绿色债券市场发展
国内外实践及前景展望

The practice and prospects for green bond market development at home and abroad

中国银行间市场交易商协会

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The practice and prospects for green bond market development at home and abroad

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Preface

Currently, global sustainable development has entered a new phase, mainly driven by the green economy. It is crucial to establish a green finance system and make full use of green finance for the allocation of resources in promoting conservation of the environment and driving economic growth. The signing of the Paris Agreement,G20 Hangzhou Consensus and The Guidelines on Construction of Green Finance System, jointly published by seven ministries serve as important drivers for the development of green finance in China and potentially worldwide. The transition to a green economy requires huge capital investment over a long period. The development of green finance, including green bonds, is important. The green bond is a new financial instrument developed by the international community in response to climate change. It is a clean, green, long term and competitive financing option.

The international green bond market began with the issuance of green bonds by multilateral development institutions in 2007–2008. Major issuing entities from 2007 to 2012 include the European Investment Bank (EIB), International Finance Corporation (IFC) and World Bank, with smaller issuing entities including the financing agencies of local governments, municipal entities and national development banks. Following the launch of the Green Bond Principles (GBP), private sector issuers including corporate issuers and banks entered the market in 2013 and2014. The issuance of green bonds grew from USD 3 billion in 2012 to USD 42 billion in 2015. The first 7 months of 2016 alone saw issuance overtaking the total issuance amount in 2015. Issuance in 2016 stood at over USD 80 billion[1] (almost 200% of the total of 2015) with a large part of it coming from issuers in China. At the same time, more and more investors have come to regard green bonds as a suitable source of financing for the transition to a low carbon economy. At the 21st session of the Conference of the Parties to the UNFCCC (COP21) held in December 2015 in Paris, institutional investors representing USD 11.2 trillion of funds under management committed to develop the green bond market.

The development of the green bond market in China has entered a new phase. Firstly, the construction of a green finance system has become an important part of national strategy. The green bond, as an important part of this, has had top–level support for its development. In the General Plan of the Reform of the Institutions for Environmental Conservation Culture published by the Central Committee of The Communist Party of China and State Council in September 2015, China for the first time elaborated its top–level design for a green finance system. The 13th Five–Year Plan for Economic and Social Development of the People's Republic of China published by the National People's Congress in March 2016 stipulated clearly that “we need to build a green finance system, develop green credit, green bonds, and establish a green development fund.” The construction of the green finance system has been elevated to national strategy level in China. In December 2015, the G20 Green Finance Study Group, advocated by China, was established, to study how to promote the development of global green finance and mobilize more financing resources to speed up the transition to a green global economy. Secondly, the rapid development of the bond market and a series of reform measures in China, have been driving the development of green bonds, including expansion of the scope of bond issuance and improvement of issuing facilities.The deepening and the opening up of the bond market also has created conditions for green bond transactions; in addition, encouragement for issuing special “infrastructure” bonds is also conducive to developing the green bond market; most importantly, various supervisory departments have published guidelines on green bonds, directly giving policy support for development of the green bond market in China. Thirdly, the overall continuing development of the bond market in China has served as a basis for the long–term development of green bonds. Over 30 years the bond market in China has grown into a globally influential emerging market. By the end of 2016,China's bond market issued various types of bonds amounted to RMB 36.1 trillion, the outstanding volume is RMB 63.7 trillion, the third largest in the world and second largest in Asia. The great potential of the bond market in China has provided the basis for green bond development.

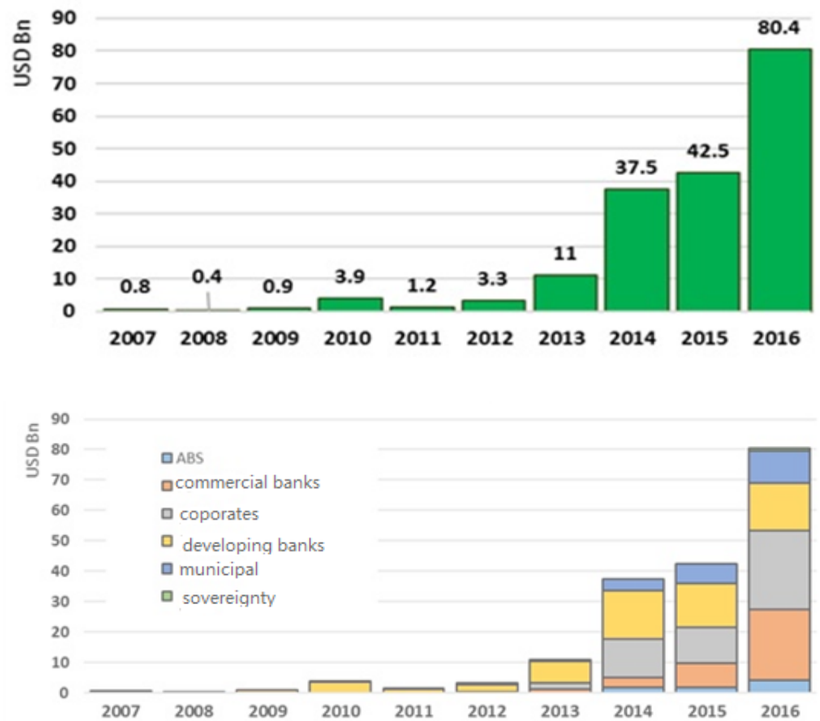
This report aims to provide issuers, investors and other market participants with information about the development of the foreign and domestic bond markets, operational practices and outlook, helping more institutions to join the development of the green bond market and expanding financing channels for sustainable development. Section I is an overview of the green bond market; Section II covers policy and market initiatives concerning the green bond market； Section III describes practices of green bond issuers in the international market； Section IV summarizes the concerns of international green bond investors, Section V relates to the development of the green bond market in China； and Section V provides an outlook for the development of the domestic green bond market and recommendations.

[1] Source: Climate Bonds Initiative (CBI)

Section I. Overview

i. Origination and development of green bonds

The proceeds of green bonds are invested in green projects, which make them different from conventional bonds. As a new bond product on the international bond market in recent years, the green bond has been designed to respond to global investors' concerns about climate change and environment problems. Proceeds of green bonds are used to mitigate and adapt to the effects of climate change.



Source：CBI

In the early stage of green bond development, multilateral development institutions were major issuing entities. In 2007, the European Investment Bank (EIB) issued the world's first"Climate Awareness Bond", which established many characteristics of what is today understood as a green bond. In 2008, the World Bank and Skandinaviska Enskilda Banken (SEB) jointly issued the first bond branded as a green bond. In Feb

2013, Export–Import Bank of Korea (KEXIM) became Asia's first financial institution to issue a green bond. The green bond market has been developing rapidly. According to CBI, the annual issuance amount of green bonds has grown from USD 11 billion in 2013 to USD 37.5 billion in 2014 and USD 42.5 billion in 2015. Issuance in 2016 stood at over USD 80 billion[2]（almost 200% of the total of 2015) with growth led by issuers in China. Green bonds remain largely investment grade which is due to the fact that issuers are historically multilateral development banks, e.g. World Bank, International Finance Corporation (IFC)and European Investment Bank;municipal, regional and state authorities; as well as large international banks and corporates.

ii. Issuers of green bonds

With the development of the global green bond market, the issuers have diversified. Currently, government institutions, international institutions, multilateral financial institutions, investment banks and large scale enterprise are all major issuers.

Prior to 2013, global green bond issuers were mainly multilateral development banks like the World Bank, IFC, European Investment Bank (EIB). Such market leaders, cooperate with governments and the private sector to issue green bonds to finance public facilities and the private sector respectively. IFC has committed to invest 20% of its future long term financing in climate related projects, whereas the EIB has committed to invest at least 25%. At present EIB has issued the largest amount of green bonds (over USD 15 billion), and was the largest issuer in both 2014 and 2015.

In November 2013, Électricité de France (EDF) de France(EDF) issued green bonds worth € 1.4 billion, a record at that time, which was broken several months later by green bond issuance worth €2.5 billion by GDF Suez, another French energy company. In 2014,Toyota became the first auto company to issue a green bond with a green ABS worth USD 1.75 billion on the vehicle asset backed securities market in the U.S.; Unilever also issued a green bond of £250 million in March 2014.

Municipalities, cities and utility companies can become important strategic issuers of green bonds, alongside sovereign issuers, as well as corporates. Green bonds can be important financing instruments for municipalities and cities to meet the ever–growing demands of climate infrastructure construction. Carbon emissions in cities account for 70% of global

[2] Source: Climate Bonds Initiative (CBI)

carbon emissions, which makes them major participants in the construction of climate friendly infrastructures. With the rising global rate of urbanization, especially in emerging markets, in the decades to come, the percentage of cities' carbon emissions are going to grow[3]. The green bond markets in U.S. and Europe have seen the most issuance of green city bonds and green municipal bonds, while in emerging markets only one green city bond was issued. In June 2014[4], the government of Johannesburg in South Africa issued the first emerging market green city bonds whose proceeds were used for renewable energy, waste-to-energy and low carbon transportation projects. In February 2016, Swindon Borough Council in the UK issued the first UK municipal green bond, for a solar power plant project. Local residents were allowed to directly invest in this project.

Also worthy of mention is that municipal government entities like public utility companies can issue green bonds. In February 2016, Metropolitan Transportation Authority ("MTA") issued its first green bond worth USD 782.5 million (RMB 5.15 billion), whose proceeds were used for the upgrade of electrified railway assets and supporting infrastructures. The bond was certified by low carbon transportation standards under the Climate Bonds Standard (CBS), enhancing investors'confidence in the green qualification of proceeds. Another example is D.C. Water in Washington DC in the U.S. which issued, in 2014 and 2015 respectively, green bonds of USD 350 million and USD 100 million.

iii. Development of green bonds denominated in RMB

In June 2014, International Finance Corporation (IFC), a member of the World Bank group, successfully issued a 3-year green bond denominated in RMB on the London market. The bond raised RMB 500 million (about USD 81 million), with a coupon rate of 2%. The bond interested investors in Europe and Asia greatly. The success of this issuance proved the acceptance of green bond issuance denominated in RMB by the overseas market and global investors. In July 2015, Xinjiang Gold Wind Sci& Tech Co., Ltd., producing and selling wind power generator sets, issued green bonds worth USD 300 million on the overseas market. The 3-year bond, with a coupon rate of 2.5% and rating at A1, was nearly 5 times oversubscribed by 66 global institutional investor accounts. In October of the same year, Agricultural Bank of China issued a USD 900 million green bond (denominated in USD) and a RMB 600 million green bond (denominated in RMB) on the LSE. Its 3-year bond for USD 400 million with a coupon of 2.125% and 5-year USD 500 million bond, coupon rate 2.75%,were 4.2 times oversubscribed, the 2 year RMB 600 million offshore bond with a 4.15% coupon was 8.2times over subscribed. These successful cases have demonstrated high demand from international investors for China's green bonds and green bonds denominated in RMB.

In 2016, China emerged rapidly as the leader in green bond issuance. In the first seven months of 2016, the amount of green bonds issued by Chinese issuers (including in the domestic and overseas markets) reached USD 18.5 billion, accounting for about 42% of global issuance during the same period.[5]

Section II. Green bond market standards - policy and market initiatives

The green bond market has voluntary guidelines and standards, as well as additional rules and regulations in some jurisdictions such as China, India and France. The Green Bond Principles (GBP) are a set of voluntary guidelines defined by key market participants under the coordination of the International Capital Market Association (ICMA) acting as secretariat. These are complemented by the CBS of the Climate Bonds Initiative (CBI). A number of private and academic organizations provide external reviews to confirm alignment with the GBP and advise on features including environmental, social and governance performance, including environmental impact and its relevance for markets.

i. Policy and supervision - official policy and supervision

The GBP have largely served as the basis for official sector recognition of green bonds. This is welcome as it promotes the practices developed in the international green bond market and their voluntary nature. It also mitigates the risk of a multiplication of incompatible national rules and regulations. Some countries have aimed to make certain recommendations of the GBP into regulatory requirements when alignment with voluntary rules was not considered sufficient.

[3] The City Creditworthiness Initiative: A Partnership to Deliver Municipal Finance published by World Bank in 2015 is available at : http://www.worldbank.org/en/topic/urbandevelopment/brief/city-creditworthiness-initiative

[4] Ile-de-France, Massachusetts, State of California, State of New York, Gothenburg and Stockholm have all issued green city bonds. In Jun 2014, Johannesburg issued first green city bond on emerging markets.

[5] Data sources: GFC and CBI.

In developed markets, the Bank of England is involved in discussions with market participants on possible guidance on best practice that may be considered for use in the term-sheets of green bonds, which is consistent with the Bank of England's commitment to green finance and complements the ongoing work of the Green Finance Initiative of the City of London. LSE has also established requirements for green bond listings in order to promote market integrity. France has released a public label called Transition Energétique Climat for green funds[6], These green funds, in order to be awarded the label, are also required to invest in particular in green bonds aligned with the GBP, with the list of qualifying projects based on the CBS.

Apart from China, emerging economies have also committed to green bond development. India sees green bonds as an important means of meeting its green development target, including the financing needs of a 175 MW clean energy project. The Securities and Exchange Board of India (SEBI), the Indian finance watchdog, officially released the requirements for green bonds[7] in January 2016. The key features of the new requirements cover the definition of green bonds, external review, tracking of proceeds, and disclosure requirements, and follow the general architecture of the GBP. In Mexico, the Bolsa Mexico has set up a green bond working group to promote the development of green bond market. Brazil has established a sustainable market development committee to support green bond market development.

In 2015, the People's Bank of China (PBOC) and National Development and Reform Commission (NDRC) respectively, released official green bond guidelines. PBOC published its Green Financial Bond Guidelines, covering the definition, proceeds management and usage and disclosure for green bonds. NDRC also formulated a green enterprise bond guideline, providing an eligible green project list and policy stimulus suggestions.

ii. GBP

The GBP were jointly launched in January 2014 by the GBP Initial Executive Committee consisting of green bond issuers, investment institutions and underwriters with the support International Capital Market Association (ICMA). They are intended to provide transparency and information disclosure recommendations, and thereby to support green bond market development. This in turn is designed to promote capital flow to environmentally friendly projects. The GBP define basic environmental categories for the use of proceeds, to support preliminary assessments of the investment scope of a green bond. They also introduced a framework for disclosure of project evaluation and selection and green bond proceeds management, as well as providing wider reporting guidance. There is also guidance on the use of external reviews. The GBP are currently recognized by a community of over 200 members and observers, encompassing global green bond issuers, underwriters and investors (members), and other stakeholders (observers). The GBP community is coordinated by an Executive Committee of 24 members, constituting a representative group of issuers, investors and intermediaries that oversee the annual update of the GBP. ICMA acts as Secretariat to the GBP advising on governance and other issues, as well as providing organizational support.

The GBP were updated in 2016 to include recommendations on best practice on reporting and external reviews, such as use of templates by issuers and external reviewers, which facilitate ease of evaluation and comparisons between green bonds. These templates are available at the GBP Resource Centre hosted by ICMA[8].

iii. Climate Bonds Standard (CBS) of CBI

Building from the overarching Green Bond Principles, the Climate Bonds Standard (CBS) aims to provide participants in the green bond market with additional detailed guidance to help the market achieve greater scale. The CBS consists of certification procedures, pre-issuance conditions and post-issuance requirements and industry standards. The sector-specific criteria provide clear eligibility requirements for assets and projects in different sectors that qualify for green bond financing. These criteria cover various sectors such as energy, buildings, transport, natural based assets, and water. They are reviewed at least annually to ensure they are up-to-date and include new findings and technologies. Green bonds that meet requirements from the CBS can be certified under the Climate Bonds Standard & Certification Scheme.

iv. Green Categories and Taxonomies of GBP and CBS

The GBP explicitly list several broad categories of potential eligible green projects aiming to address key areas of concern such as climate change, natural resources depletion, loss of biodiversity and/or pollution control. Updated in June 2016, these broad categories are:

[6] Transition Energ é tique Climat
[7] http://www.sebi.gov.in/sebiweb/home/detail/32793/yes/PR-SEBI-Board-Meeting

[8] http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/gbp-resource-centre/

• renewable energy (including production, transmission, appliances and products);

• energy efficiency (such as in new and refurbished buildings, energy storage, district heating, smart grids, appliances and products);

• 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 (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);

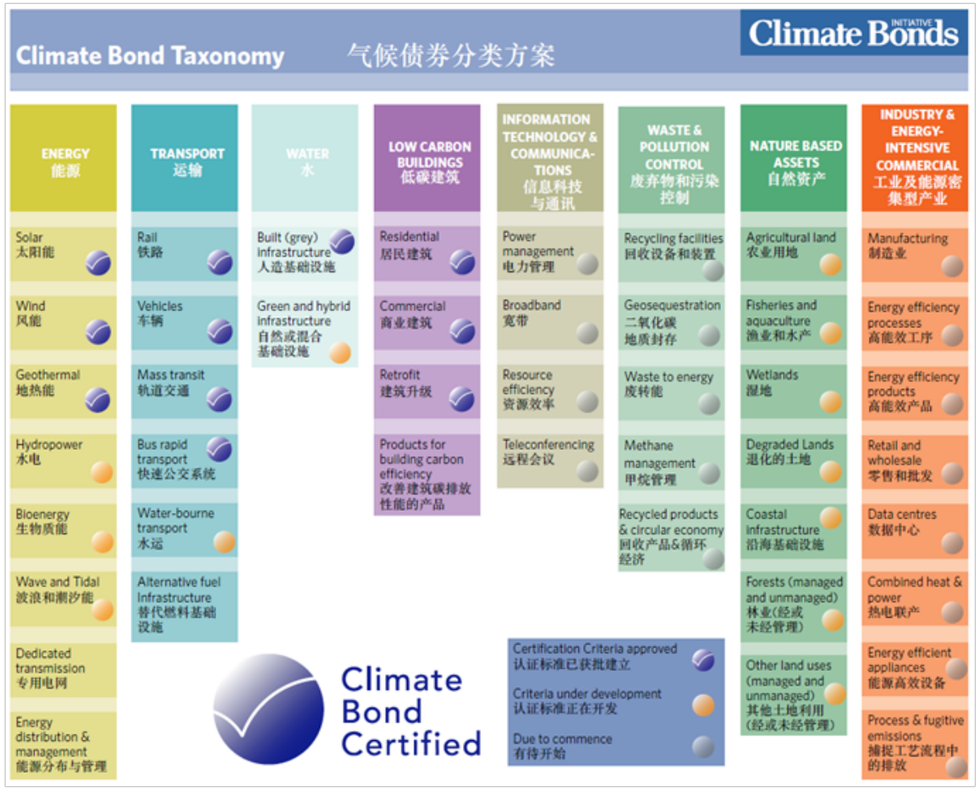
• climate change adaptation (including information support systems, such as climate observation and early warning systems);

• 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).

The GBP state that they do not provide detailed guidance on what is green, leaving this to either investors themselves or to other parties with special expertise. The GBP acknowledge a number of additional and complementary categories and sets of criteria defining eligible green projects in existence in the market and provides examples through links listed in the GBP Resource Centre .

Conversely, the Climate Bonds Standard does provide sector–specific criteria for what is green that are developed by international expert committees made up of academic experts, specialist institutes, development bank scientists, investor representatives and others. The scheme is supervised by an international Board of investor representatives.

The Climate Bond Taxonomy, which provides the green definitions under the Climate Bonds Standard, aims to encourage common definitions across global green bond markets. It is a public good resource that provides guidelines for prospective green bond and climate bond issuers and investors.



v. Independent evaluation

Internationally, most of green bonds have been given second opinions or third party certification - forms of "external review" accordingto GBP terminology. According to the Climate Bonds Initiative (CBI), altogether 618 green bonds have been issued globally, with 368 bonds, about 60%, publicly given independent second opinion or third party certification. Among the 368 bonds, the Center for International Climate and Environmental Research at Oslo (CICERO) accounts for 257, some 69.8% of bonds benefiting from independent evaluation; followed by 80 bonds reviewed by Environmental, Social, Governance research service providers[10] ; 22 bonds by

[10] Environmental, Social, Governance（ESG）research service providers include research service providers or other intermediary agencies like rating companies that are capable of ESG investment analysis

professional certification institutions and consulting companies, and 9 bonds by auditing companies. In the early stage of the green bond market, almost all green bonds were independently reviewed by CICERO. With the growth of the green bond market and diversification of issuing entities, other institutions that can provide second opinions or third party independent reviews or certification service have also been developing the market, such as rating agencies, auditing companies, professional certification institutions and consulting companies. Thanks to first mover advantage, academic research institutions still account for a large share of the green bond evaluation market (see the table below).

Table 2：Distribution of green bond evaluation service institutions

	Academic research institution	Environmental, Social, Governance research service provider	Auditing companies	Market professional certification institutions, consulting company
number of bonds certified	257	80	9	22
percentage	69.8%	21.7%	2.4%	6.1%

Source：China Bond Rating Co., Ltd

Section III. Practices of green bond issuers in the international market

i. The 2016 GBP recommendations

The GBP recommend certain approaches to disclosure and transparency designed specially to give guidance to green bond issuers. The GBP have four components:

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

The GBP also include recommendations for the use of external reviewers. It is important to note that the GBP are voluntary recommendations for market participants, and are therefore not designed to be necessarily reflected in transaction documentation. Most green bonds listed internationally align with the GBP recommendations, although with some variations.

The 2016 update of the GBP makes further recommendations on best practice for reporting and external reviews, including the use of templates designed to be made available publicly to the market through a GBP Resource Centre[15] hosted by ICMA. This is designed to add to market transparency and clarify further the process of green bond issuer alignment with the GBP. The GBP Resource Centre now contains templates from the great majority of green bond market issuers including corporate, multilateral development banks, municipalities, national agencies and regional administrations.

ii. International green bond case studies

We include for illustrative purposes in the table below examples of the green components that corporates, multilateral development banks, regional and municipal authorities and banks from both developed and developing markets have included in their green bonds. Each of these examples provides a summary of the alignment of the issuer with the 4 components of the GBP and their use of external reviews.

ISSUER and Rating	DATE OF ISSUE and maturity	AMOUNT	GREEN COMPONENTS
EDF A1/A+/A (neg/neg/ stable)	October 2015 Oct 2025	EUR 1.7 bn	Use of Proceeds: The net proceeds of the EDF Green Bond will be used to finance – in whole or in part – "Eligible Projects" consisting in new and/or existing renewable energy projects defined as: 1. Wind and solar projects developed by EDF Energies Nouvelles (EDF EN) located worldwide 2. Investment activities in hydropower facilities in mainland France: a. Renovation and upgrade of existing hydropower facilities

[15] http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/gbp-resource-centre/

			b. Modernisation and automation of existing hydropower facilities' maintenance and operation c. Hydropower development projects. Process for Project evaluation and selection Only projects meeting all EDF EN Project E&S Criteria, or all French Hydro Project E&S Criteria, may benefit from Green Bond financing. Management of Proceeds Green Bond proceeds are managed through a dedicated process aiming to ensure full traceability of the proceeds in EDF SA's treasury and a use dedicated to financing Eligible Projects. Upon receipt by the treasury department of the Financing and Investments Division of EDF SA, proceeds from each issuance are invested and tracked in a dedicated sub–portfolio of short–term financial assets (the "Green Treasury Assets Portfolio") until allocation to Eligible Projects. Proceeds are invested in priority in financial assets labelled as "Socially Responsible Investments" by external parties. Reporting EDF has established a specific section of its corporate website dedicated to providing information about its Green Bonds https://www.edf.fr/en/the–edf–group/dedicated–sections/investors–shareholders/investors–analysts/bonds/green–bonds Relevant documents and information concerning EDF's Green Bond activities are published on its Green Bond page. This includes regular updates on the allocation of Green Bond proceeds as well as annual reports (including detailed
			projects and impact reporting). EDF will report on the use of the proceeds of each Green Bond issue until its net proceeds are used in full or the maturity date of the Green Bond issue, whichever comes first. External Review EDF has appointed VigeoEiris to assess the sustainability of its Green Bond Framework. The report is made publicly available on EDF Green Bond page (see above).
ENGIE A2/P–1 (outlook stable) A–/A–2 (outlook negative)	May 2014 May 2020/2026	Total EUR 2,5 bn	Use of Proceeds: (1) Renewable Energy Projects include financing of, or investments in the conception, construction and installation of renewable energy production units (i.e. energy produced from renewable non–fossil sources including hydro, geothermal, wind, solar or from any other renewable source of energy). Such projects may include acquisition of companies specialized in the conception, construction, installation and production of such renewables energies. (2) Energy Efficiency Projects include financing of, or investments in projects that contribute to a reduction of the energy consumption per unit of output, such as – for instance –heating and cooling network (which recover heat sources that would otherwise be lost), cogeneration, optimization of building or plant efficiency, systems for energy management (Smart Grids, Smart Metering), etc. Such projects may include acquisition of companies specialized in such energy efficiency activities. The above mentioned categories are amongst those recognized and listed by the GBP as eligible for Green Projects financings.

			Process for Project evaluation and selection Eligible Green Projects must meet a set of meet 10 environmental, social and societal criteria drawn up in conjunction with the non–financial ratings agency Vigeo (independent consultant expert in responsible performance), covering 5 domains: 1. Protecting the environment: curbing environmental impact and combating climate change; 2. Involving local communities: contributing to local development and to the well–being of local communities; 3. Ethics and entrepreneurial behavior: promoting ethical practices throughout the supply chain and sustainable relations with suppliers; 4. Human resources: ensuring responsible working conditions and relations; 5. Project governance: making sure that projects are subjected to an internal ESG assessment (environmental, social/societal and governance). Eligible Green Projects are evaluated each year on the above–mentioned set of criteria and the results are subject to a specific audit performed by the ESG team of Deloitte, one of the joint independent statutory auditors of the Issuer. **Management of Proceeds:** Until the net proceeds are allocated in full to Eligible Green Projects (and later in the case of any material change in the list of Eligible Green Projects), the issuer is expected to communicate annually on the list of Eligible Green Projects in its Registration Document. Until the full allocation to Eligible Green Projects, the Issuer will hold the balance of net proceeds not already allocated to Eligible Green Projects within the treasury of the

			Group, invested in cash, cash equivalent and/or money market instruments. As recommended in the GBP, the allocation of proceeds is thus fully transparent and verified by the auditor. **Reporting** The Bond documentation provides that until the net proceeds are allocated in full to Eligible Green Projects (and later in the case of any material change in the list of Eligible Green Projects), the issuer is expected to communicate on the list of Eligible Green Projects in its Registration Document. Report for the years 2014 and 2015 were published and are available in the Registration Documents 2014 and 2015 (see below). Reporting include the amount allocated and the list of the Eligible Green Projects for the period, each project type of technology/efficiency, each project region, total capacity, and year of expected start of operation. For confidentiality reasons, yearly allocation amounts are given on a consolidated basis per category of project (Renewable or Efficiency). **External Review:** The external review of the bond is twofold: –A second party opinion given by Vigeo at the launch of the Green Bond. Such opinion was granted on the framework established by the Issuer for selecting the future Eligible Green Projects. –Verification of the allocation: the yearly allocation process is submitted to a verification of the alignment of the internal standards and actual Eligible Green Project particulars with each the eligibility criteria (as defined in the framework mentioned above). Such verification is made

			through an audit performed by Deloitte, one of the statutory auditors of the Issuer. For this mission Deloitte dedicates a team of ESG experts who have authority to ask the Issuer any evidence it may deem necessary to establish and comfort its opinion. At the end of such verification, an audit report is produced by the auditors, a copy of which is released in the Registration Document. http://www.engie.com/en/investors/fixed-income/green-bond-fight-climate-change/
EUROPEAN INVESTMENT BANK ("EIB") AAA/Aaa /AAA	Various since 2007 Nov 2023	Total EUR 15bn+	Use of Proceeds: The use of proceeds for EIB's Climate Awareness Bonds (CABs) is transparently established in the bond documentation, which defines that funds are only eligible for disbursement to lending projects within the fields of renewable energy and energy efficiency, specifying that "lending projects in the fields of renewable energy and energy efficiency include, but are not limited to, renewable energy projects such as wind, hydro, solar and geothermal production; and energy efficiency projects such as district heating, co-generation, building insulation, energy loss reduction in transmission and distribution and equipment replacement" Process for Project evaluation and selection The assessment of a project's eligibility for Climate Awareness Bond allocations is integrated in the Bank's project cycle. EIB's environmental specialists (Projects Directorate) assign Climate Awareness Bond eligibility for each loan after Board approval, and record it in the Bank's central database system. All EIB projects have to comply with the Bank's environmental and social (E&S) due diligence. The policies are publicly available in the EIB's Statement of Environmental and Social Principles and Standards and EIB's Environmental and Social Handbook. Management of Proceeds: Funds raised through the issuance of EIB's Climate Awareness Bonds are segregated in a separate "CAB-Portfolio" in EIB's Treasury. The Bank regularly reports on the balance of this account in its annual financial reportas well as in its dedicated CAB Newsletters. In addition, the EIB has streamlined and automated a number of processes related to the tracking of proceeds: • Daily retrieval of CAB-eligible disbursements (automated) • Daily allocation of CAB proceeds on a first-in first-out basis to individual bonds (automated) Temporary Investments: Unallocated proceeds are invested in money market instruments pending disbursement Reporting: The EIB provides transparency on the allocation of CAB proceeds annually in its audited financial statements and sustainability report as well as semi-annually in a dedicated Climate Awareness Bonds Newsletter. The EIB website includes a list of CAB Bond allocations on a project by project basis. The EIB publishes impact reporting on a yearly basis, with data in aggregate and for individual CAB Bonds (http://www.eib.org/attachments/fi/CAB-reporting-2015.pdf). External Review EIB has obtained an independent reasonable assurance report on its Green Bond Program

			on 27.09.2016. The report by KPMG confirms alignment with the Green Bond Principles and provides a high degree of reliability to the information reported by the EIB in a separate CAB statement with regards to responsibilities, operational criteria, allocations and impact reports. Effectively what is reported in the present GBP information template summarizes in short the full KPMG report, which can be obtained under the following link: http://www.eib.org/attachments/fi/cab–statement–2015.pdf
PROVINCE OF ONTARIO Aa2/AA–/AA(low)/A+	Sept 2014 Sept 2018 Jan 2016 Jan 2023	CAD 500 million CAD 750 million	Use of Proceeds: Without limitation, Eligible Projects may include projects in the following sectors: 1. Clean transportation (e.g. Funding of public transportation projects) 2. Energy efficiency and conservation (e.g. Public sector building efficiency improvements) 3. Clean energy and technology (e.g. Smart grid infrastructure and energy storage) 4. Forestry, agriculture and land management (e.g. Sustainable forest management) 5. Climate adaptation and resilience (e.g. Flood protection and storm water management) Process for project evaluation and selection The selection of eligible green projects is done on behalf of the Province by the Ontario Financing Authority (OFA) staff with advice from the Province's Green Bond Advisory Panel (GBAP). Only fully approved projects are eligible for consideration. Spending authority for eligible green projects comes through approved ministry and agency spending in accordance with the Province's usual government appropriation and spending processes.

			Management of Proceeds: Green Bond proceeds are paid into the Consolidated Revenue Fund of Ontario and are not in a segregated account. The proceeds are invested short–term in Government of Canada securities. An amount equal to the net proceeds of the Green Bonds is recorded in a designated account in the Province of Ontario's financial records. This designated account is used to track the use of and allocation of funds to eligible projects. So long as the Bonds are outstanding and the designated account has a positive balance, amounts are deducted from the balance of the account as funds are allocated to eligible projects. Reporting: The Ontario Financing Authority will provide an annual newsletter to investors on its website including: – Eligible Projects connected with green bond issues and deductions of amounts from the designated account balance; – project updates and status reports for Eligible Projects; – performance indicators; and – a summary of the Province's green bond developments including existing and future projects. External Review Ontario's Green Bond Framework was developed in consultation with the Center for International Climate and Environmental Research – Oslo (CICERO) and is consistent with the Green Bond Principles. CICERO's Second Opinion can be found on the OFA's Green Bond website: http://www.ofina.on.ca/greenbonds/verification.htm

REGION ILE-DE-FRANCE AAA/Aaa /AAA	Various since 2007 Nov 2023	Total EUR 1.5bn+	**Use of Proceeds:** The use of proceeds was defined before the issuance, within seven categories of projects: o Buildings and facilities for education and leisure o Public transport and sustainable transportation o Renewable Energy and Energy-Efficiency o Biodiversity o Social initiatives aimed at assisting vulnerable population groups o Social Housing o Economic and socially inclusive development **Process for project evaluation and selection** Region Ile-de-France defined before issuance 9 eligibility criteria covering environmental, social and governance issues. The process for project evaluation and selection begins in the fall of the year of mobilization of the bonds concerned, when the Region has a perfect view of the level of investment expenditures on each project. Each directorate of Region Ile-de-France is asked to identify the proper projects to be considered as eligible, in compliance with the eligibility criteria and for an expected amount of spending. **Management of proceeds** Principles of French local public accounting imply that borrowing used to balance the budget can only finance investment expenditures of the year. It offers a strong guarantee that proceeds of the sustainability bond will be used to fund the expenditures of the year related to investment projects selected. It allows to fund the annual expenditures tranches of the selected projects. **Reporting** Ile-de-France Region will monitor the use of funds invested in Eligible Projects and will publish on the issue's anniversary date reports until either: – the amount invested in Eligible Projects reaches the bond amount issued, or – the bond matures, whichever date comes first. Reporting will present the allocation of funds, the presentation of projects that have been financed by the sustainability bonds, and expected environmental and social impacts of each project when feasible. **External Review** An updated version of the 2nd opinion was delivered by Vigeo-Eiris in 2016 before issuance. It has confirmed, based on pre-issuance commitments, that these sustainability bonds were aligned with the Green Bond Principles and it provides a reasonable level of insurance on the sustainability of the bond. https://www.iledefrance.fr/region-funding
Stockholm County Council AA+/A-1+ (outlook stable)	May 2014 May 2015 May 2016	SEK 1.1 billion SEK 1.8 billion SEK 1.5 billion	**Use of Proceeds:** The proceeds are earmarked to support Green projects as defined in SCC's Green Bond framework, comprising investments in: 1- Sustainable public transportation (trains, underground, trams, buses) 2- Sustainable buildings – New construction LEED Gold, BREEAM Very Good, Miljöbyggnad Gold – Restoration of existing buildings to Miljöbyggnad Gold 3- Waste Management – Recycling – Capture of medical gases 4- Water Management (ex. reduce medical substances in drinking water)

			Process for project evaluation and selection The Eligible Projects are selected in cooperation by SCC's Treasury in and under advice according to “Eligible projects” of SCC's growth, Environment and Regional Planning department. Management of Proceeds: An amount equal to the net proceeds of the issue of the Notes will be credited to a special account that will support SCC':s lending for Eligible Projects. As long as the Notes are outstanding and the special account has a positive balance at the end of every fiscal quarter, funds will be deducted from the special account and added to SCC’ s lending pool in an amount equal to all disbursements from that pool made during such quarter in line with Eligible Projects. Reporting SCC provides transparency through annual investor letters published on SCC's webpage. In the investor letter you find a list of financed projects, a selection of project examples and a summary of SCC's GB development. SCC also offers investors to participate in field studies on site. SCC is a public institution and documentation and information related to the county is publicly available. External Review: First of all, SCC produces an annual environmental report, to evaluate performance with respect to the environmental policy and objectives. Climate impact is one of many parameters measured. SCC environmental policy is for five years and at least two time per period an external audit is made, to evaluate the process and verify data to ensure that the reporting is adequate.
			In addition to the audit report, SCC uses a system for certification of environmental and sustainable buildings (called “Miljöbyggnad”), managed by the Sweden Green Building Council. The certification system is a great tool for SCC to ensure that the buildings are energy efficient, have good indoor environment and that the construction materials used have been assessed from an environmental perspective. Locum AB, owned by the SCC, is real estate manager and conducts construction projects. Locum AB has decided that the new production of buildings must be certified according to the SGBC's criteria for level Gold, which is the highest standard. To secure prudence the Green Bond framework received a second opinion from the independent Research Center CICERO. http://www.sll.se/ stockholm–county–council–second–opinion–green–bond.pdf
WORLD BANK Aaa/AAA (Moody’s /S&P)	Various since 2008 March 2025	Total of approx. USD 9 bn	Use of Proceeds: World Bank Green Bond proceeds support the financing of IBRD projects that, in whole or in part, promote the transition to low–carbon and climate resilient development in the recipient countries. Eligible Projects may include projects that target (a) mitigation of climate change including investments in low–carbon and clean technology programs, such as energy efficiency and renewable energy programs and projects (“Mitigation Projects”), or (b) adaptation to climate change, including investments in climate–resilient growth (“Adaptation Projects”). Examples of Mitigation Projects: Solar and wind installations; Funding for new technologies that permit

			significant reductions in greenhouse gas (GHG) emissions; Rehabilitation of power plants and transmission facilities to reduce GHG emissions; Greater efficiency in transportation, including fuel switching and mass transport; Waste management (methane emissions) and construction of energy–efficient buildings; Carbon reduction through reforestation and avoided deforestation. Examples of Adaptation Projects: Protection against flooding (including reforestation and watershed management); Food security improvement and implementing stress–resilient agricultural systems (which slow down deforestation); Sustainable forest management and avoided deforestation. Process for project evaluation and selection All World Bank projects – including Green Bond projects – undergo a rigorous review and approval process to ensure that the projects meet client countries' development priorities. The process includes early screening to identify potential environmental or social impacts and designing policies and concrete actions to mitigate any such impacts. Every World Bank project is approved by its Board of Executive Directors – a resident Board with 25 chairs representing its member countries. Management of Proceeds: An amount equal to the net proceeds of the issue of World Bank Green Bonds are credited to a special account that will support IBRD's lending for Eligible Projects (the "Special Account"). So long as the World Bank Green Bonds are outstanding and the				Special Account has a positive balance, periodically and at least at the end of every fiscal quarter, funds are deducted from the Special Account and added to IBRD's lending pool in an amount equal to all disbursements from that pool made during such quarter in respect of Eligible Projects. Disbursement requests for Eligible Projects take place in accordance with IBRD's established policies and procedures. Disbursements are often made over a period of several years, depending on when each project milestone is reached. The funds in the Special Account are invested in accordance with IBRD's conservative liquidity policy until funds are deducted from the Special Account and added to IBRD's lending pool as explained above. Reporting: Aggregate and detailed World Bank project information is disclosed on the World Bank website. This includes documents on the main World Bank website with detailed information about the projects (e.g., initial Project Appraisal Documents, semi–annual Interim Status and Results Reports). In addition, summaries and key impact indicators of the Green Bond eligible projects are provided on the World Bank's Green Bond website with links to relevant documents with more detailed project information. Annual Green Bond newsletters also provide highlights of these projects. The World Bank's green bond impact report provides a comprehensive summary of Green Bond eligible project impacts and the allocation of green bond proceeds to support disbursements to these projects. External Review: CICERO (Center for International Climate and

			Environmental Research – Oslo) provided an external review which concluded that eligibility criteria and the governance structure in at the World Bank together provide a sound basis for selecting climate friendly projects. http://treasury.worldbank.org/cmd/pdf/CICERO–second–opinion.pdf
YES BANK Baa3 (stable)	Feb. 2015 Feb 2025 Sept 2016 Sept 2023	equivalent to USD160 million equivalent to USD 50 million	**Use of Proceeds:** The proceeds raised through the issue of these bonds/debentures have been used in eligible project categories to enhance the long–term resources for funding infrastructure projects, and include all projects funded in whole, or in part, in the fields of renewable and clean energy projects including generation (including Greenfield) from sources such as: • Wind energy •Solar energy **Process for project evaluation and selection** Along with the Bank's credit policy that provides guidance for the identification, formulation and appraisal of projects, the Bank has also formally adopted an Environment and social Policy (ESP) which governs its lending decisions. The Project evaluation process follows from the interactions with potential borrower to understand the overall aspects of the project and a comparison against the eligibility criteria. Post preliminary consideration, based on the merits of the project, the evaluation moves to the risk team which assesses it and convey opinion on detailed due–diligence, if required. The eligibility of the project is thus confirmed and further documentation is sought as per the Bank's policies and Green Bond Principles.

			Management of Proceeds: The proceeds from Green Bond are tracked internally on a quarterly basis. A tracker maintains information on eligible projects as per the criteria outlined in the guidelines and respective allocated amounts, in a pre–decided format. The unallocated proceeds are placed in temporary instruments. **Reporting:** Communication to investors on the use of proceeds is done through an annual update including the following information: • List of projects to which Green Bond proceeds have been allocated; • Brief description of these projects including installed capacity and annual generation of renewable energy (wherever applicable); • Summary of environmental and social impacts associated with these projects, if any; and • Types of temporary investment instruments for the balance of unallocated proceed **External Review** YES BANK has engaged KPMG for independent assurance of Guidelines and Internal Process for Green Bond (frameworks) used for issuance of the two Green Bonds conforming to the requirement of Green Bond Principles, 2015. KPMG has provided an assurance certificate mentioning “Nothing has come to our attention to suggest that the framework used for the issuance of two green bonds for INR 1,000 crores and INR 315 crores in February and August 2015 respectively, is not, in all material respects, conforming to the requirements of the Green Bond Principles, 2015.”

Section IV. Concerns of international green bond investors

Oversubscription of green bonds has become common in both developed and emerging markets. The continuous growth of the green bond market reflects investors' demands for climate related investments. For investors, green bonds, compared with other investments channel proceeds to assets or projects mitigating climate change.

i. Green bonds brought to the attention of investors by global environmental problems

The effects of climate change and the risks associated with a greater than 2 degree Celsius rise in global temperatures by the end of the century are significant: rising sea levels, increased frequency and severity of hurricanes, droughts, wildfires, typhoons, changes in agricultural patterns and yields. Extreme climate change will have a detrimental effect on investor assets and portfolios. An average loss of USD 4.2 trillion to the total global stock of manageable assets by the end of the century has been estimated as a result of climate change. This is roughly the total value of the world's listed oil and gas companies or Japan's GDP[16]. Investors have recognized these risks and costs to their investment because of the physical impacts of climate change, and are therefore taking action to address climate changes[17]. A bond labelled "green", is an effective discovery tool for investors to screen green investment opportunities with environmental benefits. The vast majority of green bonds are financing climate change mitigation and/or adaptation projects and assets, giving investors a stable, rated and long-term investment with environmental benefits.

1. Focus of global policy makers - conference on United Nations Framework Convention on Climate Change, focusing on environment risk and opportunities

Increasingly investors have come to regard bonds as suitable market financing instruments to help the transformation to a low carbon economy. At the 21st session of the Conference of the Parties to the UNFCCC (COP21) convened in December 2015 in Paris, 188 member countries attending the conference proposed their own national plans to keep global temperature rise within 2 degrees Celsius in this century. The implementation of these plans needs funding from both public and private sectors, especially funding from institutional investors. At the conference, investors representing USD 11.2 trillion of assets signed a Paris Green Bond Statement (PGBS) committing to work together to grow the global green bond market[18], indicating their support for the policy of inclusion of the long-term development of green bonds and the establishment of a sustainable global market as part of the climate finance solution. In addition, insurers reiterated their commitment to multiply by 10 their "climate smart" investments by 2020. The Prudential Regulation Authority (PRA) of the Bank of England also suggests inclusion of green bonds as a climate investment opportunity[19] for insurers in the UK. United Nations' Principles for Responsible Investment (PRI)'s contracted institutions[20] (altogether 1,525 entities, managing USD 60 trillion) and other investment groups also show growing interest in climate related investment.

2. Growing diversity of green bond investor typesincreasing investment demand

Investors in green bonds mainly include ESG (Environmental, Social, Governance) investors and social responsible investors (SRI investors), e.g. Natixis, Mirova, ACTIAM; mainstream institutional investors, e.g. Aviva, BlackRock, State Street; corporate treasuries, e.g. Barclays, Apple; sovereign and municipal entities, e.g. Central Reserve Bank of Peru, Department of Finance of the State of California in the US; retail investors, e.g. World Bank issues green bonds to retail investors through Bank of America Merrill Lynch and the wealth management company of Morgan Stanley.

According to Skandinaviska Enskilda Banken (SEB), over 250 institutional investors had invested in at least one green bond by the end of 2014. According to BlackRock, green investment returns over the past five years are two percentage points higher than the benchmark index. In addition, investments in sectors with high carbon intensity are at great risk, for example, the market value of many coal companies has fallen by 90% over the past five years. Therefore, it is the responsibility of the asset management company to help its customers (asset owners) fully realize that responsible investment and environmental risk management can help improve return on investment and reduce investment risk. At the same time, asset management companies should also continue developing new green financial products to meet customer needs.

In December 2014, the Climate Bonds Initiative published an investor declaration jointly signed by asset owners and fund managers, with total assets under management at USD 2.62 trillion. Such assets will be used to support the green bond market. In 2015, Ceres Investor Network on

[16] Economist Intelligence Unit (2015).The Cost of Inaction: Recognizing the value at risk from climate change.
[17] http://investorsonclimatechange.org/statement/

[18] http://www.climatebonds.net/files/files/Paris_Investor_Statement_9Dec15.pdf
[19] http://www.bankofengland.co.uk/pra/Documents/supervision/activities/pradefra0915.pdf
[20] PRI requires investors to consider ESG, i.e. Environmental, social and corporate governance, and publicly report implementation of PRI annually.

Climate Risk signed its investor declaration with 26 investors. In 2015, Zurich Insurance, finance departments of Deutsche Bank, KFW, Barclays Bank and ACTIAM publicly committed to invest in green bonds to the value of € 1billion or more (each).

ii. Focus points for green bond investors

Green bonds attract investors with long term fixed income products for green projects and sustainable development facilities. Investors are concerned about definition standards for green bonds and the procedure when considering investment. According to polls on green bond investors by Investor Network on Climate Risk (INCR) under Coalition for Environmentally Responsible Economics (CERES)[21], green bond issuers and underwriters are expected to pay attention to four concerns raise by investors that we highlight below.

1.Eligibility: General Criteria for Green Projects

Investors expect that green bonds will support projects that fit within the eligible categories listed by the GBP and that these projects will have material, positive net benefits for the climate or the environment. For example, for greenhouse gas (GHG) related funds, the issuer is encouraged to compare the emission reduction objective with public standards or benchmarks. For projects not mainly focusing on climate, one or more of the following goals may apply：1. Substantially conducive to safeguarding of or (and) sustainable, effective management of natural resources；2. Reduction of waste or pollution；3. Optimization of environment quality and conducive to sustainable survival.

The GBP do not give guidance on how to perform evaluation of net environmental costs/ benefits. The CERES report finds a need to assess the merits of projects that may in some respects be beneficial to environment, while at the same time also entailing some environmental downside e.g. high efficient energy conservation shale oil business, potentially environmentally destructive electricity projects like large scale hydro and nuclear power generation, sea water desalination and coal–fired power plants benefiting from greenhouse gas emission reduction measures. Extra due diligence of the above projects will be needed by investors at the issuance of a bond to ensure that their marginal benefits to environment are positive.

All issuing entities are welcome to issue green bonds. However, issuers whose projects are used essentially to extend fossil fuel utilization and emission, should issue conventional bonds instead. Establishing the climate benefit and minimizing reputational risk / avoiding “green washing” may otherwise prove challenging.

2. Initial information disclosure and intended use of proceeds

In order to better classify a green bond as such, issuers need to provide investors with specific information prior to issuance: disclosure of type of green project supported by proceeds; framework deciding which project can obtain proceeds of green bond；standards of evaluating environment benefit；Impact on environment brought about by the issuer's project.

Designated green projects should have definite, describable, assessable, quantitative environment benefits that can be presented in the form of environment support research, projection of expected impact, internal research and third party evaluation.

Use of proceeds should be clear about the relative percentages of new projects versus refinancing, especially for projects that have already been refinanced prior to the issuance of the green bond. The issuer should also describe the management procedure of proceeds of the green bond, e.g. Portfolios consisting of certain bonds, independent bank account or sub account. The issuer should guarantee transparency of use of proceeds and communicate with investors at least annually. At the same time, the issuers are encouraged to have internal management of use of proceeds audited.

3.Reporting on use of proceeds and project impacts/benefit

Issuers are expected to disclose annual information on eligible projects supported by green bond proceeds, estimated environmental impact and benefits from the projects supported by green bonds. Reports on use of proceeds can be on a project by project basis or consolidated form；the issuer should at least communicate annually the climate and environment benefits of projects to investors；the environment impact evaluation report should be public and include estimated environmental benefits using easy to understand indicators. Due to lack of standards for environmental impact reporting, early green bond issuers and initiative organizations are expected to formulate templates. This work has progressed, with a template[22] for impact reporting in the renewable energy and energy efficiency sectors issued by a coalition of International Financing Institutions.

4. Independent Assurance (“External Review”)

Given the complexity of assuring the “green” nature of the use of proceeds for green

[21] http://www.ceres.org/files/investor–files/statement–of–investor–expectations–for–green–bonds, the poll covered dozens of international investment institutions

[22] See reference in latest edition of GBP

bonds, additional levels of oversight concerning proceeds tracking and selection of eligible green projects are helpful to investors. Credible auditors and climate, environmental, social, governance (ESG) institutions are encouraged to give independent assurance. Reliable second party opinions on selection of green projects, and expected environmental benefits will give investors further confidence.

Section V. Rapidly developing green bond market in China

The development of green bond markets in China is currently at an early stage but with great potential. For China, it is essential to make full use of second mover advantage, optimize relevant rules, and expand the scope of the green bond market.

i. Status quo of green bond market development in China

1.definition of a green bond

According to Announcement No.39 [2015] of the People's Bank of China, green financial bonds refer to bonds that are issued by financial institutions in accordance with relevant laws, with proceeds used to support development of green industry and the principal and interest repaid as agreed. For scope of projects, refer to List of Projects Supported by Green Bonds.

In Guidelines on Green Bond Issuance, NDRC Finance [2015] No. 3504,green bonds refer to enterprise bonds whose proceeds are mainly used to support projects of a green, recycling and low carbon nature, including technology renovation of energy conservation and emission reduction, green urbanization, clean and high efficient utilization of energies, development and utilization of new energy, development of recycling economy, conservation of water resources and development and utilization of unconventional water resources, pollution prevention and treatment, ecological farming and forestry, energy conservation and environment protection industry, low carbon industry, pilot of ecological civilization and low carbon demonstration.

According to Notice of Pilot of Green Corporate Bond of SSE〔2016〕No. 13 and Notice of Pilot of Green Corporate Bond on Shenzhen Stock Exchange of SZSE〔2016〕No. 206, green corporate bonds refer to bonds that are issued in accordance with Management Methods of Corporate Bonds and relevant regulations, with proceeds used to support the development of companies in green industries. For scope of projects, refer to List of Projects Supported by Green Bonds (version 2015) compiled by Green Finance Committee of China Society for Finance and Banking, and other green industry projects determined by relevant institutions recognized by SSE and SZSE.

NAFMII organizes market members to develop "non-financial enterprises green debt financing instruments guideline" and supporting forms, it will be released in the near future. Through the information disclosure table to clear the contents of the prospectus and green assessment report should be disclosed, make the "green" features more convincing.

In summary, green bonds in China are bonds whose proceeds are used for green industry projects, and subject to the list of green industry projects maintained by supervisory institutions.

2.Types of green bonds issued

Green bonds that have been issued in line with Chinese definitions include green financial bonds, green debt financing instruments, green corporate bonds, green enterprise bonds, and green Panda bonds. By December 31, 2016, such green bonds worth 238.94 billion yuan had been registered in China, with issued amount at 198.53 billion yuan. See the following table for details.

Table 4：Green bonds registered and issued in China up to the end of 2016
(unit: 100 million yuan)

Types of green bond	Issued amount	Registered amount
Green Financial Bond	1550.00	1635.00
Green Debt Financing Instrument	82.00	184.50
Green Corporate Bond	187.40	281.00
Green Enterprise Bond	135.90	258.90
Green Panda Bond	30.00	30.00
Total	1985.30	2389.40

Source：public information, China Bond Rating Co.,Ltd；
excluding green bonds issued in Hong Kong SAR and Macao SAR and green bonds issued overseas by Chinese-funded entities

Green financial bonds account for the majority of green bonds. By December 31 2016,green financial bonds worth 155 billion yuan had been issued in China, accounting for 78.07% of total issuance. Green financial bonds worth 163.5 billion yuan have been registered, accounting for 68.43% of total registered amount.

NAFMII supports green enterprise issuance of debt financing instruments has exceeded 150 billion yuan.Perpetual notes and medium-term notes are included in the issued green debt financing instruments. In addition, on July 18, 2016, New Development Bank issued a green financial bond worth 3 billion yuan, which is the first green financial bond issued by multilateral development institution in China, and is classified as a green Panda bond in this report.

3.Requirements and practice of issuance

For listing or examination of green bond issuance, the People's Bank of China mentions no preferential policies, NDRC adheres to the principle of "speeding up and simplification of examination", Shanghai Stock Exchange and Shenzhen Stock Exchange have set up a "green channel" for quicker green bond examination.

The People's Bank of China, Shanghai Stock Exchange and Shenzhen Stock Exchange all refer to the List of Projects Supported by Green Bonds (version 2015) compiled by Green Finance Committee of China Society for Finance and Banking. The List of Projects Supported by Green Bonds (version 2015), classifies the green bonds into 6 first-tier categories and 31 second-tier categories; Shanghai Stock Exchange and Shenzhen Stock Exchange also permit green industry projects certified by institutions recognized by the two exchanges. The NDRC lists 12 project classifications supported in the first section "applicable scope and key support" in the Guidelines on Green Bond Issuance. The general framework and classification of projects supported are similar, with some difference in project types, such as whether manufacturing of new energy vehicles and nuclear power belong to green projects.

4. Requirements and practice of information disclosure

For information disclosure, People's Bank of China requires that issuers should seasonally disclose to the market the use of proceeds. Issuers should, prior to April 30 each year, disclose annual reports and audit reports of use of proceeds for the previous year and report on use of proceeds of the first quarter of the current year. Use of proceeds of green financial bonds for the previous year should also be reported to People's Bank of China.

Shanghai Stock Exchange and Shenzhen Stock Exchange require that issuers should, during a green corporate bond's duration, disclose use of proceeds of green corporate bonds, development of green industry projects and environment benefits according to regulations of Management Methods of Corporate Bonds, Listing Rules of Corporate Bonds, Temporary Management Methods of Private Placement Corporate Bonds or as required by periodic report disclosure.

Guidelines on Green Bond Issuance of the NDRC contains no specific regulation.

See the following table for summary of supervisory policies of China's major green bond markets.

Table 5：Summary of supervisory policies of major green bond markets in China.

Contents	Green financial institution bond	Green debt financing instruments	Green enterprise bond	Green Corporate bond
Use of Proceeds Management	Total amount put into green industry project; special account or special ledger	Specifically for green projects or reimbursement of green loans, raise funds saved in the monitor account	Not mentioned	green industry project as required; designated special account;
Third Party Certification	Encouraged	Encouraged	Not mentioned	Encouraged
Support list	List of Projects Supported by Green Bonds (version 2015)	List of Projects Supported by Green Bonds (version 2015)	first section "applicable scope and key support" in the Guidelines on Green Bond Issuance	List of Projects Supported by Green Bonds (version 2015) and green industry projects certified by institutions recognized by the two exchanges
Record or Examination Speed	Not mentioned	green channel	"speeding up and simplification examination "	green channel
Information Disclosure Requirements	Disclose to the market use of proceeds seasonally	Disclose to the market use of proceeds and green project process semi-annually	Not mentioned	Disclose use of proceeds of green corporate bonds, development of green industry projects and environment benefits as required by regulations of listed companies
Others			Not limited to debt issuance quota	

Source：Public information, China Bond Rating Co.,Ltd. Announcement No.39 [2015] of the People's Bank of China, NDRC Finance [2015] No. 3504 , and SSE〔2016〕No. 13

The Guidelines on Construction of Green Finance System, jointly published on Aug 31, 2016 by People's Bank of China and six other ministries, requires research on business guidelines for green bond issuance, self-discipline regulations, proceeds of green bond

should be specially or mostly used for green projects; strengthening of coordination between departments, establishment and optimization of unified green bond standards in China, requirements for information disclosure and supervision of green bonds.

Policy support is indispensable for the development of the green bond market in China. Unified green bond standards help the market align with the direction of industry project support, and maximize the benefits of green projects supported by green bonds.

5. Requirements and practice of certification

Financial institutions applying to issue a green financial bond are encouraged, by People's Bank of China, to submit an evaluation or certification opinion by independent professional evaluation or certification institutions; issuers are encouraged, by China Securities Regulatory Commission, to submit an evaluation opinion or certification report by independent professional evaluation or certification institutions on whether candidate projects are eligible for green industry.

Altogether, there are 49 green bonds already issued in China. Forty two bonds have issued certification reports, 87.5%, excluding four bonds(the first green bond (enterprise bond) in 2016 of BAIC Motor Corporation., Ltd, and green corporate bond of Huaneng Renewable Corporation Limited in 2016 etc..).

ii. The Similarities and Differences between Green Bond Development in China and in global bond markets

The development of the green bond market in China will help to promote the diversification of the global bond market. From the market standard rules and practice perspective, the standard–setting of the Chinese market draws lessons from the experience and practice of earlier developments in the international market, combined with China's own situation, which takes into account China's current environmental challenges, not only including mitigation and adaptation to climate change, but also responding to air pollution, land and water pollution.

1. Similarities and differences in the practice of green bond issuance in China and the international market

Firstly, differences in types of projects covered. The major standard setter for the international green bond market, GBP, list 9 types of projects supported by green bonds.The types of China green bond projects supported overlap with those of international green bond market to a large extent, but are more characterized by the actual situation, laws, standards and types of industry in China. The international initiative excludes all projects related to fossil fuels, but China's standards apply to clean coal, this distinction is important for institutional investors looking at environmental responsibility, consistent with the Paris Climate Summit commitment to reduce emissions.

Secondly, China's management requirements for proceeds are similar to, but stricter than those on the international green bond market. GBP requires that issuers manage proceeds with sub accounts and, monitor the credit or investment activities of green projects. The requirements for green finance bonds defined in the announcement of the People's Bank of China are stricter, requiring issuers to open special accounts or ledgers to strengthen the payment, appropriation and repayment of proceeds of green finance bonds, and to make sure that the proceeds are used exclusively for their intended purpose.

Thirdly, basically consistent information disclosure. The GBP have special requirements for information disclosure, including use of proceeds, short term investment of idle funds, and at least annual disclosure of list of projects invested, project introduction, amount allocated and environment benefits. Qualitative description is recommended. When feasible, a quantitative description （greenhouse gas emission reduction and number of people benefiting from clean energy）of expected sustainability should be given. The green finance bond defined by the People's Bank of China is consistent with the GBP, making clear the frequency of information disclosure.

2. Independent certification method and standards system in urgent need of improvement

In international practice, the services provided by green bond evaluation and certification institutions are mostly second opinions. In China, as of October 26, 2016, there have been 32 green bonds issued. 28 of these bonds have issued a certification report, excluding the first green enterprise bond in 2016 of BAIC Motor Corporation., Ltd, and green corporate bond of Huaneng Renewable Corporation Limited in 2016 etc...

Foreign green bond certification institutions have been conducting business in the environment sector for many years and have rich experience and professional knowledge. Almost all of them have their own evaluation and certification systems. For technology systems, the

evaluation and certification institutions evaluate, based on existing industry standards and their own evaluation and certification standards, the green bond framework, project selection, use and management of proceeds, information disclosure, environment benefit. In the Chinese market, The domestic green bond assessment or certification business is still in the exploratory stage. The certification and assessment institutions, including CBRC, have done a lot of work in this respect. The green certification system is being formed in China.

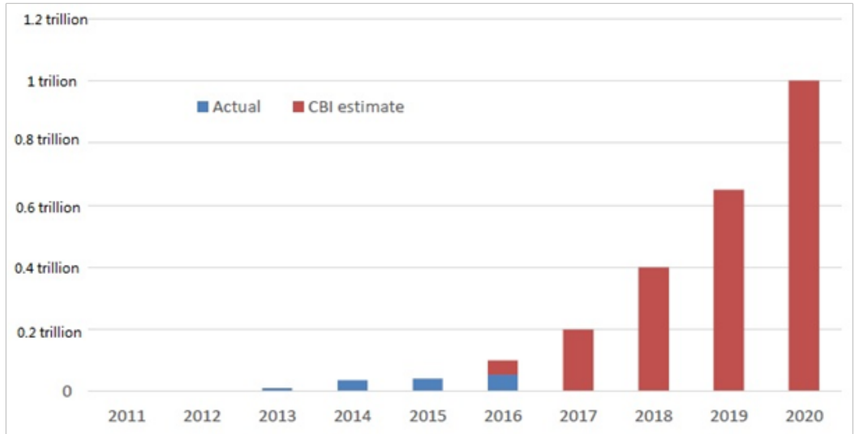
3. China's policy-oriented market

The development of overseas green bond markets has been driven by the market itself, characterized by a 'bottom-up' approach. Accordingly, relevant regulations have also been formulated based on industry self-discipline. In international capital markets, leading market participants continue to see the potential for growth and innovation based on voluntary standards; debate about top-down solutions or regulation typically raises questions about incentives. While in China, supervisory departments formulate policies, and the green projects supported list under which the green bond market is developing. In the current stage of China's green bond market development, the top-down, policy-oriented approach to promote the green bond market, can provide guidance and direction to market participants; secondly it can effectively raise market participants' interest and actively promote the development and expansion of the green bond market in China, by improving the incentive mechanism and standardizing the market behavior so as to seize the opportunities of green finance development by enhancing the attractiveness of green bonds.

Section VI. Inspiration and outlook : Green bond market development opportunities and path of market expansion

i. Outlook on global green bond market development

Globally, large capital investment is needed to avoid catastrophic climate change. By 2030, the global investment in climate change solutions needs to reach USD 93 trillion[23], which will require large amounts of bonds to be issued in the global bond market, estimated by the OECD to be worth USD 97 trillion in 2014. The OECD also suggests[24] that based among other on the capital mix for a typical green project, annual issuance of between $620 and $720 billion of green bonds need to be reached by 2035 if global warming is to be restricted to below 2 degrees as agreed in the COP21 talks. With the strong demands of multilateral and sovereign institutions, CBI estimates the green bond market to reach USD1 trillion of issuance per year by 2020.



ii.Outlook on green bond market development in China

In this section, we list a number of NAFMII recommendations for the further development of the Chinese green finance and green bond market.

1.Enrich the products' structures and types, diversify the green project financing channels

Firstly, explore development of debt financing instruments linked to environmental rights. The Guidelines on Construction of Green Finance System (hereinafter referred to as Guidelines) stresses the importance of a market for environmental rights trading, and suggests the development of financing instruments based on environmental rights like carbon emission, pollution discharge, amount of energy conservation (energy permit) to widen the green financing channels for companies. The National Association of Financial Market Institutional Investors (NAFMII) issued China's first carbon revenue note in May 2014, with a rate linked to carbon revenue, realizing the goal of an effective combination of a green

[23] http://2014.newclimateeconomy.report/finance/
[24] "Quantitative Framework: Analysing potential bond contributions in a low-carbon transition", OECD 2016

objective with investment benefit. Next, the pricing mechanism for environmental rights needs improving based on existing experiences and a market approach, and more financing instruments linked to environment rights like carbon emission, pollution discharge, amount of energy conservation need to be developed to lay a solid foundation.

Secondly, push for innovation of green structured products. To meet the differing financing needs of issuers and investors and push for market development, enterprises are encouraged to perform financing through notes backed by green assets, the green project revenue note, green Panda bonds, broadening and diversifying sources of construction funds for green projects. The key to notes backed by green assets is the existence of stable cash flows from the underlying assets. This allows for the notes to be assessed on the cash flow of these assets instead of the overall credit of the enterprise. Credit enhancement can also be achieved by senior/subordinate structure, overcollateralization and other means. Existing green project assets can thus be used to lower enterprise financing cost, and help meet the diverse green financing needs of companies.

Thirdly, learn from international experience to diversify product types. Alongside the rapid development of the international green bond market, a variety of similar ‘socially responsible’ bonds have been issued, including social bonds, social impact bonds, sustainable bonds and climate bonds. Such bonds aim to resolve social problems or environmentally sustainable development problems, e.g. Reduction of crime rate, food safety. Research can be made on such products in China to attract companies with different aims to join the green finance system.

2.Strengthen the attractiveness of green bonds, guide more enterprises to join construction of an ‘Environmental Conservation Culture’

Firstly, enlarge the influence of green bonds through the reputation effect. Past experiences show that the reputation effect may encourage enterprises to choose green financing, various forms of encouragement, advocacy and publicity can be used to achieve this. Publication of case studies illustrating outstanding performance of financial institutions and green bond issuers can be used to appeal to relevant enterprises to join the green bond market. Environment conservation and green investment & financing can be popularized to the whole society to create a better market environment for green bond issuance, and attract more enterprises to join the construction of a more ecologically–minded society.

Secondly, multiple incentive mechanisms to enhance the attractiveness of green bonds. On one hand, relevant departments are recommended to introduce tax reduction, interest discount or rewards to support and encourage green bond issuance by companies. Government needs to guide the development of the green finance system but, local governments and market institutions are welcome to support green bond issuance and reduction in financing costs of green bonds through professional guarantees, credit enhancement mechanisms and regional green development funds, Private–Public–Partnership model, etc.

3. Motivate investors, diversify the structures of green bond investors

Firstly, raise the awareness of environmental responsibility of investors. Internationally, more and more investors care about social responsibilities and climate change risk / opportunity, with some of these investing in green bonds. In China, it is recommended that consideration should be given to environmental conservation responsibility or social responsibility when choosing investors, so as to make them more motivated to invest in green bonds. Long term funds like social security funds, pension funds and insurance funds also need encouraging to make green investments; quota limits and requirements are suggested for their green bond investments. Investors are encouraged to publish reports on green investment responsibilities. In addition, road shows of green finance, training and investor alliance can also be used to enhance promotion of green bonds, awakening the awareness of environment conservation responsibility of investors.

Secondly, diversify investor bases by attracting overseas institutional investors. A growing number of foreign investors have entered China's bond markets following their opening up. However, the percentage foreign investment in China's bond markets is quite low, with the majority in rate security products like treasury bonds and policy financial bonds. It is suggested that foreign institutions should be encouraged to invest in green bonds that broadly comply with international standards. Recognition of China's credit bonds by foreign investors needs to be strengthened gradually, starting with guiding foreign institutions to invest in such standard credit bond products. As such, China's bond markets will become more open and green bond investors more diversified.

Thirdly, explore the debt financing tools for green hierarchical classification and identification, to guide the market concerned about the green factor. It is suggested that the relevant institutions should carry out the green classification and

classification according to the environmental effect of the proposed investment projects, and publish the classification results and related research reports on a regular basis or from time to time. It can form the influence of the industry in the green bond market, enhance the overall technical awareness and level of the market, and raise the attention of the issuers and investors to the green debt financing instruments, thus forming a positive guiding role in the market and attracting more Market institutions to participate in green bond market construction, and promote domestic green bond market rapid and healthy development.

4. Regulate behavior of green bond participants, and promote the normalized development of the market

Firstly, regulate behavior of third party evaluation and certification institutions. There are no unified standards as to third party evaluation and certification. It is necessary to regulate the third party certification institutions, gradually formulating unified standards and supervising operation procedures and behavior of evaluation institutions. An examination, management and evaluation system needs to be established for use of proceeds, projects invested and environment benefit at later stage, to enhance investors' confidence in green bonds, and promote healthy and orderly development of China's green bond market.

Secondly, regulate information disclosure by issuers. The entire proceeds should be used for green projects only. Standards and methods of information disclosure during the duration of a green bond need to be regulated and unified, issuers' responsibilities for information disclosure and penalties for behavior breaching information disclosure rules should be strengthened. Professional information disclosure platforms may be set up to publish basic information on green bonds, so as to realize total life cycle monitoring, management and evaluation of green bond, constantly improve transparency of green projects, provide more channels for investors or the public to get to know green projects, strengthen market monitoring, and push for sustainable development of green bonds.