Green Bonds – Where are we? Where next?

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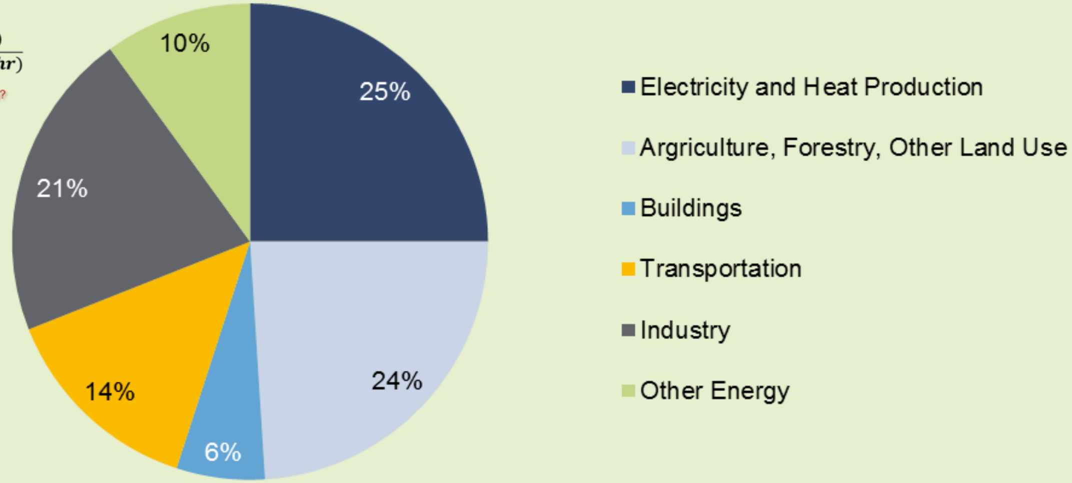
PUBLIC

Achieving 2^0C

$$Carbon(T) = Popn \times \frac{GDP\ (\$)}{Popn} \times \frac{Energy\ (kwhr)}{GDP\ (\$)} \times \frac{Carbon(T)}{Energy\ (kwhr)}$$

Slow growth? Energy efficiency? Renewable energy? Agriculture?



- In February 2016, G20 major economies committed to exploring ways to raise the US$90 trillion of investments required over the next 15 years to achieve global sustainable development and climate objectives
- The International Energy Agency (IEA) estimate that **USD53tn cumulative investment** required in energy supply and energy efficiency up to 2035 in order to keep the world on a 2° C warming path
- The United Nations Principles for Responsible Investment (UNPRI) signatories now stands at more than USD62tn (USD45tn in 2014)
- In 2015 USD45bn green bonds were issued in the market, and in 2016 YTD almost $80bn, but this is still a long way short of the additional investment needed annually to finance a 2° C world
- **Capital markets need to be mobilized to facilitate and contribute to financing such large scale investment**

Labelled Green Bond Market Update 2016 YTD

Building momentum through Q3 to surpass 2015 full year issuance volume

2016 YTD issuance volume has already surpassed 2015 FY total new issuance

Green Bond issuance in 2016YTD is sitting c.USD80bn as at 11 Nov 2016, comprising from c. 200 transactions

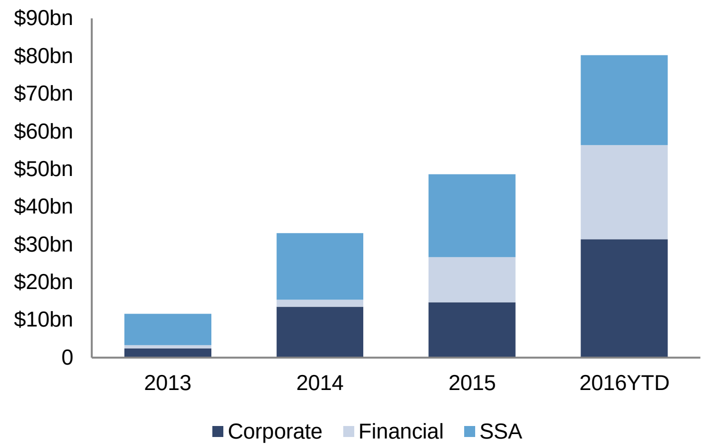
39% corporate, 31% FIG, and 30% SSA respectively

91% issuance from USD, EUR, GBP,CNY, SEK combined

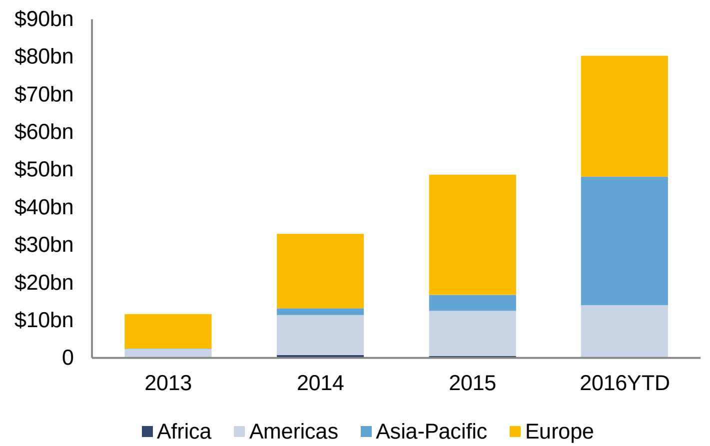
Remaining 9% currencies include amongst others AUD, CAD, JPY, INR, BRL, ZAR, TRY, IDR and NZD

Issuance from 32 countries including: China, Sweden, the United States, France, Luxembourg, the United Kingdom, Netherlands, Germany, Germany, Spain, Japan, Finland, India, Australia, Hong Kong, South Korea, Italy, Venezuela etc

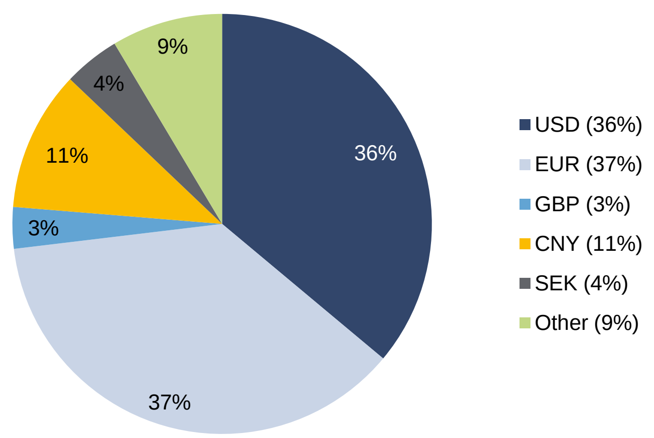
Issuance Progression by Sector



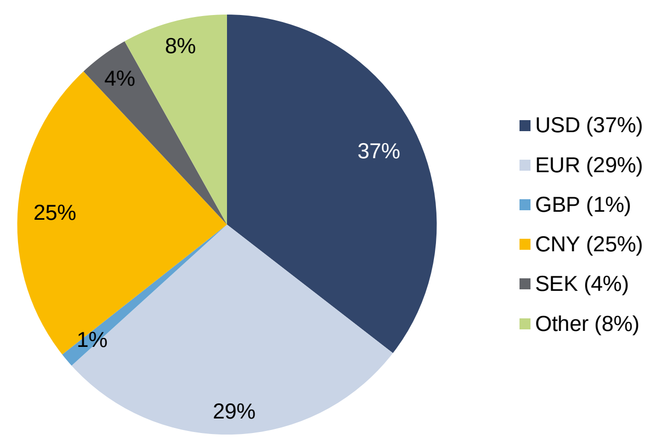
Issuance Progression by Region



2007-2016 YTD Issuance Currencies



2016 YTD Issuance Currencies



Note:
Asia Pacific region includes Middle East

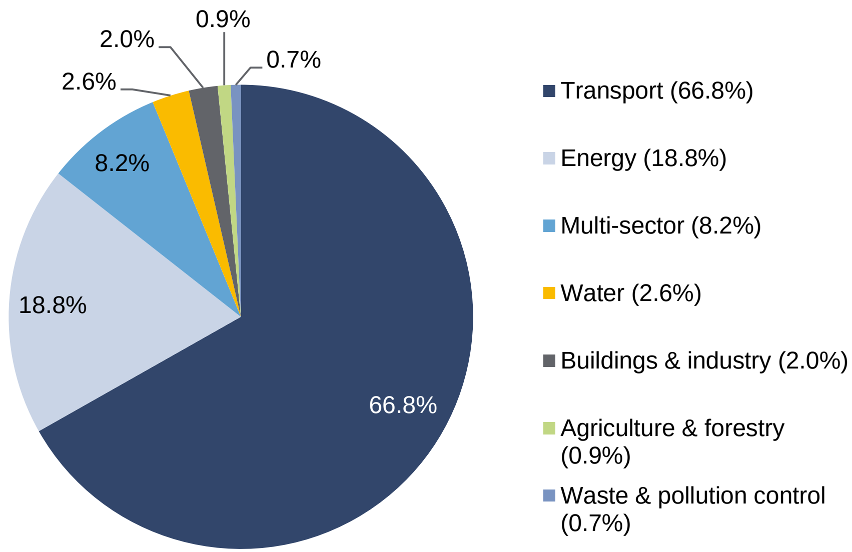
Source:
Dealogic, Bloomberg, CBI & HSBC estimates as at 11 November 2016, including Sustainability Bond and Social Bond

Climate-Aligned Bonds and Labelled Green Bonds

Climate-Aligned Bonds

- The USD694 billion climate-aligned universe is made up of 6 climate themes. The ‘multi-sector’ theme is made up of labelled green bonds that finance a range of projects and assets across the 6 themes.

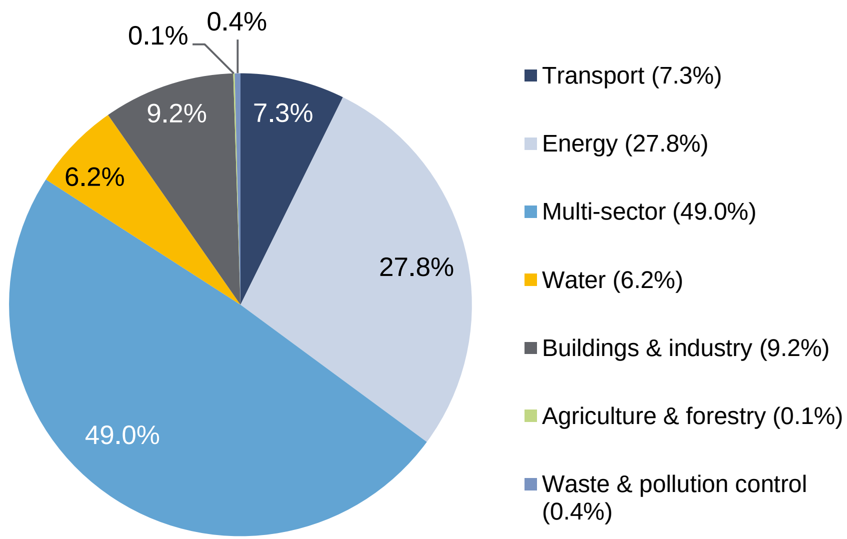
Transport and Energy are the largest themes



Labelled Green Bonds

- Labelled green bonds are bonds with use of proceeds earmarked to finance new and existing projects with environmental benefits. Green bonds make up 17% of the climate-aligned universe, up from 11% in 2015[1]

Energy and Buildings & Industry are the largest individual themes



Multi Sector Includes:
Energy (15%), Buildings & Industry (15%), Transport (6%), Water (5%), Waste & pollution (4%), Agriculture & forestry (2%) and Adaptation (2%)

Note:
1. Labelled green bond figures may differ from other databases due differences in: inclusion criteria, exchange rates and cut-off dates

Source:
Bonds and Climate Change - The State of the Market in 2016, July 2016.
Prepared by Climate Bonds Initiative. Commissioned by HSBC.

Use of Proceeds
Potential considerations

Eligible Sectors	Further considerations and examples of potential projects / investments
Renewable energy	• Generation of energy from renewable sources (such as wind, solar, tidal, bio, hydro, geothermal and related infrastructure) including production, transmission, appliances and products
Energy efficiency	• Improvement of energy efficiency in various sectors (such as in new and refurbished buildings, energy storage, district heating, smart grids, appliances and products • Development of energy efficiency products and technologies that increase underlying asset, technology, product or system(s) performance (such as improved lighting technology)
Pollution prevention and control	• Including waste water treatment, greenhouse gas control, soil remediation, recycling and waste to energy, value added products from waste and remanufacturing, and associated environmental monitoring analysis
Sustainable management of living natural resources	• including sustainable agriculture, fishery, aquaculture, forestry and climate smart farm inputs such as biological crop protection or drip-irrigation
Terrestrial and aquatic biodiversity conservation	• Including the protection of coastal, marine and watershed environments
Clean transportation	• Low energy or emission transportation assets, systems, infrastructure, components and services (such as electric, hybrid, public, rail, non-motorized, multi-modal transportation, infrastructure for clean energy vehicles and reduction of harmful emissions
Sustainable water management	• Including sustainable infrastructure for clean and/or drinking water, sustainable urban drainage systems and river training and other forms of flooding mitigation
Climate change adaptation	• Flood defences systems and related infrastructure, including information support systems, such as climate observation and early warning systems)
Eco-efficient products, production technologies and processes	• such as development and introduction of environmentally friendlier, eco labelled or certified products, resource efficient packaging and distribution







MTR Corporation Limited
USD600m 10-year Reg S Green Bond Offering

On 24 October 2016, HSBC acted as Lead Left Joint Lead Manager, Joint Bookrunner and Lead Left Green Advisor on a 10-year USD600m Reg S Green Bond transaction for MTR Corporation Limited ("MTR" or the "Company")

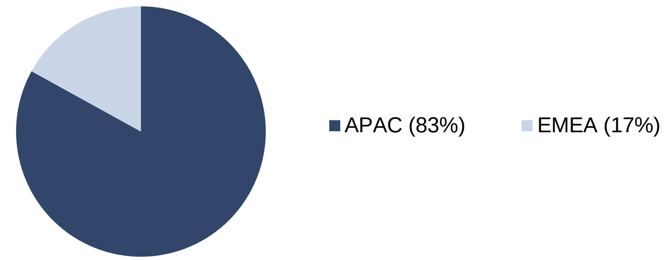
MTR Corporation Limited is a company listed (SEHK:0066) on HKSE, they are the sole railway operator in Hong Kong and runs the Mass Transit Railway as well as a major property developer and landlord in Hong Kong

Summary terms and conditions

Issuer	MTR Corporation (C.I.) Limited
Guarantor	MTR Corporation Limited
Guarantor ratings	Aa1 (Moody's) / AAA (S&P)
Issue Ratings	Aa1 (Moody's) / AAA (S&P)
Status	Senior unsecured
Format	Reg S, Registered
Tenor	10-Year
Settlement Date	2 November 2016
Maturity Date	2 November 2026
Issue Size	USD600m
Coupon	2.500% Semi-annual
Reoffer Spread	T +80bp
Reoffer Price	99.675
Reoffer Yield	2.537%
Listing	HKSE Listing
Use of Proceeds	Fund or refinance eligible investments as set out in the Green Bond Framework
Terms	USD200k/1k Denoms, English Law
HSBC Role	Lead Left Green Advisor and Lead Left Joint Lead Manager and Bookrunner (B&D)

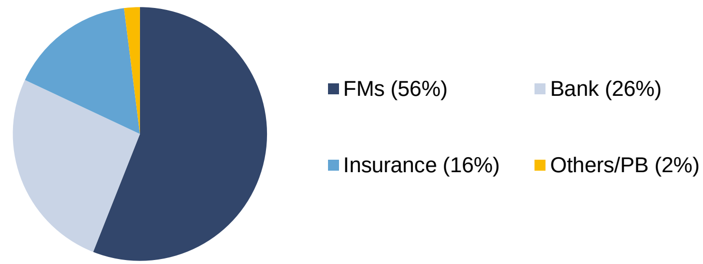
Distribution by geography

% of allocation



Distribution by investor type

% of allocation



Execution highlights

- HSBC took a leading role on all key aspects of the transaction, including Green Bond Framework advisory, documentation, marketing, investor meetings and execution strategy. HSBC advised on the drafting of the Green Bond Framework and a second opinion was issued by Sustainalytics
- This landmark transaction represents MTR's return to the market after a 4-year absence and the first ever green bond from them. The proceeds are to be used to invest in work related to low-carbon transportation, energy efficiency, sustainable transport solutions and real estate properties
- The transaction was announced with an initial price guidance of T+95bps area and MTR eventually priced a USD600m Green Bond transaction at reoffer spread of T+80bps. The strong investor response to the transaction was reflected in an orderbook of >1.4bn (representing 2.3x oversubscription) from 94 accounts, made up of high quality FMs, bank balance sheets and insurance companies
- The issuance was welcomed by Ms Christine Loh, Under Secretary for the Environment of HKSAR Government, "We are very pleased to see the MTR's success issuance of the Green Bond which is underpinned by rail being a low carbon mode of mass transport and the good response to this Green Bond issuance shows the financial community's growing interest in investing in responsible in sustainable companies"

NTPC Limited
INR20b Reg S Only 5-year 7.48% Masala Green Bond Issuance

A Maharatna Company

On 3 August 2016, HSBC acted as joint bookrunner and joint lead manager on a highly successful INR 20 billion Reg S 5-year 7.48% Green Masala Bond Issuance for NTPC Limited ("NTPC")

NTPC is the largest power company in India, and is rated BBB- by S&P and BBB- by Fitch

The use of proceeds will be for financing and refinancing of renewable energy projects, specifically solar and wind projects, including the development, construction, operation and transmission infrastructure

The NTPC Green Bond was certified by KPMG against the Climate Bonds Initiative 2.0 standard

This deal represents:
- **The First Masala bond offering in Green format out of India**
- **The First Masala bond issue by an Indian corporate**
- **The First Masala bond in the 5-year part of the curve helping develop the markets**
- **The First Masala bond to price through the issuer's domestic curve**

Summary terms and conditions

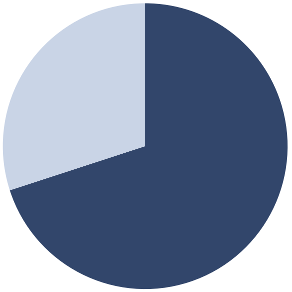
Issuer	NTPC Limited ("Ntpc")
Issuer Rating	BBB- (Stable) / BBB- (Stable) (S&P / Fitch)
Expected Issue Ratings	BBB- / BBB- (S&P / Fitch)
Type	Synthetic INR notes ("Masala Bond"), senior unsecured
Format	Reg S Cat 1 only, registered, drawdown under EMTN programme
Currency	INR, with payments of principal and interest on the notes in US
Tenor	5 year
Settlement date	10 August 2016 (T+5)
Maturity date	10 August 2021
Size	20bn
Coupon	7.375%, Annual, 30/360
Reoffer yield	7.48%
Reoffer price	99.575
USD/INR fx	Conversion Rate reported by the RBI and displayed on Reuters page "RBIB" at approximately 1:30pm, Mumbai, on 4th August 2016
Change of ctrl put	At 100%, If Government Of India Will at any time cease to own, directly or indirectly, more than 50 per cent of the voting securities of the issuer
Terms	Listing LSE/SGX-ST / English Law / Denoms INR 10,000,000 X INR 10,000,000
Clearing	Euroclear/Clearstream
Use of proceeds	Investments In renewable energy projects, accordance with ECB HSBC's role: Joint Bookrunner and Joint Lead Manager (B&D)

Execution highlights

- On 3rd August 2016, NTPC Limited, rated BBB- by S&P and Fitch, launched India's first Green Masala transaction after having collected strong investor feedback on the back of the mandate announcement on 29th July 2016
- NTPC announced and successfully priced its successful debut Masala INR 20bn 5-year Green Masala transaction at 7.48%. The final transaction size was twice the original size targeted by NTPC reflecting the strong credit story and following for this product
- Targeting 10,000MW of renewable energy projects by 2022, the proceeds from the issuance and sale of the Notes will be used for investment in ECB approved renewable energy projects (80% to fund solar projects and the remaining 20% for wind projects). KPMG provided the assurance report and the London-based Climate Bond Initiative issued its certificate for NTPC's green bond framework
- On the back of a strong market backdrop and IOIs from institutional accounts an initial price guidance at 7.5% - 7.6% area was announced at Asia AM. The orderbook comprised of high quality institutional accounts across Asia and Europe as reflected by the final allocations enabling final guidance to be revised to 7.5% +/- 2 bps, pricing at the tight end of the range. The end result represented a yield that was over 5 bps inside of NTPCs own onshore levels

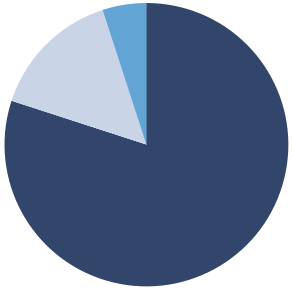
Distribution by geography

% of allocation



Distribution by type

% of allocation



Green Bond – Independent Assurance

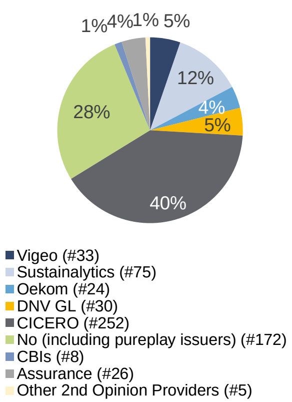
Various external review options are open to issuers

HSBC strongly encourages issuers to obtain an independent External Review to demonstrate the credibility of their Green/Social/Sustainability bond framework and ongoing governance process to investors and the wider market

There are various parties that can provide this External Review and HSBC can recommend which institution may be best aligned with your unique objectives, requirements, timeframe etc

We recommend for the External Review conclusion to be made public as you come to market, along with your Framework and Investor Presentation, so that investors can see the full spectrum of work that has been undertaken to be able to participate in this product class

Issuance by second opinion (All years)



Note: pie % = deal volume
Legend (#) = number of deals
Source: HSBC estimates, as at 11 November 2016

Potential green bond external review strategies

1 Second Party Opinion

- Based on GBP recommendations
- Review performed on issuers Green/Social/Sustainability bond Framework (1 off basis)
- Engagement with Second pinion provider can help the issuer identify eligible projects and refine strategies for management of proceeds and reporting.
- Pre-issuance: Approximately 2-6 weeks engagement
- Costs: Timeline and cost depend on availability of documents and complexity of Framework under review/projects considered, typically between $15k-50k
- Post-issuance: Issuer may choose to continue engaging with 2nd opinion provider for assurance on annual reporting or may work with own internal/external auditor for post-issuance assurance

2 Climate Bond Certification

- Based on Climate Bonds Standard that focuses on projects that deliver GHG-emissions reduction
- Review performed on bond basis (issuers will have multiple verifications if multiple green bonds issued)
- Pre-issuance: Must engage a 3rd party verifier at pre- and post-issuance stages to obtain Climate Bond Certification which is approved by the Climate Bonds Standard Board
- Costs: A verifier's fee as well as a registration fee paid to the Climate Bonds Initiative equivalent to 1/10th of a basis point of the bond principal are required for each bond verified

Approved Verifiers:

Certification available for	Certification soon available for
Wind, Solar	Bioenergy
Low carbon buildings	Water (out on consultation
Low carbon transport, including BRT	Agriculture, forestry, other land use
Geothermal	Marine

3 Moody's Green Bond Assessment

- Based on Moody's proprietary Green Bond Assessment Scorecard and methodology
- Pre-issuance/Post-issuance: Assessment may be undertaken before or after bond issuance
- Moody's Green Bond Assessment Methodology follows a systematic approach to give a clear conclusion (GB1=Excellent to GB5=Poor)
- Review performed on bond basis (issuers will have multiple verifications if multiple green bonds issued)
- Moody's specialist green bond analyst team engages with issuer and takes into consideration public as well as confidential information
- Costs: Typical fee of EUR28k for initial review, and then recommend annual review of bond to update score against reports released. Fee on each anniversary of the bond amount to EUR28k. eg Total cost of a 5 year bond = 6 x EUR 28k = EUR 168k
- Post-issuance: Rating maybe reviewed periodically, eg upon the release of annual report on green bond use of proceeds

Code:
Green text = advantage of this option
Red text = potential disadvantage of this option

IFI Harmonised Framework for Impact Reporting

Suggested best practice for reporting on green investments

Green Bonds

Working towards a Harmonized Framework for Impact Reporting

December 2015

In December 2015 a group of MDB's leading in the Green Bond market created a document that aimed to outline a 'Harmonized framework for impact reporting', detailing reporting recommendations for projects to which green bond proceeds have been allocated

It summarizes the conclusions of an informal working group*, the objective of which is to catalyse a broader discussion with other issuers and investors about recommendations and their practical application

The work reflects requests by the investor community, and has been welcomed and encouraged in the 2016 update of the Green Bond Principles released in June 2016

Core principles and recommendations from the Framework

1. Report on **both the use of green bond proceeds, as well as the expected environmental impacts** at least on an **annual basis**

2. D**efine and disclose the period and process** for including projects in their report

3. Indicate the **total signed amount** and the **amount of green bond proceeds allocated to eligible disbursements**

4. Put in place a formal internal process for the allocation of proceeds linked to the issuers' lending and investment operations for Green Projects and to report on the allocation of proceeds

5. **Provide either a list of projects to which green bond proceeds have been allocated, or report on a portfolio level**

6. **Project-by-project report or portfolio report based on project-by-project allocations are both acceptable**

7. I**llustrate the expected environmental impact** made possible as a result of projects to which green bond proceeds have been allocated

8. E**stimate the lifetime results and/or project economic life (in years)** to provide users with a basis for understanding the impact of the project over its lifetime

9. Include any **ex-post verification of specific projects if obtained in the reporting**

10. R**eport on a limited number of core indicators for projects** to facilitate comparison of project results

11. In the absence of one single commonly-used standard for the calculation of GHG emissions reduced/avoided, issuers may follow their own methodologies. But in doing so, **should provide full transparency on the applicable GHG accounting methodology and assumptions,** which can be referenced

12. :INVESTOR FOCUS: Investors should be aware that comparing projects, sectors, or whole portfolios is difficult because general assumptions on inputs in calculations, like grid factors and calculation methods, also vary significantly

13. **Issuers may elect to convert units reported for individual projects** for consistency reasons. **This should be based on a standard conversion factor to facilitate comparison and aggregation** (for example converting tonnes of coal equivalent (tce) to MWh)**,** with appropriate disclosure of the conversion approach

14. B**e transparent about projects with partial eligibility**

15. In case the expected impacts of different project components (such as EE and RE components of the same project) may not be reported separately, **issuers may attribute the results to each component based on its relative share in the related financing, disclosing the attribution approach**

16. Issuers should be transparent on how they **report all green bond-related cash-flows in one currency** when they allocate green bond proceeds and report on the projects to which green bond proceeds have been allocated

Source: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Working_Towards_a_Harmonized_Framework_for_Impact_Reporting_December_2015.pdf

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