



**Riding the Green Building Wave:  
Understanding How Government Policy on Green Building Affects Commercial  
Property Owners and Valuation of Commercial Real Estate**

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**Abstract:** The purpose of this exploratory paper is to provide a survey of existing and potential policies, and to give guidance to **Commercial Real Estate Owners** (“Owners”) on how government policy relating to the idea of Green Building will affect their financial performance, tax burden and property valuation. There are three conclusions drawn from this discussion:

1. Owners must change their behavior to closely monitor incentives and regulatory shifts in order to remain competitive.
2. Owners and other interested parties should work with legal counsel and tax consultants who understand the incentive, regulatory, and valuation aspects of government Green Building policy.
3. The appropriate valuation of Green Buildings will require a keen understanding of the impact of policy on and market performance of the subject property in order to properly gauge the overall tax burden and return on investment of a “green” project.

**Introduction and Definition**

The term *Green Building* is more of a marketing device than a technical definition. Yet the ideas associated with Green Building have developed an inexorable momentum in popular opinion and government policy that have quickly become a new norm and paradigm. Whether commercial property owners support the idea and practice of *Green Building* or not, the Green Building trend will be shaping the competitive landscape for years to come. However, understanding how it has already manifested is a complicated task, let alone projecting its impact in the future.

Before we begin discussing Green Building’s effects, we must first establish a definition of the term as it is still a fairly new concept. Along with terms like *sustainability and social responsibility*, Green Building has a number of interpretations. For the purposes of this paper, we define Green Building as:

**The product and process of reducing natural resource consumption while not limiting the utility of a building.**

Utility is meant in the economic sense as the generalized value that stakeholders place in a building. The term is not limited to monetary measurement for reasons that will be obvious in the valuation portion of this paper.

The natural resources most often discussed in connection to Green Building are non-renewable energy sources, or fossil fuels. Indeed, many of the incentives in place are meant to stimulate specific renewable energy technologies. However, natural resources also include building materials, water, soil and atmosphere (air quality etc.). The LEED (Leadership in Energy and Environmental Design) programs provide a fairly comprehensive list of the products and processes that reduce natural resource consumption in their point system. Shown below is the LEED v3 point system for new construction and major renovations

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## LEED 2009 FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS PROJECT CHECKLIST

**Sustainable Sites****26 Possible Points**

<input checked="" type="checkbox"/>	Prerequisite 1	Construction Activity Pollution Prevention	Required
<input type="checkbox"/>	Credit 1	Site Selection	1
<input type="checkbox"/>	Credit 2	Development Density and Community Connectivity	5
<input type="checkbox"/>	Credit 3	Brownfield Redevelopment	1
<input type="checkbox"/>	Credit 4.1	Alternative Transportation—Public Transportation Access	6
<input type="checkbox"/>	Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
<input type="checkbox"/>	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
<input type="checkbox"/>	Credit 4.4	Alternative Transportation—Parking Capacity	2
<input type="checkbox"/>	Credit 5.1	Site Development—Protect or Restore Habitat	1
<input type="checkbox"/>	Credit 5.2	Site Development—Maximize Open Space	1
<input type="checkbox"/>	Credit 6.1	Stormwater Design—Quantity Control	1
<input type="checkbox"/>	Credit 6.2	Stormwater Design—Quality Control	1
<input type="checkbox"/>	Credit 7.1	Heat Island Effect—Nonroof	1
<input type="checkbox"/>	Credit 7.2	Heat Island Effect—Roof	1
<input type="checkbox"/>	Credit 8	Light Pollution Reduction	1

**Water Efficiency****10 Possible Points**

<input checked="" type="checkbox"/>	Prerequisite 1	Water Use Reduction	Required
<input type="checkbox"/>	Credit 1	Water Efficient Landscaping	2-4
<input type="checkbox"/>	Credit 2	Innovative Wastewater Technologies	2
<input type="checkbox"/>	Credit 3	Water Use Reduction	2-4

<b>Energy and Atmosphere</b>		<b>35 Possible Points</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Fundamental Commissioning of Building Energy Systems	Required
<input checked="" type="checkbox"/>	Prerequisite 2 Minimum Energy Performance	Required
<input checked="" type="checkbox"/>	Prerequisite 3 Fundamental Refrigerant Management	Required
<input type="checkbox"/>	Credit 1 Optimize Energy Performance	1-19
<input type="checkbox"/>	Credit 2 On-site Renewable Energy	1-7
<input type="checkbox"/>	Credit 3 Enhanced Commissioning	2
<input type="checkbox"/>	Credit 4 Enhanced Refrigerant Management	2
<input type="checkbox"/>	Credit 5 Measurement and Verification	3
<input type="checkbox"/>	Credit 6 Green Power	2
<b>Materials and Resources</b>		<b>14 Possible Points</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Storage and Collection of Recyclables	Required
<input type="checkbox"/>	Credit 1.1 Building Reuse—Maintain Existing Walls, Floors and Roof	1-3
<input type="checkbox"/>	Credit 1.2 Building Reuse—Maintain Existing Interior Nonstructural Elements	1
<input type="checkbox"/>	Credit 2 Construction Waste Management	1-2
<input type="checkbox"/>	Credit 3 Materials Reuse	1-2
<input type="checkbox"/>	Credit 4 Recycled Content	1-2
<input type="checkbox"/>	Credit 5 Regional Materials	1-2
<input type="checkbox"/>	Credit 6 Rapidly Renewable Materials	1
<input type="checkbox"/>	Credit 7 Certified Wood	1
<b>Indoor Environmental Quality</b>		<b>15 Possible Points</b>
<input checked="" type="checkbox"/>	Prerequisite 1 Minimum Indoor Air Quality Performance	Required
<input checked="" type="checkbox"/>	Prerequisite 2 Environmental Tobacco Smoke (ETS) Control	Required
<input type="checkbox"/>	Credit 1 Outdoor Air Delivery Monitoring	1
<input type="checkbox"/>	Credit 2 Increased Ventilation	1
<input type="checkbox"/>	Credit 3.1 Construction Indoor Air Quality Management Plan—During Construction	1
<input type="checkbox"/>	Credit 3.2 Construction Indoor Air Quality Management Plan—Before Occupancy	1
<input type="checkbox"/>	Credit 4.1 Low-Emitting Materials—Adhesives and Sealants	1
<input type="checkbox"/>	Credit 4.2 Low-Emitting Materials—Paints and Coatings	1
<input type="checkbox"/>	Credit 4.3 Low-Emitting Materials—Flooring Systems	1
<input type="checkbox"/>	Credit 4.4 Low-Emitting Materials—Composite Wood and Agrifiber Products	1
<input type="checkbox"/>	Credit 5 Indoor Chemical and Pollutant Source Control	1
<input type="checkbox"/>	Credit 6.1 Controllability of Systems—Lighting	1
<input type="checkbox"/>	Credit 6.2 Controllability of Systems—Thermal Comfort	1
<input type="checkbox"/>	Credit 7.1 Thermal Comfort—Design	1
<input type="checkbox"/>	Credit 7.2 Thermal Comfort—Verification	1
<input type="checkbox"/>	Credit 8.1 Daylight and Views—Daylight	1
<input type="checkbox"/>	Credit 8.2 Daylight and Views—Views	1
<b>Innovation in Design</b>		<b>6 Possible Points</b>
<input type="checkbox"/>	Credit 1 Innovation in Design	1-5
<input type="checkbox"/>	Credit 2 LEED Accredited Professional	1
<b>Regional Priority</b>		<b>4 Possible Points</b>
<input type="checkbox"/>	Credit 1 Regional Priority	1-4

LEED has stratified levels of certification based on the amount of points the project earns. Those levels are detailed below.

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### LEED 2009 for New Construction and Major Renovations

100 base points; 6 possible Innovation in Design and 4 Regional Priority points

Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

The wider term *sustainability* also considers social and economic resources along with environmental. For the purposes of this paper, Green Building is defined as not encompassing those extensive aspects.

### Government Policy on Green Building

The federal government as well as state and local governments have demonstrated a clear preference for Green Building, and they continue to codify that preference into formal policies. A tide of executive orders, policy papers, legislation, speeches, and dedicated monies have flooded the commercial property marketplace over the past few years. How that continued flow eventually settles will determine what the new competitive landscape will look like.

**To remain competitive, owners must understand how their business environment *has* been altered, and how it *could* be altered in the future by government policy on Green Building.**

Before continuing, it is instructive first to understand what tools governments use to promote Green Building. We will then look at examples of regulations at the federal, state, and local level. We will also review examples of the different varieties of monetary and non-monetary incentives before considering what the future might look like.

### Channels of Government Intervention

There are three main ways in which the government sets Green Building policy for commercial property owners:

- Command and Control Regulations
- Monetary Incentives
- Non-monetary Incentives

Command and Control Regulations take two forms: zoning ordinances and building codes. Zoning ordinances set the acceptable use and specifications for a parcel. An example of a Green Building zoning ordinance would be to mandate buildings above a certain height or size achieve a LEED designation. Building codes are more specific and they set baseline requirements for the building's systems. An example of a Green Building code would be a requirement to use above a certain quality of insulation or utilize certain types of water runoff mitigation measures.

Monetary incentives come in a number of forms: rebates, tax deductions, tax credits, accelerated depreciation, and direct payments. They are essentially any incentive with specific cash equivalence. For the most part, they represent a transfer from the government to the citizen.

“Non-monetary incentives” is a catch-all category for enticements that do not have specific cash equivalence. They are an increasingly attractive option for local governments that are dealing with constrained budgets. Some examples include increases in floor area ratio and building height, expedited permitting, and general

accommodation in the entitling process. This has been a particularly popular measure amongst counties, especially within the last 24 months.

There is also another way in which governments can indirectly set Green Building policy for commercial property owners, which is through internal mandates such as executive orders. The President and state governors can order government departments and entities to reduce their energy consumption and perform any number of Green Building practices. **As a part of that, they can force those departments to have a formal preference to lease and buy Green Buildings for their facilities.** The federal government and many state governments have also released internal mandates as a first step towards promoting Green Building. For the purposes of this paper, we will consider internal mandates to fit within the realm of command and control regulations.

## Policies In-place

As mentioned previously, we will consider examples at the federal, state and local levels for regulations. We will then look at the different varieties of and issues surrounding, monetary and non-monetary incentives.

## Command and Control Regulations

### Federal Regulations

Most of the newer federal regulations do not contain command and control provisions due to the financial pressures they could impose on owners. As of December 2009, almost all federal regulations have been internal mandates that set standards for government property only.

The Energy Independence and Security Act of 2007 sets a number of internal mandates in two of its Titles:

- Title III Subtitle B, Lighting Energy Efficiency-- Section 323 sets energy efficiency requirements for General Services Administration (GSA)-leased space and for use of energy efficient lighting fixtures and bulbs in those leased spaces.
- Title IV Subtitle C, High-Performance Federal Buildings, sets aggressive energy efficiency goals for new federal building and major renovations.
  - Section 431 requires that total energy use in federal buildings, relative to the 2005 level, be reduced 30% by 2015.
  - Section 435 is of particular interest as it prohibits federal agencies from leasing buildings that have not earned an EPA Energy Star Label <sup>1</sup>.
  - Section 436 requires GSA to establish an Office of Federal High-Performance Green Buildings to coordinate Green Building information and activities within GSA and with other federal agencies. The office must also develop standards for federal facilities, establish green practices, review budget and life-cycle costing issues, and promote demonstration of innovative technologies.

Out of the President's Office, Executive Order 13514 laid the foundation for even stricter Federal Agency Green Building standards by:

- Establishing the chain of command for setting reduction goals
- Setting specific water use and waste reduction goals for agencies
- Formally establishing preference for resource conservation practices

**Those mandates will certainly affect commercial property owners with federal tenants by requiring them to help reduce consumption, or else risk losing that tenancy.**

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<sup>1</sup> The Energy Star Label certifies that a building is performing in the top 25 percent based on the EPA's National Energy Performance Rating System.

## **State Regulations**

State legislation and executive orders also focus on government property to show leadership. The Mid-Atlantic States have been especially active in that regard.

Virginia Executive Order 82, “Greening of State Government”, builds upon Executive Order 48 by mandating that all new and renovated state-owned facilities over 5,000 gross square feet shall be designed and constructed consistent with LEED Silver, Green Globes two-globe, and Department of General Services “Virginia Energy Conservation and Environmental Standards.” It expands energy savings goals for VA agencies and institutions, and it also formally establishes a new state leasing preference for properties that meet the same design and construction standards for new building and renovation

On the legislation side, Maryland House Bill 196 and Senate Bill 92 essentially mandate that state capital projects achieve a LEED Silver or comparable rating.

## **City and County Regulations**

These regulations consist of buildings codes, zoning requirements, and city or county mandates on government construction or renovation. Most of the traditional command and control type regulations occur at this local level.

Counties in Virginia, such as Arlington, are prevented from setting their own building codes because of the Dillon Rule, a legal principle that limits the power of municipalities. They are, however, allowed to enforce Green Building standards on site plan projects that require an exception to zoning ordinances, most often because they are too large. Arlington has a kind of hybrid regulation/incentive with its site plan conditions policy; receiving exception to the zoning ordinances is an incentive, but complying with demands regarding Green Building is more of a regulation. We will discuss a particular aspect of Arlington’s site plan program later when we talk about non-monetary incentives.

California recently announced the adoption of a statewide Green Building Standards Code (CALGREEN) that requires all new buildings in the state to meet energy efficiency and environmental targets. Local jurisdictions can amend the code only if they are adopting more stringent requirements. A centralized body, the California Building Standards Commission, regulates the adoption of local amendments.

Maryland jurisdictions have the autonomy to alter the state building code. An example is Baltimore City’s Green Building standards that took effect on July 1, 2009. The new code mandates that all newly constructed and extensively modified buildings (greater than 50% of their gross square feet) that have or will have at least 10,000 square feet in gross floor area and are applying for a building permit after July 1, 2009 shall comply with a LEED Silver rating or equivalent.

Washington DC’s city council passed the “Green Building Act of 2006” which mandates that by 2009, all new private construction or substantial renovation with 50,000 or more gross square feet must meet applicable Green Building requirements. Projects that are owned by the district or that receive 15% or more of their total cost from public funds must achieve a LEED Silver rating.

## **Monetary Incentives**

### **Federal Income Tax Incentives**

There are two notable federal income tax incentives for commercial property owners: the Energy-Efficient Commercial Buildings Tax Deduction and the Business Energy Investment Tax Credit (ITC).

The tax deduction was originally authorized by the Energy Policy Act of 2005, and it was later extended through 2013 by Section 303 of the Federal Energy Improvement and Extension Act of 2008. It calls for deductions of up

to \$1.80 PSF for owners of new or existing buildings who install (1) interior lighting; (2) building envelope, or (3) heating, cooling, ventilation, or hot water systems that reduce the building’s total energy and power cost by 50% or more in comparison to a building meeting minimum requirements set by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Standard 90.1-2001.

Deductions of \$0.60 per square foot are available to owners of buildings in which individual lighting, building envelope, or heating and cooling systems meet target levels that would reasonably contribute to an overall building savings of 50% if additional systems were installed.

The ITC was originally established by Title 26 of the Internal Revenue Code; it was expanded by the Energy Improvement and Extension Act of 2008 and the American Recovery and Reinvestment Act of 2009. As it exists now, credits are available for eligible systems placed in service on or before December 31, 2016. The credits are for either 30% or 10% of total expenditures on solar, fuel cell, small wind turbine, geothermal, micro-turbine, and combined heat and power systems. The different systems have credit limitations based on their capacities<sup>2</sup>.

**Property Tax Incentives**

We have chosen three noteworthy examples to discuss. Property taxes are assessed and paid locally, so unsurprisingly most of the incentives are from counties and cities.

The Howard County (MD) Green Building Tax Credit is for a percentage of the amount spent to install an energy conservation device in a LEED certified building for a period of three years. The credit may not exceed the amount of the county taxes owed on the building. The credits vary around the level of LEED rating attained:

LEED Certification	14%
LEED Silver Certification	16%
LEED Gold Certification	18%
LEED Platinum Certification	20%

The Montgomery County (MD) Green Building Tax Credit amount (10-75%) and term (3-5 years) of the tax credit varies based on the type project and the rating it achieves. See the table below for details. The term "covered" refers to new or substantially reconstructed non-residential and multi-family residential buildings over 10,000 square feet, which are already required by county law to meet the basic LEED certification standard or its equivalent. Thus the minimum standard for property tax credits on buildings of this type is correspondingly higher.

Building Type	Certification Type	Exemption	Amount	Term
Covered	LEED-NC or LEED-CS Platinum	75%	5	years
Covered	LEED-NC or LEED-CS Gold	25%	5	years
Covered	LEED-EB Platinum	50%	3	years
Covered	LEED-EB Gold	10%	3	years
Not Covered	LEED-NC or LEED-CS Platinum	75%	5	years
Not Covered	LEED-NC or LEED-CS Gold	50%	5	years
Not Covered	LEED-NC or LEED-CS Silver	25%	5	years
Not Covered	LEED-EB Platinum	50%	3	years
Not Covered	LEED-EB Gold	25%	3	years
Not Covered	LEED-EB Silver	10%	3	years

Outside of Maryland, Cincinnati also offers a Green Building property tax incentive. The Cincinnati Green Building Commercial Property Tax Abatement applies to renovation and new construction in the following situations:

<sup>2</sup> For more information visit [www.dsireusa.org](http://www.dsireusa.org).

- Project achieves certification from the US Green Building Council as either LEED Certified, Silver, Gold, or Platinum
- Space is retail, industrial, office or multi-unit housing (4 or more units)
- Abatement amount and length is approved by City Council before construction begins

The abatement is structured as follows:

#### New Construction

- Abatement lasts up to 15 years and for up to 75% of the amount of property tax, depending on what the City Council approves
- Project cost must be greater than \$40,000

#### Renovation

- Abatement lasts up to 12 years and for up to 75% of the amount of property tax, depending on what the City Council approves
- Project cost must be greater than \$40,000

### Grants, Awards, & Rebates

These incentives apply almost exclusively to building accessory systems that create renewable energy. Grants, awards, and rebates exist at the federal, state, county, and city levels. Several of these incentives are outlined below but are certainly not meant to be an exhaustive review of all that are currently available.

The U.S. Department of Treasury - Renewable Energy Grants are direct monetary transfers that can be taken instead of tax credits. It is important to note that both cannot be taken (credits and grants). The grants were established by the American Recovery and Reinvestment Act in February 2009 to be administered by the treasury. Guidance was issued by the treasury in July 2009 detailing guidelines for the grants, terms and conditions and a sample application. Grants are available to eligible property placed in service in 2009 or 2010 or by the specified credit termination date, if construction began in 2009 or 2010

The grant amounts follow the same funding strategy as the Investment Tax Credit: the grants are for either 30% or 10% of total expenditures on solar, fuel cell, small wind turbine, geothermal, micro-turbine, and combined heat and power systems. The different systems have grant limitations based on their capacities.

The state of Maryland recently launched the Mid Size Solar Grants Program using funds from the American Recovery and Reinvestment Act. The program is active from November 6, 2009 to October 2010. The Maryland Energy Administration (MEA) is offering grants of up to \$25,000 for mid-sized photovoltaic (PV) and solar hot water systems (SHW) installed by businesses and non-profits. Incentives are calculated according to the following schedules:

- PV: \$500/kilowatt (kW) DC for the first 20 kW; \$250/kW for the next 30 kW; and \$150/kW for the next 50 kW
- SHW: 15% of the installed system cost up to \$25,000

The District of Columbia has a rebate program, the Washington DC Renewable Energy Incentive Program. This program is a rebate for solar photovoltaic (PV) and wind energy systems. It is currently oversubscribed, but it is waiting for budgeting of funds from ARRA for 2010. New applications are being placed on a waiting list.

There is no maximum system size, although incentives are capped at \$33,000 per site per fiscal year. The current incentives for solar and wind energy systems are as follows:

- \$3/watt for first 3 kW installed capacity
- \$2/watt for next 7 kW installed capacity
- \$1/watt for next 10 kW installed capacity

### Non-monetary Incentives

Non-monetary incentives mainly take the form of zoning variances and expedited permitting. These incentives have been gaining in popularity with local governments, although some communities have provided push-back, protesting the actions of planning and zoning commissions.

The policies tend to be informally applied as zoning variances and expedited permitting can be extremely sensitive political issues. An exception is Arlington County, VA, which has a formal bonus density structure. Many times expedited permitting and bonus density are the only incentives that state and local governments can offer given the strain on their budgets. Money is tight and zoning/code provisions are essentially free. Although most developers will admit money is the most motivating factor, the truth is, many jurisdictions cannot afford it.

A good example of expedited permitting is in Marin County, California. Commercial and residential new construction, additions, and remodels that exceed a calculated energy budget by at least 20% are allowed fast-track building permit processing and waiver of the Title 24 energy review fee.

Arlington County, VA has a unique setup with its formal bonus density program. As discussed earlier, counties in Virginia are not allowed to set building codes due to the Dillon rule, but they can allow zoning ordinances that effectively guide building construction in the same way. Arlington's program does just that. When developers require additional density on their parcel, Arlington grants it in exchange for the development achieving different levels of LEED certification. The table below summarizes their program. Note that bonus density requests are still analyzed on a case by case basis.

LEED Level	Prior to March 14, 2009	After March 14, 2009	
		Office	Residential
Certified	0.15 FAR*	0.05 FAR	0.10 FAR
Silver	0.25	0.15	0.20
Gold	0.35	0.35	0.40
Platinum	0.35	0.45	0.50

### Government Policy in the Future

The examples that we have surveyed suggest what government policy will look like in the future. First we will look at pending actions, and then we will infer what future action could look like.

#### Proposed Legislation: American Clean Energy and Security Act of 2009 (Waxman-Markey)

This piece of legislation is the largest and most controversial in terms of its "green" policies, the most publicized of which is the carbon emission cap and trade system. There are a few parts of the bill that relate to Green Building specifically:

- Section 201 calls for the development and adoption by state and local governments of a national energy efficiency code. Provision 4 of Section 201 requires that states and local governments meet or exceed the national energy efficiency building code, effectively federalizing building codes. This is a dramatic shift away from local land use regulation. Many state and local jurisdictions use older versions of ASHRAE and ICC codes; switching to a brand new national standard could be extremely difficult and costly.
- Sections 131 and 132 allow for State Energy and Environmental Development (SEED) accounts that would allow Property Assessed Clean Energy (PACE) Bonds to commercial property owners to finance energy retrofits. That initiative could represent a large new source of funding for commercial property owners looking to improve core building systems or add accessories.

The effects of Waxman-Markey are dependent on the final form it takes if it passes into law. The above referenced sections would certainly impact commercial property owners significantly, particularly section 201, if they were included in the final version of the bill. The cap and trade system would produce a great deal of

revenue for federal and state governments, which could then be redistributed as monetary incentives. This bill is one of the great unknowns to follow closely in the coming years.

### **Green Building Codes**

The International Code Council (ICC) is developing a Green Building Code based off of the California Green Building Standards Code. Most state and local jurisdictions have adopted some version of the ICC codes as their building codes. When the ICC, along with the Building Owners and Managers Association (BOMA), and ASHRAE develop specifically green codes, more state and local jurisdictions could switch over to them.

Updates to state and local building codes appear to be an eventual reality, even if Waxman-Markey does not mandate them; cities like Baltimore, Washington DC, and Boston have already updated their building codes. If building codes are updated, then incentives may become more specialized and more difficult to obtain as the municipalities have already mandated Green Building.

### **Monetary Incentives**

Several examples indicate that incentives are likely to be finite and exploratory in nature going into the future. The Washington DC Renewable Energy Incentive Program and a number of others are currently oversubscribed and awaiting federal funds to resume. That will likely be a common occurrence going forward as jurisdictions have a difficult time estimating what the demand of different incentive programs will be, which is another reason why non-monetary incentives are so attractive.

One example of miscalculating potential demand comes from the state of Nevada. In June of 2005, the Nevada legislature passed Assembly Bill 3, which allowed LEED Silver properties up to 50% property tax abatement for up to 10 years. The program was wildly successful and by 2007 the state faced approximately \$900 million in lost tax revenue due to tax abatements. The legislature convened for an emergency session and quickly passed assembly bill 621, which reduced the amount of property tax abatement.

The lesson from Nevada is that promising a monetary incentive with too long a duration and too large an amount can cause serious cash constraints for the government. Therefore, local and state governments are more likely to offer conservative incentives with finite life spans to gauge demand and then fund those programs as money becomes available. Indeed, the Washington DC Renewable Energy Incentive Program appears to be following that course.

### **Valuation**

Universal acceptance of Green Building is kept at bay by the difficulty of valuation. The dual weaknesses of ambiguity and limited data severely hinder measurement of Green Buildings; yet estimating values is now one of the principal concerns of market participants and local governments. The former want to value Green Building so that they can make appropriate business and investment decisions, while the latter must value (read: assess) it because it is their mandate.

First we will consider the current issues surrounding valuation from the market participant perspective, then we will see how local governments are responding to the market and finally we will discuss the potential tax consequences that are likely to occur.

### **Market Participants**

The most sensible way to examine how market participants are valuing Green Building is to bifurcate the issue into a monetary perspective and a stakeholder opinion perspective. Those two categories are not mutually exclusive (i.e. stakeholder opinions can translate into monetary amounts), but they fit within the general concept of utility from the discipline of managerial economics. Together, monetary considerations and stakeholder opinions drive the investment decisions of market participants.

### Monetary Perspective

Those analyzing a property from the monetary perspective look to attributes that have a measured impact on cash flow. For Green Buildings, the most significant items are rental rates, vacancy rates and operating expenses. They also look at sales price premiums, which are often expressed through capitalization rates.

Tenants (from an owner occupancy standpoint) are especially interested in another quasi-monetary item that has tremendous potential value—employee productivity.

Unfortunately, nearly all of the relationships between Green Building and monetary attributes suffer from the statistical problems of extraneous or confounding variables, where Green Building's impact cannot be isolated from other compelling variables. For instance, if a green office achieves a higher rental rate than other office properties in that market, then it could be explained not only by its green features, but by the interrelationship of its access, proximity to retail and residential areas, amount of parking, proximity to various modes of transportation, management, etc. The typical way of controlling for extraneous or confounding variables is to employ some sort of matching technique. Appraisers will recognize that activity as finding appropriate comparables. Appraisers can also explain that finding a good comparable, or eliminating most problematic variables, is very difficult, especially for unique properties. And Green Buildings tend to be very unique properties, set in distinct locations with specialized management and ownership arrangements.

The problems of extraneous and confounding variables are not unique to Green Building features. Appraisers frequently encounter the problem when trying to draw a connection between one of a building's variables and its value. The difficulty of valuing Green Building (in the verb sense) is more likely a function of the difficulty of valuing real estate in general.

Green Building has the purest correlation to operating expenses, which could explain why it has thus far been sold for its cost savings potential. But even there, several problematic relationships exist. Thankfully we can qualify those variables and explain the circumstances in which cost savings are possible.

With that caveat on extraneous and confounding variables, we will move on to review some of the more prominent research and reports surrounding rental rates, vacancy rates, sales premiums, and operating expenses

### Rental Rates

In the past several years there has been a push to determine whether Green Building produces not only operational savings, but increased revenues as well. The case for elevated revenues is fairly intuitive—tenants will pay a premium rent to locate in a Green Building because of the extra amenities, prestige, potential for increased performance (discussed further in the stakeholder opinions section) and lower operating expenses. That case has not been easy to make, which could be due in part to the economic collapse of 2008. Since that time, tenants have been forced to closely monitor their operating costs and forego options that are not a necessity. Occupancy in a Green Building may be one of the options foregone.

Nonetheless, several compelling studies suggest the existence of a rental rate premium. One of the most impressive studies was performed by Fuerst and McAllister in 2009. Using a hedonic<sup>3</sup> price model with numerous variables to control for location and property-specific factors, the authors concluded that a rental premium of approximately 6% existed for LEED and Energy Star certified buildings. However, the majority of the study's information was drawn from the Costar database, which suffers from a significant self-selection bias where property owners and managers selectively report information.

In the most widely quoted precursor study by Miller et al (2008), the same problem exists. And in both studies it is highly unlikely that the authors were able to completely nullify the most powerful, explanatory, variable location. Fuerst and McAllister attempted to do so by pairing buildings in the same submarket, but even then the quality of location can vary dramatically. The heterogeneity of real estate resists any attempt at simplification.

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<sup>3</sup> A hedonic regression seeks to decompose an item, in this case rental rate, into its explanatory variables that are assumed to have an intrinsic market value. It is a regularly used tool in Real Estate Economics, particularly for developing residential price indices.

It is unclear that the authors successfully controlled for all other explanatory variables such as GSA vs non-GSA leases, not for profit and other .org tenants, and other special leasing considerations such as concessions and discounts. Still, the studies offer compelling evidence of the existence of a rental rate premium.

A report of three case studies on buildings in the Pacific Northwest region (Cascadia) concluded that Green Buildings achieved competitive rental rates, but not actual premiums (“High Performance Green Building: What’s it Worth?”). In fact, the report advised the following in one of the case studies:

As in a number of green developments that have been analyzed, Alley24 East achieved top of the market, competitive rents, though with no identifiable premium for high performance green features.

Further, numerous discussions with owners of and investors in high performance Green Buildings—both new and existing—have not revealed a premium specifically attributed to green features. Rather, in the majority of cases, the top of the market rents achieved by these properties result from a combination of factors which include locational attributes, physical characteristics (green features), and overall market environment. Until such time as there are significantly more data available, the authors of this paper caution against using unsupported or poorly supported assumptions relative to green premiums

Insufficient data exists to say with certainty whether a rental rate premium exists or not. Thus potential investors are justifiably skeptical of the claims that Green Buildings provide guaranteed higher revenues.

### Vacancy Rates

Less focus is placed on vacancy rates in the existing research. Fuerst and McAllister suggest that LEED or Energy Star certified buildings have less vacancy (with the same study limitations discussed earlier). The Cascadia case studies offer anecdotal evidence of lower vacancy rates, but with a caveat similar to the one given for rental rate premiums.

In 2009, Miller and Pogue found that CB Richard Ellis (CBRE) Energy Star certified properties had an average of 8.3% vacancy while a selected peer group experienced 14.9%. That correlation between Green Building and reduced vacancy could be rife with extraneous and confounding variables, but the authors’ finding is still thought provoking.

Again, the evidence is suggestive, but not conclusive.

### Sales Premiums

The claim that a sales premium exists for Green Buildings may be the least substantiated because the sales volume of all properties has diminished significantly since the recent economic collapse. Sales of LEED and Energy Star certified buildings have been scant within the past several years, leading many studies to forego the issue of sales premiums entirely. The studies that do report a positive association describe very large premiums.

One study found a 25% and 26% premium for LEED and Energy Star properties, respectively (Fuerst and McAllister, 2009). Such claims are unlikely to reflect the current market, which is characterized by more conservative underwriting and a scarcity of capital.

The existence of sales premiums is likely to be confirmed or disconfirmed when the overall volume of commercial property transactions increases.

It should be noted at this point that even though several well known real estate think tanks have reported surveys that point to a trend of premiums derived from the sale of green buildings in general (more specifically LEED certified), digging deeper into the methodology of their statistical models raises serious concerns in many cases. The supposedly quantified premium can be skewed by the nature and profile of those sales. For example, having GSA as the sole or primary tenant in a building is considered one of, if not the, strongest credit tenant an owner could hope for in many cases. Being as such, a building with GSA as a primary or sole tenant will many times trade at a premium which should, and does, reflect the quality of that respective lease in place. Accordingly, any

GSA building constructed for the purposes of a sole or majority GSA tenancy will require nothing less than a LEED Silver construction. As such, any sales set, especially one gathered in a market where only the best assets trade (e.g. GSA tenanted buildings) amongst a small number of sales to begin with, can drastically skew a comparable sale set being considered for the purposes of quantifying a “green build” premium. In other words, was it the GSA lease that garnered the premium or was it the fact that the asset was built to a certain LEED standard? Of course, this conundrum must be vetted on a case by case basis when considering each specific comparable set, but nonetheless, the investment and academic community must account for these types of variables so as not to deduce from a flawed data set.

### Operating Expenses

Operational savings have long been the selling point for Green Building, and for good reason—Green Building features have measurable savings that result in specific increases to a property’s bottom line. However, recent studies have suggested that the calculated savings of green features may not pan out in practice. Miller and Pogue compared detailed operating statements of CBRE’s Energy Star certified and “non-green” buildings to arrive at the conclusion that “Green Buildings are more intensively managed than non-green buildings; therefore, the total operating expenses are not that different” (“Do Green Buildings Make Dollars and Sense”). That finding counters the often anecdotal evidence provided by specific case studies.

Furthermore, several investors and developers in Washington, DC, after reviewing and analyzing operating expenses in Green Buildings that have been in operation for several years, have noted that no measurable decline in expenses were achieved unless tenant spaces were built out to some LEED interior space type designation as well. In essence, the core and shell of the building may have been built to certain green specification but given the guidelines and ratings system utilized, may not actually reduce expenses unless the tenants spaces themselves are altered as well. Additionally, owners have also been finding that unless the tenants alter their practices to embrace a more green business practice and resource consumption within their own spaces, the project effort to reduce energy consumption and design sustainably will have been pointless.

Those observations are reinforced by Miller and Pogue’s dramatic finding that when juxtaposing comparable buildings separate metering led to 21% lower energy costs (“Do Green Buildings Make Dollars and Sense” need cite). Tenant behavior appears to be as or more important than any of the Green Building features.

### Employee Productivity

Productivity has been called Green Building’s “Holy Grail”. No other factor has as much potential for monetary impact. For owners and investors, the impact is certainly indirect. If Green Buildings do increase productivity, then tenants enjoy reduced labor costs which are among the largest expenses on their operating statements. That monetary benefit then translates into increased demand for Green Building space, and if supply is constant, then rental rates increase and vacancy rates decline.

Given the potentially immense monetary benefit of increased productivity, it is unsurprising that the claim that Green Building enhances it is a controversial one. The most referenced study was produced by Gregory Kats in 2003 for California’s Sustainable Building Task Force. In it, the author estimates that Green Building features could lead to present value productivity benefits of a staggering \$55.33 per square foot for Gold and Platinum level buildings. Miller and Pogue have even suggested a present value of \$153.61 per square foot, although that figure is also more of a supposition than a hard measurement. It is understandable that the authors use a great deal of theoretical extension when valuing productivity—taking a pure measurement is difficult, if not impossible.

Yet, increased productivity remains one of the premier arguments in favor of Green Building. Once again, limited data prevents the investigator from proving or disproving the theory.

### **Stakeholder Opinion**

While owners, investors, and tenants pay close attention to the monetary considerations of Green Building, often their decisions are swayed by the opinions of stakeholders. Shareholders, employees, customers, suppliers, executive management, and other contributors in an industry can exert tremendous influence. Their opinions are often not profit driven, but value driven. Their wants cannot be quantified in dollar terms, but in specific actions.

Much of the move towards Green Building has been due to grassroots organizing by employees and customers, but some of it has taken place at the board level. In a presentation on March 18, 2010, David Pogue reported that the “Unitarian Universalist Association of Congregations requested a sustainability report describing strategies to address the environmental and social impacts of Fifth Third Bancorp’s business, including strategies to address climate change” (Presentation “Green Buildings: Are they Valuable to Tenants?”). Furthermore, Mr. Pogue reported that 70% of surveyed CBRE tenants felt that occupying green space is important for owner and shareholder image. Another recent study found that 75% of firms “view sustainability as consistent with their profit mission and are engaging in activities” (McGraw-Hill 2009).

Stakeholder opinions appear to be overwhelmingly in support of Green Building and the wider concept of sustainability. In the absence of concrete and measurable cash flow benefits, stakeholder opinions are most likely driving the majority of owner, investor, and tenant decisions surrounding Green Building.

### Market Participant Summary

The Market has struggled to quantify the monetary value of Green Building, but the opinions of stakeholders continue to drive decision makers toward it. Financial uncertainty surrounds Green Building due to the lack of actionable data. Many positive claims have been made, and while compelling, they still contain weaknesses that give doubters ammunition.

### **Local Governments**

While researchers and market participants may be able to theorize about the value of Green Building, local jurisdictions must decide on a hard number. How local governments are responding to the Green Building trend is of principal interest to property owners and their tax consultants. We surveyed six jurisdictions located in the Mid-Atlantic, Mid-West, and Pacific-Northwest to find out how local governments in some of the most innovative markets were valuing Green Buildings. Their responses were essentially identical, and summarized by the following bullet points:

- **Income Approach**
  - **There is insufficient data to support:**
    - **A special rental rate premium**
    - **Lower vacancy factors**
    - **Lower capitalization rates**
- **Cost Approach**
  - **Valued using the replacement cost with “special” green features not accounted for**
  - **Building costs and depreciation based on core structure and taken from industry publications such as Marshall Valuation Service**
- **Sales Comparison Approach**
  - **Insufficient comparable sales to determine a specific sales premium for Green**

Essentially, local governments have maintained status quo. They are unwilling or unable to use any specialized criteria in the valuation of Green Buildings due to an apparent lack of actionable data. To put it simply, a regular Class A office building and a specially designed Green Class A office building are given the same value, all other variables held constant.

A theme repeated by the surveyed jurisdictions was “we are waiting for the market to decide what the value is before acting.” That statement is unsurprising given the tremendous amount of pushback jurisdictions have received due to falling property values. In times of economic turmoil, local governments are more likely to resist radical changes in their policies that might further infuriate taxpayers. Additionally, many local governments have adopted pro-green building policies, and in times when taxation can kill off a budding industry, they are very careful not to interfere.

### **Implied Tax Consequences from Emerging Valuation Practices**

Market participants have expressed a desire to give Green Buildings a valuation premium, but they have been stymied by limited information and variables that resist measurement. Responding to the market, local governments have maintained the status quo and resisted any radical approach to valuing Green Building.

Although there is inadequate data to draw firm conclusions at the current time, it is clear that when the economy recovers and transaction volume increases the questions surrounding Green Building will be answered.

In the meantime, there are several implied tax consequences from the Green Building trend that owners and tax consultants should be aware of.

1. In jurisdictions that use mass appraisal techniques, rental rates, capitalization rates, operating expense ratios, and vacancy rates will be applied across Green Buildings as a class. The concept of Green Building has gained enormous traction in the minds of stakeholders, and if forthcoming information from the jurisdictions dataset confirms a rental rate premium, or a capitalization rate discount, it will be spread onto all Green Buildings under mass appraisal. This poses a significant risk for owners of Green Buildings because although two buildings may have the same certification, LEED Silver for example, their operating profiles can be very different. Consider a newly constructed building that has LEED Silver certification with 26 points from the sustainable sites category, 14 points from materials and resources, and 10 points from indoor environmental quality, and minimal points from the other categories. Contrast that building with another LEED Silver building that achieves most of its points from energy and atmosphere, and water efficiency. The latter is much more likely to have lower operating expenses, but under mass appraisal the two could be saddled with the same expense ratio.
2. The surveyed jurisdictions agree that owner occupied properties valued using the cost approach should take their base rates from the classification of the existing structure. While on the face that method appears to follow the replacement cost approach, it still carries an aspect of reproduction cost. Consider a corporate headquarters that has been built to excessive environmental standards as required by the jurisdiction, as a show of good faith to the community, and for perceived benefits to its employees. The facility might contain solar panels, special water management systems, and earthen roofs that an assessing jurisdiction would not tack on to its value. But to comply with certification and to support the green amenities, the facility has an extremely high quality base level of construction, say Class A Excellent. That base level was not necessary for how the market uses and values the property—perhaps comparable headquarters that are not considered Green Buildings are Class A Average in construction. According to the surveyed jurisdictions, the facility would be valued at its existing base rate, or Class A Excellent, but true replacement cost would use the market base rate, or Class A Average. The difference between those two base costs and their attendant levels of depreciation and multipliers can constitute an enormous amount of super-adequacy.

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**Conclusion: Implications to Commercial Property Owners**

There are several implications to commercial property owners that arise from our review of government policies in place and in the future:

1. Incentives and regulations are in a state of flux right now, so it is incumbent on the owner to follow their development. If commercial property owners fail to apply for incentives and stay up to date with regulations, then two consequences will converge on them: (1) building codes, zoning, and their tenants' green requirements will force them to upgrade existing buildings or intensify developments, adding unforeseen costs, and (2) they will have left some of the money to fund those costs on the table where earlier movers snatched it all up. The competitive commercial property owner in today's market must stay proactive about Green Building regulations and incentives
2. This point is related to number one. Not only must the owner understand government policies on Green Building, but their legal counsel and tax consultants must understand them to an even greater degree. If counsel and consultants are ignorant to Green Building developments, then they are advising without the proper modern context. At the very least they may miss opportunities to receive incentives, and at the very worst they may be unaware of new Green Building regulations that adversely impact the taxpayer.
3. Valuation is the central task that will define Green Building in the future. The market is still struggling with the task, and local governments are unwilling to attempt anything radical. Owners and their tax consultants should understand that valuation is still uncertain, but when the market begins to move, valuation will be driving the Green Building trend. They should also understand the potential pitfalls of mass appraisal in the income approach and super-adequacy in the cost approach

**References**

Fuerst, Franz and Patrick McAllister, "New Evidence on the Green Building Rent and Price Premium" Paper presented at the Annual Meeting of the American Real Estate Society, Monterey, CA, April 3, 2009

Miller, N., Spivey, J., Florance, A. (2008): Does Green Pay Off? University of San Diego Working Paper, final draft version: July 12, 2008

Chappell, Theddi Wright and Chris Corps, "High Performance Green Building: What's it Worth?" May 2009

Miller, Norm G. and Dave Pogue, "Do Green Buildings Make Dollars and Sense?" Draft: November 6, 2009

Kats, Gregory, "The Costs and Financial Benefits of Green Buildings" Report to California's Sustainable Building Task Force

Pogue, Dave, "Green Buildings: Are they Valuable to Tenants?" Presentation for NAIOP March 18, 2010

"2009 Greening of Corporate America" McGraw-Hill Construction

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