



Green Bonds and Moody's Green Bonds Assessment (GBA) CDFA Webinar, May 19, 2016

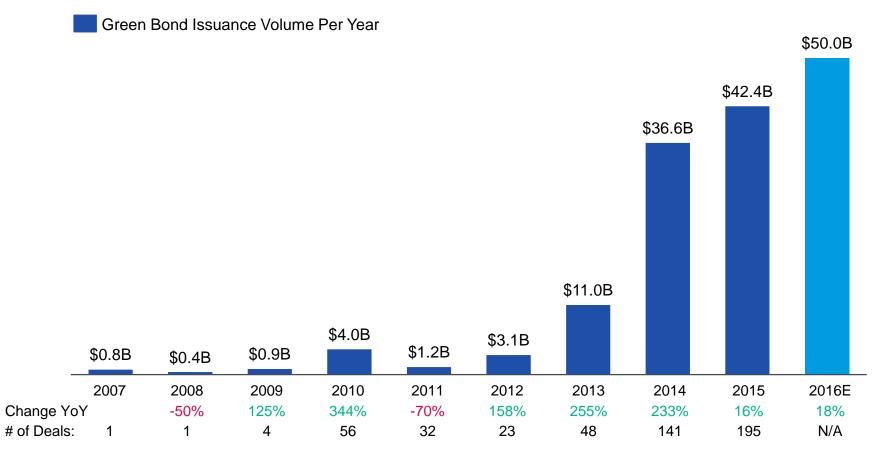
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- Introduction and overview
- II. Green bond market update
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GREEN BOND MARKET

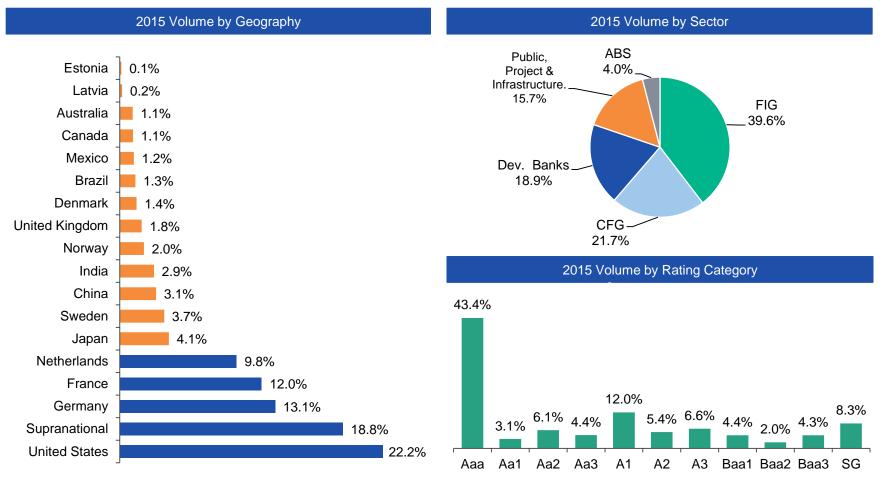
Green Bond Market 2007 - 2015 and 2016 Outlook



Source: Climate Bonds Initiative, Environmental Finance, Dealogic, Bloomberg, MSRB Electronic Municipal Market Access, various issuer websites, OANDA currency converter, MIS



Green Bond Market 2015

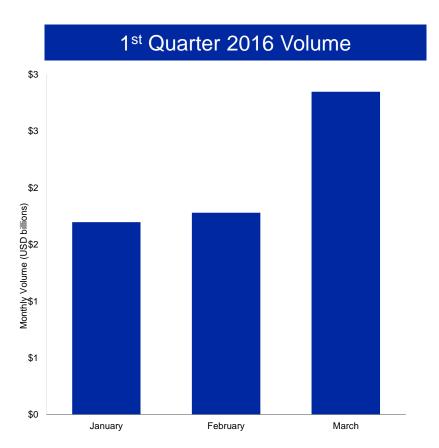


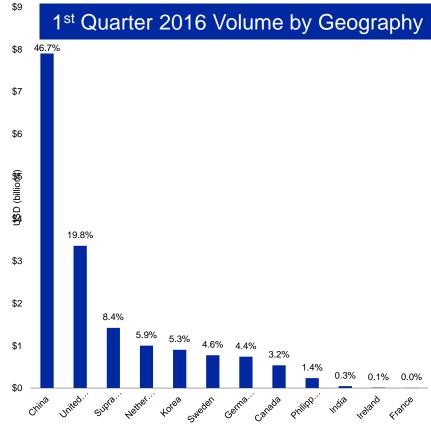
Source: Climate Bonds Initiative, Environmental Finance, Dealogic, Bloomberg, MSRB Electronic Municipal Market Access, various issuer websites, OANDA currency converter, MIS



Green Bond Market - 1st Quarter 2016

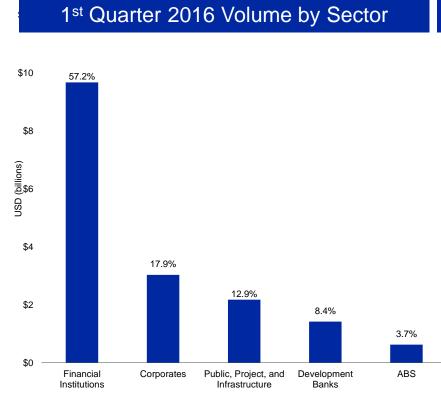
- Green bond issuance reached \$16.9 billion in the first quarter of 2016.
- Total green bond issuance in 2016 could potentially reach almost \$70 billion.
- China top issuer in first quarter.
- US public finance brings to market \$1.3 billion, significantly outpacing 4th quarter 2015.





Green Bond Market - 1st Quarter 2016

- Financial institutions is leading sector.
- Renewable energy and energy efficiency are projects of choice.
- Other eligible project categories, such as clean transportation and climate change adaptation, have made gains.



1st Quarter 2016 Allocation of Proceeds

Allocation of Green Bond Proceeds	Percent of Total
Renewable Energy	27%
Energy efficiency (including efficient buildings)	26%
Sustainable land use (including sustainable forestry and agriculture)	21%
Various eligible projects	16%
Sustainable waste management	7%
Climate change adaptation	1%
Clean transportation	1%
Biodiversity conservation	1%
Clean water and/or drinking water	0%

GREEN BONDS ASSESSMENT (GBA)

Green Bonds Assessment (GBA) Overview

Green Bonds

- Green bonds are no different than conventional bonds, except that bond proceeds are earmarked for environmentally beneficial projects.
- Issued by corporations, financial institutions, development banks, sub-sovereign, US public finance, and in form of structured transactions.
- About \$100 billion issued to-date.

GBA Assessment

- Forward looking opinion of the relative effectiveness of an issuer's approach to managing, administering, allocating proceeds to and reporting on environmental projects financed with green bond proceeds.
- Five key factors analyzed, using a scorecard.
- Grades range from GB1-GB5.

Initiative & Motivation

- One leg of Moody's ESG initiative.
- Role for Moody's in promoting further disclosure and transparency and set a standard for green bond issuances across sectors and geographies.
- Meet needs of issuers and investors.
- First NRSO to offer GBA.

Process

- Requested assessment.
- Publicly available information, supplemented by issuer provided input.
- Issuer interaction.
- Committee process; PR and green bond report disseminated.
- Annual refresh or in line with issuer's reporting cycle on use of proceeds.



Green Bonds Assessment Scorecard

Assessment Factor	Weight
1. Organization	15%
2. Use of proceeds	40%
3. Disclosure on the use of proceeds	10%
4. Management of proceeds	15%
5. Ongoing reporting and disclosure	20%

Explanation

- Each of the five factors is scored on a scale from 1 to 5.
- For factors 1, 3, 4, and 5, scoring is based on the number of sub-factors for which the stated criteria is satisfied.
- For example, in order to achieve a factor score of 1 the criteria for all five subfactors must be satisfied. In the same way, in order to achieve a score of 2, four of the five sub-factors must be satisfied, etc. In contrast, scoring for factor 2 is based on qualitative and quantitative gradations that are shown in the scorecard.

Factor 2: Use of Proceeds (40%)

Score	Sub-factor
1	>95% - 100% of proceeds allocated to eligible project categories that are determined based on the issuer's adopted policies and the categories established under the Green Bond Principles that will be further informed by one or more robust and widely recognized green bond frameworks or taxonomies that qualify eligible projects, including any applicable regulatory guidelines.
2	90% - <95% of proceeds allocated to eligible project categories that are determined based on the issuer's adopted policies and the categories established under the Green Bond Principles that will be further informed by one or more robust and widely recognized green bond frameworks or taxonomies that qualify eligible projects, including any applicable regulatory guidelines.
3	80% - <90% of proceeds allocated to eligible project categories that are determined based on the issuer's adopted policies and the categories established under the Green Bond Principles that will be further informed by one or more robust and widely recognized green bond frameworks or taxonomies that qualify eligible projects, including any applicable regulatory guidelines.
4	50% - <80% of proceeds allocated to eligible project categories that are determined based on the issuer's adopted policies and the categories established under the Green Bond Principles that will be further informed by one or more robust and widely recognized green bond frameworks or taxonomies that qualify eligible projects, including any applicable regulatory guidelines.
5	<50% of proceeds allocated to eligible projects that are determined based on the issuer's adopted policies and the categories established under the Green Bond Principles that will be further informed by one or more robust and widely recognized green bond frameworks or taxonomies that qualify eligible projects, including any applicable regulatory guidelines.



Assessment Factors/Sub-Factors

1. Organization (15%)

Environmental governance and organization structure appears to be effective.

Policies and procedures enable rigorous review and decision making processes.

Qualified and experienced personnel and/or reliance on qualified third parties.

Explicit and comprehensive criteria for investment selection, including measurable impact results.

External evaluations for decision making in line with project characteristics.

3. Disclosure/Use of Proceeds (10%)

Description of green projects, including portfolio level descriptions, actual and/or intended.

Adequacy of funding and/or strategies to complete projects.

Quantitative and/or qualitative descriptions for targeted environmental results.

Methods and criteria, both qualitative or quantitative, for calculating performance against targeted environmental results.

Issuer relies on external assurances: Second party reviews, audits and/or third party certifications.

4. Management of Proceeds (15%)

Bond proceeds are segregated and separately tracked on an accounting basis or via a method by which proceeds are earmarked.

Application of proceeds is tracked by environmental category and project type.

Robust process for reconciling planned investments against actual allocations.

Clear eligibility rules for investment of cash balances.

Audit by external organization or independent internal audit unit.

5. Ongoing Reporting/Discl. (20%)

Reporting and disclosure post issuance provides/to be provided detailed and timely status updates on projects.

Ongoing annual reporting is expected over the life of the bond.

Disclosures provide granular detail on the nature of the investments and/or their expected environmental impacts.

Reporting provides/to be provided a quantitative and/or qualitative assessment of the environmental impacts actually realized to-date.

Reporting includes/to include quantitative and/or qualitative explanations of how the realized environmental impacts compare to projections at the time the bonds were sold.



Green Bonds Assessment Scorecard

GB1	GB2	GB3	GB4	GB5
<u><</u> 1.5	1.5 - 2.5	2.5 - 3.5	3.5 - 4.5	> 4.5

The numerical score for each factor is multiplied by the weight for that factor with the results then summed to produce a composite weighted-factor score. The composite weighted factor score is then mapped back to an overall score using the legend above. Due to its over-arching importance, scores of 4 and 5 in the Use of Proceeds factor will cap the scorecard outcome and will generally cap the GBA grade at the corresponding levels, i.e. GB4 and GB5.

Scorecard illustration

Assessment Factor	Weight	Green Bond X	Green Bond Y
Org. structure & decisions	15%	1	1
Use of proceeds	40%	1	5
Disclosure on use of proceeds	15%	2	1
Management of proceeds	10%	3	1
Ongoing reporting/discl.	20%	1	1
Average weighted score		1.4	1
Grade		GB1	GB5
Definition		Excellent	Poor

Assessment Scale and Definitions		
Grade	Definitions	
GB1	Green bond issuer has adopted an excellent approach to manage, administer, allocate proceeds to and report on environmental projects financed with proceeds derived from green bond offerings. Prospects for achieving stated environmental objectives are excellent.	
GB2	Green bond issuer has adopted a very good approach to manage, administer, allocate proceeds to and report on environmental projects financed with proceeds derived from green bond offerings. Prospects for achieving stated environmental objectives are very good.	
GB3	Green bond issuer has adopted a good approach to manage, administer, allocate proceeds to and report on environmental projects financed with proceeds derived from green bond offerings. Prospects for achieving stated environmental objectives are good.	
GB4	Green bond issuer has adopted a fair approach to manage, administer, allocate proceeds to and report on environmental projects financed with proceeds derived from green bond offerings. Prospects for achieving stated environmental objectives are fair.	
GB5	Green bond issuer has adopted a poor approach to manage, administer, allocate proceeds to and report on environmental projects financed with proceeds derived from green bond offerings. Prospects for achieving stated environmental objectives are poor.	



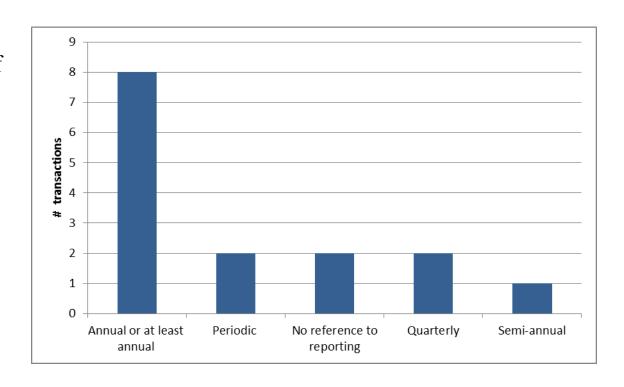
Green Bonds Assessment Process

- Initial assessment: Relevant governing documentation, regulatory filings, issuer reports and presentations, if any, as well as all other publicly available information. Also, direct engagement and dialogue with the issuer.
- The combined inputs are used to evaluate the transaction, via a scorecard.
- GB grade will be assigned by Committee.
- GBA will be disseminated publicly via a press release distributed through various newswire services.
- This is followed by the publication of a GBA Report that will also be available to investors on Moodys.com.
- Assessment may be refreshed periodically to take into consideration the application of proceeds, reported progress against the initial plans for investments and their environmental impacts, and continuing issuer disclosures.

US PUBLIC FINANCE: EVOLVING REPORTING AND DISCLOSURE PRACTICES POST ISSUANCE

US Municipal Green Bonds Disclosure Practices Survey

- Annual disclosure is the most frequent (60%), but periodic reporting quarterly and semi-annual reporting intervals are not uncommon.
- The majority of surveyed issues (60%) committed to reporting only until all proceeds were deployed. The rest were non-committal on the reporting interval post issuance.
- Timely reporting is not the norm, with 7 of 15 issuers who have still not published reports that we could find.
- We observe a positive correlation (71%)
 between issue size and scope/quality of disclosures.



Levels of Reporting Practices

Category	Level 1	Level 2	Level 3	Level 4
Project Description	Individual project names and descriptions provided, along with LEED status in cases where buildings are involved.	Individual project name and program type (i.e. clean water or drinking water) brief project description. Report also differentiates between refinancing or refunding and new investment.	Comprehensive report includes project category, project highlights and detailed project descriptions. Report also differentiates between refinancing or refunding and new investment.	Comprehensive report includes project category, project highlights and detailed project descriptions. Report also differentiates between refinancing or refunding and new investment.
Dollar amount allocated		Dollar amount funded and/or disbursed, and also provides project completion dates.	Dollar amount funded and/or disbursed, and also provides project completion dates.	Dollar amount funded and/or disbursed, and also provides project completion dates.
Impact reporting			Impact reporting, qualitative and/or quantitative, such as energy efficiency and conservation details presented on an annual basis in cases where such data is available: Examples: GHG reduction in metric tons, electric savings (kWH), natural gas savings (Therms) and fuel oil savings (gallons).	Impact reporting, qualitative and/or quantitative, such as energy efficiency and conservation details presented on an annual basis in cases where such data is available: Examples: GHG reduction in metric tons, electric savings (kWH), natural gas savings (Therms) and fuel oil savings (gallons).
Other				Impact versus forecasts. Responsible management assessment. Independent Accountants' report.

As determined by scope/quality of information



QUESTIONS AND ANSWERS

Moody's Green Bonds Topic Page

Green Bonds

Since their introduction in 2007, green bonds have gained attention for their potential role in mobilizing capital toward environmental solutions. Capital market financing needs—in combination with growing investor demand, standardization of offerings, and the issuance of benchmark-sized deals that are effectively priced, both investment grade and potentially speculative or non-investment grade—are expected to lift green bond issuance in the years to come. This topic page aggregates Moody's green bonds oriented research, covering trends and developments, relevant company specific research and green bond assessments as well as related environmental topics more broadly.

Highlights

31 Mar 2016

Green Bonds Assessment Methodology has published

The Green Bonds Assessment (GBA) methodology explains how Moody's evaluates a green bond based on five key factors. The methodology offers a consistent, standardized and transparent framework for evaluating an issuer's approach for managing, administering, and allocating proceeds to and reporting on environmental projects financed by green bonds across various security types globally... Full Report

27 May 2015

Green Bonds Start to Bloom

First launched in 2007, green bonds reached nearly \$37 billion by 2014, and issuance continues to rise. Green bonds play a role across diverse sectors in channeling public funds and private capital to sustainability projects that are intended to mitigate global warming. We anticipate greater volumes and a wider range of issuers, maturities, currencies and bond features to materialize as the market develops... Full Report

Research			
			View All »
Date	Document Type	Title	Issuer/Entity
30 Mar 2016	Announcement	Moody's launches new Green Bond Assessment service	
30 Mar 2016	Announcement	Moody's publishes methodology on Green Bonds Assessment 🕥	
30 Mar 2016	Rating Methodology	Green Bonds Assessment (GBA)	
22 Feb 2016	Issuer Comment	Apple's First Green Bond Includes Rigorous Voluntary Verification Guidelines	Apple Inc.
01 Feb 2016	Sector In-Depth	Green Bonds - Global: Issuance Achieves Record Volume in 2015, Could Exceed \$50 billion in 2016	

RELATED INFORMATION

Research on Environmental Risks and Developments

UPCOMING EVENTS

06 Apr 2016
Moody's Global Teleconference
Series (APAC): Green Bonds
Assessment Methodology
(10:00 Hong Kong / 11:00
Tokyo / 12:00 Sydney), 6 April
2016
06 Apr 2016
Moody's Teleconference: Green
Bonds Assessment
Methodology (Americas/EMEA)
More >>

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Moody's Related Research

Selected Cross-Sector Research

- » Issuance Achieves Record Volume in 2015, Could Exceed \$50 billion in 2016, February 11, 2016 (1012687)
- » Heat Map Shows Wide Variations in Credit Impact Across Sectors, November 2015 (1010009)
- » Moody's Approach to Assessing the Credit Impacts of Environmental Risks, November 2015 (1010009)
- Environmental, Social and Governance (ESG) Risks Global: Moody's Approach to Assessing ESG Risks in Ratings and Research, September 2015 (1007087)
- » Environmental Risks and Developments: Green Bonds Start to Bloom, May 2015 (1002584)
- » Environmental Risks and Developments: Impact of Carbon Reduction Policies is Rising Globally, March 2015 (1003462)

Selected Sovereign and Sub-Sovereign Research

- India, Government of Vulnerability to Drought Poses Credit Challenges, August 2015 (1005411)
- California US State and Local Government Frequently Asked Questions about the Drought in California, July 2015 (1005929)

Selected Corporate Sector Research

- <u>Europe's Electricity Markets Unregulated Utilities Would Benefit from Higher CO2 Price, but No Game Changer in Sight Yet, June 2015 (1005857)</u>
- » <u>US Coal Industry Falling Consumption, Low Met Coal Price Leave US Industry Under Pressure, September 2014</u> (176014)



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