GRESB

Global Real Estate Sustainability Benchmark

RESEARCH REPORT 2011

Key figures 2011 GRESB survey

INSTITUTIONAL CAPITAL	$ 1.7 trillion
SURVEY RESPONDENTS	340
PROPERTIES COVERED	21,000
TOTAL PROPERTY VALUE	$ 928 billion
GREEN STARS	65
REPORTED ENERGY COSTS	$ 1 billion
ESTIMATED TONS OF CO_2 EMITTED	34 million
REDUCTION OF CO_2 EMISSIONS IN 2010	1.8 %

GRESB respondents per region

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How to read this research report

Four sections
The first section of the report is designed to help you understand the environmental challenges in the property sector and how the GRESB Foundation may assist institutional investors to engage with property companies and funds. The second section provides an overview of the global coverage of the GRESB database, as well as the global survey results. The third section presents the environmental performance of respondents in each of the regions. Conclusions are discussed in the last section.

Stakeholder interviews
In this report, the GRESB Foundation aims to highlight the importance of environmental best practices through interviews with sector leaders in each of the regions. These interviews provide tangible examples of sustainability improvements, targets and challenges ahead, and advice for "Green Starters."

About GRESB

The Global Real Estate Sustainability Benchmark is a science-based benchmark to measure the environmental performance of property portfolios, based on an annual survey produced by the GRESB Foundation. This industry-led initiative has the goal to enhance shareholder value by increasing transparency in environmental and social practices in the property sector.

Preface

Why the World Needs GRESB

There was a last-minute addition to the editorial line-up of the Spring 2011 edition of the Rotman International Journal of Pension Management. The article's title was "How Green Is Your Property Portfolio? The Global Real Estate Sustainability Benchmark".[1] Its authors persuaded me that the article had to be in that issue because they had just launched a major global campaign to expand participation in their Benchmark project. In a fine turn of salesmanship, they also pointed out that the research behind the project had been funded by pension fund managers APG, PGGM, and USS. All three organizations are Research Partners of the Rotman International Centre for Pension Management (ICPM).

This new, improved version of the GRESB Research Report is evidence the authors have been true to their word. The sponsoring consortium of pension funds and industry associations has grown substantially from the original three. As a result, the number of real estate managers around the world participating in the GRESB survey has grown by 72 percent from 198 to 340. Like the formation of ICPM itself, the success of the GRESB project is a good example of the power of collective action by the global pension fund community. Hopefully, it is a harbinger of more good things to come, with the growing understanding by pension fund Boards that their fiduciary duty includes ensuring that pension fund investments must be capable of generating good returns not just tomorrow, but also over the long term.

A final word on the importance of benchmarking. Father of modern management theory and practice Peter Drucker once observed "what gets measured gets managed". The GRESB project is already proving Drucker right once again. The authors report a 1 percent decrease in energy consumption in 2010 for the full participating real estate sample. In contrast, the sub-sample identified as having the best GRESB scores reduced their consumption by 3 percent. The power of benchmarking in action!

We commend this immensely important GRESB project and its findings to investment institutions and real estate managers around the world.

Keith Ambachtsheer
Editor, Rotman International Journal of Pension Management
Director, Rotman International Centre for Pension Management,
Rotman School of Management, University of Toronto

Introduction

Sustainability | Changing Dynamics in the Property Sector

Institutional investors increasingly use the tool of engagement to assess and improve the environmental, social and governance (ESG) performance of companies they invest in. Since institutional investors are among the largest players on the capital market and the main providers of equity capital to the corporate sector in general, and to the (commercial) real estate industry in particular, the demands of these investors may have a substantial impact on ESG performance.

The real estate sector is of specific interest from an environmental perspective, as it has been well-documented that the sector is responsible for 40 percent of global greenhouse gas emissions, for 55 percent of the global usage of wood, and for about 75 percent of electricity consumption in the US alone.[II] More efficient use of energy and other resources by the real estate sector can structurally reduce these numbers, and thus lower the demand for increasingly scarce (and costly) natural resources.

Importantly, improved sustainability performance in the real estate sector may very well go hand in hand with enhanced financial performance, through lower operational costs as well as reduced portfolio risk. Indeed, a 2007 McKinsey report has suggested that many investments aimed at reducing carbon emissions from buildings could be made at a profit.[III] Academics and practitioners have further investigated this issue, and the general evidence indeed shows positive financial effects associated with better environmental performance. For example, commercial buildings with energy efficiency ratings command significantly higher rents, better occupancy rates, and higher prices than otherwise comparable conventional buildings. On the other hand, lower levels of energy efficiency and sustainability have been associated with an increased risk of obsolescence (see textbox on next page).

Given these findings, one would expect that rational real estate investors take the necessary initiatives to improve the energy efficiency and sustainability of their portfolios. But of course, for markets to function properly, information transparency on environmental, social and governance metrics is a key ingredient.

ESG in Real Estate | The Role of Institutional Investors

The fiduciary responsibility of institutional investors used to be invoked as an argument not to integrate information on ESG performance into investment decisions, but screening the real estate allocation on ESG performance does not need to be in conflict with the fiduciary duty of investors. In fact, the current stream of scientific evidence suggests that it would be a breach of fiduciary duty not to assess real estate investments on their environmental and governance performance: it may reduce downside risk and also help to find better and innovative investment opportunities. Evidence on the relation between social attributes of property companies and their financial performance is still scant.

Institutional investors build up most of their real estate exposure through stakes in real estate funds and companies. To integrate ESG metrics into their real estate investment strategies, it is thus imperative for institutional investors to have qualitative and quantitative information on the sustainability performance of these entities. The information should include property companies and funds that are taking the first steps in implementing ESG factors (“starters”), but also those companies and funds that are demonstrating ESG leadership (“stars”). However, existing information on the ESG performance of real estate asset managers is limited, and often just focused on sector leaders among public real estate companies. Also, with a substantial part of the institutional capital allocated to privately managed funds, information on the non-listed side of the market is crucial. Institutional investors prefer a single approach towards measuring the environmental performance of their real estate portfolio, including both private and listed investments.

Energy Efficiency and the Bottom Line

There is a growing awareness of the portfolio risks involved in non-efficient property investments. Governments around the world have started to implement environmental regulations directly aimed at buildings (e.g., mandatory disclosure of energy ratings, carbon taxes, and prescriptive local building codes). Corporate and government tenants of commercial buildings increasingly require these buildings to adhere to minimum sustainability standards. On a more fundamental level, climate change is starting to affect investors through insurability of properties, which has direct implications for commercial lending and thus for the cost of capital.

The direct return on investment from energy efficiency improvements can be modeled quite precisely, and returns on simple measures (e.g., lighting, HVAC optimization and water-saving measures) are generally substantial. For most investors, it is not as evident that the environmental performance of buildings is also reflected in their market performance. However, there is now a considerable body of scientific evidence on the existence of a "green premium" in the US commercial property market. It has been documented that office buildings labeled as efficient ("Energy Star") or green ("LEED") command higher effective cash flows of about 7 percent, on average, and transaction prices that are more than 13 percent higher as those of conventional buildings. Importantly, these premiums have not been affected by the recent increase in supply of sustainable space, or the crisis in the US office market.[IV]

International evidence points into the same direction, but provides more insight into the downside risk of energy efficiency in buildings. A recent study on European office properties with energy performance certificates finds a clear divergence between rental developments of efficient and non-efficient buildings, with the former tracking general market development, and the latter underperforming the market (this holds especially in recent years).[V] For residential real estate, research also shows a consistent variation in price between different levels of environmental performance.[VI]

The GRESB Foundation | Creating Transparency to Enhance Market Efficiency

The Global Real Estate Sustainability Benchmark (GRESB) Foundation, an initiative of some of the world's largest institutional investors, leading academics and industry bodies, provides a science-based sustainability benchmark for commercial property portfolios; a tool for institutional investors to start a dialogue on social and environmental issues with their real estate managers. The initiative is a tangible example of collaborative engagement with the commercial property sector: investors using their stakes in private and listed real estate funds as leverage towards improving the environmental and social performance of the sector.

By uncovering the environmental and social best practices in the industry, GRESB shows the way forward for the real estate sector. Benchmarking current ESG performance can help generate and strengthen the market forces needed for the necessary reduction in resource consumption. This allows real estate investment managers to take into account directly the risks of higher energy prices, stricter legislation targeted directly at the real estate sector and changing preferences of (corporate) tenants.

The GRESB Foundation aims to provide comprehensive metrics and other relevant information that is material to investors and that relates directly to the bottom line. The benchmark is designed in such a way that high scores on GRESB are positively related to reductions in operational expenditures. This implies that GRESB members using the information to engage with their investment managers may not only contribute to mitigation of climate change or other environmental threats, but may also benefit financially through reduced risk or improved financial performance of their real estate investments.

The information provided by the GRESB Foundation aspires to increase the overall performance of the sector, rather than just highlight the performance of environmental leaders. Some real estate asset managers without environmental policies and implementation may be best practice property managers, and are therefore of interest to investors. A broadening of their scope (by taking the sustainability performance into account) could further enhance their performance and efficiency, creating value for shareholders.

Moving Forward | The GRESB 2011 Research Report

This year, many of the leading pension asset managers in the world have signed up as members of the GRESB Foundation, representing US$1.7 trillion in aggregate assets under management. Combined, these asset managers have an average stake of more than 4 percent in each of the listed property companies that responded to the survey.[VII] In addition, the initiative is supported by leading international real estate industry associations and industry bodies (see Member Page in the Annex).

The GRESB Foundation has made a significant leap forward in coverage of the real estate sector: the number of respondents increased from 198 in 2009 to 340 in 2011, a 72 percent increase. Importantly, the response among property companies and funds in Asia has improved substantially. The 2011 survey covers over 21,000 commercial buildings, with a combined floor area of about 356 million square meters. The assets covered by the 2011 GRESB survey illustrate that the scope of the commercial property sector is large by all standards: on aggregate, the respondents manage approximately US$ 928 billion in commercial real estate assets, with an estimated aggregate emission of 34 million tons of carbon per year (the equivalent of 6 million cars on the road in a year). Institutional engagement with the property sector can thus have substantial and positive impact on the environment.

To provide respondents with information on their environmental performance, the collected data is graphically represented in an online scorecard, in which companies and funds can observe their relative performance against peers. GRESB members can use this information as a basis for an informed and meaningful dialogue with the funds managing their real estate allocations. For institutional investors with direct property allocations, the scorecard provides insight into the performance of their portfolio as well.

This report provides more information on the survey, the GRESB methodology and the survey response. It presents the environmental performance of the institutional real estate industry on a global level, but also separately for Asia, Australia, Europe, and the Americas. The report ends with a brief conclusion.

Measuring Sustainability

GRESB Survey Approach

The basis for this year's benchmark is the GRESB survey that was first designed in 2009, capturing over 50 data points of environmental and social performance integrated into the business practices of each real estate company or fund. The survey does not explicitly cover the governance dimension.

The survey questions are based on:

- **Scientific research on environmental and social factors** affecting the financial performance of corporations in general, and of real estate investment portfolios in particular.
- **Best practices on ESG reporting**, including the EPRA Best Practices Recommendations on Sustainability Reporting.[VIII]
- **Existing reporting frameworks**, such as the Carbon Disclosure Project and the Global Reporting Initiative, which launched the Construction and Real Estate Sector Supplement (CRESS) in 2011.[IX]

To reflect ongoing innovation in the industry, the 2009 GRESB survey has been substantially amended, with more focus on environmental key performance indicators. A new element in the 2011 survey is the inclusion of social factors (e.g., health and safety, tenant engagement and employee satisfaction). As part of the process of continuous improvement of the benchmarking service offered by the GRESB Foundation, the 2009 GRESB survey has been discussed during interviews with the management teams of leading real estate companies, and with property analysts and institutional investors. The 2011 survey has been updated and refined based on this feedback.

Data Collection and Verification

Survey requests have been distributed via the main industry associations in each region, and separate requests have been sent out by the members of the GRESB Foundation. The 2011 survey captures information reported on the 2010 fiscal year (the 2009 survey captures information reported on the 2008 fiscal year). The responses to the survey are collected via an online survey portal. Data are fully self-reported, even though some respondents rely on independent third parties to collect information on environmental and social performance indicators. Given the dependence of respondents on the capital market and the involvement of some of the leading providers of equity capital to the industry, the "trust-factor" should, in principle, lead to accurate data. However, three methods are employed to further ensure data quality:

- Where applicable, respondents are required to upload proof for individual questions (e.g., a hyperlink to the environmental report or their procurement policy).
- The collected data has been analyzed and checked for consistency by the GRESB Foundation. Outliers and unlikely responses have been clarified with respondents.
- Respondents can be asked, on a randomized basis, to provide additional assurance or to further explain their response.

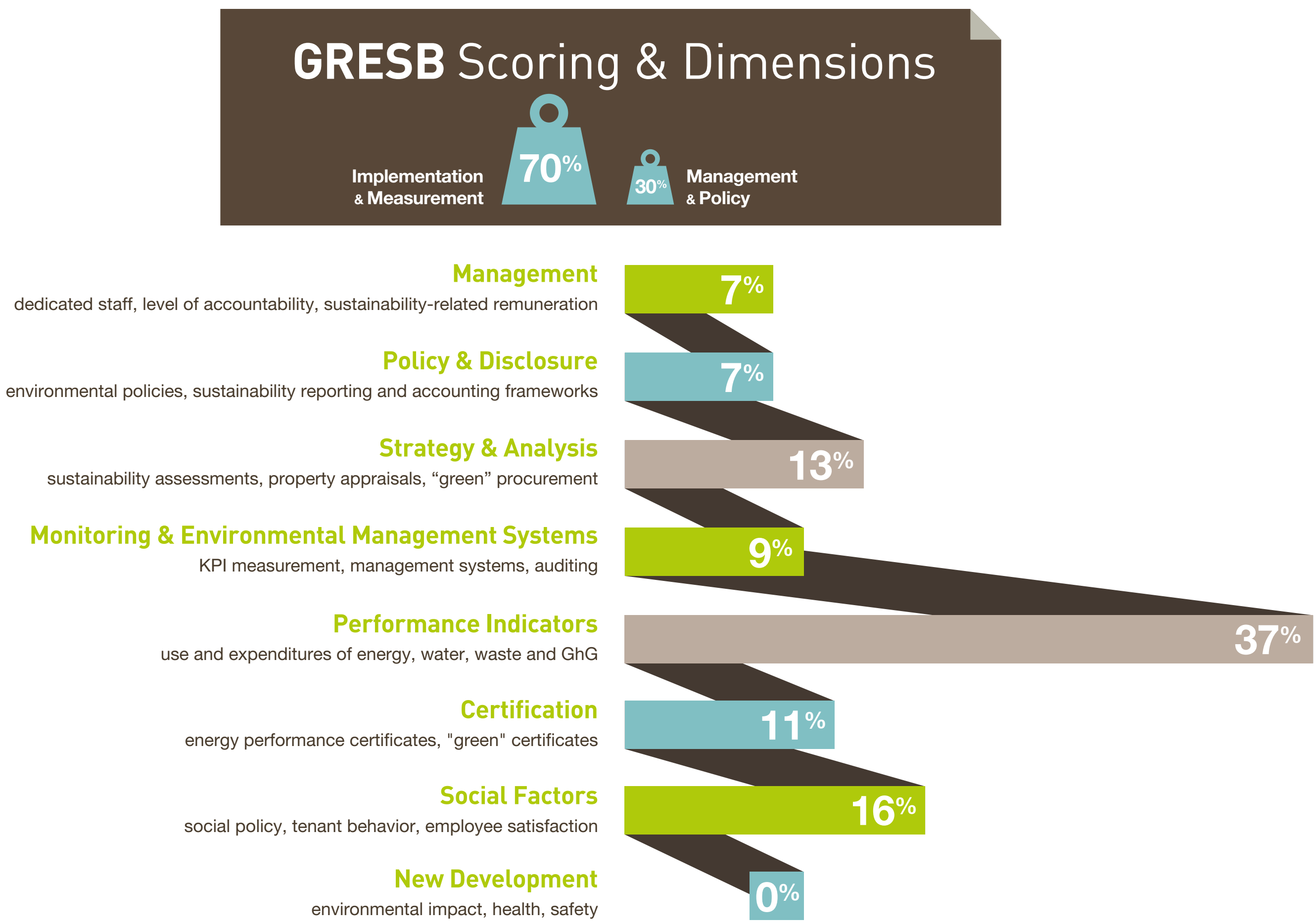
Importantly, the GRESB Foundation does not aspire to define metrics for environmental performance measurement at the building level, but rather relies on existing industry standards for definitions of such performance indicators. For instance, information regarding environmental key performance indicators is reported following the GRI CRESS approach, on a standard "like for like" basis between the years 2009 and 2010.[X]

GRESB Methodology

Based on the GRESB survey, a science-based benchmarking framework has been created, consisting of 39 metrics. The individual metrics are scored to represent the relative materiality of their impact to investors. The metrics are divided between seven sub-categories within the environmental and social dimensions. An additional category is added for respondents with property development activities (but this is not part of the total GRESB score). The scores for the sub-categories are then added up to generate the GRESB score, which is expressed as a percentage of the maximum score. The weight of each dimension thus depends on how it may affect financial performance.

To distinguish further between sustainability reporting and policy, and sustainability implementation and performance measurement, the overall GRESB score is split into two categories: management & policy and implementation & measurement. Management & policy represents 30 percent of the GRESB score, whereas implementation & measurement has a weight of 70 percent. Thus, the overall GRESB score rewards actions more than words.

Both for GRESB members and GRESB respondents, this report offers just a glance of what is available online: the data on each of the 340 funds and companies is presented through a dynamic scorecard, with information benchmarked against peers at different levels of aggregation.



Global Results

Response Rate | Increased Coverage

One of the main goals of the GRESB Foundation and the investors supporting the initiative is to increase the disclosure on sustainability management in the property sector. In line with this goal, the global response to the GRESB survey increased from 198 property funds in 2009 to 340 in 2011, which implies a growth rate of 72 percent. There is no defined universe of privately managed funds, but for listed property companies, we document that the market-value-weighted response rate is approximately 35 percent (FTSE EPRA/NAREIT Real Estate Index). The aggregate value of real estate managed by the respondents has almost reached the US$ 1 trillion threshold, with a total of US$ 928 billion of commercial real estate assets under management (including retail, office, industrial, residential and other property types).

The growth in the response rate is mainly the result of increased participation on the private side of the real estate capital market, which is important given the generally lower degree of disclosure from non-listed funds. The number of responses from private funds has increased to 271 – up from 126 in 2009. Among these respondents, there are four property portfolios managed by pension asset managers directly. These direct portfolios are considered “private funds” in the remainder of the report.

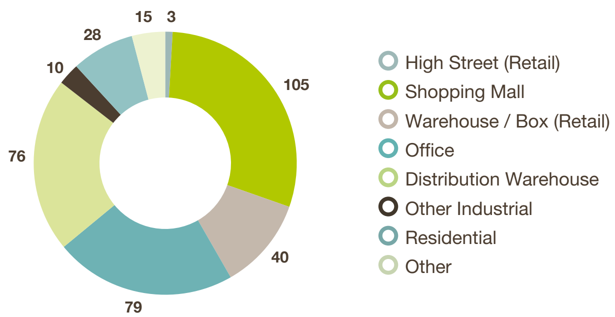
The growth in unlisted coverage holds for all regions, but is especially strong in Australia (fourfold increase in response), Europe (now at 162 funds) and Asia (doubling of response). Also, the database contains information on the sustainability performance of four South American funds, reflecting the increasing maturity of the institutional real estate markets in that region. In North America, an important difference between 2009 and the present survey is the participation by funds in Canada, where the 2009 survey included US funds only. In the remainder of the report, the private funds from Canada, the US and South America are represented as “The Americas.”

The pie charts on the next page provide more information on survey coverage at the building level, both by region and by property type, measured in gross lettable area (GLA). Even though the absolute response rate is highest among European funds, the commercial floor space covered in North America dominates, at about 49 percent. The coverage by property type shows that the largest property sectors included in the GRESB-database are offices (22 percent), shopping malls (29 percent) and distribution warehouses (21 percent).

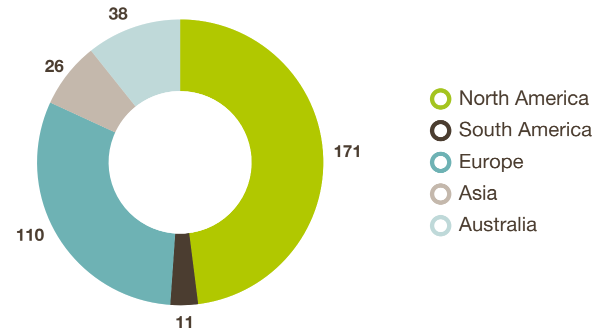
Response Overview

	Number of Respondents	Market Coverage (value-weighted)	Gross Asset Value ($ billion)
Listed (Total)	**69**	**35%**	**482**
Asia	12	12%	40
Australia	10	80%	141
Europe	32	75%	168
North America	15	37%	133
Private (Total)	**271**		**447**
Asia	37		51
Australia	23		57
Europe	162		204
North America	45		129
South America	4		5
Grand Total	**340**		**928**

Response by Property Type (million m²)



Response by Region (million m²)



Four Quadrants | The GRESB Model of Environmental Performance

The GRESB four-quadrant model of environmental performance provides an overview of the global environmental performance of the real estate investment management community. For every fund that responded to the 2011 survey, the model shows the percentage scores on issues related to management & policy (on the horizontal axis) and the percentage scores on issues related to implementation & measurement (on the vertical axis). The four quadrants distinguish the position that a fund has on the adoption of both dimensions of environmental management practices.

- Green **Starters** – have started to develop some sustainability policies, but limited organizational focus. Environmental initiatives are not yet fully implemented and measured across the entire portfolio. No comprehensive measurement of environmental key performance indicators.

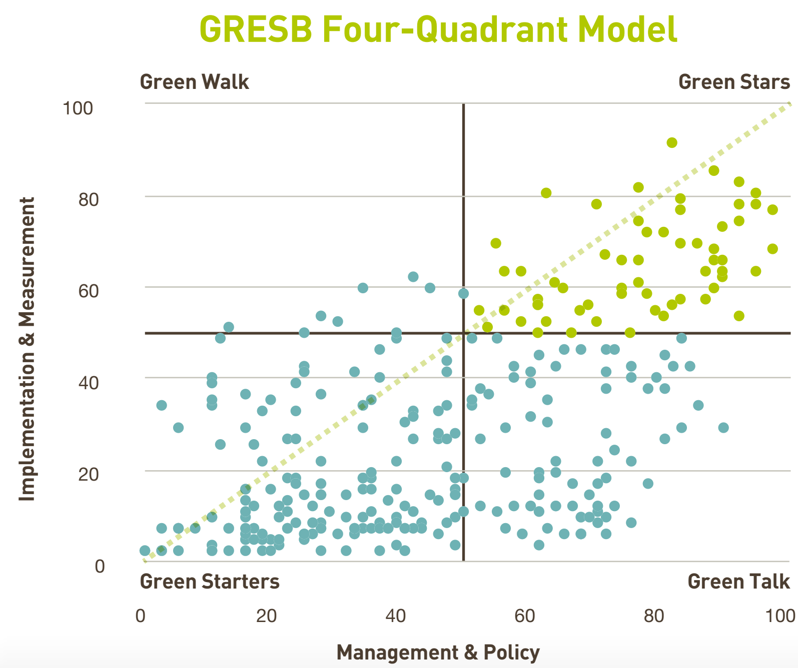
- Green **Talk** – dedicated resources for sustainability management, comprehensive external reporting, sustainability implementation plans have been developed. More attention could be given towards the implementation and measurement of these action plans.

- Green **Walk** – integration of sustainability policies and measurement of environmental key performance indicators, but limited reporting. External stakeholders expect a stronger focus on transparency.

- Green **Stars** – integrated organizational approach towards measurement and management of environmental key performance indicators. Steering on reduction of resource consumption, and innovation in measures beyond energy efficiency (e.g., productivity, tenant behavior).

The overarching conclusions of the 2009 GRESB survey demonstrated substantial upside potential for improved environmental performance among real estate investors, with outstanding performance by a few global leaders and mediocre performance for the majority of the sample. Another conclusion of the 2009 survey was that implementation of environmental policies ("green walk") tended to lag policies ("green talk"). To measure the progress in environmental performance of the commercial real estate industry, we make comparisons with the 2009 results, but these differences should be interpreted with care, as the 2011 survey is more extensive than the 2009 survey, reflecting current best practices in environmental management and an increased focus on key performance indicators.

The number of Green Stars has increased significantly in 2011, not just in absolute numbers (which could be due to the larger sample size) but also as a percentage of the total sample. Just 10 percent of the respondents were classified as Green Stars in 2009, but that percentage is now 19 percent (65 respondents) on aggregate, and in the listed sector even 26 percent (18 respondents). The southeast quadrant, Green Talk, is populated with a slightly larger share of the respondents as well. In parallel, the percentage of property investors classified as Green Starters has decreased, and is now 55



percent (186 respondents), as compared to 67 percent in the 2009 survey. Again, listed companies score slightly better in this quadrant, with only 41 percent in the Starter category. The upper left quadrant, Green Walk, has very few observations, just as in 2009.

The 2011 GRESB results show a general move from Green Starters towards Green Talk, and most importantly, Green Stars. This implies a trend towards stronger environmental performance of the commercial real estate sector, both regarding management & policy and with respect to implementation & measurement. Real estate companies and funds are moving up the environmental adoption curve, which indicates that the commercial property sector is developing environmental policies and incorporating energy efficiency and sustainability measures into business operations.

However, there are still substantial differences in environmental performance between the respondents, also in the Green Star quadrant. The majority of respondents are considered to be part of the Green Starter category (186 respondents), especially among private funds, which is still the dominant group, so substantial opportunities for improvements in energy efficiency and sustainability performance remain. The GRESB survey and scorecard may help these funds through pointing out their relative performance against peer groups, identification of areas of strengths and weaknesses and through repeated benchmarking. For the shareholders of these funds, engagement may create financial value that results in improved and measurable sustainability performance.

Overall GRESB Scores | Global Comparisons

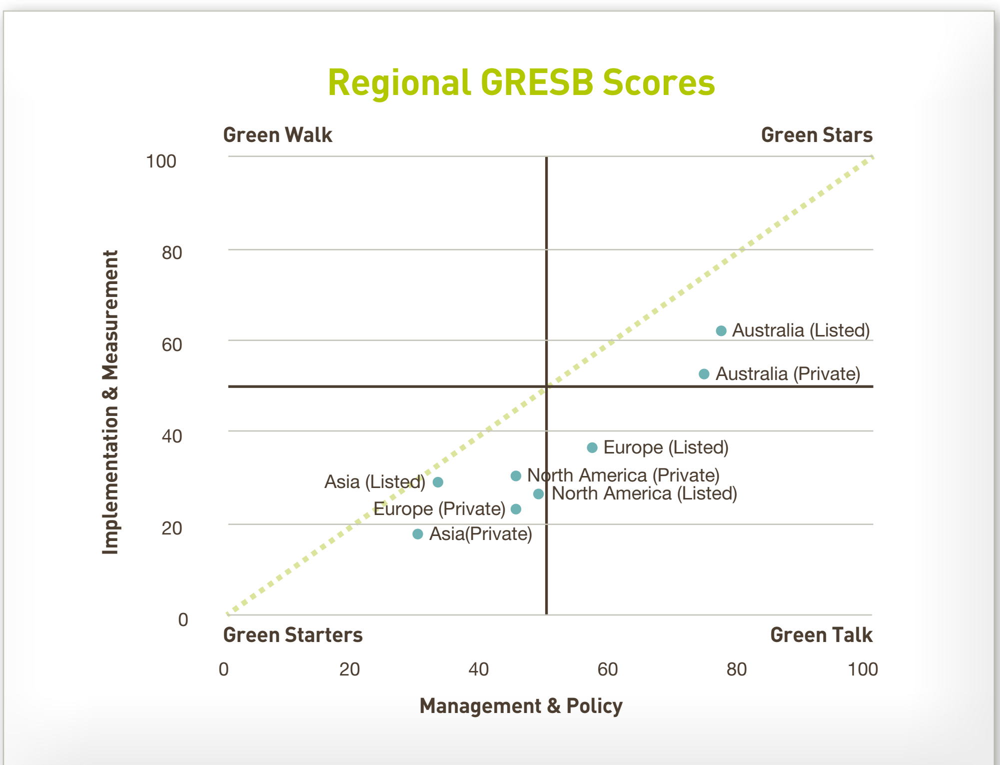
The overall global GRESB scores per region are provided in the graph below. Both in the listed and in the private market, Australian property funds lead the way, just as documented in the 2009 GRESB survey. The difference between Australia's overall score and the score of the other regions is still substantial. By and large, listed property companies have higher sustainability scores than private funds: the global average score for listed funds is 41 (out of 100) and 31 for private funds.

There is a marked difference between the scores on questions relating to management & policy and those regarding implementation & measurement. The average scores in the latter dimension are significantly lower than those in the former. These contrasting scores reflect the fact that property investors tend to set an environmental strategy first, before starting to implement energy efficiency and sustainability improvements into the property portfolio. Interestingly, the relative differences between the scores on these two categories of survey questions are smaller for listed than for private funds.

Environmental Leadership Revisited | New Names at the Top

The main goal of collecting information on sustainability management is to generate comprehensive indicators measuring the portfolio-level environmental and social performance of real estate managers. These indicators allow institutional investors to enter into an informed dialogue with their real estate investment managers regarding environmental risks, opportunities and improvements. Thus, information collected through the GRESB survey is not about "naming and shaming," but about benchmarking and creating value by engagement and subsequent optimization. Nonetheless, almost equally important is the information on industry best practices provided by the GRESB survey. These best practices can serve as inspiration and set the example for other property funds, by showing that superior environmental performance is attainable, while simultaneously keeping an eye on the bottom line.

The global best practices in sustainability management are provided in the table below, listing the top "green" performers in the global real estate investment management industry. Australian funds do rather well, but there are some very strong European and North American funds that are catching up with the leaders of 2009.



The global number one in this year's GRESB survey is the Commonwealth Property Office Fund, a listed Australian property fund managed by Colonial First State Asset Management, with an overall GRESB score of 88 (see interview). Interestingly, Commonwealth scores substantially better on implementation & measurement (91) than on management & policy (82). The Investa Office Portfolio (private, see interview in Australia section) ranks second, while Sonae Sierra (private, see interview in Europe section) is the first European investor to make it into the global top-3.

Global Top-10

Company	Fund Name	Nature	Region	Score	MP*	IM*
Colonial First State Global Asset Management	Commonwealth Property Office Fund	Listed	Australia	88	82	91
Investa Property Group	Investa Office Portfolio	Private	Australia	86	88	85
Sonae Sierra	Sonae Sierra	Private	Europe	86	92	83
GPT Group		Listed	Australia	85	95	80
Bentall Kennedy Group	Multi-Employer Property Trust	Private	North America	83	95	78
Bentall Kennedy Group	Bentall Kennedy Group - North America	Private	North America	83	97	77
Hammerson PLC		Listed	Europe	83	92	78
GPT Group	GPT Wholesale Office Fund	Private	Australia	83	87	78
Colonial First State Global Asset Management	Private Property Syndicate (PPS)	Private	Australia	80	83	79
Lend Lease Investment Management	Australian Prime Property Fund Commercial	Private	Australia	80	77	82

**MP: Management & Policy* **IM: Implementation & Measurement*

Darren Steinberg, Managing Director Property, about the environmental leadership of the Commonwealth Property Office Fund (CPA), Colonial First State Global Asset Management

"We focus on the sustainability of our assets because it is good business practice and is consistent with our vision. We believe the best practice for environmental management is the continuous improvement in the operational performance of our assets, as over time inefficiency in environmental performance may discount the value of commercial real estate. Since 2006, our properties are 29 percent more energy efficient, 26 percent more water efficient and emit 30 percent less emissions per square meter. For example, at one asset we spent $3.2 million over 4 years, replacing equipment with more efficient plant, retrofitting, and introducing a number of management efficiency measures, resulting in a 48.5 percent reduction in CO_2 and a return of over 14 percent per annum."

Next Steps

"In 2007, utilizing our structured Operational Performance Strategy, we set average portfolio targets for energy and water for 2012 using the National Australian Built Environment Ratings System (NABERS) and we are on track to achieve those targets. In line with continuous improvement, this year we will be reviewing this strategy looking towards 2015. We are also looking to work more closely with tenants and contractors to increase engagement and the achievement of higher targets for the portfolio.

From Green Starter to Green Star?

A sustainability vision and strategy will guide direction. Collecting and understanding environmental data in order to set up reporting systems to be able to measure, analyze and monitor the assets' performance. Putting these systems in place has the benefit of allowing targets to be set. Benchmarking performance against your own internal goals, peers and industry norms, provides you with the ability to improve the performance of your assets over time. Education in operational efficiency for facility and property management staff and contractors is critical, as is management reporting."

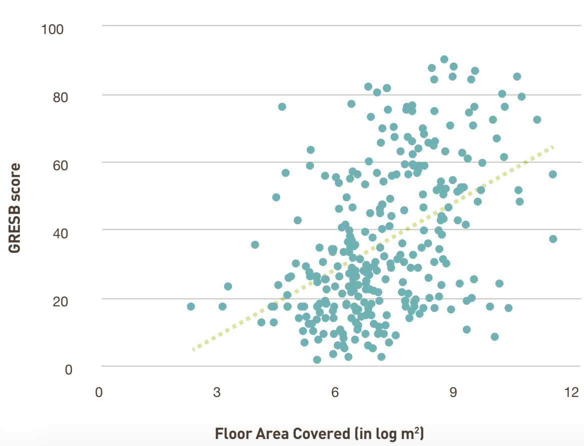
Digging Deeper I Explaining Environmental Performance

Clearly, there are systematic differences in environmental performance among different groups of property funds. These differences may be fund-specific, driven by factors such as portfolio age and property type, but they may also be regional, influenced by energy prices and regulation, for example. The combination of these factors may affect the extent to which fund managers are integrating environmental and social policies into their portfolios.

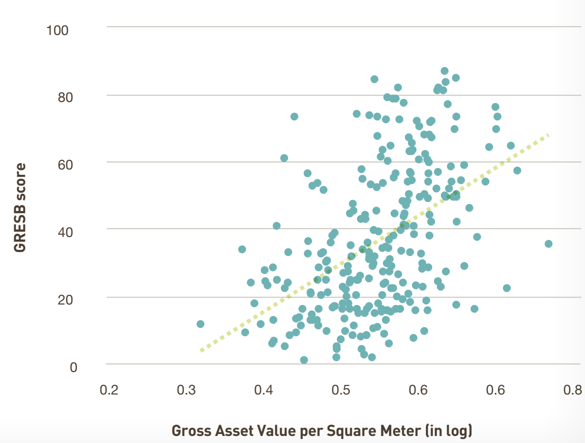
The graphs below provide some evidence on the effects of portfolio size on environmental performance. On the left, each of the dots in the graph represents one property fund, either listed or private, where the horizontal axis corresponds to its size – floor area in square meters – and the vertical axis corresponds to the overall GRESB score. At first sight, the result seems a rather amorphous cloud of dots, without much direction, but the fitted line through this cloud shows a positive (and significant) relation between portfolio size and a fund's environmental performance. This illustrates that size matters in explaining environmental performance, in line with scientific evidence on the diffusion of energy efficiency technologies in buildings.[XI] Larger property funds seem to have the scope to obtain the necessary economies of scale when implementing environmental policies. Interestingly, this contrasts the perception that smaller funds, with fewer buildings under management, should be able to outperform larger funds when it comes to improving environmental performance.

In the right-hand graph, the gross asset value (GAV in US$) per square meter is related to environmental performance. Quite clearly, the value of property portfolios is positively correlated with the GRESB score. The direction of this relation cannot be disentangled: property portfolios at more expensive locations may be more likely to "go green" (for instance, those primarily located in central business districts), as capital expenditures represent a lower fraction of total asset value and tenant demand for certified real estate may be higher. But also, property portfolios that integrate environmental and social factors into the investment and management process may command higher cash flows and portfolio valuations (in line with scientific evidence at the property level).

Size and GRESB Scores



Value and GRESB Scores



Differences in environmental performance are also expected between property types. Funds improving the sustainability of their assets are likely to face hurdles and cost differences that partly depend on the property type invested in:

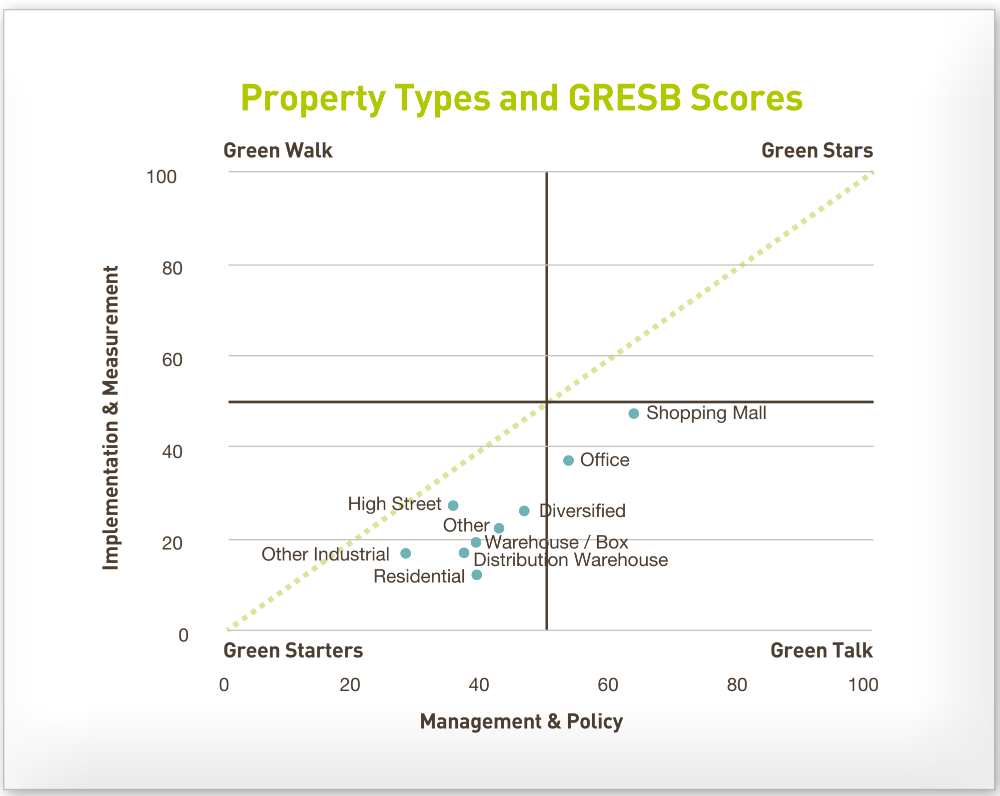
- Scale: investments to improve the sustainability of single-family properties, which have a small scale, are relatively expensive, while those investments are much easier and cheaper to implement in retail space or in high-rise office towers;

- Lease structure: the lease contracts that are prevalent in different property types (gross versus net leases) also affect the flow of savings stemming from retrofits, influencing the investment decisions of landlords. In addition, operational control of investors in industrial and retail space is typically limited, and this restricts intervention by the landlord before the expiry of the lease.

- Rating schemes: property-level rating and benchmarking schemes (like LEED and Energy Star in the US, Green Star and NABERS in Australia, BREEAM and the EPC in Europe, etc.), are mostly available for more generic property types, but have been slow to appear for specialized property types;

- Tenant demand: tenant demand regarding the energy efficiency and sustainability of their space is likely to differ between property types. For example, it may well be that tenants for office space are quite interested in the reputational effects of a green-certified headquarters, whereas for users of industrial space, these effects may be trivial.

The graph below shows the sector scores for the 2011 survey. These are mostly in line with the 2009 results: residential (20) and industrial (23) property portfolios score low, whereas offices (41) and shopping centers (52) have higher scores. Property funds with a portfolio diversified across sectors take a mid position. The low score for the residential sector is mostly driven by the lack of measurement of key performance indicators, reflected in the implementation & measurement category (11). Likewise, for industrial and logistics properties, implementation of environmental policies seems to be hindered by the fact that owners often do not have operational control over their space.



Key Performance Indicators | Mapping the Impact of the Global Property Sector

Many of the questions in the GRESB survey relate to the infrastructure that property investors need to develop in order to attain superior sustainability performance – from a physical as well as a policy perspective. But of course, the ultimate yardstick to judge the environmental and social credentials of the sector is the amount of resources consumed. Funds may have great environmental strategies, advanced environmental reporting, and may link environmental performance to employee remuneration (and the management & policy dimension of the GRESB score rewards respondents for that), but it all does not mean much if resource consumption just keeps growing.

A large part of the GRESB survey therefore focuses on environmental key performance indicators. These indicators include: energy, water, waste, and greenhouse gas emissions. Respondents are requested to provide information at the portfolio level, on a "like-for-like" basis over 2009 and 2010 (otherwise portfolio growth would almost inevitably imply worse environmental performance), with targets for 2011. To make meaningful comparisons, the corresponding floor area is also reported. Below is a selection of figures on key performance indicators.

Energy

32 %
respondents reporting on energy costs (19 percent in 2009)

44 %
respondents using smart meters for energy measurement (39 percent in 2009)

$ 3.29 million
median energy expenditures of respondents (highest energy bill: $120 million)

$ 1 billion
total energy expenditures of 109 respondents (total expenditures estimated at US$5 billion for full sample)

Water

$ 156 million
total water expenditures of 102 respondents

$ 290,000
median water expenditures of respondents (highest water bill: $12 million)

334 liter
water use intensity (per m²) of respondents

39 %
respondents reporting on water consumption (16 percent in 2009)

Greenhouse Gas Emissions

20
increase in number of respondents reporting on GhG emissions (118 respondents in 2011)

60 %
fraction of portfolio covered by respondents reporting on GhG emissions

66.4 kg CO_2
GhG intensity (per m²) of respondents

$ 7.2 million ton CO_2
aggregate tons of CO_2 emitted by 118 respondents (total emissions estimated at 34 million tons for full sample)

Waste

26 %
respondents reporting on waste (11 percent in 2009)

55 %
average reported recycling rate (GRESB estimation: 30 percent recycling rate)

Social

60 %
respondents monitoring contractors on labor standards

43 %
respondents measuring employee health & satisfaction through independent surveys

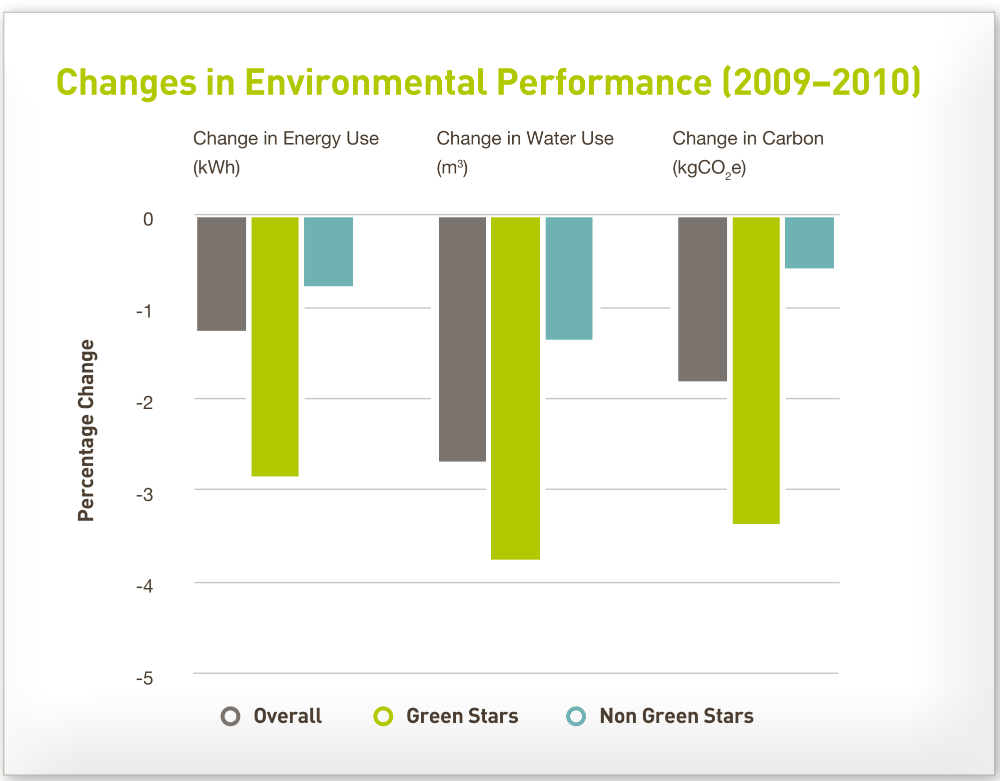
Changes in Energy and Water Use | Sector Improves Performance

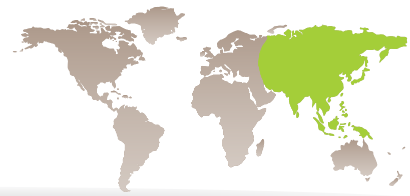
The graph below shows changes in three key indicators of environmental performance between 2009 and 2010. For each of the indicators, the left bar reports the change for all reporting funds, the middle bar reports that change for Green Stars, and the right bar shows the figure for the remainder of the funds. For the 117 funds that reported (meaningful) like-for-like data, the energy use (kWh) decreased by 1.3 percent in one year (the maximum reduction in energy consumption was 20.6 percent). For the 65 Green Stars, that decrease was almost 3 percent. So, being a GRESB Green Star really implies superior environmental performance: noblesse oblige.

For water use (cubic meters), the performance improvement of the real estate sector is even better: a 2.8 percent reduction for all reporting funds combined (103 funds), and a 3.8 percent decrease in water consumption for the Green Stars. The maximum reported reduction in water consumption was 42.4 percent.

Regarding greenhouse gas emissions, the industry is clearly moving in the right direction, with a 1.8 percent reduction in 2010 (90 funds). The performance improvement of the Green Stars is even at 3.4 percent.

Interestingly, most of these reductions in energy and water consumption are the result of market forces alone: they are accomplished by commercial property investment funds aiming to improve their bottom line by saving on energy and water expenses. This is important information for policy makers: the sample of commercial property funds reported in this report seems to be aligned with global carbon goals, set at average reduction targets of less than 2 percent per year.[XII]





Regional Results | Asia

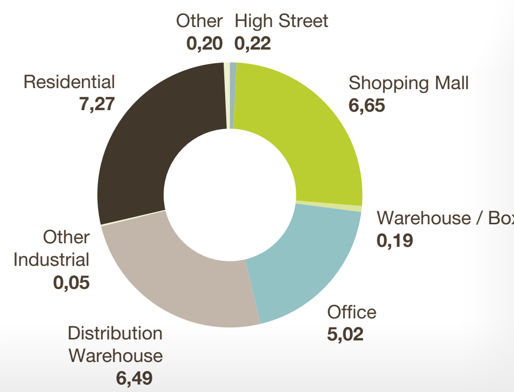
This years' response rate increased significantly in Asia, with a survey response of 49 property funds. This includes 12 listed property companies, representing more than 12 percent of the FTSE EPRA/NAREIT Asia Market Index. On aggregate, the respondents account for approximately US$91 billion of gross asset value (GAV) in commercial real estate, US$43 billion of which are office properties. The total floor space covered by the GRESB survey in Asia is about 26 million square meters.

The top-5 property companies and funds in terms of overall GRESB score are reported below, separately for listed companies and for private funds. On the listed side, Singapore-based Keppel Land is the best performer (see interview for more details). Two Japanese companies – Kenedix REIT and Japan Prime Realty – are among the high-ranked Asian funds as well. The best performing funds in Asia are private. Asia's environmental champion is Lend Lease's Asia Pacific Investment Company (APIC) 2, with an overall score of 72. Interestingly, the Asian top-10 includes funds that score higher on implementation & measurement than on management & policy, suggesting a strong commitment towards high environmental performance, but with limited external communication until now.

The areas of strength in sustainability performance in Asia are **management** (41), **monitoring & EMS** (37) and **new developments** (40). For instance, all respondents employ dedicated staff to manage the sustainability performance (1.8FTE per company, on average) and 58 percent of the listed respondents are able to report on energy consumption. Among private respondents, reporting on key environmental performance indicators covers 86 percent of the portfolio. The relative high score for new developments is quite important: Asia is at the forefront of new construction, which offers an opportunity to construct high-performing, efficient buildings now, rather than

	Listed	Private
Number of Respondents	12	37
Market coverage (value-weighted)	12%	
Gross Asset Value ($ billion)	40	51

Breakdown Response (by property type, million m2)



Top-5 Listed Companies

Company	Score	MP*	IM*
1. Keppel Land Limited	59	61	57
2. CapitaMall Trust	51	81	38
3. Japan Prime Realty Investment Corp.	43	36	46
4. Kenedix REIT	39	13	51
5. CapitaLand Limited	35	71	18
Regional Average	29	32	28

**MP: Management & Policy *IM: Implementation & Measurement*

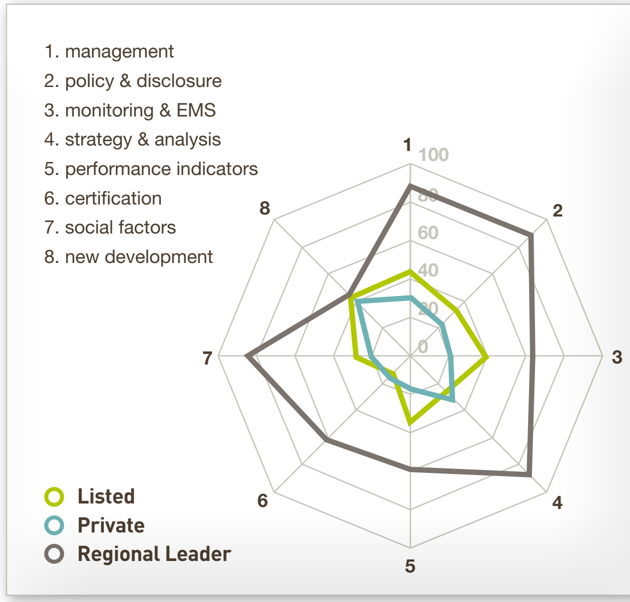
Top-5 Private Funds

Fund	Fund Manager	Score	MP*	IM*
1. Asia Pacific Investment Company 2	Lend Lease Investment Management	72	90	63
2. Lend Lease Asian Retail Investment Fund	Lend Lease Investment Management	66	92	54
3. Asian Retail Funds	Pramerica Real Estate Investor	56	49	59
4. Goodman Hong Kong Logistics Fund	Goodman Asia Ltd.	35	35	35
5. MGPA Japan Core Plus Fund	MGPA	31	34	29
Regional Average		21	29	17

**MP: Management & Policy *IM: Implementation & Measurement* renovating buildings during their economic life cycle (a problem that countries with older building stocks are faced with).

Room for improvement can be observed in the environmental performance of Asia's real estate investors in the dimensions **strategy & analysis** and **building certification.** For instance, only 22 percent of the Asian respondents have implemented a comprehensive sustainability implementation plan. The adoption of building certification schemes in Asia is still limited: only 25 percent of the listed respondents employ internationally accepted building certificates, compared to 59 percent of listed companies worldwide. The low adoption rate of energy efficiency and sustainability certificates might be due to the lack of comprehensive, region-wide measures for the sustainability or the energy efficiency of buildings. But the region is developing these schemes, with the Greenmark scheme in Singapore and the CASBEE scheme in Japan as prime examples.

Strengths and weaknesses



Perfomance Indicators

1.87%
reduction in energy use (kWh/m2) among Asian respondents

1.8
average FTE staff dedicated to sustainability management

94.17
average GHG intensity (kgCO2/m2)

58%
listed respondents reporting on energy consumption

Kevin Wong, Group CEO, about the environmental performance of Keppel Land

"Our LEED Platinum-rated Ocean Financial Centre is a showcase of best environmental practices. Eco-breakthroughs such as the largest solar panel system in Singapore's CBD, energy-efficient hybrid chilled water system and integrated paper recycling facility will result in energy savings of 9.08 million kWh per year, or cost savings of S$1.8 million per year (US$1.5 million). Water savings are S$85,488 per year (US$70,7015).

Ambitious next steps

We have put together a set of environmental performance targets, including:

- *At least 40 percent of construction materials to be sourced regionally, within 1,000 km, to reduce the carbon footprint.*
- *At least 20 percent of total site area of commercial buildings to be vegetated (includes green roofs, green walls).*
- *At least 70 percent of Gross Floor Area to be well-lit by natural light.*
- *100 percent of irrigation water should be non-potable.*

From Green Starter to Green Star

Companies need to understand why they want to start on a corporate sustainability program, as this will help to define the objectives and goals. They need to be mindful that this is a long-term commitment of time, effort and resources, and proactive communication and engagement with stakeholders is crucial. CSR champions within the company will help drive awareness and build internal buy-in for CSR initiatives. In addition, both "software" (senior management and staff involvement) and hardware (ISO adoption, Eco-office program) are needed. A long-term CSR roadmap will ensure long-term sustainability."

Regional Results | Australia

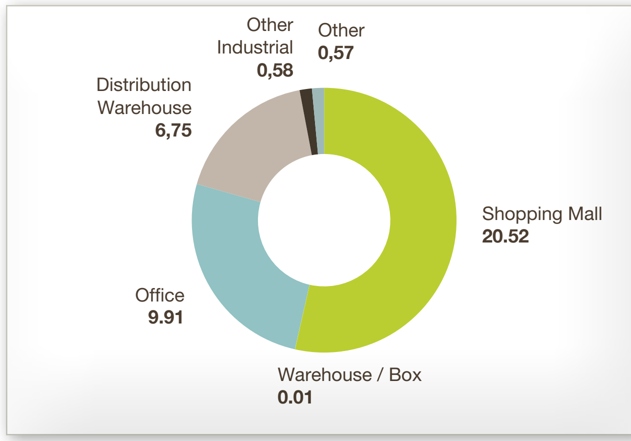
In the 2009 GRESB survey, Australian property investment funds turned out to be the environmental world champions. Coverage of the Australian market was strong in last year's survey, but has improved further this year, especially among private funds, with the 2011 survey reporting the environmental performance of 23 funds, up from 6 in 2009. The total number of funds is now at 33, and the combined gross asset value of the commercial properties owned by these Australian funds is US$ 198 billion. The total floor area covered is about 38 million square meters, with the majority invested in shopping centers.

The listed respondents display a stronger sustainability performance than private funds in Australia, with average scores of 66 and 57, respectively. Nevertheless, the top-5 for both categories demonstrates similar levels of excellence. Australia's leading listed fund this year is the Commonwealth Property Office Fund, which is also the world leader of the 2011 GRESB survey. Especially its score on implementation & measurement can be seen as an example for many other companies that are starting to translate policies into tangible measures. Investa's Office Portfolio fund is the leading private fund (see interview), with a score of 86, and last year's best performer, GPT, now comes in second (listed as well as private).

Australia's property investors perform exceptionally well in environmental issues that are related to management (70), policy & disclosure (67), and strategy & analysis (80), suggesting that the industry has created the managerial infrastructure needed to improve environmental performance. For instance, among Australian respondents, 70 percent has implemented tenant behavior programs (compared with 43 percent globally). Also, more than two-thirds of the respondents have variable compensation linked to the sustainability performance of assets (for 39 percent of the respondents, this performance incentive even affects the Executive Board/senior

	Listed	Private
Number of Respondents	10	23
Market coverage (value-weighted)	80%	
Gross Asset Value ($ billion)	141	57

Breakdown Response (by property type, million m2)



Top-5 Listed Companies

Company	Score	MP*	IM*
1. Commonwealth Property Office Fund	88	82	91
2. GPT Group	85	95	80
3. Stockland	78	97	68
4. CFS Retail Property Trust	75	88	68
5. DEXUS Property Group	69	77	66
Regional Average	66	76	61

**MP: Management & Policy* **IM: Implementation & Measurement*

Top-5 Private Funds

Fund	Fund Manager	Score	MP*	IM*
1. Investa Office Portfolio	Investa Property Group	86	88	85
2. GPT Wholesale Office Fund	GPT Group	83	92	78
3. Private Property Syndicate (PPS)	Colonial First State Global Asset Management	80	83	79
4. Australian Prime Property Fund Commercial	Lend Lease Investment Management	80	77	82
5. Direct Property Investment Fund (DPIF)	Colonial First State Global Asset Management	79	83	77
Regional Average		58	74	50

**MP: Management & Policy* **IM: Implementation & Measurement*

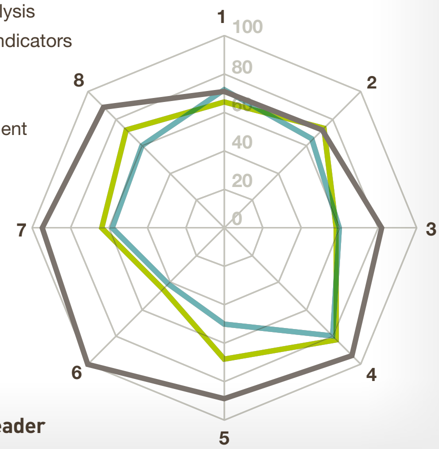
management). Importantly, there seems to be a direct connection between sustainability and financial performance: over 70 percent of the Australian respondents integrate information on environmental performance into the valuation process.

In advanced markets, sustainability will go beyond resource efficiency alone, and social factors may receive more attention. For example, health and well-being improvement programs have been implemented in the portfolios of eight Australian property funds. This is evidence of an increased attention towards productivity in buildings, a focus area where other regions may follow.

For some respondents, high scores on management & policy may yet have to translate into actual measures, as the scores on issues relating to implementation of environmental policies are generally lower. The average scores on **certification** for the Australian listed and private funds are 45 and 41, respectively, which is high as compared to the global average but comparing it to the best practices in Australia reveals that there is still substantial room for improvement. Reporting on performance indicators, and subsequent reduction of consumption, is another area for improvement, especially among private respondents.

Strengths and weaknesses

1. management
2. policy & disclosure
3. monitoring & EMS
4. strategy & analysis
5. performance indicators
6. certification
7. social factors
8. new development



Listed
Private
Regional Leader

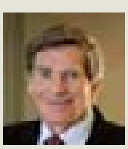
Perfomance Indicators

2.95 % reduction in energy use (kWh/m2) among Australian respondents

4.73 % reduction in water use (m^3/m^2) among Australian respondents

72.7 % integrates environmental performance in valuation

70 % has implemented tenant behavior programs



Scott MacDonald, Chairman and CEO, about environmental management at the Investa Group

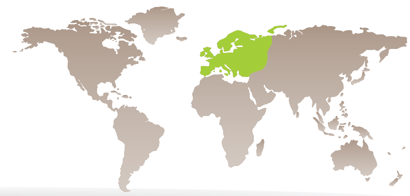
Our approach to environmental management is consistent with other aspects of the way we go about business: we require our investments to produce measurable results. That's why we started investing in environmental monitoring and sub-metering systems back in 2003. Whilst the meters do not save energy or water by themselves, they enable our staff to drive improvements through a combination of targeted capital investment and smarter, more effective, practices. Over the years we've found that our highly competent and motivated employees have contributed as much to our significant eco-efficiency improvements as have the capital investments in plant and equipment.

A no-nonsense approach

Investa's 2009 Sustainability Report was the first of its kind to provide an online platform enabling stakeholders to generate their own insights and judgments about our performance managing commercial office buildings. We have since enhanced our online accountability and no longer present targets. This no-nonsense approach is delivering results and it is helping to focus our attention on the things that really matter to the people we work with and for. As a consequence, we are creating more useful tools for analysis and implementation, including tools which predict what each building's daily energy use should be based on the weather, and which gather live occupant feedback. We are inviting scrutiny from a wider audience of interested stakeholders via interactive reports and websites (e.g. www.greenbuildingsalive.com), and supporting our staff as they endeavor to meet the expectations of those increasingly well-informed audiences.

Creating transparency in sustainability

We recommend organizations start by establishing a credible performance baseline. Independently assured data gives the basis upon which future success can be measured. From there, start monitoring and measuring impacts, and then invest in the people and technologies that thorough analysis indicates will deliver the most benefit. Most importantly, be open and honest: transparency drives accountability and performance.



Regional Results | Europe

The increased support from institutional investors in Europe has had a positive effect on the coverage of the GRESB survey: the total number of respondents is 194, an increase of about 50 percent. The response among listed companies has stabilized, while the coverage of private funds is up to 162 from only 64 in 2009. Overall, the funds participating in the GRESB survey represent a gross asset value of US$ 372 billion, covering 109 million square meters of commercial office space, and nearly 10,000 commercial buildings. In total, there are 29 GRESB Green Stars in the region (44 percent of the global total).

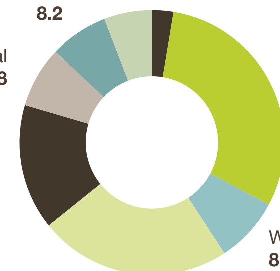
Among listed companies, sustainability management at Hammerson (UK) is leading the industry, followed closely by Land Securities (UK) and British Land (UK). Unibail-Rodamco, ranked fourth, is the only Continental European company in the top 5. Big Yellow, the number one in 2009, is ranked fifth this year.

Even though the average overall score among listed property companies (42 percent) is higher than compared to private funds (30), the best overall environmental performance is achieved by Sonae Sierra (Portugal), with a score of 86. Sonae Sierra did not participate last year, but it has a long track record in "corporate responsibility" and is now internationally seen as one of the leaders in sustainability, demonstrating true leadership in the areas of monitoring and reduction strategies (see interview).

The environmental performance of European respondents on policy & disclosure and strategy & analysis is relatively strong for both listed and private funds. For instance, 64 percent of the respondents have environmental policies that go beyond current government regulation (not a nice-to-have but a necessity, given that environmental regulation is in flux), and for 48 percent of the respondents

	Listed	Private
Number of Respondents	32	162
Market coverage (value-weighted)	75%	
Gross Asset Value ($ billion)	168	204

Breakdown Response (by property type, million m2)



Top-5 Listed Companies

Company	Score	MP*	IM*
1. Hammerson Plc	83	92	78
2. Land Securities	75	81	72
3. British Land Company Plc	73	88	66
4. Unibail-Rodamco	71	87	63
5. Big Yellow Plc	69	88	60
Regional Average	42	56	36

**MP: Management & Policy* **IM: Implementation & Measurement*

Top-5 Private Funds

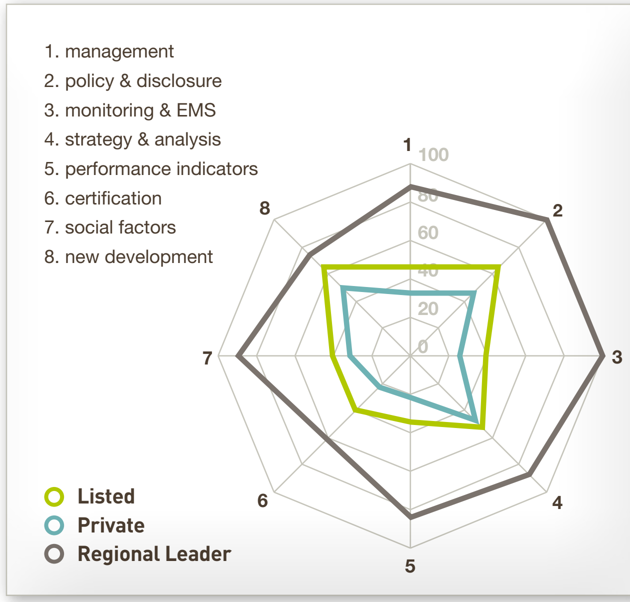
Fund	Fund Manager	Score	MP*	IM*
1. Sonae Sierra	Sonae Sierra	86	92	83
2. Lend Lease Retail Partnership	Lend Lease Investment Management	80	92	74
3. ING Retail Property Fund Iberica LP	ING Real Estate Investment Management	75	77	74
4. Climate Change Property Fund	Climate Change Capital Ltd.	75	62	80
5. The Mall Fund	Capital & Regional PLC	74	78	72
Regional Average		30	44	23

**MP: Management & Policy* **IM: Implementation & Measurement*

these policies include at least four environmental aspects. Also, 63 percent of the respondents have set up a sustainability implementation plan, covering 55 percent of the standing investments of these respondents, on average.

Reporting of environmental performance indicators is still challenging for the average European respondent, especially for private funds. Perhaps the latest sector supplement of the Global Reporting Initiative and the newly developed EPRA Best Practices Recommendations on Sustainability Reporting will provide some guidance to the market. Monitoring the portfolio energy costs is at this moment done by only 26 percent of the respondents, offering room for improvement to actually find a balance between environmental and economic optimization. The median reduction in energy use between 2009 and 2010 was just 0.11 percent in Europe, which is trailing the global reduction by more than one percent.

Strengths and weaknesses



Perfomance Indicators

25 % respondents with a certified EMS in place

26 % respondents reporting on energy costs

0.11 % decrease in energy use (kWh/m²) among European respondents

63 % respondents with a sustainability implementation plan

Pedro Caupers, Director, Investment and Asset Management Europe, on environmental leadership at Sonae Sierra

“Sonae Sierra is committed to continually improve the environmental performance of its business activities since 1998 through the implementation of Sierra’s environment management system (EMS) across the entire business. Through this EMS, certified according to ISO 14001, we manage the most critical environmental aspects of our activities and we follow a Plan-Do-Check-Act cycle, a process of continual improvement in which an organization is constantly reviewing and revising the system. In terms of waste, we have been able to more than double the waste recycling rate of our shopping centres since 2002 – from less than 20 percent to 51 percent in 2010. This reduction had quantified benefits for the environment (24,670 tonnes of waste sent for recycling) and cost savings of about 1.6 Million Euros in 2010. On energy efficiency, we have reduced the electricity consumption per m2 of the common areas of the aggregated Sonae Sierra portfolio by 30 percent since 2002. This represented a saving in 2010 of around 105 million kWh, or about 9 million euro.

From policies to specific objectives and targets

“Our CR policy is accompanied by a set of long-term objectives that reflect the most significant risks and opportunities to the business. Each year, Sonae Sierra sets itself a number of targets against each CR objective, which form the basis of the following year’s CR action plan and respective budget and seek to ensure that we meet our goal of continuous improvement in both management and performance. We also monitor our performance on a continuing basis and report annually against our headline KPIs. For example, one of our long-term objectives is to achieve a 70 percent reduction in GHG emissions per m2 of GLA, by 2020, compared to the 2005 level. Until 2010 we already achieved a reduction of 60 percent compared to the 2005 level.”

Integrate Corporate Responsibility within the organization

“The most difficult element is to establish the areas in which we should act from a corporate responsibility point of view, the objectives sought, and the public we wish to address and how to organize the company’s resources to achieve our purpose. Our experience has shown us that we must first accept that CR has to be fully integrated in the company’s business strategy. It must involve the entire organization and it is a continuous process. It makes no sense, from our point of view, to carry out individual or ad hoc actions without any strategic approach or quantifiable goals.”

Regional Results | The Americas

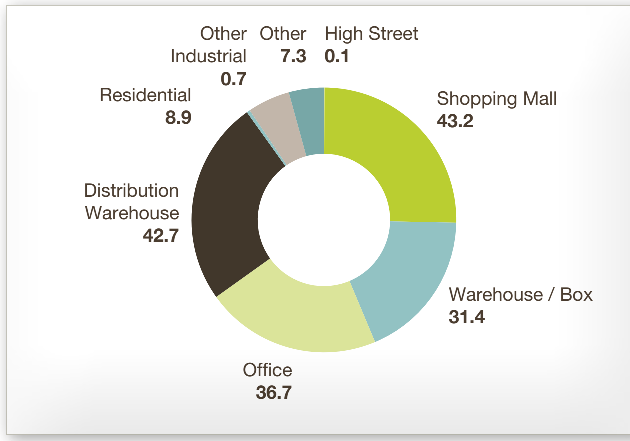
The coverage of GRESB in the Americas has increased compared to 2009: a total of 64 funds are included in the database this year, against 56 in 2009. The value-weighted market coverage (based on the FTSE EPRA/NAREIT North America Index) is at 37 percent, and the number of privately managed funds has increased by more than 20 percent. Some of the new entrants are firms from Canada, a country that did not participate in the GRESB survey before. The total gross asset value (GAV) represented by the survey amounts to US$267 billion, covering a gross leasable area of about 171 million square meters (1.8 billion square feet).

Among listed funds, the company with the highest overall environmental performance is Thomas Properties Group (TPG), a new participant (see interview). The second-ranked company is based in Sydney, Australia, but the majority of its assets are in the US. The Australian best practices are clearly reflected in Charter Hall's environmental management and policies. Among the top-ranked funds, the private group performs best. The Canada-based Bentall Kennedy Group is managing the best performing private fund in the region, the Multi-Employer Property Trust. All private funds in the top-5 are now considered Green Stars.

American property funds, both listed and private, perform relatively well on two dimensions: **management** and **strategy & analysis.** (This is also reflected in the scores of the high-ranking funds.) For instance, 52 respondents employ on average 2.6 FTE of staff dedicated to environmental management. Furthermore, the use of smart meters for measurement of energy consumption is becoming the norm. Also, some 70 percent of the respondents use a sustainability assessment as part of the due diligence process, and 88 percent integrates sustainability in major renovation plans.

	Listed	Private
Number of Respondents	15	49
Market coverage (value-weighted)	37%	
Gross Asset Value ($ billion)	133	134

Breakdown Response (by property type, million m2)



Top-5 Listed Companies

Company	Score	MP*	IM*
1. Thomas Properties Group Inc.	65	55	70
2. Charter Hall Office REIT	54	71	46
3. Liberty Property Trust	54	61	50
4. Vornado Realty Trust	51	86	34
5. Simon Property Group, Inc.	47	60	41
Regional Average	33	48	26

**MP: Management & Policy* **IM: Implementation & Measurement*

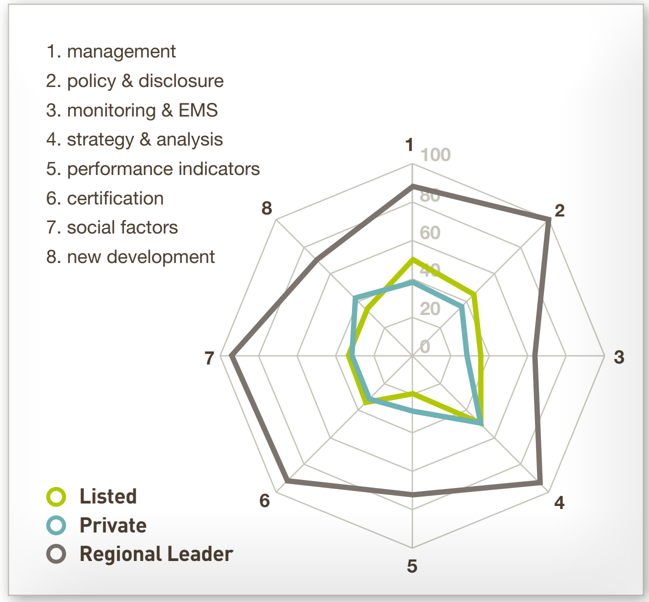
Top-5 Private Funds

Fund	Fund Manager	Score	MP*	IM*
1. Multi-Employer Property Trust	Bentall Kennedy Group	83	95	78
2. Bentall Kennedy Group - North America	Bentall Kennedy Group	83	97	77
3. Oxford Properties Group	OMERS	78	90	73
4. -	Principal Real Estate Investors	75	86	70
5. USAA Commingled Portfolio	USAA Real Estate Company	61	65	60
Regional Average		34	44	29

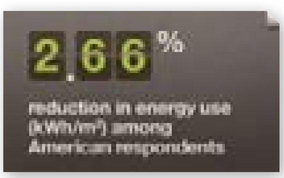
**MP: Management & Policy* **IM: Implementation & Measurement*

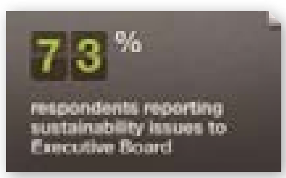
Even though smart meters are becoming more prevalent (used by 50 percent of the respondents), the average score on the performance indicator dimension is just 27 percent, implying that American real estate investment funds as a group do not adequately keep track of their actual resource consumption yet. Indeed, only 38 percent of the respondents report on actual energy consumption. However, within this group, year-on-year reduction in energy consumption is substantial: 2.66 percent in 2010 alone. As documented in the four-quadrant model of environmental management, a well-defined strategy and management procedure is a prerequisite for being able to implement environmental improvements. Given the relatively strong performance of American respondents on management dimensions, it is expected that monitoring and reporting of key environmental indicators will be adopted in the years to come.

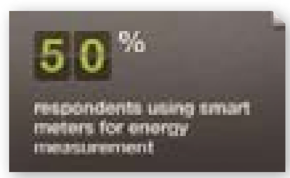
Strengths and weaknesses



Perfomance Indicators







Jim A. Thomas, Chairman, President and Chief Executive Officer, about the sustainability program of Thomas Properties Group

"We developed and still manage the first highrise in the U.S., the CalEPA Headquarters, to receive LEED EB Platinum certification, with a minimal cost premium and less than a year payback. We have applied this knowledge to our entire portfolio to achieve highest performance and lowest operating costs with a strong focus on measures that save energy and water, improve indoor air quality and reduce waste and carbon emissions. City National Plaza was retrofitted between 2003 and 2009, resulting in a 63 percent increase in occupancy with only a 1.37 percent increase in energy consumption and over $12,000,000 in energy costs savings since 2003.

Working with tenants

Our goal is for 100 percent of our eligible buildings to be Energy Star Labeled and LEED certified by 2012 as these are great standards to measure ongoing performance improvements. As we look forward we will continue to pursue ways to improve and reduce our carbon emissions though working with our tenants on efficient green occupant loads and behavior programs, exploring value-add smart technologies and looking beyond increasing efficiencies and reducing negative impacts to having positive impacts. Our sustainability programs are targeted toward the goal of ensuring sustainable buildings for our tenants that also positively impact the communities around them.

Create a team and use tools

Becoming a sustainable organization takes time and commitment and the goal should be continuous improvement over time. The following steps can help: name a sustainability team, identify opportunities, develop a plan with a vision and mission, establish a baseline, invest in internal and external sustainability knowledge, implement sustainability policies and finally, take advantage of tools like Energy Star and LEED to implement your programs."

Concluding Remarks

The global real estate sector is responsible for 40 percent of global carbon emissions, and the buildings owned and operated by property funds account for a substantial share of these emissions. Supported by leading institutional investors, the Global Real Estate Sustainability Benchmark has evolved into an important portfolio-level environmental benchmark for commercial property investment funds and companies. The information provided by the GRESB Foundation can assist institutional investors in their investment decisions, and offers a unique tool for direct engagement on environmental and social performance. with property funds. For managers of property companies and funds, benchmarking their current sustainability practices at the portfolio level offers the opportunity to compare, set goals and improve performance.

The commercial real estate sector stands just at the beginning of the road towards full integration of environmental management into daily operations, with great opportunities lying ahead. But this year's survey demonstrates that the initial steps are being taken by the sector: the substantial increase in private property funds responding to the survey request indicates more transparency on environmental performance in the property sector. More funds are now able to report on environmental key performance indicators, including not just greenhouse gas emissions, but also water consumption and waste. Importantly, progress can also be observed in the GRESB four quadrant model of environmental performance: even though the majority of property funds can still be considered Green Starters, a substantial number of respondents has developed environmental policies and strategies, reflected in an increase in funds classified as Green Talkers.

The hallmark status of solid environmental management, Green Star, is now achieved by 65 respondents (see the list of participants in the back of this report). To become a Green Star, funds need to attain an outstanding score on multiple dimensions of environmental performance. The results reported on environmental key performance indicators provide evidence that these dimensions are indeed strongly related to above-average reductions in energy use, water consumption, and greenhouse gas emissions. Green Stars are not property investors that are just active in the green niche of the real estate market. These mostly mainstream funds, with a keen eye on the bottom line, are able and willing to disclose information on environmental management towards stakeholders. Green Stars are demonstrating to the followers in the industry that best practices in environmental management are achievable. Being a Green Star can truly be considered as a badge of overall management quality.

The data collected by the GRESB Foundation provides some important first evidence on changes in resource consumption by the commercial property sector. As the investment industry is profit-driven rather than values-driven, these changes represent the combined result of government intervention, and, most of all, return-seeking investments. Based on a subset of the companies reporting data to the GRESB Foundation, the numbers presented in this report show a year-on-year reduction of 1.34 percent in standardized energy consumption – for a sample of 114 property companies that together represent US$537 billion in asset value. Greenhouse gas emissions were reduced by 1.84 percent in 2010 – or 290,000 tons of CO_2 use averted – for a sample of 90 property companies. These numbers suggest that commercial property investors are achieving quite significant reductions in resource consumption – reductions driven primarily by economic considerations. Creating transparency in these reductions is important for investors to engage with property funds and companies that have yet to start managing their carbon footprint.

Notes

i. **Bauer, Rob; Piet Eichholtz, Nils Kok and John M. Quigley.** 2011. "How Green is Your Property Portfolio? The Global Real Estate Sustainability Benchmark." *Rotman International Journal of Pension Management,* 4(1), 34–43.

ii. **RICS.** 2005. "Green Value," London and Vancouver: RICS.

iii. **Enkvist, Per-Anders; Thomas Naucler and Jerker Rosander.** 2007. "A Cost Curve for Greenhouse Gas Reduction." *The McKinsey Quarterley,* 1, 35–45.

iv. **Eichholtz, Piet M.A.; Nils Kok and John M. Quigley.** in press. "The Economics of Green Building." *Review of Economics and Statistics.*

v. **Kok, Nils and Maarten G. J. Jennen.** 2011. "The Value of Energy Labels in the European Office Market," Unpublished working paper.

vi. **Brounen, Dirk and Nils Kok.** 2011. "On the Economics of Energy Efficiency in the Housing Market." *Journal of Environmental Economics and Management,* 62 (166–179).

vii. **SNL Real Estate** and calculations by the GRESB Foundation.

viii. The European Public Real Estate Association (EPRA) represents European listed real estate companies. The EPRA Best Practice Reporting on Sustainability can be downloaded here: http://www.epra.com/media/EPRA_BPR_2011_Sustainability.pdf

ix. **The Global Reporting Initiative (GRI)** is an UN-backed scheme that aims to promote a standardized approach to corporate reporting on sustainability issues. For more information visit www.globalreporting.org.

x. "Like-for-like" refers to a property portfolio that is consistently in operation during both reported periods. The consumption data covers a set of assets that have not been affected by any significant changes such as disposals, acquisitions or new construction developments. If a change in vacancy rate for a given building exceeds 5 percent during the three periods that are described, such buildings are excluded from the like-for-like portfolio.

xi. **Kok, Nils; Marquise McGraw and John M. Quigley.** 2011. "The Diffusion of Energy Efficiency in Building." *American Economic Review,* 101(3), 77–82.

xii. For instance, the European goal is to reduce greenhouse gas emissions emissions by 20 percent in 2020, as compared to 1990 levels.

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Real Property Association of Canada (REALpac)
Responsible Investment Association Australasia (RIAA)
United Nations Principles for Responsible investment (UN PRI)

Survey Participants

We recognize the effort of all participants in this year's survey (fund managers may have participated with more than one fund):

G R E S B
Green Star 2011

Fund managers with one or more funds ranking as Green Stars are in green.

Aberdeen Asset Management Finland Oy
Aberdeen Asset Management PLC
AEW Capital Management, LP
Ajia Partners Real Estate Group (HK) Ltd.
Alexandria Real Estate Equities, Inc.
Alstria office REIT-AG
ALTAREA
Altera Vastgoed N.V.
AMB Capital Partners LLC
AMB Property Corporation
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AvalonBay Communities, Inc.
Aviva Investors
AXA Real Estate Investment Managers
Befimmo
Behringer Harvard Multifamily REIT I, Inc.
Bentall Kennedy Group
Big Yellow Group PLC
Bouwfonds Real Estate Investment Management
British Land Company PLC
Calibre Capital Ltd.
Capital & Counties Properties PLC
Capital & Regional PLC
Capital Shopping Centres Group PLC
CapitaLand Ltd.
CapitaMall Trust
Castellum AB
CB Richard Ellis Investors
Charter Hall Office REIT
Charter Hall Retail REIT
citizenM
Citycon Oyj
Clarion Partners
Climate Change Capital Ltd.
Cofinimmo S.A. / N.V.
Colonial First State Global Asset Management
Cordea Savills
Corio N.V.
Cornerstone Real Estate Advisers LLC
Coventry Real Estate Advisors
Crocker Partners LLC
Derwent London PLC
Deutsche EuroShop AG
Developers Diversified Realty Corporation
DEXUS Property Group
Diamond Realty Management
DIC Asset AG
Eagle Asset Management (CP) Ltd.
ECE
Eco City Integration Fund
Eurindustrial N.V.
Eurocommercial Properties N.V.
Europa Capital
F&C Asset Management PLC
Federal Realty Investment Trust
First Capital Realty, Inc.
Fortius Funds Management Pty Ltd.
Forum Partners Investment Management LLC
GE Capital Asia Pacific Ltd.
GI Partners
Goodman
GPT Group
Greystar Real Estate Partners, LLC
Grosvenor Group Ltd.
GTIS Partners
Guardian Realty Investors, LLC
Hammerson PLC
Hansteen Holdings PLC
Harrison Street Real Estate Capital, LLC
Heitman LLC
Henderson Global Investors Ltd.
Hermes Pensions Management Ltd.
ICBC International Fund Management Ltd.
ING Real Estate Investment Management
Inland Real Estate Corporation
Internos Real Investors LLP
Invesco Ltd.
Investa Property Group
ISPT Super Property
IVG Immobilien AG
J.P. Morgan Asset Management
Japan Excellent Asset Management Co., Ltd.
Japan Prime Realty Investment Corporation
Japan Retail Fund Investment Corporation
JER Partners
Kenedix REIT Management, Inc.
Kenedix, Inc.

Keppel Land Ltd.
Kilroy Realty Corporation
Kimco Realty Corporation
Klépierre
Land Securities Group PLC
Laramar Group
LaSalle Investment Management
Leasinvest Real Estate Comm. VA
Legal & General Investment Management
Lend Lease Investment Management
Liberty Property Trust
Local Government Super
MacFarlane Partner
Madison Marquette
Metric Property Investments PLC
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Pramerica Real Estate Investors
Prelios S.p.A.
Principal Real Estate Investors
Prologis, Inc.
Prosperitas Investimentos S.A.
Prudential Real Estate Investors
PRUPIM (Prudential Property Investment Managers Ltd.)
PSP Swiss Property AG
Q-Park
Quintain Estates and Development PLC
Regency Centers Corporation
Rockspring Property Investment Managers LLP
RXR Realty
Savanna Investment Management, LLC
Schroder Investment Management Ltd.
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Syntrus Achmea Vastgoed
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The Conygar Investment Company PLC
The Local Shopping REIT PLC
Thomas Properties Group, Inc.
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