

VALUE BEYOND COST SAVINGS

*How to Underwrite
Sustainable Properties*

**Expanded Chapter II:
Sustainable Property Investment
Decisions**

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GREEN BUILDING FINANCE CONSORTIUM
www.greenbuildingfc.com

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ISBN 978-0-9826357-2-8

About Expanded Chapter II

This publication is Expanded Chapter II of the Consortium's book: *Value Beyond Cost Savings: How to Underwrite Sustainable Properties*. *Value Beyond Cost Savings* presents the key findings and conclusions regarding the valuation and underwriting of sustainable properties based upon three years of independent research by the Green Building Finance Consortium.

Chapter II is one of six "Expanded Chapters" from *Value Beyond Cost Savings: How to Underwrite Sustainable Properties* which provide 400 additional pages of in-depth research, analysis, and performance information, all available without charge to the public from the Consortium's website and other locations.

This Expanded Chapter has the same table of contents as the book, enabling readers wishing to delve into more depth on a topic to easily find the appropriate sections in the Expanded Chapters. This book also references many checklists, databases, documents, and resource links in the Expanded Chapters and in the Consortium's web-based Research Library. This Chapter and the book include some color, but the publications are designed to print in black without loss of information.

The Green Building Finance Consortium maintains a searchable Research Library and Industry Links database on its website: <http://www.GreenBuildingFC.com>. The Research Library and Industry Links databases include thousands of documents coded using the GBFC's unique index designed for the sustainable finance and investment industry. The structure of the index is consistent with the organization of *Value Beyond Cost Savings: How to Underwrite Sustainable Properties*. Future sustainable performance and related research updating the book on an ongoing basis will be available in the Research Library.

The mission of the Consortium is to enable private investors to evaluate sustainable property investments from a financial perspective. To accomplish this, we have identified and developed suggested modifications to valuation and underwriting methods and practices and are widely communicating the results of our work through our book, other publications, web-based research library, speeches, and collaborations.

The Consortium is financed independent of green building product or professional organizations, relying on funding from The Muldavin Company, Inc. and Consortium Members which include leading real estate industry trade associations and companies, governments, and non-governmental organizations. Trade association members include BOMA International, the Mortgage Bankers Association, the Urban Land Institute, the Pension Real Estate Association, and the National Association of Realtors.

Acknowledgements

The Green Building Finance Consortium wants to acknowledge the leadership and support of its Consortium Members, Implementation Team, and Advisory Board, who together with the contributions of scores of other individuals and groups have made the Consortium's work possible.

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Collaborators/Other Contributors

We are and have been involved in important collaborative efforts addressing database development, energy research, valuation practice, and many other areas critical to financial assessment of sustainable properties with at least the following organizations:

- **Lawrence Berkeley National Laboratory**—energy and health issues
- **CoreNet Global**—energy issues
- **Royal Institute of Chartered Surveyors**—valuation and policy issues
- **Appraisal Institute**—valuation issues, training
- **National Association of Realtors**—sustainability curriculum
- **North American Commission for Environmental Cooperation**—policy, finance
- **Vancouver Valuation Accord**—valuation and regulatory issues
- **Database for High Performance and Sustainable Buildings**—database design and development
- **Rutgers Green Building Research Center**—REIT valuation research, other
- **International Youth Leadership for a Sustainable Future**—youth education
- **World Business Council for Sustainable Development**—analytics and communications
- **California Energy Commission**—transaction disclosure documents

We also appreciate the scores of other individuals and companies who have provided significant input and assistance in the project through their research and data, review of Consortium work product, and participation in interviews and surveys.

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Scott Muldavin is Executive Director of the Green Building Finance Consortium, a group he founded in 2006, and President of The Muldavin Company, Inc. For over 25 years, Mr. Muldavin has advised leading real estate companies including CalPERS, RREEF, Bank of America, Mitsui Trust and Banking, Great West Life, Prudential Real Estate, Ohio State Teachers Retirement System, Wells Fargo Bank, The Government of Singapore Investment Corporation, Catellus Development Corporation, Equitable Real Estate, and Standard Insurance Company.

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Mr. Muldavin has advised scores of equity investors and developers. As a co-founder of Guggenheim Real Estate, Mr. Muldavin has been involved in capital formation, investment strategy, due diligence and served on the investment committee. He has assisted pension funds including CalPERS, Ohio State Teachers, and Alaska Permanent Fund in their investment and organizational strategies. He has advised investment managers including RREEF, Prudential Real Estate, Amstar, Hunt Realty, and others on strategy, capital formation, organizational change, and due diligence practices.

Mr. Muldavin has been involved in the Real Estate Investment Trust (REIT) market since the early 1980s advising clients including Merrill Lynch, CalPERS, Kilroy Realty and others concerning new REIT securities offerings and investment issues. As an investment committee member of Guggenheim Real Estate, he monitored the REIT market and participated in investment decisions concerning the allocation of hundreds of millions of dollars of REIT investments.

Mr. Muldavin has been involved in mortgage underwriting for over 25 years. He was the lead consultant that developed the first commercial mortgage risk-rating system for Standard & Poor's Corporation in the early 1980's and was a national leader of the Real Estate Financial Institutions practice for Deloitte & Touché, where he worked with financial institutions to improve their underwriting and servicing systems, assess risks in their mortgage portfolios, and estimate loan losses. He also authored the quarterly "Real Estate Finance Update" in *Real Estate Finance*, for 16 years; developed the Real Estate Capital Flows Index, which was published quarterly for many years by the Pension Real Estate Association and Institutional Real Estate Inc.; and authored key articles and reports on mezzanine financing, mortgage servicing, risk management, capital volatility, and other topics.

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Mr. Muldavin has been involved in the structuring and due diligence of real estate property and business transactions for over 25 years. He has completed due diligence engagements involving the acquisition of office buildings, retail properties, hotels, multi-family properties, industrial properties, large land parcels, mortgage portfolios, mortgage companies, commercial banks, real estate service companies and other real estate assets.

As an advisor and Investment Committee member of Guggenheim Real Estate, Mr. Muldavin reviewed hundreds of retail, office, industrial and multi-family investment

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Mr. Muldavin is a frequent speaker on real estate finance, investment, valuation and sustainability. He has authored over 225 articles published in *Real Estate Finance*, RICS Property World, *Bankers Magazine*, *Urban Land*, *European Real Estate Yearbook*, *The Journal of Property Management*, *The Pension Real Estate Quarterly*, *Real Estate Issues*, *The Investment Property and Real Estate Capital Markets Reports*, *Institutional Investor*, *Builder and Developer*, *The Real Estate Accounting and Tax Journal*, and other industry publications.

Mr. Muldavin is a graduate of UC Berkeley and Harvard University, and has been recognized by the American Society of Real Estate Counselors and the Royal Institute of Chartered Surveyors, each of who have awarded him their highest level of professional certification. Mr. Muldavin is also on the Advisory Board of the Journal of Sustainable Real Estate and an Honorary Fellow of the Institute of Green Professionals.

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Topical Index

This topical index is a guide to help locate information on select topics that are covered in multiple locations within the Book and six Expanded Chapters. Select other topics of interest are also identified.

1. Development Costs/Initial Cost Analysis

- Chapter IV, Section E-1: Building Performance, Development (“First” Costs)
- Chapter V, Section C-2c: Sustainability Sub-Financial Analysis, Comparative First Cost Analysis
- Appendix F: Financial Analysis Alternatives: Comparative First Cost Analysis
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2. Green Leases/Split Incentives

- Chapter V, Section C-2c: Sustainability Sub-Financial Analysis, DCF Lease-Based Cost/Benefit Allocation Models
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3. Energy Investment

- Chapter III, Section C-1: Sustainable Property Features
- Chapter III, Section C-2: Sustainable Property Resources
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- Expanded Chapter III, Appendix III-A, Sustainable Property Features List
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- Chapter IV, Section C-4: Process Performance, Energy Use Forecasting
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- Chapter IV, Section E-3: Building Energy Use (Performance)
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- Chapter VI, Section E: Underwriting Energy-Carbon Reduction Investment

4. Health and Productivity Benefits Analysis

- Chapter IV, Section D-2, Performance of Under floor Air Distribution and Daylighting
- Chapter IV, Section E-4: Occupant Performance, Health and Productivity
- Expanded Chapter IV, Appendix IV-C: Studies of Productivity and Health Cited by Industry
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- Chapter IV, Section F: Market Performance, Space User/Investor Surveys and Tenant Demographics and Market Research
- Chapter V, Section C-2c: Sustainability Sub-Financial Analysis; Productivity Benefits Analysis; Health Benefits Analysis
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- Chapter V, Section G-3: The Process for Determining Financial Model Inputs
- Chapter VI, Section F: Underwriting Space User Demand

5. Key Trends in Performance Measurement

- Chapter III, Sections D-2 and D-3

6. Public Benefits of Sustainable Properties

- Expanded Chapter III, Appendix III-D, Measuring Sustainability: Assessment Systems/Tools
- Chapter IV, Section C-5: Process performance, Regulations and Code Compliance
- Chapter V, Section C-2d: Public Sustainability Benefits Analysis
- Appendix F: Financial Analysis Alternatives: Public Sustainability Benefits Analysis
- Chapter V, Appendix G, GBFC Sustainable Cost/Benefit Checklist, Public Benefits
- Chapter V, Section F-3: Assessing the “Net Impact” of Sustainable Costs and Benefits, Public Benefits

7. Risk Analysis and Mitigation

- Much of the book focused on this topic. Key sections include:
- Chapter IV, Section C: Process Performance
- Chapter IV, Section D: Feature Performance
- Chapter V, Section C-2, Financial Analysis Alternatives, Risk Analysis and Presentation
- Chapter V, Section E: Assess Costs/Benefits of Sustainability
- Chapter V, Appendix G: GBFC Sustainable Property Cost/Benefit Checklist
- Chapter V, Section H: Risk Analysis and Presentation
- Chapter VI: Sustainable Property Underwriting Guidelines

8. Service Provider Risks and Underwriting

- Chapter III, Section D: Measuring a Property’s Sustainability, Service Provider Certifications and Assessments
- Expanded Chapter III, Appendix III-D: Measuring a Property’s Sustainability, Service Provider Certifications and Assessments
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- Chapter VI, Section D: Underwriting Service Providers
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9. Space User Demand- Enterprise Value

- See references above to Health and Productivity Benefits Analysis, a component of Space User Demand
- Chapter IV, Section E-4: Occupant Performance
- Chapter V, Section C-2c, Sustainability Sub-Financial Analysis, Enterprise Value Analysis
- Chapter V, Appendix F: Financial Analysis Alternatives, Enterprise Value Analysis
- Chapter V, Appendix G: GBFC Sustainable Property Cost/Benefit Checklist, Space User Demand Analysis
- Chapter VI, Section F: Underwriting Space User Demand
- Chapter VI, Appendix I: Space User Underwriting Checklist

10. Sustainable Features Choices and Analysis

- Chapter III, Section C-1: Sustainable Property Features
- Chapter III, Section C-2: Sustainable Property Resources

- Expanded Chapter III, Appendix III-A: Sustainable Property Features Lists
- Chapter IV, Section D: Feature Performance
- Chapter VI, Section E-4: Sustainable Property Features/Strategies
- Chapter VI, Section E-5: Sustainable Property Features and Building Outcomes
- Chapter VI, Section E-6: Feature/Strategy Based Financial Analysis Tools

11. Three Principles for Applying Sustainable Property Market Performance Research

- Chapter IV, Section F-2: Three Principles for Applying Sustainable Property Market Performance Research

12. Underwriting Differences for Sustainable Property

- Chapter VI, Section C: Key Differences in Sustainable Property Underwriting

13. Valuation Issues for Sustainable Properties

- Chapter V, Section I: Valuing Sustainable Properties

Sustainable Property Investment Decisions

<i>Value Beyond Cost Savings</i>					
Chapter I Introduction	Chapter II Sustainable Property Investment Decisions	Chapter III Evaluating Property Sustainability	Chapter IV Sustainable Property Performance	Chapter V Sustainable Property Financial Analysis	Chapter VI Sustainable Property Underwriting Guidelines

A. Introduction

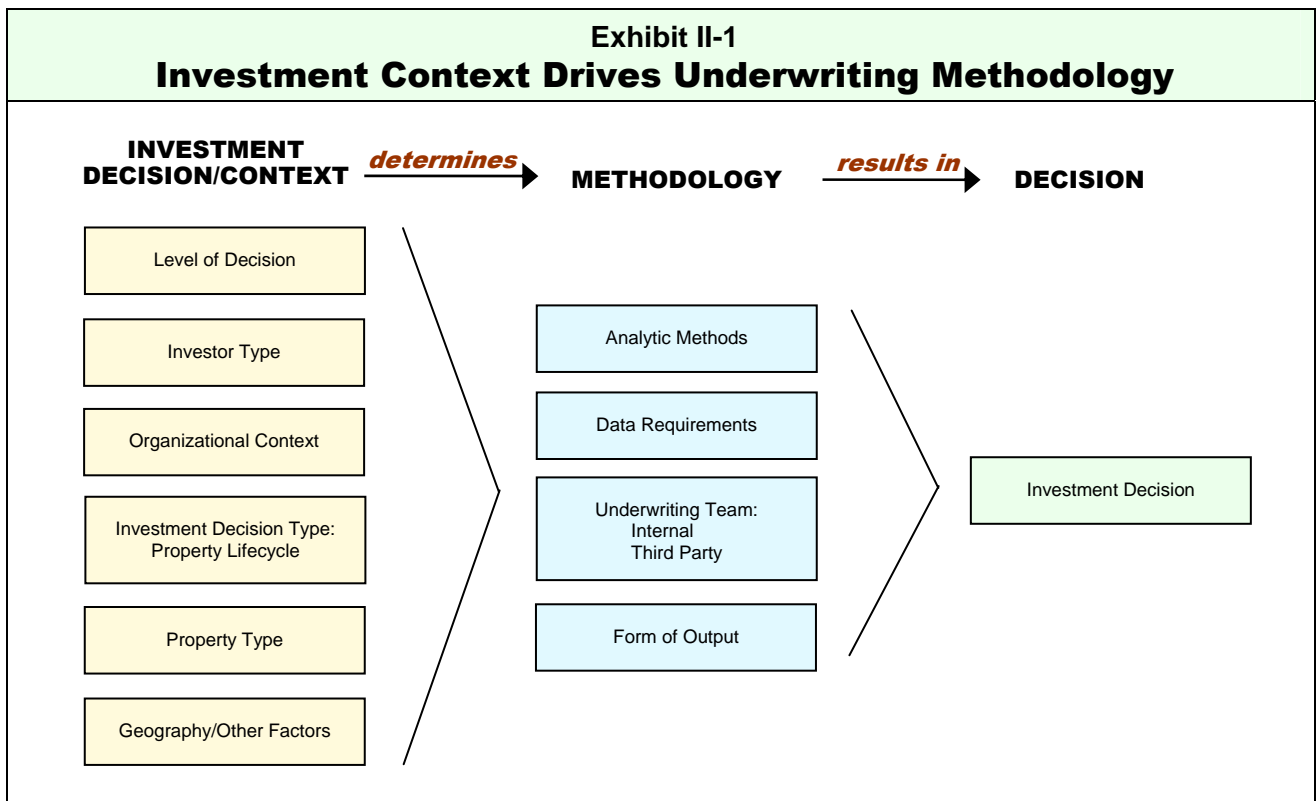
Expanded Chapter II is the second of the six-chapter book *Value Beyond Cost Savings: How to Underwrite Sustainable Properties*. The message of this chapter is straightforward, but necessary, given some confusion in the industry about the proper methods and data inputs for making sustainable property investment decisions. Simply put: the type of decision will determine financial analysis methods and data.

Clear delineation of the decision and investment context is critical to selecting the best analytic methods, determining data requirements, assembling the underwriting team, and preparing effective support for decisions as shown in Exhibit II-1.

For example, the underwriting of a new corporate-owned 50,000 square foot suburban office property in Phoenix will differ dramatically from the underwriting for a retrofit of an existing strip mall in Massachusetts or the tactical decision about the phasing of sustainable retrofits for an existing portfolio of properties. Perhaps easiest to understand, a new project involves construction risk and the risk of not achieving modeled performance; while an existing property involves more detailed assessment of the existing asset performance, lease structures, etc.

For valuation professionals, this chapter highlights the importance of clearly specifying the valuation problem, the definition of value, rights to be valued, purpose and use of work, scope, limiting conditions and characteristics of the property that are relevant to the type of value and intended use.¹

¹ The Appraisal of Real Estate, 12th Edition, Appraisal Institute, 2001; Uniform Standards of Professional Appraisal Practice, Standards Rule 1-2, from website, February 2010.



While clear specification of the investment context seems obvious, the lack of attention to understanding what decision-makers need, and employing appropriate analytic techniques and data, has been a significant barrier to good sustainable property investment decision-making. The errors derive from the direct application of studies or research from one investment context to another. For example, owner-users capture the benefits to their employees directly, whereas from an investor-landlord perspective more careful analysis of the ability to monetize those benefits through rent premiums, tenant retention, etc. must be made. Studies of “LEED” or green buildings that demonstrate some benefit are regularly applied to other “LEED” buildings without consideration of the studied properties’ specific sustainable features.

Thinking explicitly about what will constitute an effective investment package² will also make documentation of the work product easier. Some investment decisions require formal appraisals and due diligence reports, while other decisions can be made based on brief business case white papers and/or oral presentations. Most lenders require formal third-party appraisals and have structured underwriting requirements, while investors and corporations typically have their own customized formats for their real estate decisions.

² Investment package refers to the written or digital product of an underwriting/due diligence process. This could be an underwriting summary and all the supporting loan write-ups and third party reports, closing binders, etc. that would be typical for a mortgage; or a memo, financial schedule and/or PowerPoint presentation typical for many higher level strategic decisions.

As detailed below in Exhibit II-2, the level of decision, type of investor, investment type, property type, and geography will all influence how underwriting and valuation should be conducted for any particular sustainable property investment decision. The underwriter or valuer needs to explicitly think through how their decisions will influence the analytic methods they choose, the data they rely upon, and preparation of their work product.

Exhibit II-2 Sustainable Property Investment Decisions— Analytic Context

<p>Level of Decision</p> <ul style="list-style-type: none"> • Strategic • Tactical • Fiduciary 	<p>Investment Decision*</p> <ul style="list-style-type: none"> • Build New: Core, Shell, Commercial Interior New: Core & Shell Major Renovation Commercial Interior • Buy Sustainable Property Acquisition • Lease Sustainable or Conventional Building Sustainable or Conventional Tenant Improvements • Operate Operations and Maintenance Retro-fit/Substantial Rehabilitation Lease Structure/Tenant Plan • Finance Construction/Bridge Mezzanine Permanent Securitize
<p>Organizational Context</p> <ul style="list-style-type: none"> • Senior Management • Originations/Deal Sourcing • Underwriting/Due Diligence • Closing • Dispositions • Servicing/Asset Management • Portfolio Management • Appraisal Management • Research • Tax and Accounting • Client Relations/Communications 	<p>Property Types</p> <ul style="list-style-type: none"> • Office • Industrial • Retail • Multi-Family • Hospitality • Mixed Use/ Multi-Phase Development • Schools • Healthcare • Land
<p>Investor Type</p> <ul style="list-style-type: none"> • Investor/Landlord • Owner-User • Spec Developers • Tenant • Lender/Rating Agency • Public Sector • Institutional (schools, hospitals, etc.) 	<p>Geography/Other Factors</p>

* The analytic perspective for each of these property life cycle or investment decisions will differ depending on whether the property, upon completion of sustainable improvements, will be sold or retained for use and/or investment.

The rest of this chapter provides additional discussion of each key issue identified in Exhibit II-2 above:

- Decision types and context
- Level of investment decision
- Organizational context
- Investor type
- Investment decision: property life cycle
- Property type
- Geography/other factors

1. Applying the Findings and Conclusions

This chapter has broad applicability to sustainable property investment decision-making. However, the work is primarily directed to specific audiences and decisions in the private commercial real estate market as discussed below.

Target Audiences: The target audiences for this section are space users³, equity investors, lenders, developers, appraisers, and commercial property brokers. Sustainable service providers and groups seeking capital for sustainable property investment will also benefit from this section, as well as students and industry practitioners seeking to understand the financial underpinnings of sustainable property investment.

Commercial Real Estate Properties: The Consortium focuses on commercial and multifamily properties. While many of the frameworks and methodologies will have some applicability to the single-family market, single-family property issues are not addressed in detail. Select single-family resources are also available on the Consortium’s Research Library and Industry Links under code 19.2.

Geographic Applicability: Individuals and organizations throughout the world influence The Consortium’s work. Additionally, the Consortium’s focus on fundamental methods and practices make its work particularly transferable across national boundaries. However, this section has a North American bias given the author’s background and experience.

Property Specific Investment Decisions: This chapter focuses on performance assessment and valuation of an individual property.

Property Life Cycle: This chapter is applicable, in varying degrees, to sustainable property investment decisions involving new buildings, existing buildings, and tenant improvements.

Private Investment Decisions: The Consortium focuses on the underwriting of private investment decisions. However, understanding the types and magnitude of public benefits generated by a specific sustainable property investment is important to a private investor

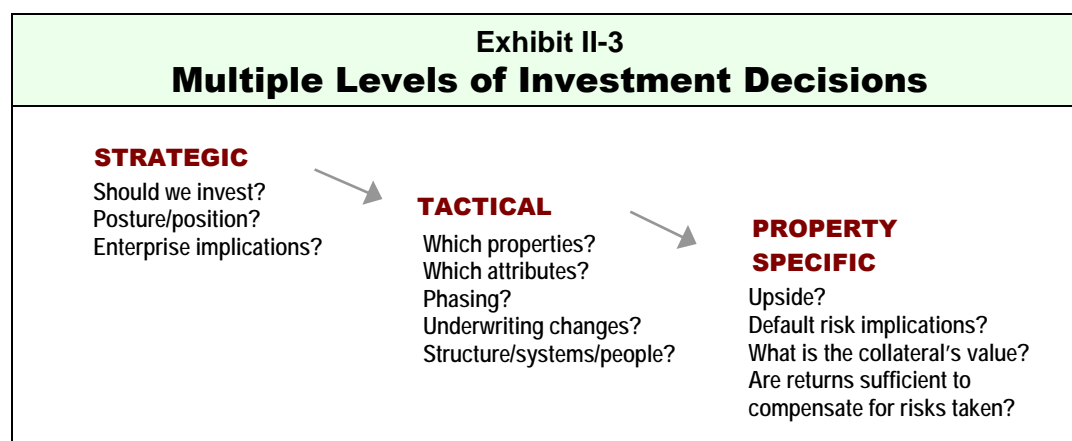
³ “Space user” is a term we use to describe the occupants or users of real estate. It is a term that includes corporate and non-corporate owner-occupants, tenants, retail customers or other non-owner or tenant users of space.

because of the potential to monetize public benefits by extracting the value they create for governments and tenants-investors.

Sustainable properties can have substantial social and environmental (public) value, and it is important to quantify and understand such benefits. Methodologically, public and private benefits should be assessed separately, and particularly from the perspective of valuation, it is critical to separate the concept of public and private value when evaluating a sustainable investment decision from a private sector perspective. This does not mean that public values and benefits cannot be considered by the private sector when making investment decisions, but only that such decisions should be made with a clear understanding of the differences between private and public values.

B. Level of Investment Decision

The level of decision—strategic, tactical or property specific—is critical to proper underwriting, as shown in Exhibit II-3.



1. Strategic Decisions

Strategic decisions are those made by pension or corporate boards or other organization leaders that are responsible for setting policy and allocating resources. These types of strategic enterprise-level decisions can be made based on more general business case assessment of costs and benefits, with a key focus on risk.

Much of the “financial” analysis of green buildings to date has focused on summarizing costs and benefits, almost on a generic basis, for the purpose of getting organizations to move forward with property level sustainability. These studies have largely been successful, and the basic strategic question of whether pension funds, corporations and other investors should be taking an active role in thinking about the influence of sustainability on their assets has been asked and answered, affirmatively. Unfortunately, conclusions and methodologies from industry-wide studies are often hard to apply at a tactical or property level.

Similarly, as discussed in detail in the Consortium’s report “Quantifying Green Value: Assessing the Applicability of the CoStar Studies,” (<http://www.greenbuildingfc.com/Home/Reports.aspx>) statistics/modeling-based financial analyses can be useful in supporting strategic level decisions linking sustainability to building value, but such analytic techniques and studies are much less useful in the financial analysis or valuation of a specific property. The key sustainable property market performance evidence from statistics/modeling-based financial analyses, and guidance on interpreting and applying such evidence, is presented in Expanded Chapter IV: “Sustainable Property Performance,” section F: “Market Performance.”

While most institutional owners and larger corporations have made the strategic decision to investigate the importance of sustainability in their leasing and ownership decisions, many smaller owners and tenants, including many multi-family property owners, have not crossed this strategic threshold. With 74% of the 4.7 million commercial structures in the US less than 10,000 square feet, this represents a significant societal and real estate industry challenge to effectively understand and assist these smaller owners and tenants.⁴

Even within larger institutional owners and tenants, a chasm has developed between the higher-level sustainability goals often promoted, and the level of sustainability sought at the ground level. Most owners/tenants that are moving forward are initiating operations and maintenance changes, and other actions to achieve 10-30% energy efficiency and other marginal improvements.

In many cases, incremental phasing of improvements is logical and prudent, but to achieve broader, more aggressive action by owners/tenants, many actions will need to be taken. (See excellent list of recommended actions produced by the World Business Council for Sustainable Development in their Fall 2009 report: “Energy Efficiency in Buildings: Transforming the Market”:

<http://www.greenbuildingfc.com/Home/DocumentDetails.aspx?id=1372>

Value Beyond Cost Savings: How to Underwrite Sustainable Properties is designed to assist property decision-makers in maximizing their profitable investment in sustainability. Limiting investment to that justified by reduced costs will result in both societally insufficient energy savings and reduced building profits.

2. Tactical Decisions

The second major types of decisions are tactical decisions. Once a board of directors or other senior management has determined that they need to look more aggressively into sustainable real estate issues, directors of corporate real estate, portfolio managers, leasing specialists and other management personnel must address tactical level decisions such as those identified in Exhibit II-4.

⁴ Non-Residential Buildings Energy Consumption Survey (CBECS), Energy Information Agency, 1999.

Exhibit II-4 Sustainable Property Investment Process			
Decision Type	Question Addressed	Type of Analysis	Distinctive Characteristics
Strategic (Enterprise Level)	Should we invest in sustainable buildings?	Business Case	<ul style="list-style-type: none"> • Link to enterprise sustainability goals • Generic versus property specific • Presentation of alternative implementation strategies • Full presentation of costs and benefits • Well-grounded basis for value and risk benefits
Tactical (Business Unit Level)	Where should we focus our investment?	Portfolio Analysis	<ul style="list-style-type: none"> • Existing portfolio sustainability assessment or audit • Future acquisitions, new development or leasing • Implications for organizational structure, systems and personnel
Tactical (Property Level)	Where should we focus our investment?	Business Case	<ul style="list-style-type: none"> • Preliminary financial, design and cost estimates • Preliminary cost-benefit analysis • Well-grounded basis for value and risk benefits • Alternatives presented and compared
	What design and set of sustainability investments is best?	Business Case and Cost/Benefit Analysis	<ul style="list-style-type: none"> • Final design and cost estimates • Final building performance forecasting models • Well-grounded basis for value and risk benefits • Alternatives presented and compared
Fiduciary (Property Level)	Are the benefits (returns) sufficient to compensate for the risks taken?	Underwriting	<ul style="list-style-type: none"> • Full presentation of costs and benefits • Risk and relative return focus • Independent testing of value assumptions
	What is the value of the property? What is the incremental value of the sustainability investments?	Valuation	<ul style="list-style-type: none"> • Independent testing of value assumptions • Consideration of future costs and benefits • Assessment of the market's "valuation" of sustainability investments.

Tactical questions to address include the sustainable status of current assets, measurement of sustainability going forward, how fast you move, the level of energy efficiency or sustainability that should be sought, property type emphasis, and the phasing of the implementation. Many tactical organizational questions must also be addressed. What changes to underwriting, acquisition, performance measurement, property management and other structural, system and personnel changes are necessary? The specific type of information and analytic processes required to make such decisions will depend on the specific decisions being made.

3. Property-Specific Decisions

Property specific investment decisions require different types of analytic data than either tactical or strategic decisions. Very clear specification of property type, investment type, and geography are key. Chapter V presents a six-step process for property specific financial analysis for sustainable properties.

One way to think about the role of property specific underwriting and valuation is that it is the process of testing the applicability of general cost-benefit conclusions for a specific property. For example, health and productivity benefits have been found to exist

“generally” for sustainable properties. To test the applicability of general conclusions for a specific property, underwriters will have to carefully screen existing research, analyze the importance of such benefits to likely occupants, and assess whether the property’s sustainability features are likely to deliver the benefits identified from “general” research.

C. Organizational Context

The dynamic nature of the sustainability movement (changing products, tenant preferences, technologies, and regulatory environment) suggest that decision-making in this arena should be based on a long-term outlook, with built in flexibility. While a thoughtful longer term strategy will reap rewards and avoid potential problems from moving too quickly, the speed of change and substantial benefits that can be obtained through a phased transition to sustainability suggest a complementary shorter-term strategy also be developed.

Select issues and responses for investors to consider are outlined below:

Senior Management: Senior management should begin their education and debate on the importance and durability of sustainability to real estate investment generally, and to their organizations specifically. Depending on the outcome of these deliberations, resources should be allocated, plans should be developed, and monitoring mechanisms established. Evaluating potential synergies between business units will be particularly critical.

For investors, one of the most important initial questions to address is whether sustainable real estate investment is just a new specialty sector in which case the focus might be on creating or investing in a “green” equity fund or property, or is it a broader market transition that requires a response for all new and existing properties in the portfolio? What should the objectives be for sustainable real estate investment? What vehicles or structures make the most sense? What property types and regions should be emphasized? How quickly should an organization move forward? These are just a few of the considerations for senior managers.

Asset/Facility Management: Asset managers will be responsible for tactical decisions and execution of changes to existing portfolios. Senior executives must work with their asset managers to develop the best plan for evaluating the existing portfolio to determine the potential costs and benefits of management and operations changes or retrofitting.

Importantly, the implementation of any sustainable investment strategy across the portfolio will likely be phased based upon the level of financial and staff investment required and the time necessary to implement the changes. As a first step, many asset managers are focusing their efforts on energy benchmarking using the EnergyStar Portfolio Manager or sustainability benchmarking using a Sustainability Scorecard or other related approach. Partially as a result of the need to conserve capital for tenant improvements and leasing commissions, and financing challenges, most asset managers

have been focusing on operations and maintenance related changes where substantial benefits can be achieved at low cost.

Acquisitions and Development: The relatively small size of the sustainable building market to date prevents a move to a “sustainable buildings only” acquisition program for most investors. However, all new acquisitions of existing buildings need to consider sustainability issues. Acquiring a non-sustainable property is not a problem if it is economically feasible to cure any potential sustainable obsolescence. Accordingly, new acquisitions need to be evaluated relative to their current sustainable performance, and cost to increase performance to levels required by tenants, regulators and investors today, and anticipated in the future.

New developments should be built to be sustainable unless strong arguments are made against such investment given relatively low cost differentials between sustainable and conventional projects. Given strong movement by regulators at all levels, land that is not served by adequate levels of public transit should be carefully evaluated prior to any acquisition.

Research: Research will have a key role in generating the information and content necessary to educate decision-makers and in assisting them in incorporating sustainability issues into their existing due diligence and valuation procedures. Internal property information systems may have to be adapted to “mark” sustainable properties within the portfolio to enable targeted analytic work in the future.

One particularly rich area of potential advantage for investors is to incorporate a geographic based analysis of sustainability into their decision-making. Key geographic markets vary significantly based on the sophistication of tenants relative to sustainability in that market, the cost and availability of service providers and contractors, access to materials, and other issues that will be important determinants of the future success of sustainable properties.

Communications: Boards, clients, operating partners, employees, and major tenants all need to be consulted, educated, and/or informed on the issues of sustainability. These educational efforts should be phased over time in a way that both provides your organization the input it needs to respond effectively, and communicates in a consistent manner the broader message of your organization’s position and response to sustainability.

D. Investor Type

The specific decision criteria and key underwriting issues vary by type of investor as shown below in Exhibits II-5 and in more detail at the end of the chapter in Appendix II-A. For example, if an equity investor takes more sustainable property risk, and is successful, they can achieve superior returns. If a lender takes more risk, and is successful, they typically just get the mortgage payment. Corporations are driven by their strategic objectives, internal rate of return hurdles, risk management, or cost containment policies.

Developers are most concerned about their short holding periods and getting paid for investments they make when they sell completed projects.

Within the investor, lender, corporate and development markets there is substantial further segmentation of investment goals and objectives. There are dozens of different types of equity investors including low risk, and low return, “core” investors and high-risk, and high return, “opportunistic” investors. Lenders are also highly differentiated by property type and risk. Land acquisition and construction lenders take the most risk, while permanent lenders with loans on well-leased existing buildings are most risk-averse. While the debt and equity markets have simplified, and tightened substantially since 2008, it is critically important to understand the goals, objectives, and underwriting and valuation criteria of capital sources before seeking capital.

The type of investor is also important to the content and form of the output. Mortgage underwriters typically have specific requirements that must be addressed. Good mortgage brokers will be skilled at understanding lender requirements. Consistently available cash flow to pay debt service is particularly key for permanent debt providers. Construction lenders are most concerned about having a good permanent take-out lender with reasonable conditions for the take-out.

Owner-users and tenants have historically been cost driven, with three-year or shorter simple-paybacks (sum of operating expense reductions exceed investment cost within three years) required for sustainability investment. Recognition by owner occupants and tenants of sustainable real estate’s contribution to enterprise value (recruiting, productivity, social license to operate⁵, etc.) has accelerated during the last twelve months; and underwriting of real estate decisions must evolve to incorporate these arguments and facts.

The overview provided in the chart below is particularly helpful for sponsors or promoters of sustainable projects who need to understand explicitly what drives investment decisions for different investors. For example, while many corporations have not invested in energy efficiency at the levels that might seem intuitive given the ability to directly lower energy costs and produce positive net value, the decisions are easier to understand if you recognize that corporate return on investment hurdles are often 20% or more, and they are particularly concerned about anything, even energy efficiency investment, that would distract them from their primary business objectives.

⁵ Successful companies effectively maintain a social license to operate. For example, when their customers view companies negatively, or worse as unethical or criminal, a company can lose its social license to operate and go out of business.

Exhibit II-5 Key Perspectives by Investor Type	
Investor Type	Key Investment Perspectives
Investor/Landlord	<ul style="list-style-type: none"> • If they take risks, they have the potential for substantial rewards. • Often longer-term perspective • What will tenants pay for? • Phasing of implementation—new vs. existing, which properties?
Space User	<ul style="list-style-type: none"> • If they take risks, they have the potential for substantial rewards. • Often longer-term perspective • Contribution to enterprise value—social license to operate • Potential health and productivity benefits
Spec Developer	<ul style="list-style-type: none"> • Exit/take-out risk • Initial costs-potential for project delays • Monetization of sustainable value in sales price • Impact on absorption rate • Government incentives
Tenant	<ul style="list-style-type: none"> • Contribution to enterprise value—social license to operate • Potential health and productivity benefits • Lease length—time to recoup value • Reduced occupancy costs (especially NNN costs)
Lender	<ul style="list-style-type: none"> • If risk taken, they lose if there are problems and do not share in rewards if successful • Mitigation of risk focus • Reliance on third party appraisers/other service providers

Understanding the varying investment objectives of investors/lenders is also important to preparing an effective investment package. Real estate equity and debt investors cover a full spectrum of return requirements as shown below in Exhibit II-6.

Exhibit II-6 Investment Capital Marches to Different Tunes		
Type of Investor	Type of Investment	Investment Objective
Investor/Landlords Pension Funds REITs Private Investors TIC/1031 Exchange Hedge Funds International	Core Investment	Lower returns, lower risk, low leverage, existing assets.
	Core Plus Investments	Like Core Investment, with some additional risk, higher expected return, typically existing assets.
	Value-Added Investments	Higher risk and return expectation, substantial rehabilitation or capital investment, returns well above Core.
	Opportunistic	Emerging markets, development of new properties, high leverage, high risk/high return goals.
	Socially Responsible Investment & Real Estate Equity Funds	Targeting sustainable properties, products and projects
Lenders (Debt)	Permanent Mortgages	Lowest risk mortgage loan; existing, stabilized properties in established markets; lender does not participate in income or value growth
	Mezzanine Financings	Various programs—higher risk requires higher interest rate; may participate in cash flows, may be convertible to equity
	Construction Mortgages	Higher risk requires higher interest rate; typically no participation in income or value growth

The complexity and segmentation of the capital markets is further highlighted by the multiple levels of underwriting that have historically been applied in the Commercial Mortgage-Backed Securities (CMBS) market, as shown below in Exhibit II-7.⁶ Accordingly, for the CMBS market to fully accommodate sustainable properties, many entities must agree on how the practices should change, and coordinate the implementation of those changes. While the structure of the CMBS market is evolving, it is likely that multiple layers of checks and balances will continue as part of the underwriting process.

Exhibit II-7 CMBS Underwriting and Closing Process: Multiple Levels of Review			
Time*	Underwriting/ Data Collection	Re-Underwriting/ Due Diligence	Independent Third Parties
Month 1	Loan Originator		
Months 1-2 "Loan Application"	Correspondent**	Originator due diligence** Originator closing department	Appraiser** Environmental engineer** Property condition engineer** Loan closing counsel
Months 2-12 "Commitment Letter"			
"Loan Closing"		Originator loan monitoring "B" piece underwriting** Rating agency underwriting** Investor "A: certificate underwriting	Interim servicer Accounting firm "comfort" letter Securities counsel
Month 12-15+ "Securitization Closing"			

*Times indicated are general estimates; process time varies significantly based on the circumstances of each loan.

**Site visit; B-piece buyers and rating agencies visit select sites.

The CMBS underwriting and closing process historically has involved at least seven different levels of underwriting or due diligence review. The conduit loan originator, a person with a dual marketing and underwriting responsibility, conducts an initial level of underwriting and data collection. Next the mortgage correspondent, who is typically a commercial mortgage broker from the local region, collects their data and begins their underwriting and review of a property. Next the conduit originator completes their due diligence of the information and analysis prepared by the local mortgage correspondent.

Unlike a mortgage that will be kept in a lender’s portfolio, a conduit loan that would be securitized undergoes another underwriting by the “B” piece buyers, the investors in the most risky portion of a commercial mortgage-backed security. This “re-underwriting” is critical to the “B” piece buyer who takes the first loss from a commercial mortgage-backed security. Also, prior to closing, rating agencies do their underwriting, as well as, the investors in the highest quality “A” certificates. Finally, as part of this underwriting

⁶ Underwriting practices in the CMBS industry are undergoing changes as a result of credit problems in the residential markets that have put a spotlight on all mortgage underwriting.

process there is additional independent third party review by appraisers, environmental engineers, property condition engineers, lawyers and others.

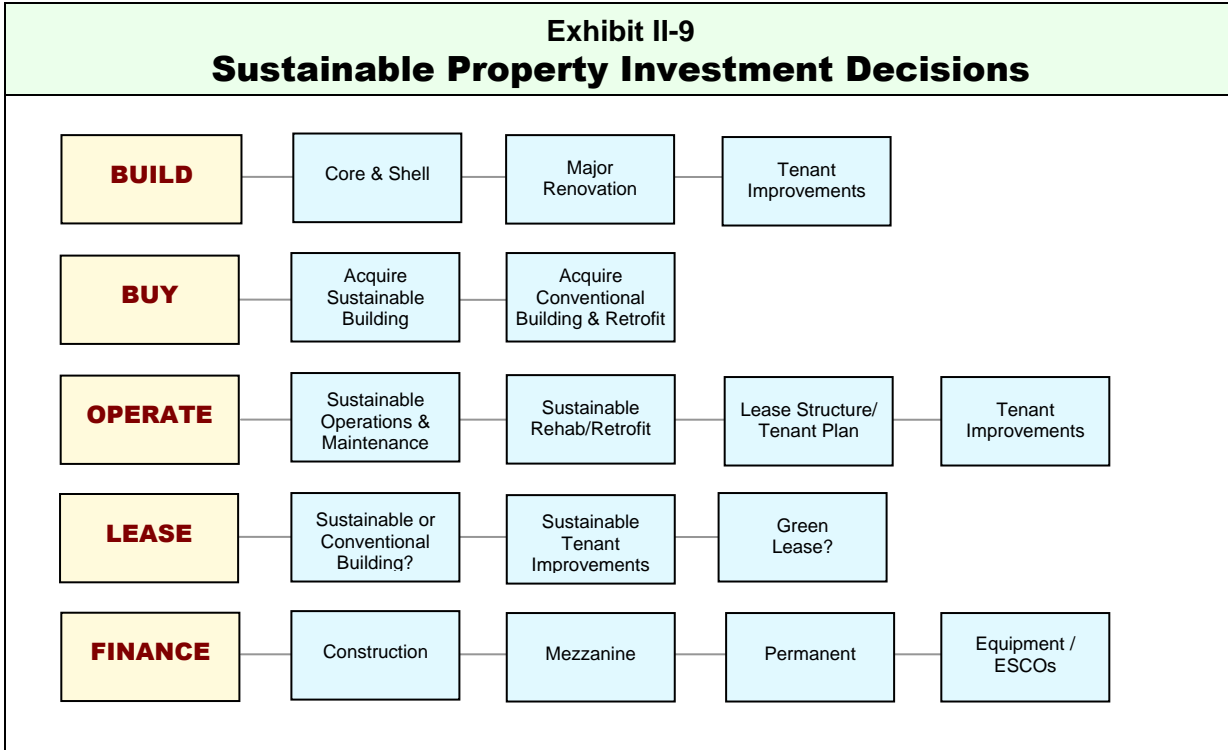
Further, as shown below in Exhibit II-8, different investor’s decision to invest in sustainable properties will result in widely varying responses.

Exhibit II-8	
Sustainable Property Investment Process: Key Decision Makers	
<i>Decision Type: Strategic</i>	
<i>Question Addressed: Should We Invest in Sustainable Properties?</i>	
Decision Makers	Response
Corporate C-suite (CEO, COO, CFO, CIO)	<ul style="list-style-type: none"> • If yes—move to tactical questions...
Investors	<ul style="list-style-type: none"> • Green equity fund • Guide investment managers • Adopt acquisition guidelines and investment criteria
Lenders	<ul style="list-style-type: none"> • Set lending targets (dollar values, yields, etc.) • Adopt underwriting guidelines • Address systems and people issues
Developers/Promoters	<ul style="list-style-type: none"> • Add expertise to development team • Seek new capital sources • Seek new service providers • Seek new development opportunities
Government	<ul style="list-style-type: none"> • If yes—move to tactical questions... • Adopt real estate and/or capital project policies and procedures
Institutional	<ul style="list-style-type: none"> • If yes—move to tactical questions... • Adopt real estate and/or capital project policies and procedures

E. Investment Type

The focus of the sustainable property investment market historically has been on new development. With the dramatic shift in the investor and owner market relative to sustainability during recent years, the construction slow-down, and the enhancement and maturity of existing building rating systems (e.g. LEED, and LEED Commercial Interiors, etc.), sustainable property investment decisions now span the breadth of real estate decisions, as shown below in Exhibit II-9.

The particular analytic models, data requirements, and sustainable certifications vary dramatically depending on the specific type of investment decision being made. Importantly, the menu of sustainable features and sustainable certifications will vary significantly based on the specific decision being made and certification sought. Care should also be taken in evaluating sustainable property research and data that the state of property life cycle is clearly specified in order to assess its applicability.



F. Property Type

In the real estate investment field, much of the underwriting, modeling, and data collection is driven by property type. Sustainability is not a property type, but rather a combination of sustainable features that may or may not be present on any property. Traditional issues will still determine the vast majority of underwriting risks and value considerations. For example, the valuation or underwriting of an office building will be still be driven by the fundamental factors that affect the financial performance of office buildings like location, access, construction quality, supply and demand factors, quality of existing tenants and leases, etc. with sustainability factors an incremental consideration.

The real estate sustainability sector has had a bumpy start relative to an understanding of the importance of property type to underwriting and valuation, as well as certification. LEED and other certification systems have insufficiently considered property type differences, resulting in difficult implementation issues and related problems. Most resources and information were focused on large office buildings. Today, while the focus is still on office buildings, leading property-specific trade associations and other organizations have improved the quality of information and rating systems by property type.

From an analytic perspective, and when interpreting data from past sustainable projects, it is critical to make proper adjustments to the financial analysis and data collection to reflect specific property characteristics.

G. Geography/Other Factors

Geography—property location—has many important implications when underwriting sustainability. Government regulations and incentives will vary dramatically by country, state/province, and municipality. Tenant, consumer, and employee sensitivity to sustainability issues also vary dramatically by region, significantly influencing perceived benefits to space users. Climate, energy sources, energy prices, water availability, transportation congestion, material availability, contractor capacity, bidding climate, and many other factors also vary regionally and must be factored into underwriting/due diligence analyses.

In what may be a harbinger of the future, Hermes Real Estate and the UCL Environment Institute completed research on the geographic and property type implications of climate change in the United Kingdom:

<http://www.greenbuildingfc.com/Home/DocumentDetails.aspx?id=1075>

This report concludes that cities in the south will be significantly negatively impacted, while cities in the north will not suffer significant direct problems. While this type of analysis is a bit beyond the geographic considerations of sustainable properties, it does provide a broader understanding of how sustainability-related issues will affect real estate.

H. Conclusions

Explicit attention to the type of decision and investment context is key to effective underwriting and valuation. Clear understanding of these issues can also serve as an excellent starting point for organizations transforming themselves so as to integrate sustainability into their real estate operations.



Appendix II-A

Underwriting Perspective by Investor Type

Investor Type	Key Decision Criteria	Key Underwriting Issues
Investor/ Landlord	<ul style="list-style-type: none"> • Internal rate of return (DCF model) is key decision metric • Properly rewarded for risks taken if property performs above projections • Formal appraisal not required for decision-more important for higher leverage projects • Capital preservation-risk avoidance • Ability to implement change-phasing of improvements 	<ul style="list-style-type: none"> • Measurement of ability to monetize increased tenant demand and public benefits • Potential for loss of value due to functional obsolescence over holding periods which range from 3-10+ years • Risk and compliance analysis • Role of performance contracting; lease structure, other mechanisms to effectively allocate cost-benefit allocation between owner-tenant • Highly variable tax emphasis based on type of investor
Owner/User	<ul style="list-style-type: none"> • Corporate return on equity, not property return on investment, is often hurdle rate for sustainable investment • Effect on primary business: not in sustainability/energy efficiency business • Not driven by formal appraisal • Reputation leadership; enterprise or business value, social license to operate. • Employee productivity, health & satisfaction • Lease or buy? • Accounting treatment of value on balance sheet - cost vs. market 	<ul style="list-style-type: none"> • Incorporate property contributions to enterprise/business unit value into decisions • Recruiting <ul style="list-style-type: none"> Employee retention Productivity Health Etc. • Format/content of presentation key • Role of performance contracting • Capital vs. operating budget considerations
Spec Developer	<ul style="list-style-type: none"> • Internal rate of return (DCF model) is key metric • Decisions not driven by formal appraisal-but must satisfy construction lender • Value recognized by take-out buyer • Factors influencing development timing: positive (expedited permitting, faster absorption, etc.) and negative (product delays, contractor access and experience, etc.) • Construction/development risk mitigation (ability to satisfy construction lender) • Cost/ease of sustainable certification process 	<ul style="list-style-type: none"> • Short holding period: ability to capture value of sustainable features at exit - preliminary measures/indicators of tenant-buyer demand. • Regulator/community support • Quality of real estate - ability to finance - independent of sustainable certification/features. • Development process risk mitigation • Avoiding poorly executed "value" engineering of sustainable features • Supporting projections and forecasts of stabilized performance
Tenant	<ul style="list-style-type: none"> • Marginal cost-time to implement • Employee productivity, health & satisfaction • Liability risk management • Corporate return on equity, not return on 	<ul style="list-style-type: none"> • Factors influencing tenant key decision criteria vary by: <ul style="list-style-type: none"> Tenant type Size Region

Appendix II-A Underwriting Perspective by Investor Type

Investor Type	Key Decision Criteria	Key Underwriting Issues
	<p>investment, is often hurdle rate for sustainable investment</p> <ul style="list-style-type: none"> • Primary business paramount - not in sustainability/energy efficiency business • Not driven by formal appraisal 	<p>Property Sub-market conditions</p> <ul style="list-style-type: none"> • Incorporate property contributions to enterprise/business unit value into decisions <ul style="list-style-type: none"> Recruiting Employee retention Productivity Health Etc. • Capable service providers • Format/content of presentation key • Measure and mitigate potential impacts of implementation on primary business objectives • Lease or buy • Role of performance contracting
Lender	<ul style="list-style-type: none"> • Quality/track record of borrower/contractors • Debt service coverage ratio • Loan to value ratio: formal appraisal required • Default risk: downside focus - limited upside for risk-taking like equity investor • Take-out/exit risk mitigation • Compliance: property condition, environmental, title, legal documentation, insurance, and zoning. 	<ul style="list-style-type: none"> • Borrower operator, management and service provider experience is key • Loss severity: quality and value of collateral • Integrating unique risk of sustainable properties - costs and benefits - into decision • Potential new third party reviewers - energy consultants, LEED consultants, etc. • Underwriting modifications needed across: <ul style="list-style-type: none"> Origination Appraisal Management Closing Servicing Etc. • Construction/take-out risk assessment



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ISBN 978-0-9826357-2-8