



March 26, 2014

## Green Bonds

### Fifty shades of green

**An emerging area of debt capital markets.** Green bonds are conceptually very straightforward – standard fixed income instruments where the proceeds from the offering are applied exclusively towards funding ‘green projects’. Beyond the concept, however, the reality of green bonds becomes rather fuzzy as investors consider restrictions on the use of ‘green bond’ proceeds and the definition of what constitutes a ‘green project’. Ultimately, we believe investments in green infrastructure will be increasingly necessary from both the public and private sectors as environmental sustainability becomes a more important consideration for both social and corporate responsibility. Green bonds provide a means to unlock private capital flows into projects that support such purposes.

**2013 was a solid year for green bonds with ~\$12B of issuance.** Since the first issue in 2007, several supra-nationals, federal and local government agencies, commercial banks and private corporations have issued green bonds, with aggregate issuance totaling ~\$24.2B. In 2013 alone, green bond issuance totaled \$11.8B, up from \$2B in the prior year. A recent study from Climate Bond Initiative (CBI) and HSBC Bank puts market size for ‘climate-themed bonds’ (bonds not explicitly labeled as “green bond” but whose use of proceeds were aligned with the low-carbon, climate-resilient economy) at \$346B.

**To date, there has been no “labeled” green bond issuance in Canadian dollars.** Export Development Canada, Canada’s export credit agency, is the only Canadian institution to have issued a green bond – the issue was denominated in U.S. dollars. In terms of debt issued by Canadian companies linked to low-carbon infrastructure, a 2013 study by HSBC and CBI calculates total debt issued to date of \$5B that can be categorized as “climate-themed”. Examples of climate-themed bonds issued in CAD include \$440 million Comber Wind portfolio, the \$243 million L’Erable wind deal, and the \$172 million St.Clair solar photovoltaic farm.

**While supra-nationals, development banks and governments will continue to drive near-term issuance, certain corporate sectors are well suited to begin issuing as well.** We expect an inaugural green bond issue in Canada in 2014, likely by the Ontario government, with the objective of financing environmentally friendly infrastructure projects across Ontario. Beyond the very near term, green bond issuance could be adopted by various corporate sectors, with the instrument being particularly well suited for the Real Estate (including Pension Fund), Power Generation and Utility sectors. For context, Canadian dollar issuers in these sectors have general obligation bonds of approximately CAD\$100B outstanding. We believe a portion of bonds issued by these sectors would lend themselves to climate-themed initiatives.

**Immediate challenges for the green bond market are scale, liquidity and standardization.** Green bond issuance to-date has been undertaken by AAA-rated supra-national institutions, high grade commercial banks and some corporates. We estimate a healthy domestic green bond market requires a market size of CAD\$10-20B, made up of bonds rated BBB or higher. Furthermore, liquidity will be enhanced through standardization – issuers and investors require a single set of standards for (1) the acceptable use of green bond proceeds, and (2) processes to evaluate and report on green projects being funded. To this end, not-for-profit agencies and commercial banks have launched a set of standards for verifying the credentials of green bonds, with a view to improving the clarity of the market. Even though the green bond market is still evolving, we note that there should be no post-issue liquidity discount, as we expect green bonds to be as liquid as other general obligation instruments of the same issuer.

All values in USD dollars unless otherwise noted.

Priced as of prior trading day’s market close, ET (unless otherwise noted).

For Required Conflicts Disclosures, see page 23.



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## Green Bonds: An introduction

### Green Bonds – Straightforward concept, fuzzy reality

Green bonds are conceptually very straightforward – standard fixed income instruments where the proceeds from the offering are applied exclusively towards funding ‘green projects’. Beyond the concept, however, the reality of green bonds becomes rather fuzzy as investors consider restrictions on the use of ‘green bond’ proceeds and the definition of what constitutes a ‘green project’.

**Use of green bond proceeds is restricted.** The premise of a green bond entails some form of restriction on the use of the bond’s proceeds. In this regard, green bonds can take one of three forms: (1) a green ‘use of proceeds’ bond, where the proceeds are ring-fenced to fund green initiatives but the instrument is a general obligation of the issuer; (2) a green project development bond, where the investor has risk exposure to a specific green project that is being funded; and (3) a green securitized bond, where green assets (loans) are pooled to fund and secure the debt instrument.

**There are divergent views on what constitutes a green project.** Green projects are defined as projects designed to promote climate and environmental sustainability. An example of a green project would include initiatives to reduce greenhouse gas emissions through investments in renewable power or clean transportation. Although there are divergent views on the definition of *green* projects, issues to date have recognized renewable energy, energy efficiency, soil treatment, and waste and water management projects as eligible for green use of proceeds.

### Why issue a green bond?

Environmentally sustainable investment decisions are increasingly becoming either drivers of new business opportunity, or key considerations in avoiding material economic and reputational risk. Furthermore, the transition to an environmentally sustainable economy requires significant investment from both public and private sectors. Green bonds provide a means to unlock private capital for projects that support such purposes. Although green bonds do not differ much from traditional fixed income instruments, the reasons for issuing them are multi-fold.

- **Green project sponsors can benefit from large pools of fixed income capital.** Sponsors (including government agencies and corporations) are often looking for innovative ways to fund investments in emerging climate and environment friendly technologies. Fixed income investments constitute a small proportion of financing for such projects – \$24B of labeled green bonds and \$346B of ‘climate-themed bonds’ (discussed later) issued represents less than 0.5% of total \$95 trillion global bond market. We believe green bonds will allow project sponsors to tap into the large global pool of funds allocated to fixed-income investment, particularly in mature stages of a project lifecycle.

Exhibit 1: Global Green and Climate-Themed Bond Market versus Total Bond Market.

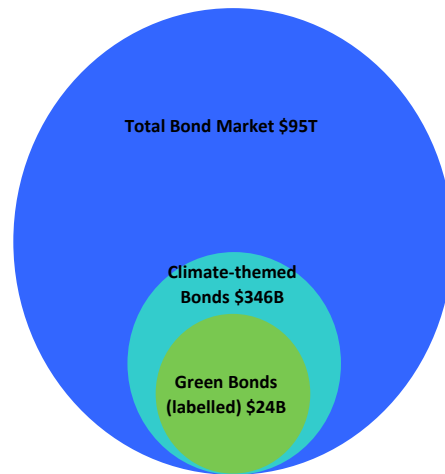


Figure not to scale  
Source: RBC Capital Markets, HSBC, Climate Bond Initiative, Sustainable Prosperity

- **Smaller project sponsors benefit from lower funding costs and improved access to capital.** Supranational agencies such as the World Bank and the African Development Bank will issue green bonds at their AAA cost of funding. These agencies will then use the proceeds to fund smaller green project sponsors who otherwise would not have access to capital at an efficient cost. Similarly, securitized green bonds can reduce the cost of capital for smaller project sponsors looking to fund on a stand alone basis.
- **Globally, institutional appetite for investments in green technologies has been growing in recent years.** While demand has been growing, there are limited investment grade opportunities of significant scale. Further, a direct investment into a green project exposes investors to a variety of risks, including the risk of unproven technology. Green bonds (whether ring-fenced, project specific or securitized) offer opportunities to integrate environmental and social mandates of investors, with traditional risk/reward characteristics of fixed income instruments. In this regard, it is worth noting that issuers of green bonds have, to-date, typically been institutions with solid credit ratings such as supra-nationals (rated AAA) and commercial banks (high investment grade) and investors in ring-fenced green bonds have recourse to the issuers.

Green bonds were pioneered by European Investment Bank in 2007 when it issued a €600 million 5-year green bond. The International Bank for Reconstruction & Development, a World Bank member institution, followed suit with SEK 2.325B (3.5% coupon, 6-year maturity) issuance as part of its “*Development and Climate Change Strategic Framework*”. Since these early issues, several supra-nationals, federal and local government agencies, commercial banks and corporates have issued green bonds totaling ~\$24.2B. In 2013 alone, green bond issuance totaled \$11.8B (Exhibit 15), up from \$2B in the prior year.

**Green bond structure is a function of the target market or asset being financed**

As noted above, green bonds typically take one of three forms:

- **‘Green use of proceeds’ bond:** This structure is very much like a general obligation bond with the key difference being the ring-fencing of funds raised for green projects. The proceeds of the issue are allocated within treasury to a sub-portfolio. So long as the green bond issue is outstanding, the balance of the sub-portfolio is reduced at quarter end, by the amount matching green project disbursements made during the quarter. Prior to investment in green projects, the sub-portfolio is typically invested in money-

market funds. Repayment of the bond is not linked to the credit or performance of the projects and debt investors have recourse to the issuer.

- **Project development bond:** The structure is similar to project financing where proceeds are disbursed to a special purpose vehicle that owns a single or multiple green projects. Debt investors have direct exposure to the risk of one or multiple green projects owned by the special purpose vehicle.
- **Securitization bond:** This structure involves the bond being collateralized by pool of loans that were issued to finance green projects. The securitized loans could include loans to fund projects such as wind farms or energy efficiency assets, such as solar panels.

Exhibit 2: Examples of green bond structures

| Structure                | Examples   |
|--------------------------|--|
| 'Green use of proceeds'  | <p><b>Commercial Bank:</b><br/>Issue unsecured green bond with proceeds ring-fenced to fund a portfolio of existing or future green project loans.</p> <p><b>Utility / Manufacturer / Real Estate Company:</b><br/>Issue unsecured bond to fund wind farms, manufacture solar panels or achieve LEED certification.</p> <p><b>Government:</b><br/>Proceeds of bond ring-fenced for qualifying green projects such as low carbon-emission transportation, clean water projects etc.</p> |
| Project development bond | <p><b>Project Developer:</b><br/>Issue bond to fund decommissioning and replacement of older-generation coal burning plants.</p>   |
| Securitization           | <p><b>Utility / Commercial Bank:</b><br/>Issues bond to re-finance a pool of wind farm loans.</p>  |

Source: RBC Capital Markets

## Green Projects: Fifty shades of green.

### The cornerstone of a green bond is the utilization of its proceeds

The primary purpose of green bonds is to invest funds that support *verifiable* projects intended to achieve a specific climate or environmental purpose. However, there is no standardized approach of designating a project as “green”. Accordingly, issuers typically develop a framework for project selection, and often hire a third party, such as an environmental research agency, to carry-out a review of the internal project selection process. Exhibit 3 illustrates project categories that have been recognized as acceptable for green bond proceeds.

Exhibit 3: Green Projects Examples

| Issuer   | Amount Issued, Coupon & Maturity | Green Projects Examples   |
|--|----------------------------------|---|
| Export Development Canada                            | \$300MM<br>0.875% Jan-30 2017    | Export Development Canada (EDC) issued a \$300 million green bond with a 0.875% coupon in January 2014. As per the prospectus filed, eligible projects for the issue will “ <i>preserve, protect or remediate air, water or soil, or help mitigate climate change</i> ”. Certain project categories that could be eligible include:<br><br>(i) Waste and water management, (ii) Remediation & soil treatment, (iii) Recycling & recovery, (iv) Sustainable forests and agriculture management, (v) Renewable energy, (vi) Bio-fuels & bio-energy, (vii) Smart grid energy infrastructure, (ix) Alternative energy transportation and public ground transport, (x) Industrial process improvements   |
| Bank of America                                      | \$500MM<br>1.35% Nov-21 2016     | Bank of America issued a \$500 million green bond with a 1.35% coupon in November 2013. The proceeds from the issuance are intended to fund renewable energy and energy efficiency projects, in whole or in part. As per the bond’s prospectus:<br><br>“ <i>Renewable energy projects include financing of, or investments in, equipment and systems which facilitate the use of energy from renewable sources, such as solar, wind, and geothermal energy.</i> “<br><br>“ <i>Energy efficiency projects help reduce energy consumption per unit of output and include projects such as lighting retrofits, district heating, co-generation, and building insulation, in residential, commercial and public properties.</i> “   |
| International Bank of Reconstruction and Development | \$550MM<br>USL -6bps Jul-22 2015 | International Bank of Reconstruction and Development (IBRD) is a member institution of the World Bank Group. IBRD issued a \$550 million floating-rate green bond in January, 2014 at quarterly US Libor less 6bps. As per their criteria, eligible projects are ones that promote the transition to low-carbon and climate resilient growth in the recipient country. As per IBRD’s prospectus, eligible green projects can include<br><br>(a) <b>Mitigation projects</b> such as (i) rehabilitation of power plants and transmission facilities to reduce greenhouse gas emissions, (ii) solar and wind installations, (iii) funding for new technologies that permit significant reductions in green-house gas emissions, (iv) greater efficiency in transportation, including fuel switching and mass transport, (v) waste management (methane emission) and construction of energy-efficient buildings, (vi) carbon reduction through reforestation and avoided deforestation<br><br>(b) <b>Adaption projects</b> such as (i) protection against flooding (including reforestation and watershed management), food security improvement and stress-resilient agriculture systems which slow down deforestation, (iii) sustainable forest management and avoided deforestation. |
| Kommunalbanken A.S.                                  | \$500MM<br>0.75% Nov-21 2016     | Kommunalbanken AS is a local Government agency in Norway. Kommunalbanken issued a \$550 million green bond to fund projects in the areas such as energy efficiency, renewable energy, waste management, recycling, pedestrian and bicycle paths, water quality, public transportation and facilities for outdoor recreation.  |

Source: Export Development Canada, Bank of America, IBRD, Kommunalbanken AS

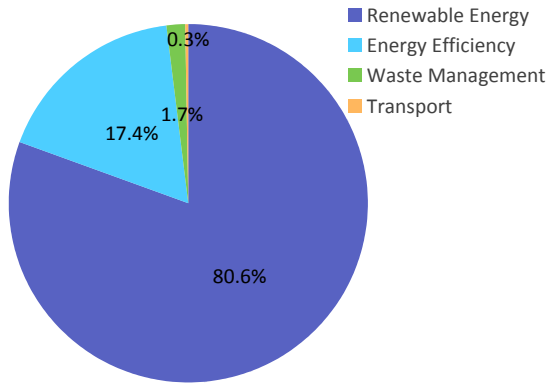
### Renewable energy and energy efficient projects have been the big beneficiaries

Although the selection criteria for green projects are broad (as the table above illustrates), renewable energy and energy efficient projects have attracted significant investment from green bond proceeds.

**The European Investment Bank (EIB)** has been the largest issuer of green bonds – the bank has \$4.5B of green bonds outstanding (labeled climate awareness bonds by EIB). Of the 55

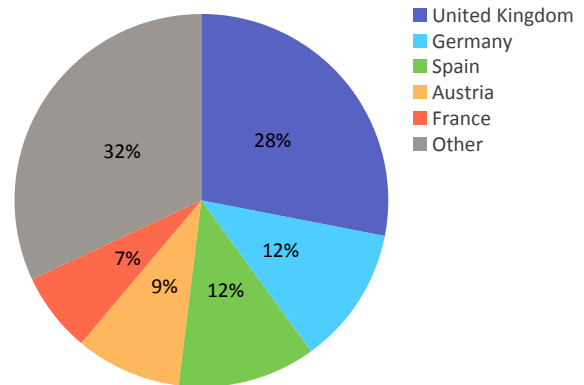
projects that have received proceeds since 2007, 43 (or 78%) have been renewable energy projects (primarily wind farms), followed by 9 energy efficiency projects. Approximately 28% of the projects funded were in the United Kingdom, followed by 12% each in Germany and Spain.

Exhibit 4: EIB Green Project Portfolio (\$4.5B of bonds o/s)



\*also includes proceeds from alternative EIB financing sources other than climate awareness bonds  
Source: European Investment Bank

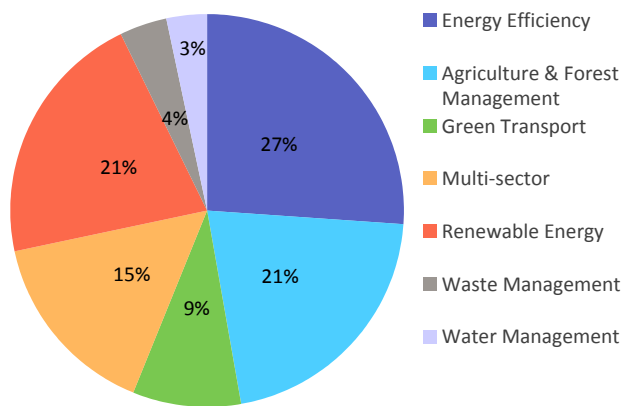
Exhibit 5: EIB Portfolio by Geography – Mostly Europe Focused



Source: European Investment Bank

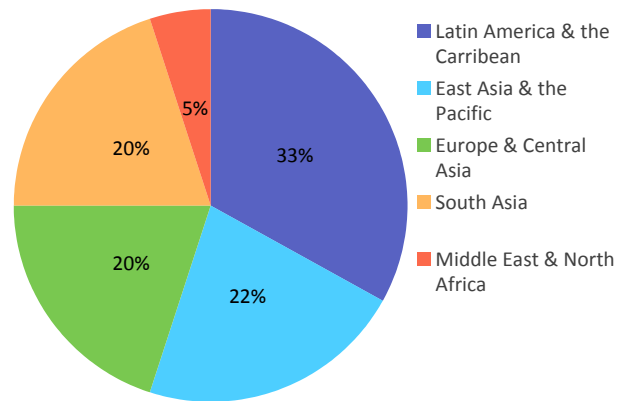
**International Bank for Reconstruction and Development (IBRD)**, a World Bank Group institution, is another large issuer. IBRD has \$4.0B of green bonds outstanding. At the end of 2013, energy efficiency and renewable energy projects accounted for 32% and 26% of the total portfolio.

Exhibit 6: IBRD Green Project Portfolio (~\$4.0B of bonds o/s)



\*project portfolio as of FY2013  
Source: International Bank for Reconstruction and Development

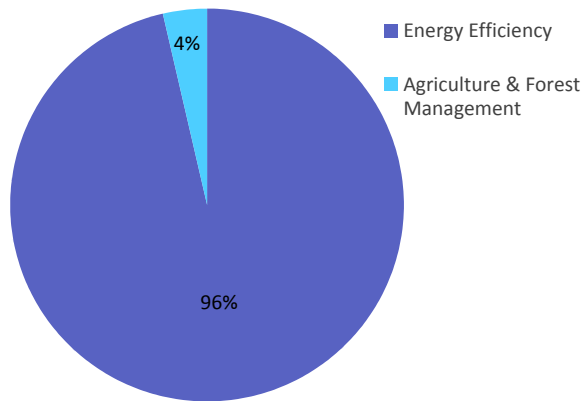
Exhibit 7: IBRD Portfolio by Geography – Global Commitments



Source: International Bank for Reconstruction and Development

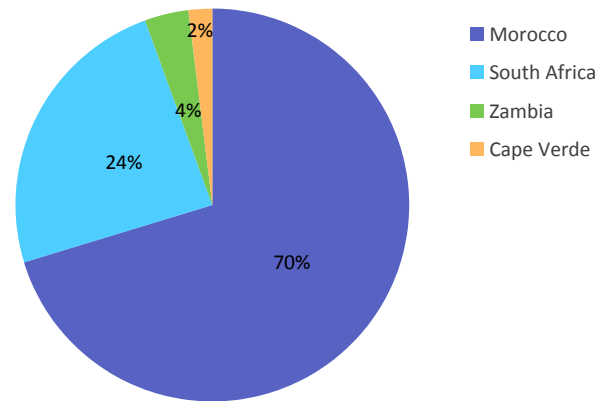
**African Development Bank (ADB)** has \$1.1B of green bonds outstanding, with more than 90% of proceeds earmarked for renewable energy projects. 70% of the commitments are for renewable energy projects based in Morocco, followed by 24% in South Africa.

Exhibit 8: ADB Green Project Portfolio (~\$1.0B of bonds o/s)



Source: African Development Bank

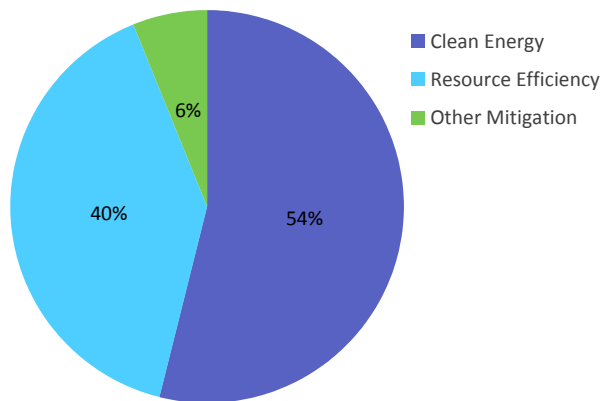
Exhibit 9: ADB Portfolio by Geography – Morocco Leads



Source: African Development Bank

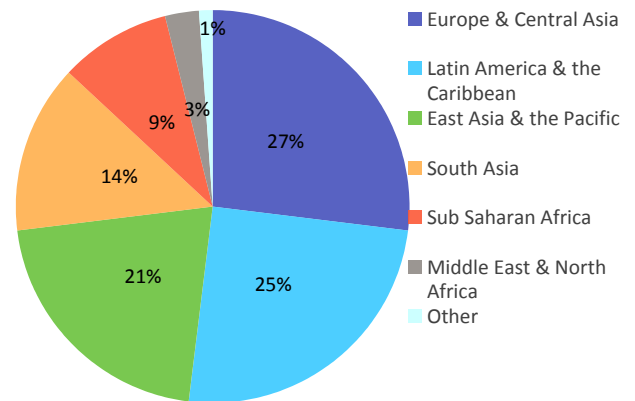
**International Finance Corporation (IFC)**, another World Bank Group institution, has ~\$3B of green bonds outstanding. IFC began tracking its climate-related commitments in 2005. Climate-related commitments have increased from a modest 4% of IFC’s total portfolio in 2005 to 14% of total portfolio as of 2013. Approximately 54% of climate-related commitments are for clean energy projects.

Exhibit 10: IFC Green Project Portfolio (\$3.0 of bonds o/s)



Source: International Finance Corporation

Exhibit 11: IFC Portfolio by Geography – Global Commitments



Source: International Finance Corporation



## Investors: Growing appetite for green bonds

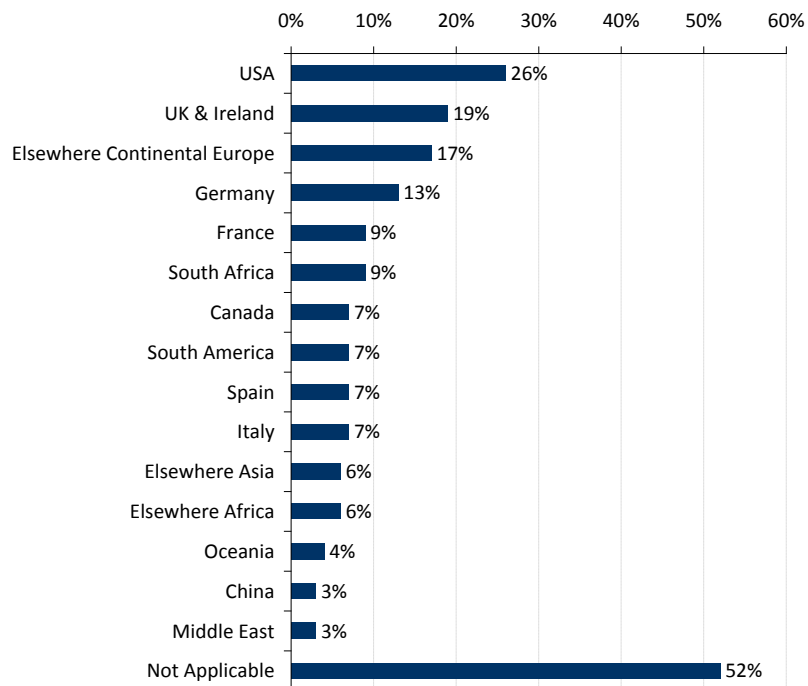
### The appetite of institutional investors for green bonds has grown substantially in recent years

The amount of capital available to fund green projects has risen sharply as evidenced by significant increase in 2013 green bond issuance. Many institutional investors now have mandates to support socially responsible investments, and have participated in green bond issues. As per Bloomberg data, more than 150 unique institutional investors have invested in 'labeled green bonds'.

### Institutional investor allocations to green investments is poised for continued growth

Looking ahead, allocations to green investing should continue to grow. A 2013 institutional investor survey of global pension and insurance funds conducted on behalf of Ernst & Young showed that a third of large institutional investors, particularly in the insurance sector, planned on growing their investment allocation to 'renewable infrastructure' investments over the next 3 years, with 15% planning for growth of 10%+. Canada is a top ten destination for renewable energy infrastructure investment among institutional investors. To-date, on-shore wind turbine and solar photovoltaic power projects have attracted the bulk of investment dollars. The forms of desired investment vehicles include tradable corporate equity, project equity, project debt and tradable corporate debt.

Exhibit 12: Canada is a top 10 location for renewable energy infrastructure investment



Source: E&Y

## Management of proceeds: Transparency and standardization are critical

### Issuers disclose the use of green bond proceeds to enhance transparency

Issuers of green bonds outline the green project categories (i.e., renewable energy, energy efficiency, mass transit) in their public disclosure (“use of proceeds” section of the prospectus) so as to allow investors to assess whether the bond meets their environmental and social mandates. Issuers also typically establish a green bond framework which sets out guidance on the green project selection process. To further enhance the transparency, issuers may hire an independent third party (environmental research institution) to carry out a second opinion vetting on the green bond framework and set-up. For example, Centre for International Climate Environmental Research (CICERO), an independent research center at University of Oslo, endorsed the green bond framework for the \$300 million issue from Export Development Canada.

### Periodic reporting from issuers on use of proceeds further enhances transparency

Green bond issuers periodically report the specific investments made using green bond proceeds. For example, EIB lists on its website all the projects it funds through green bond proceeds, with a description of projects, their location and proposed EIB financing (that also includes financing from green bonds). Other green bond issuers also report via websites or newsletters specific investments made through green bond proceeds.

Exhibit 13: Processes to ensure that green bond proceeds are used for eligible projects

| Structure                                    | Responsibilities   |
|--|--|
| <b>Issuer (Prior to Green Bond Issuance)</b> | <ul style="list-style-type: none"> <li>Discloses in “use of proceeds” section of prospectus the project categories (i.e. renewable energy, clean transportation) eligible for green bond proceeds.</li> <li>Develops a framework for project selection with endorsement from an environmental research agency.</li> <li>Can get certification from investor-focused groups such as Climate Bond Initiative to provide further assurance to investors.</li> </ul> |
| <b>Investor</b>                              | <ul style="list-style-type: none"> <li>Based on the public disclosure and the discussions with the issuer, assesses whether bond meets their environmental and social mandate.</li> </ul>  |
| <b>Issuer (After Green Bond Issue)</b>       | <ul style="list-style-type: none"> <li>Reviews projects (ongoing basis) that meet green bond selection framework.</li> <li>Provides periodic reporting on specific investments made through green bond proceeds.</li> </ul>  |

Source: RBC Capital Markets

### Issuers and Investors benefit from standardization

Traditional high quality investment grade fixed income instruments are by and large standardized. This standardization offers the important benefit of reduced transaction costs for investors and coupon costs of issuers. With respect to green bonds, understanding project complexities and completing financial and regulatory due diligence adds to the transaction costs for investors. Accordingly, in order to achieve better efficiency for the green bond market, there has been a push for greater standardization in assessing projects that can be considered eligible for green bond proceeds.

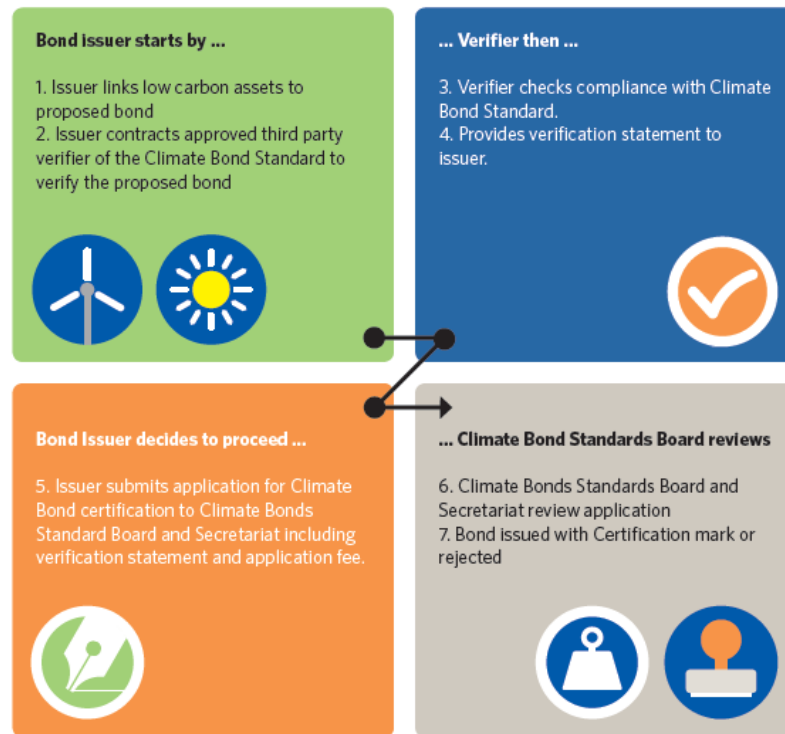
### The Climate Bonds Initiative has developed industry-wide compliance standards that will allow for more transparency and consistency in green bond issuance

The Climate Bonds Initiative (CBI) is an investor-focused not-for-profit organization that promotes green investments. Members of the CBI include several large institutional investors. The organization has developed a set of standards (the International Climate Bonds Standards and Certification Scheme) for verifying acceptable use of proceeds for green bonds. These Climate Bond Standards are intended to encourage the development of

climate-themed investment funds – as a larger pool of investible funds will further lower the cost of financing.

Before issuing a green bond, issuers receive a certification that verifies compliance with the Climate Bond Standards. The process works as follows – (i) Green bond issuer maps green projects to the proposed bond offering and contracts approved third-party verifiers of Climate Bond Standards, (ii) Verifier checks compliance with Climate Bond Standards and submits verification statement to the issuer, (iii) Issuer then submits an application with verification statement to obtain certificate of compliance from CBI. The process is further outlined in the chart below (Exhibit 14).

Exhibit 14: Climate Bond Standards – a step forward in standardizing green bond framework



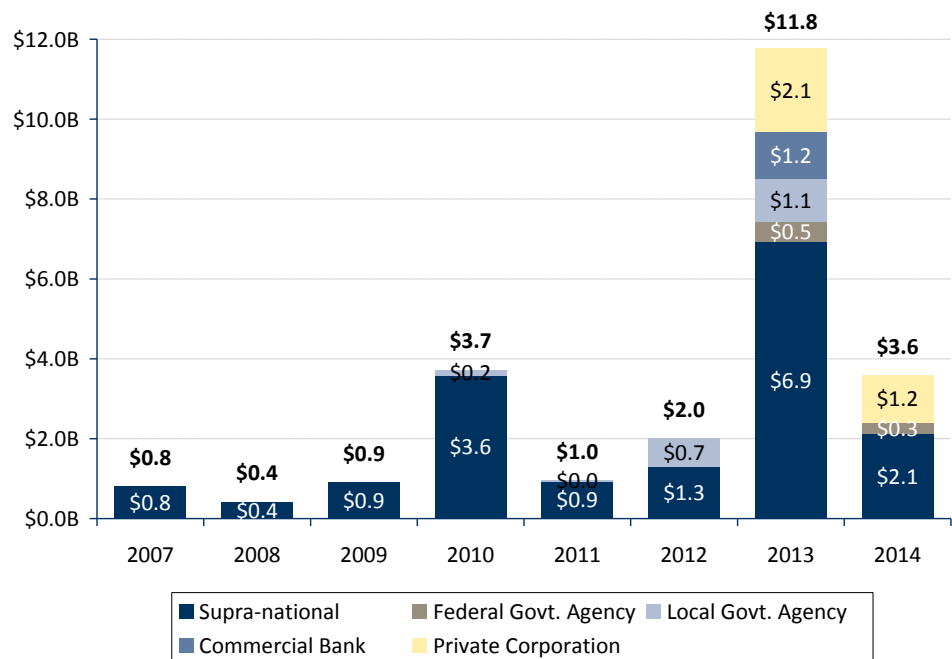
Source: Climate Bond Initiative

## Green Bond Issuance: Room to grow from an active 2013

### Global green bond (labeled) issuance has been approximately \$24 billion

Since the first issue in 2007, several supra-nationals, federal and local government agencies, commercial banks and private corporations have issued green bonds – in aggregate totaling ~\$24.2B. In 2013 alone, green bond issuance totaled \$11.8B (Exhibit 15), up from \$2.0B in the prior year. Green bonds have been issued predominantly as AAA-rated securities by supra-nationals such as EIB, IBRD and ADB - 57% of total issuance in 2013 was from supra-nationals. More recently, issuance from private corporations and commercial banks has been growing: ~33% of 2014YTD issuance has been from private corporations. Vasakronan AB and Unibail-Rodamco SE are two real estate developers who issued green bonds for new developments and renovation projects.

Exhibit 15: Annual issuance of Green Bond



Source: Bloomberg, RBC Capital Markets

### Largest green bond issuers have been Europe-based supra-nationals

EIB has been the largest issuer of green bonds – the bank has 8 issues with \$4.5B of green bonds outstanding. IBRD, a World Bank Group member institution, has 44 issues with ~\$4B of green bonds outstanding. Another World Bank Group member institution, IFC, has ~\$3.0B of green bonds outstanding. The majority of the issuance has been in U.S. dollar (36.7% of total issuance) and Euro (35.1%), followed by Swedish Kroner (12.1%) (Exhibit 17).

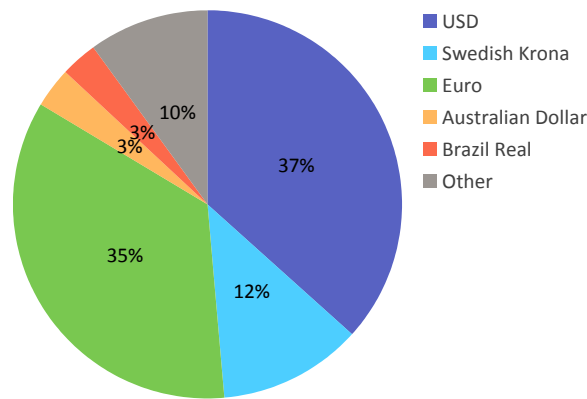
Exhibit 16: Green bonds outstanding by Issuer

(\$ in mm)

| Issuer  | Amount Outstanding | Number of Issues | Average Issue Size | Issuer Type          |
|---|--------------------|------------------|--------------------|----------------------|
| European Investment Bank                            | \$4,512            | 8                | \$564              | Supra-national       |
| International Bank for Reconstruction & Development | \$4,048            | 44               | \$92               | Supra-national       |
| International Finance Corp                          | \$3,016            | 9                | \$335              | Supra-national       |
| Electricite de France                               | \$1,900            | 1                | \$1,900            | Private Corporation  |
| Unibail-Rodamco SE                                  | \$1,025            | 1                | \$1,025            | Private Corporation  |
| Kommunalbanken AS                                   | \$1,025            | 5                | \$205              | Local Govt. Agency   |
| African Development Bank                            | \$1,008            | 7                | \$144              | Supra-national       |
| Bank of America Corp                                | \$500              | 1                | \$500              | Commercial Bank      |
| Export-Import Bank of Korea                         | \$500              | 1                | \$500              | Federal Govt. Agency |
| Region of Ile de France                             | \$467              | 1                | \$467              | Local Govt. Agency   |
| European Bank for Reconstruction & Development      | \$442              | 10               | \$44               | Supra-national       |
| NRW Bank  | \$340              | 1                | \$340              | Commercial Bank      |
| Credit Agricole Corporate & Investment Bank SA      | \$327              | 9                | \$36               | Commercial Bank      |
| Nordic Investment Bank                              | \$328              | 4                | \$82               | Supra-national       |
| Export Development Canada                           | \$300              | 1                | \$300              | Federal Govt. Agency |
| Asian Development Bank                              | \$245              | 4                | \$61               | Supra-national       |
| Vasakronan AB                                       | \$355              | 4                | \$89               | Private Corporation  |
| Region of Provence Alpes Cote d'Azur France         | \$146              | 1                | \$146              | Local Govt. Agency   |
| Region of Nord-Pas de Calais France                 | \$103              | 1                | \$103              | Local Govt. Agency   |
| City of Gothenburg Sweden                           | \$79               | 2                | \$39               | Local Govt. Agency   |
| <b>Total Green Bonds Outstanding</b>                | <b>\$20,667</b>    | <b>115</b>       | <b>\$349</b>       |                      |

Source: Bloomberg, RBC Capital Markets

Exhibit 17: Green bonds issued by Currency

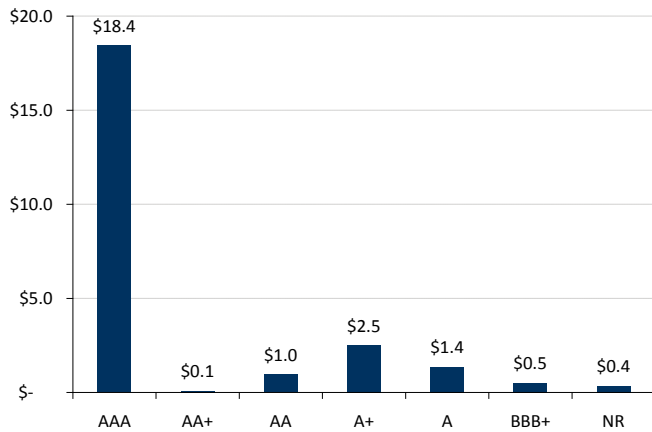


Source: Bloomberg, RBC Capital Markets

**Green bonds have been issued predominantly as AAA-rated securities**

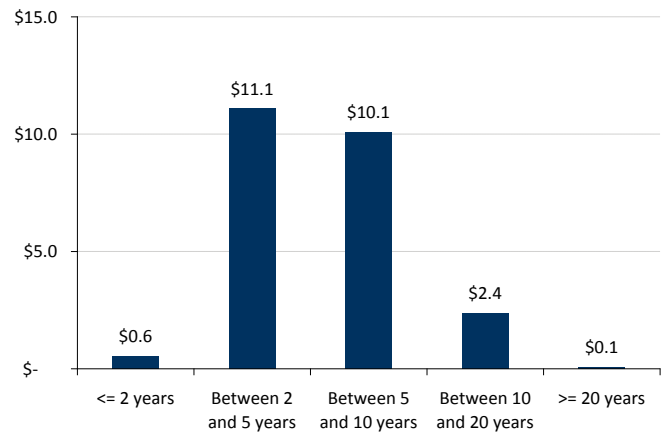
As shown in Exhibit 18 below, more than 75% of all green bond issuance since 2007 has been AAA-rated. On the lower end of ratings, Bank of America issued \$500 million of BBB+ rated green bonds. Approximately 87% of all issues have had terms between 2 and 10 years (Exhibit 19).

Exhibit 18: Green bond issuance by ratings



Source: Bloomberg, RBC Capital Markets

Exhibit 19: Green bond issuance by term



Source: Bloomberg, Statistics Canada, RBC Capital Markets

**Supra-nationals were pioneers; however, issuance from corporates is growing**

Credit Agricole was the first commercial bank to issue a green bond. In January 2013, the bank issued a \$3.5 million 6% coupon green bond in Brazilian real. As the market evolved during 2013, commercial banks and non-financial corporates issued a total of ~\$4.5B of green bonds. Vasakronan AB, a real estate company fully owned by Sweden’s national pension funds, became the first non-financial corporate to issue a green bond. In November 2013, the company issued SEK 1.3 billion (\$198 million) with proceeds intended for construction and renovation of its real estate portfolio that will have high environmental certification requirements.

Exhibit 20: Issuance from commercial banks and corporates has totalled ~\$4.5B.

| CUSIP        | Issuer Name           | Announce |        | Maturity |  | Amount Issued (\$ mm) | Currency | Collateral Type       |
|--------------|-----------------------|----------|--------|----------|--|-----------------------|----------|-----------------------|
|              |                       | Date     | Coupon | Date     |  |                       |          |                       |
| EK0810946    | Unibail-Rodamco SE    | Feb-14   | 2.5%   | Feb-24   |  | \$1,025.4             | EUR      | Senior Unsecured      |
| EJ9330295    | Electricite de France | Nov-13   | 2.25%  | Apr-21   |  | \$1,899.8             | EUR      | Senior Unsecured      |
| EK1273128    | Vasakronan AB         | Mar-14   | 1.604% | Mar-19   |  | \$102.3               | SEK      | Senior Unsecured      |
| EK1272823    | Vasakronan AB         | Mar-14   | 2.473% | Mar-19   |  | \$55.1                | SEK      | Senior Unsecured      |
| EJ9471545    | Vasakronan AB         | Nov-13   | 1.315% | May-16   |  | \$152.3               | SEK      | Senior Unsecured      |
| EJ9471487    | Vasakronan AB         | Nov-13   | 1.774% | May-16   |  | \$45.7                | SEK      | Senior Unsecured      |
| 06051GEZ8    | Bank of America Corp  | Nov-13   | 1.35%  | Nov-16   |  | \$500.0               | USD      | Senior Unsecured      |
| EJ9478268    | NRW Bank              | Nov-13   | 0.75%  | Nov-17   |  | \$339.9               | EUR      | Local Govt Guaranteed |
| EJ5350362    | Credit Agricole       | Jan-13   | 6.0%   | Aug-16   |  | \$3.6                 | BRL      | Senior Unsecured      |
| EJ6772234    | Credit Agricole       | May-13   | 0.5%   | Dec-17   |  | \$5.5                 | MXN      | Senior Unsecured      |
| EJ7102126    | Credit Agricole       | Jun-13   | 2.0%   | Jul-20   |  | \$0.4                 | BRL      | Senior Unsecured      |
| EJ7102027    | Credit Agricole       | Jun-13   | 4.8%   | Jul-18   |  | \$1.2                 | JPY      | Senior Unsecured      |
| EJ8319067    | Credit Agricole       | Sep-13   | 0.68%  | Sep-20   |  | \$54.7                | JPY      | Senior Unsecured      |
| EJ8800934    | Credit Agricole       | Oct-13   | 0.35%  | Oct-17   |  | \$136.2               | JPY      | Senior Unsecured      |
| EJ9132485    | Credit Agricole       | Oct-13   | 4.22%  | Nov-18   |  | \$20.0                | MXN      | Senior Unsecured      |
| EJ9997689    | Credit Agricole       | Dec-13   | 2.01%  | Dec-18   |  | \$52.0                | USD      | Senior Unsecured      |
| EJ9997622    | Credit Agricole       | Dec-13   | 4.54%  | Dec-18   |  | \$53.6                | AUD      | Senior Unsecured      |
| <b>Total</b> |                       |          |        |          |  | <b>\$4,447</b>        |          |                       |

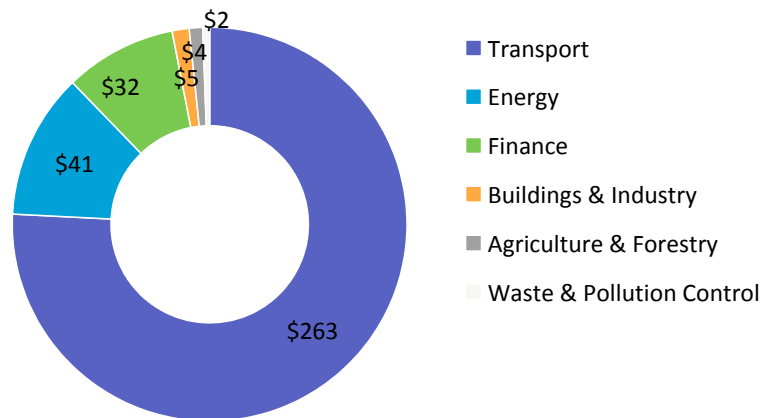
Source: RBC Capital Markets

**A broader definition of environmentally-focused bonds (or ‘climate-themed bonds’) puts the current market at \$346B**

A study by HSBC and the CBI analyzed over 10,000 bonds outstanding as of March 2013 from 2,300 global issuers. The study screened bonds whose use of proceeds were 100% aligned with the objective of encouraging a low-carbon, climate-resilient economy. Accordingly, the screen looked for bond offerings where proceeds were used for themes such as transport,

energy, climate finance, buildings & industry, agriculture & forestry, water and waste & pollution control. Approximately \$346B of bonds outstanding were screened that aligned with such climate-themed use of proceeds. Of this figure, the majority (\$236B) is for transport such as rail that is low-carbon intensity compared to alternative passenger and freight transport. Several of the transport climate-themed bonds relate to high-speed rail and rail refurbishment in China where \$100B annual capital expenditure has been announced by the Ministry of Railways. Bonds from China’s Ministry of Railways account for 34% of total climate-themed bond universe. Low-carbon energy bonds account for \$41B.

Exhibit 21: Climate-themed Bond Universe (\$ in billions)



Source: HSBC, Climate Bond Initiative

### Climate-themed and green bonds in Canada

To date, there has been no ‘labeled green bond’ issuance in Canadian dollars, although EDC, Canada’s export credit agency, has issued a green bond in USD. In January 2014, EDC issued \$300 million (denominated in the U.S. dollar) in green bonds with 0.875% coupon and 3-year maturity. In terms of debt issued by Canadian companies linked to low-carbon infrastructure, the March 2013 study by HSBC and the CBI calculated a total of \$5B in debt issued (as of the study date) that can be categorized as “climate-themed” - \$4B of Canadian climate-themed bonds have been issued in transport and \$1.2B in energy sectors. Climate-themed bond issuance included in the \$5B CAD figure include the \$440 million Comber Wind portfolio, the \$243 million L’Erable wind deal, and the \$172 million St. Clair solar photovoltaic farm.

## Issuance Outlook: Green bonds likely to be a key niche growth area worldwide

### Supra-nationals and national development banks will continue to drive the issuance

Supra-national and national development banks will continue to drive issuance and raise awareness of the green bond market, with the IFC committing to at least \$1B per year of issuance. Among Canadian institutions, we look for issuance to grow beyond the EDC's \$300 million (denominated in the U.S. dollar) issue last year.

### Green bond investors will expand investment focus to include agency issuers, commercial banks and private corporations

Over the next year, we expect institutional investors to expand their green bond investment focus from supra-nationals to include a broader range of investment grade bonds, including:

- **Issuance from local agencies and municipalities:** Local agencies and municipalities are always looking for innovative ways to finance public infrastructure projects. For instance, City of Gothenburg (Sweden) and Kommunalbanken AS (Norway) have issued green bonds to fund local public infrastructure projects. Local agencies and municipalities can also avail tax incentives to enhance yield for the investor or lower costs to the issuer – for example, municipal authorities in the U.S. can access certain dedicated bond issuance schemes such as Clean and Renewable Energy Bonds (CREB), a program where funds from bond issuance are used to finance projects that reduce green-house gas emission as well as for energy conservation purposes. Issuers using CREB can theoretically pay 0% interest rate with buyer receiving federal tax credit instead of interest payments. The State of California has set ambitious renewable energy and energy efficiency targets with other States following the suit. In Canada, Province of Ontario has already announced its plan for issuing green bond in 2014.
- **Ring-fenced issuance from commercial banks:** Bank of America issued \$500 million of green bonds with 1.35% coupon and 3-year maturity in November 2013. Credit Agricole Corporate and Investment Bank has also been an active issuer with total issuance of \$327 million across six currencies. We believe commercial banks will be looking to expand the green bond investor base and to support an important market as investors seek more socially responsible investment options. Generally, we believe issuers will also see this as a branding tool.
- **Green bond securitization in areas such as energy efficiency and solar photovoltaic panels:** Smaller projects need to be aggregated into larger offerings suitable for the appetite of larger investors. Green bond securitization provides another option to increase scale as well as upgrade the credit rating for asset-based renewable energy bonds.

### We expect inaugural green bond issuance in Canada this year

The Ontario government plans to issue a green bond in 2014, with the objective of financing environmentally friendly infrastructure projects across Ontario.

Beyond the very near term, green bond issuance could be adopted by various corporate sectors. Of the “high potential” corporate sectors, we identify the Real Estate (including Pension Fund), Power Generation and Utility sectors as being well-suited for green bond issuance. For context, Canadian dollar issues in these sectors have general obligations bonds of approximately CAD\$100B outstanding. We believe a portion of bonds issued by these sectors would lend themselves to climate-themed initiatives.





Examples where green bonds could be issued by corporate sectors are as follows: (1) the proliferation of building sustainability rating systems raises the possibility of green bonds being issued by commercial real estate developers (pension funds) or Real Estate Investment Trusts; (2) companies with renewable power generation assets (e.g., AltaGas, Brookfield Renewable Energy Partners, TransCanada and Enbridge) could issue green bonds to help finance the construction of green energy (hydro, solar, wind, etc.) or the decommissioning of older-generation coal plants; (3) regulated utilities (e.g. Hydro One) could issue green bonds with proceeds used towards the development of transmission lines linking renewable energy to the grid.

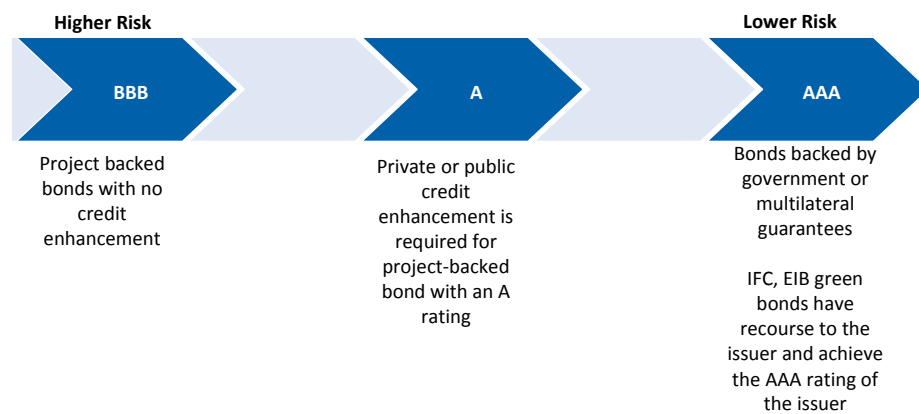
## Key Challenges: Scale and Liquidity

### Immediate challenges for the green bond market are scale and liquidity

The appetite of institutional investors for green bonds has grown in recent years. Clearly, the front-of-mind consideration of “being-green” should be generally supportive of attitudes and opportunities for green bond issuance. However, in our view, there are two key headwinds for the pace of green:

- There are limited investment grade opportunities of significant scale.** Project bonds face difficulty in achieving investment grade credit ratings due to size constraint as well as difficulty in reliably forecasting how much energy such a project will generate, as wind and solar assets are intermittent. A key factor in developing the green bond market will be securing adequate credit enhancement to achieve the kind of investment grade profile that institutional investors may require to buy senior notes. A typical credit enhancement currently in use would be a long-term power purchase agreement with a government related entity.

Exhibit 22: Credit enhancement is one way to bring mainstream investors into project bonds.



Source: Barclays Capital, Accenture

- Smaller size of green bond issue could limit participation from mainstream investors:** We believe the threshold for issuance size to attract mainstream investors is at least CAD\$100 million (average non-financial corporate issuance size in 2013 was ~CAD\$300 million), whereas financing required for green projects may be of smaller scale. Larger green bond issuances could be included in fixed-income benchmark indices, bringing index-tracking investors into the pool. We estimate a liquid green bond market would suggest a market size of \$10-20B, made up of bonds rated BBB or higher. We would not expect a post-issue liquidity discount, as green bonds should be as liquid as general obligation instruments of the issuer.

### Further standardization is required to verify use of proceeds

Traditional bonds (e.g. deposit notes and MTNs) are highly standardized, which reduces transaction costs. In order to do the same for green bonds, issuers and investors require a single set of standards for acceptable use of green bond proceeds, and for processes of reporting green projects funded through the proceeds. As described above, the CBI has launched a set of standards for verifying the credentials of green bonds, to create more security for investors. We believe achieving uniformity would facilitate time to market / speed of execution, reduce investment risk and lead to a progressive increase in green bond issuance, further enhancing liquidity.

## Role of Government: Create enabling policy and risk environment

We believe municipal, provincial and federal governments will have a role to play in growing the green bond market. Areas where governments can have direct influence include creating a policy environment for environmental technologies, capitalizing on their ability to issue green bonds at lower interest rates and potentially providing guarantees and tax incentives.

### Government investments in green projects can boost green bond market

Governments around the world are increasing their budgets for environmental and climate change mitigation measures. In the U.S., \$12.3B of the American Recovery & Reinvestment Act has been allocated to energy efficiency initiatives in cities. In India, a new coal levy aims to raise \$535 million a year to fund a National Clean Energy Fund. The International Monetary Fund intends to create a \$100B green fund by 2020 to meet financial needs identified at the United Nations Climate Change Conference in 2009. Local governments have also pushed for green projects. We believe a long-term government commitment to such green project policies is essential in developing a large green bond market.

### Government agencies can provide guarantees to enhance credit ratings

Municipal, provincial and federal governments can provide guarantees for underlying liabilities to enhance the credit rating of green bonds, such as with the recently issued bonds by Nalcor to finance the Muskrat Falls hydro project and related transmission infrastructure. Government guarantees will help to reduce the bond's risk level, attracting mainstream investors into the issue. A few examples of government guarantees are as follows:

- As part of Climate Action Plan in the U.S., the Energy Department provides US\$8 billion in loan guarantees to support innovative advanced fossil energy projects that avoid, reduce, or sequester greenhouse gases.
- Government agencies (such as the Ontario Power Authority, BC Hydro, Hydro Quebec) can issue long-term Power Purchase Agreements (PPAs) to purchase power from renewable energy generation projects.
- Government agencies can also purchase junior or subordinated tranches to improve the risk profile of green bonds.

### Tax incentives for investors can compensate for lack of liquidity

Additional tax incentives on green bond investments can further make the return on green bond investment competitive. Further, long-term commitment to public incentives is vital to prevent any retroactive modification of incentives, for a period of time commensurate with the expected investment pay-pack period (i.e., to match or exceed the term of the bond). Existing tax incentive schemes include:

- Municipal authorities in the U.S. can access Clean and Renewable Energy Bond (CREB) tax-credit program. Funds used to finance projects that reduce green-house gas emission can tap CREB. Issuers using CREB can theoretically pay 0% interest rate with buyer receiving federal tax credit instead of interest payment.
- The Green Funds Scheme in the Netherlands allows individual investors to buy bonds or shares in the "Green Fund", accepting a lower interest rate in exchange for 2.5% tax credit.



# Appendix



Appendix I: Green Bonds (labeled) Outstanding

| CUSIP     | Issuer  | Announce Date | Amt. O/S (in US\$) | Currency | Coupon | Maturity | Issuer Type          |
|-----------|---|---------------|--------------------|----------|--------|----------|----------------------|
| EK1137513 | African Development Bank                            | Mar-14        | \$157.0            | SEK      | 1.75%  | Mar-19   | Supra-national       |
| 00828EAX7 | African Development Bank                            | Oct-13        | \$500.0            | USD      | 0.75%  | Oct-16   | Supra-national       |
| EK0800012 | African Development Bank                            | Feb-14        | \$153.8            | SEK      | 0.933% | Feb-19   | Supra-national       |
| EI3827306 | African Development Bank                            | Aug-10        | \$11.5             | AUD      | 0.5%   | Sep-20   | Supra-national       |
| EI1941687 | African Development Bank                            | Mar-10        | \$77.4             | NZD      | 4.52%  | Mar-14   | Supra-national       |
| EI4394777 | African Development Bank                            | Oct-10        | \$70.0             | AUD      | 4.8%   | Oct-14   | Supra-national       |
| EI4394330 | African Development Bank                            | Oct-10        | \$38.4             | NZD      | 3.71%  | Oct-14   | Supra-national       |
| EI3928864 | Asian Development Bank                              | Aug-10        | \$73.0             | BRL      | 0.5%   | Sep-17   | Supra-national       |
| EI3928500 | Asian Development Bank                              | Aug-10        | \$107.6            | AUD      | 4.35%  | Sep-14   | Supra-national       |
| EI3929581 | Asian Development Bank                              | Aug-10        | \$19.9             | BRL      | 7.02%  | Sep-14   | Supra-national       |
| EI3929623 | Asian Development Bank                              | Aug-10        | \$44.7             | TRY      | 0.5%   | Sep-17   | Supra-national       |
| 06051GEZ8 | Bank of America Corp                                | Nov-13        | \$500.0            | USD      | 1.35%  | Nov-16   | Commercial Bank      |
| EJ8568853 | City of Gothenburg Sweden                           | Sep-13        | \$39.4             | SEK      | 2.915% | Oct-19   | Local Govt. Agency   |
| EJ8568671 | City of Gothenburg Sweden                           | Sep-13        | \$39.4             | SEK      | 1.439% | Oct-19   | Local Govt. Agency   |
| EJ9997689 | Credit Agricole Corporate & Investment Bank SA      | Dec-13        | \$52.0             | USD      | 2.01%  | Dec-18   | Commercial Bank      |
| EJ5350362 | Credit Agricole Corporate & Investment Bank SA      | Jan-13        | \$3.6              | BRL      | 6.0%   | Aug-16   | Commercial Bank      |
| EJ8800934 | Credit Agricole Corporate & Investment Bank SA      | Oct-13        | \$136.2            | JPY      | 0.35%  | Oct-17   | Commercial Bank      |
| EJ7102126 | Credit Agricole Corporate & Investment Bank SA      | Jun-13        | \$0.4              | BRL      | 2.0%   | Jul-20   | Commercial Bank      |
| EJ9997622 | Credit Agricole Corporate & Investment Bank SA      | Dec-13        | \$53.6             | AUD      | 4.54%  | Dec-18   | Commercial Bank      |
| EJ8319067 | Credit Agricole Corporate & Investment Bank SA      | Sep-13        | \$54.7             | JPY      | 0.68%  | Sep-20   | Commercial Bank      |
| EJ7102027 | Credit Agricole Corporate & Investment Bank SA      | Jun-13        | \$1.2              | JPY      | 4.8%   | Jul-18   | Commercial Bank      |
| EJ9132485 | Credit Agricole Corporate & Investment Bank SA      | Oct-13        | \$20.0             | MXN      | 4.22%  | Nov-18   | Commercial Bank      |
| EJ6772234 | Credit Agricole Corporate & Investment Bank SA      | May-13        | \$5.5              | MXN      | 0.5%   | Dec-17   | Commercial Bank      |
| EJ9330295 | Electricite de France                               | Nov-13        | \$1,899.8          | EUR      | 2.25%  | Apr-21   | Private Corporation  |
| 29874QCN2 | European Bank for Reconstruction & Development      | Sep-13        | \$250.0            | USD      | 1.625% | Apr-18   | Supra-national       |
| EK0871583 | European Bank for Reconstruction & Development      | Feb-14        | \$10.3             | NZD      | 4.032% | Sep-18   | Supra-national       |
| EJ7847795 | European Bank for Reconstruction & Development      | Aug-13        | \$67.9             | BRL      | 8.01%  | May-17   | Supra-national       |
| EK1339226 | European Bank for Reconstruction & Development      | Mar-14        | \$40.0             | BRL      | 9.12%  | Sep-17   | Supra-national       |
| EI6264101 | European Bank for Reconstruction & Development      | Mar-11        | \$15.1             | BRL      | 0.5%   | Mar-17   | Supra-national       |
| EI4781999 | European Bank for Reconstruction & Development      | Nov-10        | \$24.9             | AUD      | 4.8%   | Dec-14   | Supra-national       |
| EJ4079277 | European Bank for Reconstruction & Development      | Oct-12        | \$6.3              | IDR      | 4.38%  | Nov-16   | Supra-national       |
| EI7243252 | European Bank for Reconstruction & Development      | Jun-11        | \$10.0             | BRL      | 0.5%   | Jun-17   | Supra-national       |
| EI6899625 | European Bank for Reconstruction & Development      | May-11        | \$8.2              | BRL      | 0.5%   | May-17   | Supra-national       |
| EK0028036 | European Bank for Reconstruction & Development      | Dec-13        | \$9.8              | AUD      | 3.18%  | Jun-18   | Supra-national       |
| EJ9276548 | European Investment Bank                            | Nov-13        | \$98.2             | ZAR      | 6.75%  | Sep-17   | Supra-national       |
| EJ1271687 | European Investment Bank                            | Apr-12        | \$443.6            | SEK      | 3.0%   | Apr-19   | Supra-national       |
| EK0159625 | European Investment Bank                            | Jan-14        | \$387.0            | CHF      | 1.625% | Feb-25   | Supra-national       |
| EI1489646 | European Investment Bank                            | Jan-10        | \$34.0             | BRL      | 0.5%   | Mar-16   | Supra-national       |
| EJ7611811 | European Investment Bank                            | Jul-13        | \$176.6            | SEK      | 1.381% | Jul-20   | Supra-national       |
| EI0373197 | European Investment Bank                            | Nov-09        | \$348.4            | SEK      | 2.95%  | Feb-15   | Supra-national       |
| EJ7525862 | European Investment Bank                            | Jul-13        | \$2,944.1          | EUR      | 1.375% | Nov-19   | Supra-national       |
| EI0373395 | European Investment Bank                            | Nov-09        | \$79.8             | SEK      | 1.052% | Feb-15   | Supra-national       |
| 30216BER9 | Export Development Canada                           | Jan-14        | \$300.0            | USD      | 0.875% | Jan-17   | Federal Govt. Agency |
| 302154BG3 | Export-Import Bank of Korea                         | Feb-13        | \$500.0            | USD      | 1.75%  | Feb-18   | Federal Govt. Agency |
| EK1279307 | International Bank for Reconstruction & Development | Mar-14        | \$757.7            | EUR      | 0.25%  | Mar-17   | Supra-national       |
| EI1569702 | International Bank for Reconstruction & Development | Feb-10        | \$176.8            | BRL      | 9.5%   | Mar-17   | Supra-national       |
| EI1567581 | International Bank for Reconstruction & Development | Feb-10        | \$114.5            | ZAR      | 8.75%  | Mar-17   | Supra-national       |
| EI1570023 | International Bank for Reconstruction & Development | Feb-10        | \$67.0             | RUB      | 7.5%   | Mar-17   | Supra-national       |
| EI1571104 | International Bank for Reconstruction & Development | Feb-10        | \$254.0            | AUD      | 6.0%   | Feb-17   | Supra-national       |
| EJ2920373 | International Bank for Reconstruction & Development | Jul-12        | \$23.2             | RUB      | 6.5%   | Jul-19   | Supra-national       |
| 45905UNQ3 | International Bank for Reconstruction & Development | Jan-14        | \$550.0            | USD      | 0.177% | Jul-15   | Supra-national       |
| 45905UNJ9 | International Bank for Reconstruction & Development | Aug-13        | \$550.0            | USD      | 0.375% | Aug-15   | Supra-national       |
| EI1567623 | International Bank for Reconstruction & Development | Feb-10        | \$80.6             | MXN      | 7.5%   | Mar-20   | Supra-national       |
| EI9993862 | International Bank for Reconstruction & Development | Jan-12        | \$20.1             | PLN      | 3.25%  | Jan-19   | Supra-national       |
| EJ4258640 | International Bank for Reconstruction & Development | Oct-12        | \$134.9            | MXN      | 3.75%  | Nov-14   | Supra-national       |
| EI1569744 | International Bank for Reconstruction & Development | Feb-10        | \$91.0             | COP      | 8.0%   | Mar-20   | Supra-national       |
| EI1570189 | International Bank for Reconstruction & Development | Feb-10        | \$48.8             | TRY      | 10.0%  | Mar-17   | Supra-national       |
| EI1566864 | International Bank for Reconstruction & Development | Feb-10        | \$67.5             | NOK      | 3.75%  | May-17   | Supra-national       |

Source: Bloomberg, RBC Capital Markets



Appendix I: Green Bonds (labeled) Outstanding (contd.)

| CUSIP     | Issuer  | Announce Date | Amt. O/S (in US\$) | Currency | Coupon | Maturity | Issuer Type         |
|-----------|---|---------------|--------------------|----------|--------|----------|---------------------|
| EI1567227 | International Bank for Reconstruction & Development | Feb-10        | \$34.7             | NZD      | 5.625% | Mar-17   | Supra-national      |
| EH6163750 | International Bank for Reconstruction & Development | Nov-08        | \$415.7            | SEK      | 3.5%   | Nov-14   | Supra-national      |
| EI1356837 | International Bank for Reconstruction & Development | Feb-10        | \$218.7            | SEK      | 3.25%  | Dec-17   | Supra-national      |
| EI1692041 | International Bank for Reconstruction & Development | Feb-10        | \$2.7              | EUR      | 2.5%   | May-17   | Supra-national      |
| EI1572185 | International Bank for Reconstruction & Development | Feb-10        | \$11.1             | HUF      | 5.5%   | May-17   | Supra-national      |
| EJ7191152 | International Bank for Reconstruction & Development | Jun-13        | \$16.1             | RUB      | 6.75%  | Jun-23   | Supra-national      |
| 45905ULE2 | International Bank for Reconstruction & Development | Jul-12        | \$10.0             | USD      | 0.625% | Jul-17   | Supra-national      |
| EJ5262690 | International Bank for Reconstruction & Development | Jan-13        | \$9.2              | ZAR      | 0.5%   | Jan-18   | Supra-national      |
| 45905ULF9 | International Bank for Reconstruction & Development | Jul-12        | \$5.0              | USD      | 1.5%   | Jul-22   | Supra-national      |
| EI4526030 | International Bank for Reconstruction & Development | Oct-10        | \$3.9              | MYR      | 1.375% | Nov-15   | Supra-national      |
| EI7368026 | International Bank for Reconstruction & Development | Jul-11        | \$28.3             | EUR      | 2.25%  | Jul-16   | Supra-national      |
| EI1102421 | International Bank for Reconstruction & Development | Jan-10        | \$106.8            | NZD      | 5.23%  | Jan-15   | Supra-national      |
| EJ4683086 | International Bank for Reconstruction & Development | Dec-12        | \$7.5              | MYR      | 2.5%   | Dec-19   | Supra-national      |
| 45905UJC9 | International Bank for Reconstruction & Development | Aug-11        | \$7.7              | USD      | 2.5%   | Aug-21   | Supra-national      |
| EI4477481 | International Bank for Reconstruction & Development | Oct-10        | \$15.1             | SEK      | 3.5%   | Nov-20   | Supra-national      |
| 45905UHN7 | International Bank for Reconstruction & Development | Dec-10        | \$10.0             | USD      | 2.0%   | Oct-16   | Supra-national      |
| EI7757095 | International Bank for Reconstruction & Development | Jul-11        | \$10.1             | CAD      | 3.0%   | Aug-21   | Supra-national      |
| 45905UHT4 | International Bank for Reconstruction & Development | May-11        | \$2.1              | USD      | 0.236% | May-21   | Supra-national      |
| EJ0052039 | International Bank for Reconstruction & Development | Jan-12        | \$10.0             | USD      | 0.84%  | Feb-17   | Supra-national      |
| 45905UKM5 | International Bank for Reconstruction & Development | Feb-12        | \$50.0             | USD      | 0.92%  | Jun-15   | Supra-national      |
| EJ6153583 | International Bank for Reconstruction & Development | Jan-11        | \$30.0             | USD      | 2.135% | Apr-16   | Supra-national      |
| EI6067959 | International Bank for Reconstruction & Development | Mar-11        | \$10.0             | USD      | 2.2%   | Mar-16   | Supra-national      |
| EI6344630 | International Bank for Reconstruction & Development | Apr-11        | \$10.0             | USD      | 2.18%  | Apr-16   | Supra-national      |
| EI6940759 | International Bank for Reconstruction & Development | May-11        | \$10.0             | USD      | 1.71%  | Jun-16   | Supra-national      |
| EI1688569 | International Bank for Reconstruction & Development | Feb-10        | \$1.4              | JPY      | 0.875% | Mar-20   | Supra-national      |
| EI5747783 | International Bank for Reconstruction & Development | Feb-11        | \$10.0             | USD      | 2.34%  | Feb-16   | Supra-national      |
| EJ6155133 | International Bank for Reconstruction & Development | Feb-11        | \$30.0             | USD      | 2.0%   | Feb-16   | Supra-national      |
| EI4620197 | International Bank for Reconstruction & Development | Nov-10        | \$29.2             | AUD      | 5.4%   | Nov-15   | Supra-national      |
| EI2752539 | International Bank for Reconstruction & Development | Jun-10        | \$3.1              | MXN      | 6.15%  | Jun-15   | Supra-national      |
| EI2752570 | International Bank for Reconstruction & Development | Jun-10        | \$3.2              | ZAR      | 7.2%   | Jun-15   | Supra-national      |
| 45950VCP9 | International Finance Corp                          | Nov-13        | \$1,000.0          | USD      | 0.625% | Nov-16   | Supra-national      |
| 45950VBV7 | International Finance Corp                          | Apr-12        | \$500.0            | USD      | 0.5%   | May-15   | Supra-national      |
| 45950VCJ3 | International Finance Corp                          | Feb-13        | \$1,000.0          | USD      | 0.5%   | May-16   | Supra-national      |
| 45950VAP1 | International Finance Corp                          | Apr-10        | \$200.0            | USD      | 2.25%  | Apr-14   | Supra-national      |
| EI6752899 | International Finance Corp                          | May-11        | \$22.7             | EUR      | 1.43%  | May-14   | Supra-national      |
| EI6753095 | International Finance Corp                          | May-11        | \$44.0             | AUD      | 4.75%  | May-14   | Supra-national      |
| EI6753012 | International Finance Corp                          | May-11        | \$25.6             | ZAR      | 6.1%   | May-14   | Supra-national      |
| EJ8740320 | International Finance Corp                          | Oct-13        | \$203.3            | BRL      | 8.14%  | Oct-16   | Supra-national      |
| EJ8740387 | International Finance Corp                          | Oct-13        | \$20.9             | AUD      | 3.51%  | Oct-18   | Supra-national      |
| EJ9363940 | Kommunalbanken AS                                   | Nov-13        | \$500.0            | USD      | 0.75%  | Nov-16   | Local Govt. Agency  |
| 50048MBM1 | Kommunalbanken AS                                   | Nov-13        | \$500.0            | USD      | 0.75%  | Nov-16   | Local Govt. Agency  |
| EI6006619 | Kommunalbanken AS                                   | Feb-11        | \$4.7              | INR      | 5.0%   | Mar-15   | Local Govt. Agency  |
| EI5936311 | Kommunalbanken AS                                   | Feb-11        | \$7.2              | AUD      | 5.0%   | Mar-15   | Local Govt. Agency  |
| EI5936592 | Kommunalbanken AS                                   | Feb-11        | \$13.5             | BRL      | 0.5%   | Mar-15   | Local Govt. Agency  |
| EJ9478268 | NRW Bank  | Nov-13        | \$339.9            | EUR      | 0.75%  | Nov-17   | Commercial Bank     |
| EJ8486791 | Nordic Investment Bank                              | Sep-13        | \$77.8             | SEK      | 2.413% | Sep-18   | Supra-national      |
| EK0618927 | Nordic Investment Bank                              | Feb-14        | \$54.6             | EUR      | 0.241% | Feb-19   | Supra-national      |
| EJ3429168 | Nordic Investment Bank                              | Aug-12        | \$75.5             | SEK      | 2.75%  | Sep-32   | Supra-national      |
| EI9970472 | Nordic Investment Bank                              | Oct-11        | \$120.1            | ZAR      | 4.9%   | Nov-15   | Supra-national      |
| EJ1015522 | Region of Ile de France                             | Mar-12        | \$466.8            | EUR      | 3.625% | Mar-24   | Local Govt. Agency  |
| EJ3676487 | Region of Nord-Pas de Calais France                 | Sep-12        | \$103.2            | EUR      | 3.42%  | Oct-24   | Local Govt. Agency  |
| EJ2735193 | Region of Provence Alpes Cote d'Azur France         | Jul-12        | \$145.8            | EUR      | 3.6%   | Jul-24   | Local Govt. Agency  |
| EK0810946 | Unibail-Rodamco SE                                  | Feb-14        | \$1,025.4          | EUR      | 2.5%   | Feb-24   | Private Corporation |
| EK1273128 | Vasakronan AB                                       | Mar-14        | \$102.3            | SEK      | 1.604% | Mar-19   | Private Corporation |
| EK1272823 | Vasakronan AB                                       | Mar-14        | \$55.1             | SEK      | 2.473% | Mar-19   | Private Corporation |
| EJ9471545 | Vasakronan AB                                       | Nov-13        | \$152.3            | SEK      | 1.315% | May-16   | Private Corporation |
| EJ9471487 | Vasakronan AB                                       | Nov-13        | \$45.7             | SEK      | 1.774% | May-16   | Private Corporation |

Source: Bloomberg, RBC Capital Markets



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|                             |       |         | Count                                    | Percent |
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