Morgan Stanley

INSTITUTE FOR SUSTAINABLE INVESTING

Bricks, Mortar and Carbon

How Sustainable Buildings Drive Real Estate Value

Morgan Stanley, through its Real Estate Investing (MSREI) business, is an active property investor on behalf of a diverse client base, including governments, institutions, corporations and individuals. When making real estate investments, the MSREI team has seen an emerging global trend toward building efficiency and performance optimization that is driving value for real estate investors. **Overall, the real estate investment team estimates that a typical office building that integrates sustainable practices could help reduce building expenses by 3 to 30 percent,[1] creating $3.5 billion to $34.9 billion[2] of asset value in the top 10 U.S. markets in the process.**

In this Morgan Stanley Institute for Sustainable Investing issue brief, we seek to provide information and guidance for investors on the opportunities to potentially increase returns through embedding sustainability in real estate management, through the lens of office building investments. Based on existing green retrofit technology, MSREI conducted an analysis that highlights opportunities for reducing building management expenses in the top 10 U.S. markets. Through reduced utility costs alone, **MSREI investment managers estimate that applying existing technology could generate annual savings in office buildings ranging from $32 million in Philadelphia to $239 million in New York City, thus creating $489 million and $4.8 billion of asset value, respectively.** In our view, this potential opportunity is being driven by three key sustainability trends we analyze — new standards and policies, technology innovation and changing stakeholder expectations — and how they impact 10 important real estate return factors. For example, our analysis shows that building efficiency technologies are linked to a positive impact on energy expense, water expense and financing cost.

We aim to enable investors to apply this lens to their real estate investments and quantify potential cost savings from implementing sustainable building management across a diverse range of return factors. In our view, investors can potentially reap financial benefits across key areas including revenue, financing costs, operating expenses, capital expenses and property appreciation.

As cities around the world continue to expand, we believe that sustainability is a new frontier of available opportunities for potentially improved investor return in office buildings (and other property types) within major markets.

Introduction

In our view, pressure is growing from regulators, tenants, investors, nongovernmental organizations (NGOs) and others for the real estate sector to adopt efficiency best practices that promote sustainability and reduce greenhouse gas (GHG) emissions, while adding value.

Globally, buildings consume roughly 40 percent of energy and 25 percent of water.[3] The built environment is a major source of the GHGs fueling climate change — responsible for nearly 33 percent of global emissions.[4] We believe the real estate sector has the potential to contribute significantly to global and national GHG reduction targets. With water an increasingly scarce commodity in some parts of the world, efficient water management is also a growing trend.

Looking ahead, we believe pressures for sustainable real estate management will likely intensify as the global population rapidly expands to a predicted 9.7 billion people by 2050.[5] As cities expand in turn, our analysis indicates that global availability of natural resources will face increasing constraints, driving policymakers and real estate markets to adapt. Some major cities are already preparing for this eventuality. For example, PlaNYC, New York City's comprehensive plan for sustainable growth through 2030, contains many initiatives that focus on sustainable buildings and energy efficiency.[6] These include strengthened construction codes and a new energy conservation code to improve building performance.[7] In addition, the city government's "Greener, Greater Buildings Plan" (GGBP) targets energy efficiency in buildings larger than 50,000 square feet and mandates annual benchmarking of energy and water consumption, an energy audit at least every 10 years and upgraded, energy efficient lighting by 2025.[8]

Sustainability Drivers of Optimized Building Management

Given these trends and pressures, we believe the real estate sector increasingly faces both challenges and opportunities for sustainability-led innovation. In our view, there exists an opportunity for investors to get ahead of the curve, and potentially increase their return, by integrating sustainability factors into the evaluation of real estate investments.

Through our analysis, we have identified three key sustainability drivers that are already affecting the real estate sector and improving the ways in which resources — such as building materials, water and energy — are consumed. These emerging drivers are:

- **New standards and policy**, which are encouraging or requiring buildings to improve resource efficiency.
- Innovation in **building technology**, which is increasing the sustainability performance gap between buildings.
- Shifts in **stakeholder expectations**, which are prompting buildings to provide new sustainability capabilities in order to attract and retain tenants.

In the next section, we describe how these drivers can impact 10 real estate return factors, providing potential opportunity both for sustainable building management worldwide and improved investor return.

The Opportunity

MSREI's areas of focus in managing clients' real estate portfolios include reducing energy, water and waste costs, as well as improving indoor air quality and overall tenant comfort. MSREI investment managers consider this to be building performance optimization or, put more simply, good property management. Enhancing building efficiency is a complex task that involves multiple stakeholders, including landlords, tenants, property managers, leasing agents, municipalities, utility companies, communities and others. It is further complicated by structural challenges embedded in leases, tax rules, utility regulations and space constraints just to name a few. So why spend the time to address this complexity?

The reason is a potential opportunity to create value through sustainable building investment, which justifies the time and cost of implementing these strategies. Based on data from CBRE (a leading commercial real estate services and investment firm) and from the Building Owners and Managers Association (BOMA), MSREI managers estimate that landlords across the top 10 office markets in the U.S. spend nearly $7.4 billion[9] on

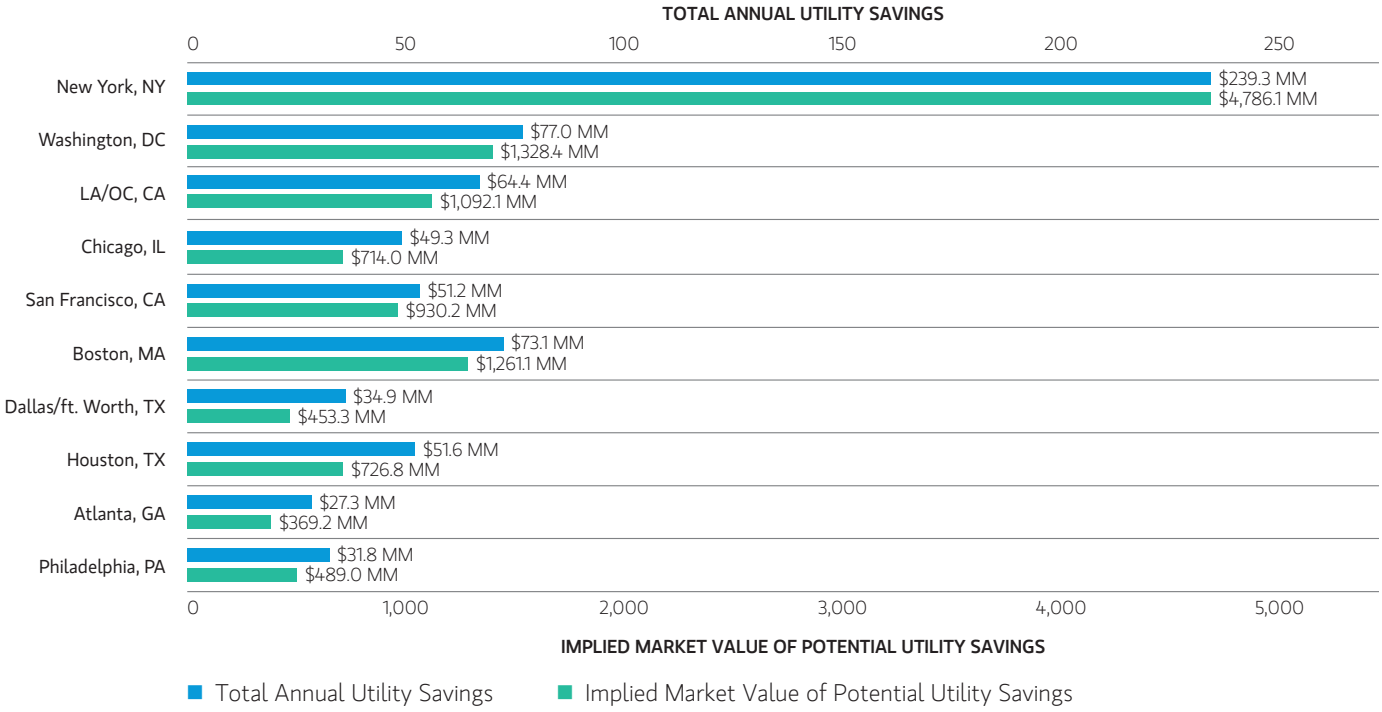
utilities each year.[10] At prevailing market capitalization rates,[11] landlords in these markets have a liability of more than $128.4 billion[12] embedded in their property operations.

As we'll discuss later in this paper, the MSREI team believes that a typical office building could reduce these expenses by between 3 and 30 percent.[13] In aggregate—when applied to the top 10 office markets in the U.S.—this has the potential to create $3.5 billion to $34.9 billion[14] of asset value in the office building market in the process. Other forms of real estate, such as retail, residential, warehouse, hotel and self-storage, provide additional opportunities to scale. While the impact on valuation of a reduction in utility usage may be diluted by lease structures, particularly where tenants pay their own utilities, thoughtful landlords are developing solutions for these challenges. When viewed across a broad real estate portfolio, we believe the opportunity to invest in sustainability projects can add meaningfully to investment returns.

In fact, our analysis at the Institute shows that the three main real estate sustainability drivers identified above are affecting investor returns today, and that sustainability integration in real estate can have an influence on a wide range of investor metrics. One recent study found that a 1 percent improvement in a real estate investment trust's (REIT) Global Real Estate Sustainability Benchmark (GRESB) score was associated with a 3.4 percent increase in return on equity.[15] Another study found that as the amount of Leadership in Energy and Environmental Design (LEED) certified properties in the portfolio increases by 1 percent, the market beta of REITs decreases by 0.14.[16] With growing pressure on natural resources, these trends are likely to be amplified in the future.

To further illustrate the potential return on sustainable building management, the MSREI team estimated potential utility savings across the top 10 U.S. office real estate markets by implementing existing green retrofit technology. The bar chart below shows the potential savings, capturing the value of a 10 percent reduction in utility expenses based on sustainability integration in real estate asset management. The assessment includes average utility expense[17] and total square feet,[18] and demonstrates the significant market opportunity for landlords from New York ($239 million in savings creating $4.8 billion of value at an average NYC market capitalization rate of 5%[19]) to Chicago ($49 million and $714 million, respectively) and Los Angeles ($64 million and $1.1 billion, respectively) and beyond (see bar chart).[20]

Implied Market Value of Potential Utility Savings from Sustainability Investments Across Top 10 U.S. Office Real Estate Markets



Utility data sourced from BOMA; market capitalization rates sourced from CBRE. Assumes a 10% savings to utility costs, excluding water and sewer. Savings divided by average market capitalization rate.

Mapping Sustainability Drivers to Real Estate Return

Our analysis of real estate investing trends reveals that despite the mounting evidence that sustainability integration offers particular value for investors in real estate, it can be challenging for investors to understand the potential for material impact on their investments for a variety of reasons described in this brief.

In our view, many investors presently lack the tools and insights needed to consistently integrate sustainability considerations into real estate investments. In a survey of U.S. property owners and investment managers, more than half of respondents self-reported that their sustainability evaluations were inconsistent and their policies were not comprehensive. Eighty percent of respondents did not evaluate sustainability metrics for already-owned assets.[21] We believe this reluctance is partly due to the narrow value sometimes assigned to sustainability factors. In some cases, investors and managers may also erroneously equate sustainability benefits with charitable pursuits or political views.

To promote greater understanding and to help enable investors to ask the right questions of real estate landlords, we have identified 10 real estate return factors impacted by sustainability drivers. Shown below, these range from natural resource use expenses, such as water and energy consumption and waste generation, to stakeholder-related factors such as occupancy rates and rent premiums. In the next section, we describe in detail the real estate return factors potentially affected by each sustainability driver.

Mapping the Impact of Sustainability Drivers on Real Estate Investor Returns

Sustainability Drivers
Global trend toward building efficiency and building performance optimization spurred by three sustainability drivers

Standards and Policy
Encouraging or requiring buildings to improve their resource efficiency

Technology
Increasing the gap in resource efficiency between buildings

Stakeholder Expectations
Driving buildings to improve their resource efficiency in order to attract and retain tenants

Real Estate Return Factors
Sustainability drivers affect 10 key factors impacting investor return

- Occupancy rate
- Rent premium
- Waste expense
- Energy expense
- Leasing expense
- Insurance
- Water expense
- Financing cost
- Maintenance & repair
- Property value

TOTAL INVESTOR RETURN

Real Estate Sustainability Drivers and Impacts — Today and in the Near Future

How specifically do the three sustainability drivers — standards and policy, technology and stakeholder expectations — affect building management? And how can each driver impact specific real estate investment return factors? Below, we discuss how these contributors currently affect real estate, where the 10 return factors fit and how future developments and impacts on investors may evolve. In reviewing their portfolios, real estate investors should consider how their holdings are exposed to each of these areas of sustainability.

How Sustainability Drivers Spur Building Investment Shifts

Standards and Policy

TODAY

With rising focus over the past two decades on issues like human health and safety, and long-term environmental resiliency, we have analyzed how public and private entities are paying increased attention to resource efficiency in the built environment. Voluntary sustainability and resource efficiency standards — such as BREEAM (a leading sustainability assessment method for master-planning projects, infrastructure and buildings), EnergyStar and LEED — have emerged globally as accepted standards for buildings to optimize resource use, reduce expenses and make the related sustainability benefits visible to the market.[22] These voluntary certifications encourage real estate owners to implement **energy, water and waste** saving measures, which help reduce related expenses and improve occupant comfort. They also can provide a rubric for managers to improve and monitor building performance systematically and can help lower costs associated with **maintenance and repair**. For example, as part of the voluntary LEED certification process, property managers can utilize a checklist that helps identify which additional energy, water and waste saving measures they can implement in order to obtain the various levels of Silver, Gold and Platinum certification. These standards have proved to be popular,[23] especially in commercial markets, and can help drive **occupancy rates** and allow landlords to charge a **rent premium**.[24] In 2005, less than 6 percent of commercial space in large U.S. markets carried a sustainability certification. By the end of 2014, that number had grown to nearly 40 percent.[25]

LOOKING AHEAD

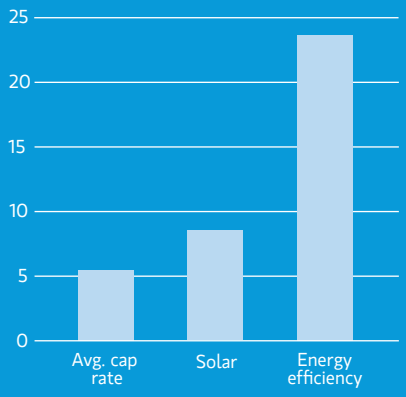
While voluntary building standards will likely continue to become more sophisticated and prevalent, we believe U.S. real estate will also see the introduction of mandatory standards. As part of its climate action plan, the Obama administration has set a goal of improving the energy efficiency of commercial, industrial and multifamily buildings by at least 20 percent by 2020.[26] Major cities have committed to even more ambitious energy reduction targets for buildings. New York, for example, is targeting a 30 percent reduction in building energy use by 2025.[27] Title 24 in California has a building energy efficiency mandate in place requiring the reduction of building energy use through retrofits, triggered when certain changes to existing buildings are made.[28] Buildings in drought-stressed regions will also need to contend with new water restrictions, such as the mandatory 25 percent reduction imposed in California.[29] An increasing number of states and municipalities are requiring buildings to disclose energy and water usage. As of late 2015, 14 U.S. cities had enacted energy benchmarking and disclosure policies for commercial buildings.[30]

While voluntary systems are opt-in, new regulations create sector-wide pressures on resource use in buildings. We believe there is a clear lesson here for investors. Real estate portfolios that proactively manage sustainability factors have a better likelihood of being well positioned to succeed in an environment of increasing regulatory pressure.

MSREI Invests in Resource Efficiency, Unlocks Value

Real estate portfolios can unlock value by investing in resource efficiency. MSREI investment managers have looked across their investments and studied opportunities for efficiency upgrades and solar installations. The results showed that average returns on costs exceeded 20 percent and 8 percent, respectively, depending on geography and utility type.[39] In some cases, individual projects can deliver returns more than double these averages. In contrast, the capitalization rate[40] for central business district offices was 5.3 percent in Q3 2015.[41] In other words, dollar for dollar, sustainability projects across a portfolio could yield returns roughly 2 to 15 percentage points higher than additional property acquisitions. MSREI managers believe that in an environment where resource costs have historically been stable, returns from these projects can potentially be less volatile than real estate investment returns overall. While the returns described here only account for energy cost savings, investors should bear in mind that sustainability improvements can impact a wider range of return factors.

Morgan Stanley: Average Identified Return on Costs



Technology

TODAY

In our view, a combination of government incentives, private investment and technological breakthroughs has sparked an ongoing revolution in building technology. Annual energy efficiency investments total roughly $130 billion, and are projected to grow to $385 billion by 2030.[31] Lighting is one of the largest sources of electricity use and **energy expense** in commercial buildings,[32] and is just one example of how this investment has paid off. The cost of ultra-efficient LED light bulbs fell almost 84 percent in the three years since 2010 as efficiency soared.[33] Solar energy prices have also fallen consistently, and seem poised for ongoing reductions.[34] The deployment of millions of sensors and smart meters is providing unprecedented access to data, enabling buildings to optimize energy and water use, as well as target improvements with precision. Venture investment in smart building technology skyrocketed 400 percent from 2005 to 2014.[35]

Barriers are also beginning to fall away, expanding access to new technologies. Financing mechanisms, such as solar power purchase agreements (PPAs) and on-bill financing, have improved access to these technologies by reducing upfront costs and have the potential to reduce the **financing cost** for renewable energy projects. More recently, real estate companies have raised money from public debt markets specifically for efficiency improvements through green bonds.[36]

LOOKING AHEAD

We believe technology has the potential to open the door to capturing new value in real estate, and that there are untapped opportunities available. By making capital investments in the same existing technologies described above, McKinsey estimates that the U.S. commercial building sector could create an additional $290 billion in present value over the life of a $125 billion investment in reduced **energy expense** alone.[37] Reducing commercial building water use in the United States by just 10 percent would save roughly 2 trillion gallons of water per year, resulting in reduced **water expense**.[38] We believe the value of these opportunity areas may increase as rising energy and water demand exerts upward pressure on utility rates.

Barriers to capturing value can often be cultural or structural, rather than technological. In our experience, real estate investment managers are often reluctant to invest capital in resource efficiency. In our view, the focus of traditional investment managers is often on short payback periods from projects. Given the increasing opportunities in resource savings and a track record of success, we believe there will be greater differentiation in the performance of real estate investment managers who evaluate sustainability opportunities in their portfolios and take the long-term view alongside traditional investment indicators. To be sure, split incentives in leases—where property owners pass utility costs on to tenants, thereby reducing their incentive to integrate utility cost-saving technology—are a major remaining challenge. However, our analysis indicates that the industry is in the early stages of addressing this issue through lease clauses, tenant engagement or more creative solutions. Engagement from investors and other stakeholders can be crucial in shifting real estate investment manager thinking on sustainability integration through best practice technology, ultimately leading to better investor outcomes.

Using appropriate metrics for evaluating these opportunities alongside traditional metrics is critical. Funds that rely only on metrics, such as short payback periods, risk missing opportunities where the value derived exceeds the cost of capital, or results in an immediate enhancement of **property value**.

Stakeholder Expectations

TODAY

MSREI investment managers' experience has shown that commercial property tenants are increasingly demanding more from the buildings they occupy. Over 90 percent of the world's largest 250 companies publish sustainability reports,[42] which often outline ambitious goals for energy, water and waste reductions. Reducing their real estate environmental footprint is an obvious area of focus for companies looking to make progress on these goals. As part of their commitment to employees, these commercial tenants are also looking to provide a high-quality working environment by improving indoor air quality—another tangible benefit of sustainable building practices.[43]

In our view, these increasingly rigorous sustainability expectations are often driving real estate companies to provide greater assurances about the quality of their built environments. We believe working to meet voluntary best practice standards is one clear path forward for landlords and property managers in helping tenants achieve their corporate sustainability goals. What's more, as discussed in greater detail later in this brief, properties that offer sustainability features can be seen as more desirable by tenants, often improving **occupancy rates** and allowing owners to charge a **rent premium**. Further, our analysis suggests that green buildings may have lower **financing costs**.

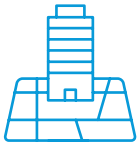
LOOKING AHEAD

In addition to stakeholder demands for greater resource efficiency and sustainable building certification, we believe emerging infrastructure trends are also creating interest in smart real estate investments. Aging electrical infrastructure and increasingly severe weather are driving more frequent, major power outages in the U.S., with supersized storms like Hurricane Sandy demonstrating how vulnerable the business sector is to such disruptions.[44] The cost to the U.S. economy of weather-related blackouts is estimated at $25 billion to $70 billion annually.[45] While such large-scale blackouts are well publicized but rare, frequent short-term power interruptions have an even greater impact on businesses, costing the U.S. economy an estimated $104 billion to $164 billion annually.[46] Blackouts may become even costlier as power-sensitive IT systems increasingly sit at the operational center of many

Return Factors Affected

Standards and Policy:

- Energy expense
- Water expense
- Waste expense
- Maintenance & repair
- Rent premium
- Occupancy rates



Technology:

- Energy expense
- Water expense
- Financing cost
- Property value

Stakeholder Expectations:

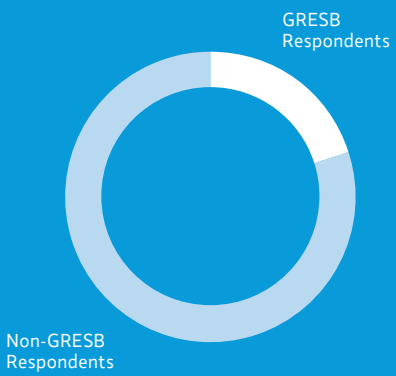
- Property value
- Maintenance & repair
- Rent premium
- Occupancy rates
- Financing cost

Analysis: Investors Drive Sustainability Integration in U.S. REITs

REIT managers are reporting increasing interest from investors globally on sustainability integration. Respondents to the annual Global Real Estate Sustainability Benchmark (GRESB), a leading voluntary framework in the industry, now represent more than $2 trillion in property value. In response, real estate managers globally are beginning to integrate sustainability factors into their management practices, although in our view these efforts are still nascent.

The U.S. is lagging behind this global trend. In our analysis of U.S. REITs as categorized by Morningstar, we found that only 23 percent of the funds covered were managed by institutions that responded to the 2015 GRESB survey. The non-responders (76 percent of funds analyzed) represent 136 listed REITs with over $400 billion in market capitalization. Given the opportunity we describe in this paper to capture more value from integrating sustainability into real estate investments, we believe there is an opportunity for U.S. REIT investors to engage with property management teams and fund managers on sustainability issues.

The U.S. REIT Market



businesses. To manage these risks, tenants may demand new resiliency capabilities in the properties they occupy, such as the ability to maintain operation during a blackout. Buildings that are more resilient may appeal to a broader range of tenants and can potentially withstand physical risks better than others. This could drive a **rent premium** and higher **property value** and possibly reduce **maintenance and repair** costs.

Finally, real estate companies may face the prospect of growing stakeholder concerns about resource use. As California enters its fifth year of drought, some local property owners have found themselves subject to "drought shaming" by neighbors over water use.[47] Real estate portfolios that have a comprehensive plan for monitoring stakeholder expectations may be less likely to be caught off-guard by emerging tenant demands or community concerns.

How Sustainability Investments Can Impact Real Estate Returns

By mapping sustainability drivers against our 10 real estate return factors, we believe investors can capture additional value. To break this down more tangibly, MSREI has provided a detailed example on page 9 of a theoretical 250,000-square-foot office building in San Francisco that reduces its expenses through targeted sustainability measures.

It's important for investors to bear in mind that the 10 real estate return factors highlighted in this paper were developed by drawing on academic and financial studies of the impact of sustainability on real estate outcomes. While these studies are helpful in establishing the directional value of sustainability, investors should recognize that the value of any site-specific initiative, such as an energy retrofit, is dependent on factors such as building location and characteristics, resource availability and costs, lease language and so on. In addition, most studies examine easily observable factors, such as adherence to voluntary certifications, as a proxy for sustainability performance. Voluntary certifications are only one way of evaluating the sustainability performance of real estate assets. Comparing certified buildings to noncertified buildings can also make it challenging to create like-for-like comparisons. As a result of these and other limitations, previous studies have found a wide degree of impact on sustainability factors.[50,51]

The important takeaway for investors is not only the size of a particular impact, but also the diversity of value drivers that can ultimately be impacted by sustainability. Because of this range of value drivers, ongoing monitoring and evaluation of portfolio-specific sustainability risks and opportunities are key elements of any real estate sustainability strategy.

The theoretical building example on page 9 is based on analysis by MSREI's investment management team using the best available data from BOMA. In our view, it highlights the dramatic potential impact of property-level sustainability on investor returns. In evaluating this theoretical 250,000-square-foot San Francisco office building, our investment managers believe that sustainability upgrades focused on improved utility management, and resulting impact on rents and occupancy, could result in a $3.11 per square foot increase in net operating income. At prevailing capitalization rates, this would represent a theoretical $56.55 per square foot, or 10 percent, increase in property value. This number offers a good proxy for what can be achieved when making the sustainability improvements we outlined earlier, as indicated by the existing research underlying our assumptions. MSREI's investment managers believe this analysis reasonably approximates what some have achieved with a thoughtful approach to sustainable real estate investing, particularly in older buildings that have not made considerable upgrades.

To be sure, while this exercise in understanding a theoretical building is illustrative for investors, more studies are needed to build on the largely anecdotal data currently available. For example, structural issues in leases may also have a dilutive impact on the returns associated with sustainability investments. In our view, further examination of this issue would help shed light on opportunities to drive value through enhanced lease agreements.

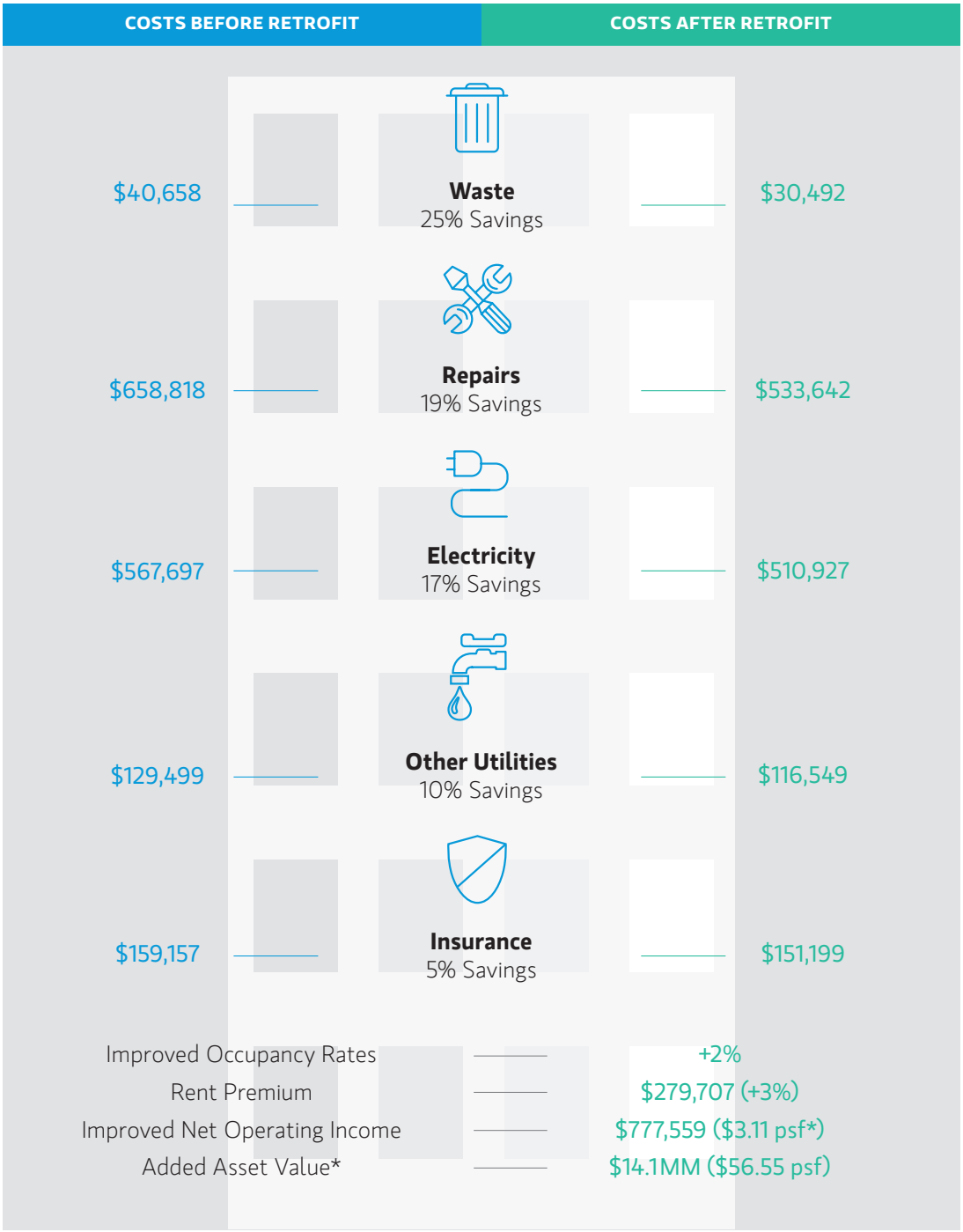
Below we analyze impacts on the 10 real estate return factors in more detail through the lens of financial indicators.

Revenue

As tenants demand better sustainability performance from the buildings they occupy, real estate portfolios that integrate sustainability may be better positioned to attract and retain reliable, long-term occupants. Comparisons of buildings with similar quality have shown that green buildings achieved a persistent rent premium of around 3 percent.[53,54] Whether as a result of attracting more reliable tenants or offering increased tenant satisfaction, sustainable buildings have also posted higher **occupancy rates**—conservatively estimated at 2 percent.[55] Some studies have recorded much larger boosts to rent

Sustainability Return in Practice:

Potential savings in five major cost areas from sustainable building management practices for a theoretical 250,000-square-foot building in San Francisco.



For more information, see detailed appendix on page 12.
*Value after retrofit based on all income and expense items outlined in further detail in the report. Data source: BOMA and MSREI. Assuming 5.5% capitalization rate.

The information presented is hypothetical in nature and not representative of any actual or anticipated transactions. Assumptions do not imply, forecast or predict future results. Actual results and events may differ materially from the assumptions underlying the return information included herein. There is no representation or guarantee regarding the reliability, accuracy or completeness of the information contained herein or that the facts on which such assumptions are based will materialize as anticipated.

premiums and occupancy rates.[56] Growing demand from tenants for certifications, such as LEED and improved natural resource management capabilities, may further drive revenue based on sustainability performance, especially among the most reliable tenants. This, in turn, can potentially lead to further enhancement of **property value**.

Operating Expenses

We believe the most obvious impact of sustainability on real estate is reduced expenses related to **energy, water** and disposal of **waste**. The average commercial building pays roughly $2 per square foot annually for electricity, water and waste removal, with the vast majority of that cost associated with electricity.[57] In our view, there is substantial potential to reduce those operating expenses through enhanced sustainability. Commercial buildings with sustainability certifications report energy costs that are roughly 25 percent lower than average.[58,59] Efficiency benefits can be further amplified in the face of energy price volatility, with efficiency minimizing the impact of time-of-day energy pricing schemes. Improved utilization of water, for example, may also reduce energy use. By enhancing efficient use of water and focusing on water efficiency during peak times of energy use, a building reduces its need for energy consumed by pumping this resource in and out of the facility. A large energy efficiency project underway at the Empire State Building in New York is expected to reduce building energy consumption by 38 percent, saving $4.4 million annually in operating expenses.[60] When valued at Empire State Realty's implied capitalization rate of 5.11 percent, we calculated this savings in operating expense to result in an increased property value of around $86.1 million.[61]

We believe that resource use itself could eventually move from an operating cost to a source of value for buildings. For example, buildings may be able to generate more energy from renewable resources than they use, store the excess energy on-site and sell it to the grid for a profit. In our view, this possibility looks increasingly viable as prices for on-site energy generation and storage technology fall, and as states increasingly adopt policies that make selling energy back into the grid more feasible.

Resource efficiency is not the only source of operating value. Buildings with sustainability certifications have reported reduced **maintenance and repair** expenses roughly 20 percent lower than average.[62] A number of **insurance** companies today also offer reduced rates for commercial properties that follow green building standards.[63]

Financing Cost

Our analysis shows that investors and bankers increasingly reward real estate companies and development projects with sustainable features with more attractive debt terms. For example, the market for green bonds, though still small, is seeing exponential growth — rising nearly tenfold in the prior three years, to $36.9 billion in 2014[64] — and real estate funds are looking to the green bond market to finance capital improvements. For example, in 2014, two major commercial REITs raised a combined $700 million through green bonds,[65] securing interest rates through their issuance lower than those of competitors with similar credit ratings.[66] Real estate funds may also get a financing boost from more traditional sources; Fannie Mae and Freddie Mac recently announced up to a 27 basis-point reduction in loan interest rates and higher loan-to-value limits for multifamily housing projects with sustainability certifications or a borrower commitment to lower annual energy or water use by 15%.[67]

Leasing Expenses

Occupancy rates and **rent premiums** suggest that sustainably managed buildings are often considered more desirable by tenants.[68] This increased desirability, in our view, can also translate into higher occupancy levels and lower costs for leasing. Studies show that the time required for newly available properties to reach stabilized occupancy, known as the lease-up rate, is up to 20 percent faster for sustainable buildings than for conventional buildings.[69] This suggests that green buildings may benefit from lower **leasing expenses** resulting from reduced carry costs, due to less downtime.

Property Value

We believe the impact of sustainability factors on property appreciation can be significant. Improvements in sustainability can directly impact net operating income either through increased revenue or decreased operating costs. Higher net operating income should therefore drive higher property values. For example, a retrofit of one California motel reduced energy costs by 45 percent, leading to an increase in calculated property value of 8.5 percent.[70] Studies have found a sale premium of roughly 10 to 30 percent for buildings with sustainable certifications.[71,72,73] Part of this premium may be directly attributable to increases in net operating income, but may also reflect the improved risk profile and associated **financing cost** for green buildings.

Conclusion: Next Steps for Investors

This brief demonstrates our view that sustainability creates a new frontier of potential opportunities in real estate investor return. How could investors go about beginning a dialogue on sustainability with real estate investment managers? The process for making these investments is iterative and begins with gathering information on the current exposure of a real estate portfolio to sustainability risks and opportunities.

Below, we suggest 10 questions that serve as a starting point for a fruitful dialogue with real estate investment managers.

As market conditions evolve and forces affecting the real estate market change, investors should revisit these considerations and re-evaluate their holdings periodically. Integrating sustainability considerations into investment analysis is a long-term, evolving process that can help enable investors to stay ahead of risks and unlock new sources of value.

10 Questions That Serve as a Starting Point for a Fruitful Dialogue With Real Estate Investment Managers

1. For which sustainability categories (e.g., energy and emissions, water, waste) do you collect performance data?
2. How exposed is the property portfolio to risks in those categories? How have resource availability, cost and intensity changed over time?
3. What strategies, if any, are you employing to handle split incentives in tenant leases?
4. Do you perform a sustainability risk and opportunity assessment before acquiring new properties and during the ownership life cycle of your portfolio?
5. What practices are in place to promote resource-efficient operations?
6. What metrics do you use to evaluate resource efficiency opportunities in the portfolio?
7. How do you expect the portfolio to be impacted by new sustainability-related policy at the national and/or state and local level?
8. How do you assess the vulnerability of the portfolio to physical damage from extreme weather, such as flooding, drought and storms?
9. Are there resiliency capabilities in your property portfolio, such as on-site energy generation or storage?
10. How do you engage with community stakeholders and policymakers about sustainability?

For more information about the Morgan Stanley Institute for Sustainable Investing, visit www.morganstanley.com/sustainableinvesting. The Institute authors would like to thank the following Morgan Stanley colleagues for their insightful input into this issue brief: Josh Myerberg and Brendon Lydon, as well as former Institute Fellow Jill Bunting.

APPENDIX

Sustainability Return in Practice:
How Green Retrofits Would Generate $56 of Value per Square Foot for a Typical San Francisco Office Building

Theoretical 250,000 SF Building Example — San Francisco-Oakland-San Jose MSA[52]

	Current Building	$ PSF*	Green Retrofit Savings	Retrofitted Building $ PSF	$ PSF
Income[1]					
Base Rent	9,323,562	37.29	3%[2]	9,603,269	38.41
Other Income & Reimbursements[3]	3,770,359	15.08		3,770,359	15.08
Subtotal: Income	**13,093,921**	**52.38**		**13,373,628**	**53.49**
General Vacancy (8%)	(1,047,514)	-4.19	-2%[4]	(802,418)	-3.21
EXPENSES					
Cleaning	(971,238)	-3.88			
Waste	(40,657)	-0.16	-25%[5]	(30,492)	-0.12
Repair/Maintenance	(658,818)	-2.64	-19%[6]	(533,642)	-2.13
Electricity	(567,697)	-2.27	-17%[7]	(471,189)	-1.88
Water	(47,116)	-0.19	0%[8]	(47,116)	-0.19
Other Utility	(129,499)	-0.52	-10%[9]	(116,549)	-0.47
Roads/Grounds	(69,072)	-0.28			
Security	(403,070)	-1.61			
Administrative	(248,388)	-0.99			
Fixed Expenses	(892,225)	-3.57			
Insurance	(159,157)	-0.64	-5%[10]	(151,199)	-0.60
Expensed Leasing Costs	(1,244,985)	-4.98			
Parking	(72,530)	-0.29			
Subtotal: Operating Expenses	**(5,504,451)**	**-22.02**		**(5,251,695)**	**-21.01**
Net Operating Income	**6,541,957**	**26.17**		**7,319,515**	**29.98**
NOI Improvement				777,559	3.11
Market Avg. Cap Rate					5.5%[11]
Added Value				**14,137,429**	**56.55**

*Per Square Foot.

The information presented is hypothetical in nature and not representative of any actual or anticipated transactions. Assumptions do not imply, forecast or predict future results. Actual results and events may differ materially from the assumptions underlying the return information included herein. There is no representation or guarantee regarding the reliability, accuracy or completeness of the information contained herein or that the facts on which such assumptions are based will materialize as anticipated.

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Because of their narrow focus, sector investments tend to be more volatile than investments that diversify across many sectors and companies.

An investment in an exchange-traded fund (ETF) involves risks similar to those of investing in a broadly based portfolio of equity securities traded on exchange in the relevant securities market, such as market fluctuations caused by such factors as economic and political developments, changes in interest rates and perceived trends in stock prices. The investment return and principal value of ETF investments will fluctuate, so that an investor's ETF shares, if or when sold, may be worth more or less than the original cost.

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