 million of committed equity and now totals US$ 277 million, concentrates on developing office buildings that will be certified LEED-CS.[55]
- In August 2009, the Capital Markets Partnership (CMP) convened a Sustainable Investment Initiative at the New York Stock Exchange, at which CMP unveiled a Green Building Security (GBS), a bond backed by mortgages of green buildings. CMP and three large financial institution partners are developing two US$ 500 million Green Building Securities (multifamily and commercial) "with the intent to issue one GBS per month over the near term." GBS issuance is also being pursued with investment bank and government partners in Canada, the United Kingdom, Australia, and India.[56] (CMP has also developed Green Building Investment Underwriting Standards to allow the value of green buildings to be incorporated into analysis, underwriting, and securitization.[57])

Financial Institutions as Lenders

Financial institutions play a critical role as lenders to green building projects. According to the senior director of commercial and multifamily research for the Mortgage Bankers Association, "[f]or most lenders, green lending is simply a new shade of their traditional lending programmes."[58] Similarly, a senior vice president in the commercial real estate group at Wells Fargo stated that "[o]ur green building programme is not really a separate activity from our overall approach to the business. It is part and parcel of our mainstream lending practice."[59] Financial institutions still face challenges in systematically incorporating green buildings into their lending products, largely due to appraisers and underwriters struggling to understand the value and risks of green buildings.[60] Nevertheless, financial institutions are moving in the direction of incorporating green buildings into their lending practices, and several commercial banks and lenders have made high-profile commitments to use their lending to support green building. For example:

- Bank of America announced in March 2007 a 10-year, US$ 20 billion initiative to address climate change, part of which involves creating customized solutions for commercial real estate clients working on sustainable design, including LEED-certified projects.[61]

- A range of financial institutions partnered with the State of New York in a public-private partnership to complete the development of the Kalahari, a 249 unit affordable mixed-income development in Harlem that was built to LEED standards in 2008. Goldman Sachs Urban Investment Group provided US$ 8.2 million in mezzanine financing and JPMorgan Chase, with a bank group syndicate including Washington Mutual, Deutsche Bank, Capital One Bank, Carver Bank, and Commerce Bank, provided US$ 95 million in construction financing.[62]
- e3bank operates on a model where its loan officers are accredited by USGBC as LEED experts and are empowered to customize loans and credit for borrowers planning green building retrofits and projects.[63] The bank announced in August 2009 that it will provide the first loans in North America with lower capital costs for green buildings. According to the bank's chairman, "[f]inance rates for loans are reduced as projects reach higher levels of sustainability. For example, as a new building or retrofit attains higher levels of LEED certification (silver, gold, or platinum), the interest rate drops."[64]

Financial Institutions as Insurers

Insurers have started to recognize the opportunity that green buildings present for developing new profit centres. A recent extensive review of the insurance industry's response to climate change identified as a key trend that increasing numbers of insurers "are offering 'green-buildings' products and services, including products and services especially designed for new green buildings, and upgrades to 'green' traditional buildings either following a loss or in the course of normal renovations. The sophistication and specificity of existing products is increasing, with 22 companies collectively offering 39 products or services for 'Green Buildings' and/or equipment therein."[65] A 2008 report by Marsh that surveyed the major insurance markets on green buildings "found most to be in a 'wait and see' mode. The exceptions are the property and design professional liability markets, which have developed enhanced coverages and/or risk management advice around the green built environment."[66] Examples include:

- Affiliated FM, part of FM Global, offers a Green Coverage Endorsement to cover additional costs to replace damaged commercial property and materials with 'green' alternatives (including replacing damaged roofs with green roofs), costs to hire an accredited green consultant to assist in green design and reconstruction, certification or recertification as a green building, extended business interruption coverage for the increased time it may take to undertake covered green practices or to get certification, and other coverage.[67] ACE, Travelers, Liberty Mutual, and others also offer coverage for commercial businesses that want to rebuild "greener" in the event of property loss.[68] Fireman's Fund, an Allianz company, introduced its GreenGard coverage back in 2006, offering "Green Upgrade Coverage" that covers the cost of replacing standard systems and materials with green ones in the event of a loss and "Green Certified Building Coverage" that covers already-certified properties including the cost of hiring a LEED-accredited professional to oversee repairs.[69]
- La Capitale General Insurance in Quebec announced in 2007 that it would offer a 15 per cent discount on property insurance premiums for LEED-certified buildings.[70]

- Lexington Insurance Company announced in August 2009 its "Upgrade to Green – Builder's Risk" coverage for green building construction and renovation projects registered with LEED or Green Globes. The policy provides coverage for covered losses to green buildings and for changes to the relevant rating system criteria.[71]
- Argo Insurance Group created in April 2009 a "Green Architects & Engineer's Professional Liability" insurance programme for architects, engineers, and others involved in sustainable projects, broadening the definition of professional services to include a variety of activities customary to green design.[72]

Barriers to & Risks of Financial Sector Involvement in Green Buildings

As described in the previous section, financial institutions are involved in green buildings in a range of ways. Several barriers exist, however, that hinder broader and deeper involvement. This section examines some of these barriers, including split incentives, "green lease" negotiations, the range of ratings systems and processes that exist, lack of data (which makes it a challenge to understand how to value green buildings and to do so consistently), lack of education about the opportunities presented by green buildings, and first costs. Some of these barriers linger partly due to misperception (e.g., first costs), while some are unquestionably significant barriers today (e.g., lack of data). In addition, this section discusses some of the risks (e.g., liability) that may dissuade financial institutions from getting more involved.

Split Incentives & Lease Terms

The challenge of split incentives is not unique to financial institutions but rather is a barrier to anyone looking to get involved in the green building sector, particularly as it concerns commercial office space. Nevertheless, the financial sector should be cognizant of this key issue.

Broadly speaking, split incentives occur "when the flow of investments and benefits are not properly rationed among the parties to a transaction."[73] In the context of green buildings specifically, split incentives are a principal-agent problem that poses a particular challenge to pursuing energy efficiency investments in rental buildings. Building owners (landlords) want to maximize their revenues, while tenants want to minimize their costs; depending on how the parties structure the lease agreement, neither may have an incentive to invest in energy efficiency or other green attributes.

For example, the dominant lease agreement in commercial office buildings is a net lease, in which the tenant pays rent as well as the operating costs for the space (e.g., the electric bill). Under this arrangement, the landlord/owner wants to minimize capital costs and maximize rental revenues; the owner thus has no incentive to invest up-front in measures that would improve energy efficiency (or other green attributes) as the tenant is the one paying the electric bill and these leases usually do not allow owners to pass along to the tenants the costs of green investments.[74] On the other hand, tenants also have little incentive (or no legal authority) to make green changes to the building since they do not own it, also the benefits would likely be shared with numerous other non-contributing tenants, and they may be there for too short a time to recoup the investment.[75]

There are several strategies for realigning the incentives for building owners and tenants to improve energy efficiency and other green attributes,[76] including:

- Gross Lease – in contrast to the standard net lease, a gross lease arrangement includes a fixed amount for utilities in the tenants' rent payments. This still represents a split incentive situation, where the owner may now have an incentive to invest in energy efficiency and other green

attributes in order to reduce operating costs below the amount of those fixed payments (so as to increase profits), but the tenant has no incentive to invest or engage in energy-efficient practices as payments would not change. Nevertheless, the owner is the one most likely to make meaningful investments in the building, and this arrangement provides incentives for the owner to do so.[77]

- Net Lease with Passed-Along Costs – in this type of lease building owners arrange leases that allow them to pass the costs for green building improvements on to the tenants. If the building is already green, the owner can amortize the green-related costs (e.g., certification or recertification fees associated with green building rating systems, commissioning costs) and pass them along to tenants so that tenants pay a portion of the cost for the period of time they occupy the premises. If the owner wants to green an existing building, the owner can try to create a proviso in the lease that defines the categories of things the owner can do to reduce operating costs for which tenants will share the costs.[78] Such arrangements take away the disincentive for owners to invest in green improvements, but owners also do not reap any benefits from reduced operating costs, other than the improved maketability of the building.
- Sub-metered Spaces – as actual energy performance in green buildings becomes increasingly important, sub-metered spaces provide a way to provide tenants with incentives to be energy efficient.[79] Unlike under a standard net lease, sub-metered spaces ensure that tenants who undertake efforts to reduce operating costs get the benefits, as opposed to sharing those benefits with all other tenants. The challenges of legal authority and short-term interests remain, but sub-metering at least provides incentives for energy-efficient behaviour and equipment purchases, as well as tenant participation in demand response programmes.[80] California now has a pilot programme with Pacific Gas and Electric to submeter tenants in high rise commercial buildings in the San Francisco area.[81]

Clearly, building owners and tenants that want to build or retrofit green can face challenges in negotiating leases that provide the right incentives. The leasing issues go beyond alignment of incentives, however, and extend to allocation and specification of responsibilities. "Green leasing" requires negotiating a unique balance of benefits and burdens for each leased property, which can add time and complexity to the lease transaction. One green leasing expert recommended several elements to incorporate into a green lease, including specifying:

- The particular green requirements (e.g., siting near transportation, types of materials that must be used), not just a LEED certification level, for any buildouts by either the tenant or landlord.
- Those design elements that the owner is responsible for maintaining and those the tenant is responsible for maintaining.
- Who captures any carbon offset credits for activities inside the building.[82]

Other experts suggest that additional key issues in the "rapidly evolving area" of green leasing include "implications of lease terms on third-party certification programmes", "allocating costs incurred for sustainability purposes", "responsibility for ongoing compliance costs" related to third-party certification, and "the consequences for a party's failure to live up to the defined sustainability standards" (i.e., what to do "if a landlord or tenant constructs improvements in a manner that jeopardizes the property's LEED certification or financing qualifications").[83] Furthermore, green leases may want to specify "the tools and

benchmarks needed to quantify energy consumption and calculate carbon footprint as demanded by … corporate sustainability reporting requirements."[84]

Range of Ratings Systems and Processes

As noted earlier in this report, there are a wide range of approaches, criteria, and standards for certifying green buildings in North America. (*See the Appendix for a comparison of some of the major certification / labeling systems.*) Given that North American institutions are still in the early stages of green building regulation and financing, understanding the diverse requirements and criteria in each system – and how those correlate with data gathering and transactional disclosure needs – can be challenging. For instance, non-residential buildings in California will have to release their energy use data, calculated using the U.S. Environmental Protection Agency's Energy Star Portfolio Manager, to "a prospective buyer, lessee, or lender" to promote commercial valuation of energy use during commercial real estate transactions.[85] Determining how to incorporate this sort of Energy Star data, combined with information about LEED and other rating systems, into property transactions, valuation, and due diligence processes is new terrain for many financial institutions.[86] (As noted earlier, the different rating systems can also reference each other.) In fact, even more broadly, obtaining quality data and utilizing that data to get consistent valuations are two of the principal barriers to greater financial sector involvement in green buildings, as described below.

Lack of Data Availability and Quality

The relative lack of consistent, accurate analysis and data interpretation is a significant barrier to more rapid growth in green building. Some financial institutions seem to be waiting "until financial returns and other benefits … are proven."[87] Part of the caution in the financial sector may stem from the fact that for the financial/investment community, market value "is recognized when it is reflected in the form of definitive, quantifiable data",[88] but there is little solid information available that clearly defines the value proposition for high performance, certified green buildings.

We are stuck in a chicken-and-egg situation, where investors are interested in RPI but need data to support investments, while the lack of investments, of course, restricts data.

Responsible Property Investing Center

In the view of some experts, "[t]he green marketing phenomenon has not always been backed up by credible technical, policy or risk management information. Much of the literature depends on references only one step removed from marketing material."[89] One expert investment consultant has criticized the literature on green building valuation as "lacking", noting the scarcity of "robust work around rental rates, vacancy, turnover and value premiums" and the "disappointingly small" data set comparing returns on green buildings to comparable conventional properties, as well as the fact that some of the studies that do exist suffer from small sample sizes and attempts to control for a large number of variables.[90] Others have echoed that "quantified research on the relationship of green features to asset value is still in its infancy" and that it is challenging for appraisers "to determine whether a building with green features is more valuable in its market than a conventional building … because this field is relatively new, and market data on this topic is limited."[91] A senior vice president in the commercial real estate group at Wells Fargo has explained that "[t]he challenge is that energy efficiency values or benchmarks have not yet been clearly established," and without an adequately substantial database, appraisers are challenged to support higher valuations for green buildings.[92] In

sum, as the Responsible Property Investing Center explains, "[w]e are stuck in a chicken-and-egg situation, where investors are interested in RPI but need data to support investments, while the lack of investments, of course, restricts data."[93]

The problem extends to green affordable housing as well, where "the limited experience with green building" has led to their value not being reflected in the market; "[a]s a result, the economic benefits of green building have largely been ignored by project financiers in their assessment of lending and investment opportunities in affordable housing. This lack of market recognition for the long-term value of high-performance green buildings is a significant barrier to developing more sustainable affordable housing."[94]

There are some notable changes taking place that might help with the current lack of data. On the performance front, as noted earlier, the USGBC is now requiring building owners to submit building performance data. On the valuation front, CoStar, a leading real estate information provider, is adapting its "sales, leasing, and related databases to enable the identification and evaluation of sustainable properties" – efforts that are considered to be "a critical first step in promoting an energetic and independent assessment of the financial costs and benefits of green buildings."[95] The Capital Markets Partnership, as previously mentioned, has developed Green Building Investment Underwriting Standards to allow the value of green buildings to be incorporated into analysis, underwriting, and securitization,[96] as well as promoted a Value Rating System for the green building industry.[97] In addition, the Marshall Valuation Service (MVS) cost manual for North American commercial building real estate, insurance, and appraisal professionals expanded in September 2009 to include green building features.[98]

Lack of Knowledge about Use of Data and Green Building Benefits

While demand for and understanding of green buildings have increased markedly over the past several years, the knowledge of many professionals in the financial, appraisal, and real estate sectors may not have been keeping pace. Many professionals in these sectors "do not have an adequate understanding of sustainable building practices," resulting in "a lack of consistent measurement and the potential undervaluing of sustainably built projects."[99] The executive director of the Green Building Finance Consortium has described "the ongoing struggle among appraisers and underwriters to understand the value and risk of sustainability," with the gradual gains in understanding about green building benefits leading to "incremental" expansion of lending programmes.[100] The struggle of appraisers and underwriters to understand "the economics and benefits of building green" is in fact a common theme in the green building literature.[101]

Given the relatively early stage of the involvement of financial institutions in green buildings, business units need to educate themselves about green buildings, the barriers and benefits, how green buildings fit into their business plans, how to utilize the data that does exist, and who has responsibility for particular parts of the process such as due diligence and technical analysis. Efforts to advance such education have already begun. PNC Bank, for instance, has been trying to educate its loan officers to enhance their understanding of rating systems such as LEED and the implications of certification for construction costs and building values.[102] There are even external training programmes, such as the

Green Lending Specialist training and certification offered by PorterWorks in Washington State.[103]

First Costs

[T]here is no significant difference in average costs for green buildings as compared to non-green buildings.

Davis Langdon

In a 2008 survey of commercial real estate executives, a majority identified upfront ("first") costs as presenting an extremely or very significant obstacle that could potentially discourage the construction of green buildings – specifically, the costs of LEED documentation (61 per cent), higher construction costs (61 per cent), and the length of the payback period (57 per cent).[104] Similarly, the California Sustainability Alliance identified "first costs" as being a particular obstacle to green leasing for investors that hold assets for relatively short terms, as opposed to long-term investors who can expect to earn a return on their invesment over time.[105]

There is some evidence, however, that when projects utilize an integrative design process and are done carefully, a first cost price premium can be minimized or perhaps even eliminated. Nearly all case studies and reports indicate that there are two keys to controlling and minimizing first costs: (1) deciding early in the process to pursue green building certification, and (2) utilizing an integrated planning process, such as the Whole Building Design Guidance[106] or The Integrative Design Guide for Green Building.[107]

Davis Langdon, a global construction consulting firm, has conducted at least three studies – two national, one for New York City – showing that "there is no significant difference in average costs for green buildings as compared to non-green buildings" and that "[m]any project teams are building green buildings with little or no added cost, and with budgets well within the cost range of non-green buildings with similar programmes."[108] The briefing book for the December 2005 Green Building Finance Summit informed attendees that "the average premium for building green" had "fallen to close to zero as reported by numerous developers and practitioners at the 2005 Greenbuild trade show held in November 2005."[109] There are a range of examples in the literature of green buildings with non-existent or small cost premiums, including the Massachusetts Maritime Academy's dorm renovation (which received the vast majority of its LEED Gold credits for little or no extra cost)[110] and the Oregon Health and Science building in Portland, which received LEED Platinum while remaining within a conventional budget.[111] The experience of the University of South Carolina, which has numerous green buildings on campus, was that green buildings "can be done for the same budget as traditional buildings" with early integrated design planning.[112] Similarly, Building Design+Construction has seen "a growing body of evidence that more-experienced Building Teams, using integrated design and off-the-shelf solutions … could readily bring in even the most sophisticated projects at a cost owners and developers could be happy with … at, near, and sometimes even below cost projections."[113]

Nevertheless, some premium will occasionally be paid for green buildings or retrofits. For instance, a Deloitte survey of 16 organizations that had undergone a LEED retrofit project found that 63 per cent reported that they had spent 5 per cent or more on their green retrofit than they would have on a conventional retrofit, with 25 per cent saying the cost premium was over 10 per cent. This premium came from the cost of green designers and engineers, as well as extra time, higher up-front costs for systems and technology, and limited supply or extra cost for materials. Even with those premiums, however, Deloitte was

confident that the extra costs would be recouped over time "due to lower operating costs, higher property values, and/or the value gained through intangible factors."[114] Similarly, other experts have suggested that "research has increasingly shown these up-front costs to be minor and rapidly recovered through lower operating costs."[115]

Liability and Litigation Risks

Liability and litigation risk related to green buildings could potentially deter some in the financial sector from owning, investing in, or lending for green building projects. Such risk can arise from several legal theories, including contract, tort, and statute. Breach of contract claims might include breach of the implied warranty of construction materials, workmanship, and purpose, failure to deliver a promised level of certification, and failure to meet energy efficiency standards. Parties may also be subject to fraud claims as a result of false or misleading statements made in marketing materials, agreements, or other communications regarding the performance or attributes of green buildings. A negligence action might arise if failure or defects of a green building's design, materials, or construction techniques results in damage to the property. Green building related claims may also be made under state consumer protection statutes.[116]

Liability risks could arise, for instance, because developers and owners are requiring green building elements for which design firms and contractors may not be insured. An important example of this is green roofs, which can benefit a green building in several ways (e.g., keeping buildings cooler) but which some insurers may exclude due to their flammability or their potential for water damage.[117] (Several insurers, such as Affiliated FM, do include green roofs in their coverage.[118])

Litigation could also delay efforts to address other barriers to green building. For instance, the New York Public Service Commission recently held up approvals to sub-meter electricity in several rent-assisted and low-income multi-family buildings with electric heat. Despite its support for promoting energy efficiency and equity, it required each building owner to develop a plan to ensure that tenants would not suffer financial harm, to provide thermostats in each dwelling unit, implement energy efficiency measures, and to inform tenants on how to reduce their electricity use.[119]

Benefits of Financial Sector Involvement in Green Buildings

While it is important to consider the barriers and risks to greater financial sector involvement in green buildings, doing so should in no way obscure the numerous benefits that accrue to financial institutions from such involvement – benefits that almost certainly outweigh the risks and that provide motivation to surmount the barriers. In fact, some observers suggest the greater risk with green buildings is *not* getting involved.[120] This section highlights some of the key benefits for financial institutions. Some of these benefits apply more to financial institutions acting as owners or investors (e.g., price premiums), while others apply more to their role as lenders (e.g., reduced default risk) or insurers (e.g., reduced risk profiles).

Reduced Operating Expenses, Default Risk, and Liability

Some of the basic attributes and processes involved in green building can result in reduced operating expenses (both unbudgeted and budgeted), default risk, and liability, benefiting financial institutions that own, use, invest in, and/or lend to the building.

For example, the commissioning process required during LEED to ensure that all features and equipment are functioning as intended produces lower risk and can catch material failures. Commissioning can also reduce operating and maintenance costs (e.g., by improving energy and water efficiency) and lower the incidence of equipment replacement.[121] (Green buildings may be more intensively managed, though, so while energy and water expenses may be lower, total expenses may not be markedly different.[122])

Green buildings also benefit from "[l]ower incidence of non-budgeted uninsured operating expenses and corresponding lower default risk from reduced mould and indoor air problems."[123] Investigating and remediating tenant concerns about mould and air quality can lead to substantial unbudgeted costs, business interruption liability, and general liability. The default potential from mould liability risk is significant, and cleanups of mould and indoor air quality are generally uninsurable. Mould is present in an estimated 10 per cent of existing buildings and 4 per cent of new buildings, but projects with credit for indoor air quality under LEED have substantially lower risk of facing remediation and liability.[124]

Similarly, reduced energy costs lower both operating expenses and default risk and can be of significant benefit to small business owners, energy-intensive businesses, and, more broadly, any business in a struggling economy with stressed operating margins.[125]

These reduced expenses, maintenance costs, default risk, and liability make green buildings potentially attractive investments and assets. For instance, the reduced operating costs of Banner Bank's LEED Platinum building in Boise, Idaho have contributed to a US$1.47 million increase in asset value, a 32.4 per cent return on investment, and the ability to attract tenants with lower rents.[126]

Reduced Risks for Insurers

Financial institutions that insure green buildings benefit from the reduced risk profiles of the buildings' owners and tenants, as well as of the building itself.[127] Traveler's Insurance, for instance, "believes that commercial property owners who embrace 'green' technologies are likely to be more risk management-minded, practicing greater care in building maintenance and operation."[128] As Aon describes it: "The owners and occupants of green buildings are often among the most careful of insured classes. With better attention to maintenance, the buildings are often superior to their conventional counterparts."[129] Similarly, the vice president of engineering for Hartford Steam and Boiler, which insures commercial building systems equipment, has explained that "[a] building that manages its energy well and efficiently probably maintains its equipment well, is careful about slips and falls, and is probably in general a good caretaker. This sort of thing reduces the risk to the insurer."[130]

Green buildings themselves also have a lower risk profile. As noted above, the commissioning process required during LEED can result in a safer building. The product director for commercial business at Fireman's Fund has explained that the insurer sees the green-building commissioning process as a "risk-reduction technique", given that a "third-party engineer will review and certify the systems, and primary among those are the electrical system and the heating system. We look at them as also addressing the safety of those systems."[131] Similarly, a senior vice president at Marsh Inc. has stated that she sees LEED certification as a way to reduce risks, since LEED certification is generally more stringent than typical inspections, looks at how systems interact, and involves a collaborative process among the architects, design team, contractors, and the construction team that can avoid claims based on "failures to collaborate and poor communication."[132]

Price Premiums and Capital Benefits

Financial institutions also benefit from green buildings' price and capital advantages; in other words, green buildings are worth more. "Green building has been referred to as 'Super Class A,' because there is evidence that green features lead to high performance."[133]

Green Building Premiums

	LEED	Energy Star
Rent premium (per sq. ft)	US$11.33 (US$122 per sq. m)	US$2.40 (US$25 per sq. m)
Occupancy increase	4.1 per cent	3.6 per cent
Sale premium (per sq. ft)	US$171 (US$1,846 per sq. m)	US$61 (US$650 per sq.m)

Source: CoStar Group, 2008

Studies have found that commercial and residential occupants will pay premiums for green properties.[134] For instance, data collected in 2009 by CoreNet Global and Jones Lang LaSalle demonstrates that 74 per cent of corporate real estate executives are willing to pay a premium to retrofit space that they own for sustainability, while 37 per cent would be willing to pay a 1 to 10 per cent rental premium to occupy space in a green property; an additional 21 per cent would only be willing to pay a rental premium if it was offset by lower operating costs.[135] In March 2008, CoStar Group released data showing

that third-party certified buildings outperform conventional ones in many ways, including occupancy rates, sale price, and rental rates. In particular, the data showed that LEED-certified buildings command rent premiums of US$ 11.33 per square foot (US$ 122 per square metre), have 4.1 per cent higher occupancy, and sell for US$ 171 more per square foot (US$ 1,846 per square metre) than non-LEED buildings, while Energy Star buildings demonstrate a US$ 2.40 per square foot rental premium, have 3.6 per cent higher occupancy, and sell for US$ 61 per square foot more than non-Energy Star buildings.[136] A May 2009 study from a University of California-Berkeley professor and two Dutch professors found that green office buildings (Energy Star or LEED) in the U.S. "command rental rates that are roughly three per cent higher per square foot than otherwise identical buildings", while "[p]remiums in effective rents are even higher – above six per cent" and "[s]elling prices of green buildings are higher by about 16 per cent."[137]

The value extends to green affordable housing as well. Enterprise Community Partners states that multifamily apartment owners of more energy-efficient buildings may have more stable cash flow from rent payments. "To the extent energy improvements were part of more holistic green building rehabilitations, rental properties may be more durable and higher performing and potentially more valuable assets to own over the long term."[138]

Furthermore, higher collateral results from well-designed and commissioned high performance buildings with superior net operating income. Since green buildings are worth more, lenders have higher-value collateral against which to make their loans.[139]

Alignment with Market and Regulatory Trends

The benefits described above consider the reduced risks and increased worth of green buildings; while the data is incomplete (as noted earlier), these benefits are starting to become quantifiable. Somewhat more amorphous, but no less important, are the benefits that can accrue to financial institutions from aligning their practices with emerging market and regulatory trends.

Examples of the regulatory incentives and requirements that are helping to drive green buildings were described in an earlier section, and numerous additional examples could be added. Increasingly, as RREEF points out, "ever more state and local governments are adopting green building regulations. Many governments initially provided subsidies to encourage more green building, but now the pendulum is increasingly swinging toward mandates."[140]

Ignoring this impending market transformation would be risky and imprudent.
RREEF

The evolution of the policy environment at all levels of government is moving strongly in the direction of requiring green buildings and energy efficiency, and financial institutions can benefit by providing products and financing that get ahead of and capitalize on this trend. As explained by panelists and participants at the 2008 Responsible Property Investment Forum, "RPI becomes a form of strategic analysis, a way to mitigate risk and take advantage of opportunities related to changing political, regulatory and reputational issues associated with the environmental profiles of property investments."[141] More directly, "the tax and regulatory incentives now available in many areas to encourage green retrofits are likely to disappear as more cities institute energy-efficient green building construction and renovation regulation and as more organizations adopt

green construction, renovation, and retrofit practices as a matter of course," suggesting that financial institutions seeking maximum benefit would do well to get involved sooner rather than later.[142]

While the regulatory arena is moving quickly, it is possible that "market forces compelling action outpace regulatory requirements."[143] According to RREEF, "the construction and certification of greener buildings continues to accelerate, increasing the green share of the building stock, and speeding markets to the tipping point where green buildings become the standard for quality real estate product. … Ignoring this impending market transformation would be risky and imprudent…"[144] Similarly, Deloitte suggested in 2008 that "within the next three years, … owners and investors in conventional buildings will be less able to compete in the marketplace as green buildings become tenants' preferred choice."[145]

Conclusion: Green Building Strategies for Financial Institutions

The rapidly expanding North American market for green buildings represents a significant opportunity for the financial sector. At the same time, financial institutions are still in the early stages of integrating green building considerations into their mainstream business roles as lenders, insurers, and investors.

The challenges in these early stages should not obscure the overall direction of commercial building markets. Green buildings are emerging as the new standard in the industry, driven by government regulations, consumer demands, and increasing awareness of green buildings' economic, environmental, and other benefits. These drivers suggest that green building requirements will only become stronger and more prominent, and financial institutions that do not prepare for this dramatic transformation may face significant risks. Those that take action sooner will likely gain market advantage.

Although it is too early in the development of the green buildings market to offer detailed recommendations regarding, for example, how to develop specific green building product offerings, there are several actions financial institutions can and should be taking to prepare for the green building transformation. Specifically, financial institutions should consider implementing the following four strategies:

1. Broaden the green building commitment across the organization

The most obvious initial form of involvement in green buildings by financial institutions is a commitment to greening their owned and/or leased facilities. Many financial institutions have already achieved significant cost savings and positive recognition for improving the environmental and energy performance of their offices, branches, and other facilities, and many more are in the process of doing so. These efforts are important, but financial institutions can influence a far greater number of buildings through their products and customers – i.e., through their investment, lending, and insurance activities. Accordingly, financial institutions should clearly communicate an intention to extend the green building commitment throughout their organizations, develop a roadmap or plan of action to accomplish it, and commit to provide the training, resources, and incentives to make the effort successful.

2. Invest in green building expertise

The knowledge of many professionals in the financial sector may not have been keeping pace with the burgeoning interest in green buildings. Financial institutions must increase their capacity to address green building considerations throughout their organizations. Regardless of whether they rely primarily on in-house capacity or expert consultants, financial institutions should ensure that they are conversant in green buildings in all relevant business areas and should evaluate initial and ongoing training requirements for specific staff and managers.

3. Analyze data resources and identify data needs

Lack of data is a major barrier to integrating green building considerations into the mainstream practices of financial institutions. Financial institutions should analyze their own substantial data resources (e.g., detailed information on valuation of buildings for which they act as investors, lenders, or insurers) to better understand how green buildings affect their products and customers. This analysis will also reveal critical data gaps (e.g., policies and incentives for green buildings in different markets; information on the green performance characteristics of buildings for which they act as investors, lenders, or insurers). Financial institutions should focus on specific questions such as:

- What data is needed to incorporate green building considerations into specific business practices, such as underwriting loans?
- Who has the needed data, and what is the cost of acquiring it?
- If no one has the needed data, how can financial institutions acting alone or in collaboration gather the data? Which data is proprietary and which is shared across financial institutions?
- How is the availability and cost of needed data likely to change over time?
- What kind of expertise will financial institutions need to use this data?

4. Evaluate exposure to non-green assets and markets

Financial institutions should assess their exposure, and the exposure of important customer groups, to non-green buildings, which may soon be devalued in the marketplace. A predominantly non-green portfolio of building assets may reduce the value of loans and insurance policies. Similarly, relying on a customer base without knowledge and interest in green buildings could trap institutions in lower value markets as green buildings proliferate and start to predominate. Financial institutions should not only examine these risks, but also explore strategies for addressing them, such as customer education.

Appendix: Comparison of Major Green Building Certification Systems in North America

Programme	Country of Origin & Sponsoring Organization	Building Types Rated	Description	Market Size
Leadership in Energy and Environmental Design (LEED)[146]	United States Developed and maintained by the U.S. Green Building Council[147]	Broad coverage: existing buildings, new construction, commercial interiors, core & shell, homes, schools, healthcare, retail[148]	*Certification levels*: LEED, LEED Silver; LEED Gold, LEED Platinum[149] *Covers*: water efficiency, sustainable sites, energy & atmosphere, materials & resources, indoor environmental quality[150]	35,000+ projects in 91 countries[151]
Green Globes / BOMA BESt (Building Environmental Standards)[152]	Canada Developed by Building Owners & Managers Association (BOMA) Canada U.S. distribution authorized by the Green Buildings Institute	Commercial Office Additional building types planned	*Certification levels*: 1,2 3, 4 *Covers*: energy, indoor environment, site, water, resources, emissions, project/ environmental management 1,000 point scale; eligibility begins at 35 per cent of points (for Globes) Awaiting American National Standards Institute (ANSI) approval	1100+ buildings certified in Canada[153] 100+ buildings certified in the U.S.[154]
ENERGY STAR[155]	United States Government programme run by the US Environmental Protection Agency	Wide variety of commercial building types, both new and existing Separate certifications for homes and industry	Measures energy performance as percentile rank (1-100) compared to similar buildings Buildings scoring 75+ eligible for Energy Star Label Used for Green Globes and LEED-EB points	120,000+ commercial buildings rated 9000+ earned Energy Star Label[156]
National Green Building Standard[157]	United States Developed and maintained by the National Association of Homebuilders (NAHB)	Residential only: single & multi-family homes, remodelling projects, and site developments	*Certification levels*: Bronze, Silver, Gold, Emerald *Covers*: lot design; preparation; development; resource, energy & water efficiency; indoor environmental quality; operation; maintenance; building owner education First green residential system to undergo full consensus process and receive ANSI approval	500+ homes, multi-family units, and remodelling projects[158]

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