



G R E S B[®]
REAL ESTATE DEBT

Green Bond Guidelines for the Real Estate Sector

October 2016

Introduction

The Green Bond Principles (“Principles”) provide the basis for capital market participants to originate Green Bonds; specifically, debt obligations tied to investment activities targeting new and existing projects with environmental benefits across all industry sectors¹. The 2016 Principles build upon the initial 2015 version while maintaining similar scope and framework components.

Given the rapid growth of the Green Bond market issuance and investor demand, the updated Principles expanded beyond environmental scope to include bonds with a social focus (“Social Bonds”) by providing an opportunity to combine social and environmental objectives (“Sustainability Bonds”). These advances are applicable to the real estate industry given the social impact and place in modern urban development.

Market developments continue to demonstrate the need for clear industry-specific guidance. These Green Bond Guidelines for the Real Estate Sector (“Guidelines”) are meant for market participants that seek further clarification and details regarding green property bonds. This update of the GRESB Green Bond Guidelines build on the Principles by focusing on specific real estate topics and relevant metrics to assist market participants when originating and/or investing in green property bonds.

Market Applicability

These Guidelines are applicable to all property bond types outlined in the Principles and provide guidance on information disclosure, impact reporting and overall transparency necessary to represent a bond issuance as a green bond product. Issuers, underwriters and investors can use the GRESB Guidelines to:

- Construct and/or analyze a green property bond framework
- Specify eligible green projects
- Identify appropriate metrics
- Determine reporting requirements in accordance with established real estate industry protocols.

A green property bond framework serves as the primary source for showing the sustainability-based qualities and communicating the social and environmental added value from bond proceeds. Capital market participants require clearly defined project eligibility categories and the expected social and/or environmental benefits.

Project selection and assessment criteria may be represented by both qualitative and quantitative thresholds related to the issuer’s long-term sustainability goals. This information should be complemented by a reporting scope and metrics detailing environmental and/or social impacts achieved by the green bond. Regular performance updates increase transparency, enhance capital market credibility, and mitigate opportunities for greenwashing.

Real Estate and Construction Sector

The real estate industry is well positioned to address long term environmental issues including energy and water consumption, waste management, tenant health and safety, and community impacts. The Guidelines recognize the real estate industry’s impact, providing a framework to 1) identify project eligibility, 2) implement and manage investment proceeds, and 3) communicate potential and actual green bond outcomes to stakeholders.

The real estate industry has a well-established track record of addressing environmental and social impacts by using independent third party rating systems. Certified buildings are widely recognized as “green” by real estate industry practitioners, within governmental policies, and among the general public.

Green building certifications use frameworks that encompass project-based attributes identified in the Principles, and allow issuers opportunities to communicate results across multiple stakeholders. Certification programs also define fundamental terms and concepts that are easily understandable, address multiple environmental and social impacts, and measure outcomes across the asset lifecycle.

¹ See 2016 Green Bond Principles source document from International Capital Market Association: <http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/green-bond-principles>

Guidelines

There are four main components covered by these Guidelines required for a green property bond:

1. **Use of Proceeds**
2. **Process of Project Evaluation and Selection**
3. **Management of Proceeds**
4. **Reporting**

These Guidelines identify environmental and social aspects within the real estate sector that may serve as eligibility criteria defining a green property bond. This framework includes specific norms that may be used when issuing green property bonds and metrics for investor reporting and communication until bond maturity.

1. Use of Proceeds

The Green Bond Principles identify several broad categories for green project eligibility; these categories are designed to encompass the environmental and social impacts across all industry types within a global economic context.

The real estate industry has come to understand its environmental and social impacts throughout the entire economic value chain – land use, materials sourcing, supply chain scope and scale, demands on transportation and infrastructure, energy and water pollution, biodiversity, occupant health and well-being, and community impact.

Each of the nine (9) categories identified by the Green Bond Principles represents environmental impacts interlinked with the real estate industry:

- Renewable Energy
- Energy Efficiency
- Pollution Prevention and Control
- Sustainable Management of Living Natural Resources
- Terrestrial and Aquatic Biodiversity Conservation
- Clean Transportation
- Sustainable Water Management
- Climate Change Adaptation
- Eco-efficient Products, Production Technologies and Processes

Each category outlined above can be described through asset attributes and actions that provide environmental and/or social benefits while reducing impacts. These aspects are addressed within the frameworks of green building rating systems used by the real estate industry. Certain aspects are addressed by multiple sub-sections, which underlie these rating systems.

Eligible green projects can span a range of construction and real estate investment activities to include new development projects, land preservation easements, the retrofit of underperforming buildings, and the refinancing of existing high performance buildings. To ensure higher transparency, bond issuers should provide additional information on percentage of investment used for new construction vs. existing projects.

Green building rating systems require performance-based measurements along multiple impact categories as basis for certification, and comprehensive documentation detailing specific environmental and social measures against a baseline set. Upon completion, the green building certification scorecard reveals key environmental attributes and performance achievements.

The overall building certification level may be used as a minimum threshold for eligible green projects, and should be publicly reported. These thresholds should vary between already existing projects and new developments. Assets may be certified using rigorous green building rating systems such as LEED, Green Star, BREEAM, CASBEE and DGNB among others. Local differences may be taken into consideration when developing green property bond framework.

The following table outlines many common Eligible Green Project Criteria in accordance with the green building rating systems most widely used in the real estate market - BREEAM, Green Star and LEED - and the WELL building standard specific to health and well-being,

Eligibility Criteria for Green Property Project

Aspect	Asset Attributes / Actions	Building Rating System Credit Categories	Environmental Impacts
Renewable Energy	<p>Onsite renewable energy generation powering the building and/or distributed to the grid</p> <ul style="list-style-type: none"> Solar / Wind / Geothermal / Fuel Cell / Other <p>Offsite renewable energy purchase</p>	<p>BREEAM Energy, Pollution</p> <p>Green Star Energy, Innovation</p> <p>LEED Energy & Atmosphere, Innovation</p>	<p>Carbon emissions</p> <p>Ozone depletion</p> <p>Mineral extraction</p> <p>Infrastructure needs</p>
Energy Efficiency	<p>Buildings that demonstrate energy efficiency metrics at above market performance</p> <ul style="list-style-type: none"> Building Energy Ratings <ul style="list-style-type: none"> Energy Performance Certificate [EU] ENERGY STAR [United States] NABERS [Australia / New Zealand] Net Zero Energy buildings <p>Peak load demand reduction</p> <ul style="list-style-type: none"> Thermal energy storage Demand response systems <p>Building energy retrofits</p> <ul style="list-style-type: none"> Equipment upgrades – lighting / HVAC Energy management systems Deep retrofits – systems / envelope 	<p>BREEAM Energy, Pollution</p> <p>Green Star Energy, Management</p> <p>LEED Energy & Atmosphere, Innovation</p>	<p>Carbon emissions</p> <p>Ozone depletion</p> <p>Mineral extraction</p> <p>Air quality</p> <p>Human health</p> <p>Infrastructure needs</p>
Sustainable Waste Management	<p>Buildings that demonstrate waste management metrics above prevailing building codes and/or standard market practices</p> <ul style="list-style-type: none"> Waste recycling rates <ul style="list-style-type: none"> Construction / demolition Building operations Ozone depletion Construction activity Stormwater quantity / quality 	<p>BREEAM Waste</p> <p>Green Star Management, Materials</p> <p>LEED Sustainable Sites, Materials & Resources, Energy & Atmosphere</p>	<p>Resource depletion</p> <p>Soil contaminants</p> <p>Chemical hazards</p> <p>Pollution prevention</p>
Sustainable Land Use	<p>Real estate investments that demonstrate sustainable land use attributes regarded as conservation and/or preservation</p> <ul style="list-style-type: none"> Smart growth development Wetlands preservation Historic rehabilitation Certified forests Organic farmlands 	<p>BREEAM Land Use & Ecology</p> <p>Green Star Land Use & Ecology</p> <p>LEED Sustainable Sites, Materials & Resources</p>	<p>Floodplains</p> <p>Wetlands</p> <p>Prime farmland</p> <p>Forest resources</p> <p>Natural resources</p> <p>Historic sites</p>
Biodiversity Conservation	<p>Real estate investments that demonstrate attributes regarded as preserving habitat biodiversity and/or cultural resources</p> <ul style="list-style-type: none"> Conservation easements Land banks Carbon sequestration Ecosystem services Ecological connectivity 	<p>BREEAM Land Use & Ecology</p> <p>Green Star Land Use & Ecology</p> <p>LEED Sustainable Sites</p>	<p>Species habitat</p> <p>Migratory paths</p> <p>Land conservation</p> <p>Cultural resources</p>

Aspect	Asset Attributes / Actions	Building Rating System Credit Categories	Environmental Impacts
Clean Transportation	<p>Support multiple types of transit modes</p> <ul style="list-style-type: none"> • Accessibility by public transport • Carpool / vanpool programs • Cyclist facilities <p>Incorporate clean transportation infrastructure</p> <ul style="list-style-type: none"> • Electric vehicle charging stations • Fuel cell vehicle charging stations • Liquid / gas / battery facilities 	<p>BREEAM Transport Green Star Transport</p> <p>LEED Sustainable Sites</p>	<p>Carbon emissions Ozone depletion Mineral extraction Air quality Infrastructure needs</p>
Clean Water / Drinking Water	<p>Minimize potable water consumption / disposal</p> <ul style="list-style-type: none"> • Capture / recycle stormwater • Implement vegetated / green roofing • No potable water in landscaping • Water metering / monitoring systems • Sustainable Drainage Systems (SUDS) 	<p>BREEAM Water Green Star Water, Emissions</p> <p>LEED Sustainable Sites, Water Efficiency</p>	<p>Water conservation Water quality Species habitat Human health Infrastructure needs</p>
Climate Change Adaptation	<p>Asset Resiliency Future adaptation with variations in use and functionality</p>	<p>Present in all Building Rating Systems</p>	
Health and Well-being	<p>Incorporate social and health factors of building occupants and visitors</p> <ul style="list-style-type: none"> • Ventilation controls & strategy • IAQ plan • Sophisticated thermal control • Sound insulation and indoor ambience 	<p>BREEAM Health and Wellbeing</p> <p>Green Star Indoor Environment Quality</p> <p>WELL Building Standard</p>	<p>Human health Air quality</p>

Specific Guidance

During underwriting, issuers should: 1) clearly identify specific criteria for eligible green projects, 2) group these criteria per property type, and 3) establish investment objectives to encompass both direct and indirect impacts that may be achieved within the green property bond framework.

Eligibility criteria should incorporate minimum thresholds including green building certification levels and/or locally defined energy efficiency levels. Issuers may also provide relevant KPIs used during project evaluation to assess alignment with specified impact categories. This list may expand to encompass additional factors connected to positive environmental and/or social impacts.

Bond objectives can relate to the issuer's overall sustainability program that may further encompass impact mitigation and asset adaptation efforts that support transition to low-carbon buildings. Following the identification of individual projects, impact categories can correspond to targeted investments.

2. Project Evaluation and Selection

Green property bond issuers should clearly outline and communicate:

- Overall project evaluation and decision making process(es) connected to bond eligibility criteria
- Internal/external industry and ESG experts involved in the project evaluation process
- Specific KPIs investment objectives used during project assessment.

These elements are necessary to ensure transparency and efficient capital market function. As noted above, issuers should explicitly note thresholds used in project assessment and decision-making. Referenced baseline conditions should detail underlying calculation methodologies that determine achievements and outcomes.

Bond issuers should use one or more of the following four system types during project evaluation and annual reporting.

Green Building Certifications

Buildings certified under one or more rating system address multiple environmental and social objectives. Most rating systems maintain tiers that signal higher levels of environmental and social achievements. Bond issuers should identify granular objectives, per individual aspect, to determine positive environmental impact of particular asset.

Issuers should specify the certification type and level for each project (e.g. new development vs. existing buildings). In the event that all or parts of bond proceeds are used to refinance existing certified buildings, issuers should provide the percentage share allocated to refinancing existing assets opposed to asset retrofits and new construction.

Energy Ratings

Energy ratings reveal the relative energy performance of building operations, and serve as indicators for investments directed to energy efficiency and/or carbon reduction objectives. Building energy rating and labeling programs include ENERGY STAR (United States), the EPC (EU), NABERS (Australia), and similar programs. Green bond issuers may include these energy-specific impact schemes for green property bond eligibility. Issuers targeting specific local/national thresholds should clearly identify these objectives in the project selection criteria.

Corporate ESG Ratings

Green property bond issuers should highlight alignment between the entity's sustainability-related objectives and the bond framework including corporate-level environmental, social and governance (ESG) ratings to provide broader investor guidance and investment context.

ESG ratings provide insights into an issuer's overall engagement history with green property investments through a corporate-level lens. Issuers may choose to disclose overall ESG scores or similar indicators that serve as basis for establishing a general corporate sustainability track record required for capital market credibility.

Corporate level disclosures can include ESG reporting frameworks such as GRESB or the Global Reporting Initiative (GRI). Specific carbon emission tracking and reporting frameworks include the Carbon Disclosure Project (CDP).

Environmental Rating Systems

For green property bonds collateralized by non-building real estate holdings such as timber (forestry management), agriculture (organic farming), mining and minerals (sustainable land management) and similar activities, certification systems specific to the land use objective are required for green bond eligibility. Issuers of a "Preservation Bond"¹ or "Social Bond" should specify targeted environmental impacts and social outcomes.²

3. Management of Proceeds

Upon green bond origination, issuers should earmark proceeds and direct capital to eligible green projects until the bond proceeds are fully allocated.

Issuers should clearly underline what actions are undertaken at the project approval stage, final project assessment fund and allocation. Periodic reporting of allocated proceeds is a mandatory component of investor reporting throughout the green property bond duration including periodic disclosure of unallocated bond proceeds during the investment phase.

Issuers should disclose the evaluation processes utilized including energy and water audits to ensure use of proceeds are aligned with goals outlined in the use of proceeds. Issuers should incorporate ongoing monitoring processes as part of the annual financial audit process to inform investor disclosures

¹ A Preservation Bond is defined here as private financing of a public sector project through a bond issuance, whose proceeds go toward the protection or preservation of land (e.g., wetlands, wildlife habitat, timber land, agricultural land, historic or culturally significant properties).

² A Social Bond is defined here as any type of bond instrument where the proceeds will be applied to finance or re-finance new and/or existing Social Projects as defined in Guidance from ICMA and follows the four components of the 2016 GBP. Social projects are projects, activities and investments that directly aim to help address or mitigate a specific social issue.

4. Reporting

Information transparency and disclosure, allows green bond investors to better understand investment risks and communicate positive environmental and social impacts within their broader investment portfolio.

Issuers should provide investors timely and periodic information on the use of proceeds and overall actions related to the green bond proceeds. Data accuracy and integrity is essential to maintaining market credibility with the objective(s) and targeted outcomes of any green property bond.

Investors in green property bonds require aggregated portfolio level alongside corporate disclosures to make informed investment decisions upon bond origination and throughout the holding period. Once one or more eligible green projects are identified, issuers are advised to begin providing investors with information related to these assets.

Annual Reporting

Investor disclosures on green bond investments and impacts should include the following elements:

1. Project information confirming allocation of proceeds to eligible green projects by the amount of proceeds invested per property type, impact category, and outcome objective.
2. Detailed asset-level green building certification and energy rating data (see Primary Indicators). For pending certifications, report rating system type and the targeted certification level.
3. Impact assessment reporting using asset level performance disclosure and corporate level ESG disclosures. If not applicable, report key performance indicator metrics and/or benchmark assumptions used to determine positive environmental impacts

Green property bond disclosures should include Primary Indicators within all stakeholder communications. Green building rating systems and energy labels are characterized by scorecard- based mechanisms detailing project-level attributes. Scorecard results correspond to multiple environmental aspects allowing issuers to communicate project impacts and outcomes to capital market participants.. Non-building certification systems also utilize scorecards or other transparent criteria that serves to validate the applicable rating.

Bond issuers should disclose the granular results contained within a specific project certification scorecard via a combination of tiers, scores and credit achievement.. Investors use green building ratings, scores and scorecard results as a basis to review initial investment decisions, monitor progress, and analyze the impacts and outcomes achieved by a particular green bond.

Given the regional differences and applicability of various green building and energy rating systems, additional guidance outlining specific regional and country standards may be required.

Impact Assessment and Reporting

Green bond issuers can provide underwriters and investors with greater transparency by reporting asset-level performance in line with investment objectives and targeted impacts.

Issuers may determine one or more metrics applicable to the intent and purpose of the bond and develop internal procedures to gather, calculate and disclose this information.

When publicly communicating metrics, issuers should use industry-accepted practices, assumptions and methodologies used to calculate environmental impacts. Metrics selected should comply with the GRI Indicator Protocols Set: Environment or similar widely recognized industry protocols.³

In addition to asset-level disclosures, corporate level frameworks exist that assess ESG practices, and measure specific environmental and/or social attributes. Corporate assessments extend beyond asset-level certifications and impact disclosures, providing issuer credibility and greater investor context.

Issuers should combine third-party asset-level green building certifications with the results of a financial audit demonstrating how the bond proceeds are allocated to eligible green projects.

Green bond issuers benefit by utilizing corporate level ESG rating systems that provide context into the issuer's ESG performance history. Issuers may choose to disclose ESG results in at time of bond issuance, or to bond investors on a periodic basis until bond maturity.

³ See: <https://www.globalreporting.org/resourcelibrary/G3.1-Environment-Indicator-Protocols.pdf>

Primary Indicators

Scope	Type	Metrics
Asset	Green Building Certifications	Rating system <ul style="list-style-type: none"> • Specific rating system version • Certification date • Score and certification level • Specific scorecard - credits and metrics achieved
Asset	Energy Ratings	Rating system <ul style="list-style-type: none"> • Annual score • Certification date
Asset	Non-Building Certifications (as applicable)	Rating system <ul style="list-style-type: none"> • Asset-specific applicability • Certification date • Score and certification level • Specific scorecard - credits and metrics achieved

Asset Level Disclosure

GBP Category	Measurement	Metric	Assurance Type
Renewable Energy Generation	Renewable energy generated during life of bond <ul style="list-style-type: none"> On-site and/or off-site Per asset Per year 	Absolute kWh <ul style="list-style-type: none"> Per asset Per year 	<ul style="list-style-type: none"> Third party certified Audited claim
GHG Emissions	GHG emissions generated during life of bond <ul style="list-style-type: none"> Scope 1 and Scope 2 Per asset Per year 	GHG metric tonnes <ul style="list-style-type: none"> Per asset Per year Energy Intensity <ul style="list-style-type: none"> Per asset Per year 	<ul style="list-style-type: none"> Third party certified Audited claim
Water Consumption	Water consumption during life of bond <ul style="list-style-type: none"> Per asset Per year Percentage and total volume of water recycled / reused <ul style="list-style-type: none"> Per asset Per year 	Cubic meters of water consumed <ul style="list-style-type: none"> Per asset Per year Total volume and % of water recycled / reused <ul style="list-style-type: none"> Per asset Per year 	<ul style="list-style-type: none"> Third party certified Audited claim
Waste Management	Waste created by asset operations during life of bond <ul style="list-style-type: none"> Hazardous waste Non-hazardous waste Disposal route <ul style="list-style-type: none"> Landfill Incinerated Other Diverted waste <ul style="list-style-type: none"> Recycled Composted Energy recovery Reuse 	Metric tonnes of waste generated <ul style="list-style-type: none"> Per asset Per year Total volume and % of waste recycled / reused <ul style="list-style-type: none"> Per asset Per year 	<ul style="list-style-type: none"> Third party certified Audited claim
Stakeholder Engagement	Asset-level policies and practices <ul style="list-style-type: none"> Supply chain management Green leasing Tenant engagement Health and safety measures Community impact 	Policy type and level of monitoring / engagement <ul style="list-style-type: none"> Per asset Per year 	<ul style="list-style-type: none"> Third party certified Audited claim Self claim

Corporate Level Disclosures

Scope	Type	Metrics
Corporate	ESG Rating	Reporting Framework <ul style="list-style-type: none"> Level of claim [3rd party verified vs. self-claim] Certification years Score by year
Corporate	Carbon Emissions Profile	Reporting Framework <ul style="list-style-type: none"> Level of claim [3rd party verified vs. self-claim] Reporting years Metrics

External Review

The green bond market requires a higher level of transparency to maintain capital market credibility. External review of the framework utilized at green bond issuance is an additional step used to confirm alignment with the Green Bond Principles.

The Principles outline four different review types that exist in the green bond market. These external reviews include:

- **Consultant Reviews:** Second party opinions provided by institutions with expertise in environmental sustainability.
- **Verification:** Independent verification by qualified parties, such as auditors, focused on alignment with internal standard or issuer claims.

- **Certification:** Awarded by qualified third-party certifiers as determined against an external green building standard.
- **Rating:** The green bond issuance is rated by qualified third parties, such as specialized research providers or non-financial rating agencies.

Green property bond issuers can pursue additional opportunities to report impacts, outcomes, and metrics across multiple categories to further increase investor confidence and market credibility. The 2016 update to the Green Bond Principles recommend the use of pre-defined templates in order to communicate compliance with the four core sections.

Applicability

These Guidelines are applicable to the four bond types identified in the Principles, specifically:

Green Use of Proceeds Bond

A standard recourse, general-purpose bond whereby the principal borrowings are earmarked and allocated to specific Eligible Green Projects as identified in the Use of Proceeds within the offering documents. Examples applicable to the real estate sector include public or private company borrowings targeted to defined Eligible Green Projects.

Green Use of Proceeds Revenue Bond

A non-recourse bond where credit exposure is based on cash flows generated by Eligible Green Projects collateralizing the Green Bond [e.g. fees, taxes, legal contracts, etc.]. Examples applicable to the real estate sector include the securitization of future revenue streams from outstanding PACE loans or ESCO contracts.

Green Project Bond

A project-based bond collateralized by one or more Eligible Green Projects with direct investor exposure to project-based risk; borrower recourse may or may not be present. Examples applicable to the real estate sector include deep asset retrofit loans, land conservation easements, smart growth master-planned developments, and/or municipal infrastructure projects meeting Eligible Green Projects.

Green Securitized Bond

A multi-tranche asset backed security, covered bond, or other pooled-asset structure collateralized by Eligible Green Projects. Examples applicable to the real estate sector include mortgage-backed securities comprised of Eligible Green Projects, asset-based securities collateralized by renewable energy installations, and/or master limited partnerships comprised of Eligible Green Projects.

Appendix

2016 Green Bond Principles - International Capital Market Association [ICMA]

<http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/green-bond-principles/>

2016 Guidance for Issuers of Social Bonds – International Capital Market Association [ICMA]

<http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/guidance-for-issuers-of-social-bonds/>

Building Research Establishment Environmental Assessment Methodology [BREEAM]

<http://www.breeam.org/about.jsp?id=66>

Carbon Disclosure Project [CDP]

<https://www.cdp.net/en-US/Pages/About-Us.aspx>

Council on Environmental Quality

<http://www.whitehouse.gov/administration/eop/ceq/about>

GRESB

<https://www.gresb.com/>

Global Reporting Initiative [GRI]

<https://www.globalreporting.org/information/about-gri/Pages/default.aspx>

GRI Indicator Protocols Set: Environment

<https://www.globalreporting.org/resourcelibrary/G3.1-Environment-Indicator-Protocols.pdf>

Green Building Council of Australia [GBCA]

<https://www.gbca.org.au/green-star/green-star-overview/>

National Environmental Policy Act

<https://ceq.doe.gov/>

U.S. Department of Energy: Environmental Impact Statement Checklist

<http://energy.gov/nepa/downloads/environmental-impact-statement-checklist>

U.S. Federal Trade Commission: Guides for the Use of Environmental Marketing Claims [Final Rule]

<http://www.gpo.gov/fdsys/pkg/FR-2012-10-11/pdf/2012-24713.pdf>

U.S. General Services Administration: National Environmental Policy Act Implementation

<http://www.gsa.gov/portal/category/21006>

U.S. Green Building Council [USGBC]

<http://www.usgbc.org/leed>

UNEP Sustainable Buildings and Climate Initiative: Common Carbon Metric - Building Operations

<http://www.unep.org/sbci/pdfs/UNEPSBCICarbonMetric.pdf>

United States Federal Register 79 FR 57183

<http://www.gpo.gov/fdsys/pkg/FR-2014-09-24/pdf/2014-21375.pdf>

United States National Environmental Policy Act of 1969, as Amended

http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/Req-NEPA.pdf