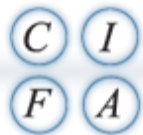


Green Bonds in the SRF Future: Industry Practices and Update



COUNCIL OF INFRASTRUCTURE FINANCING AUTHORITIES

A NATIONAL NON-PROFIT ASSOCIATION REPRESENTING
PUBLIC INFRASTRUCTURE FINANCING AGENCIES

CIFA Conference 2016
March 22, 2016
Washington, DC

Presentation Participants

Tom Liu

Managing Director
Bank of America Merrill Lynch

- Manager of the Firm's Water and Wastewater/SRF Group
- Over 27 years of Water/SRF financing experience
- Served as senior manager on 24 SRF programs

Lisa Daniel

Managing Director
Public Financial Management

- Director of PFM's State Pool Program and State Revolving Fund sectors
- Joined PFM in 1999
- Former manager, Ernst & Young LLP – Arbitrage Rebate and Verifications Group

Audra A. Nowosielski

Deputy Director of Public Finance
New York State Environmental Facilities Corp

- Deputy Director of Public Finance in 2015
- Former Director of Economic Studies with New York State Assembly Ways and Means Committee
- Ph.D. in Ecological Economics from Rensselaer

James P. McGoff

Director of Environmental Programs
State of Indiana/Indiana Finance Authority

- Director of Environmental Programs since 2003
- Responsible for supervision and operation of all aspects of the SRF programs
- Former partner with Bingham McHale LLP

Karen L. Massey

Director
Missouri Environmental Improvement and Energy Resources Authority

- Director since 2011
- Manages the bond financings for the SRF, Market Development, Brownfields Revolving Loan Fund and Energy Efficiency programs
- Previous experience with the Missouri Department of Natural Resources and the Missouri Legislature

Environmental Finance

ENVIRONMENTAL FINANCE

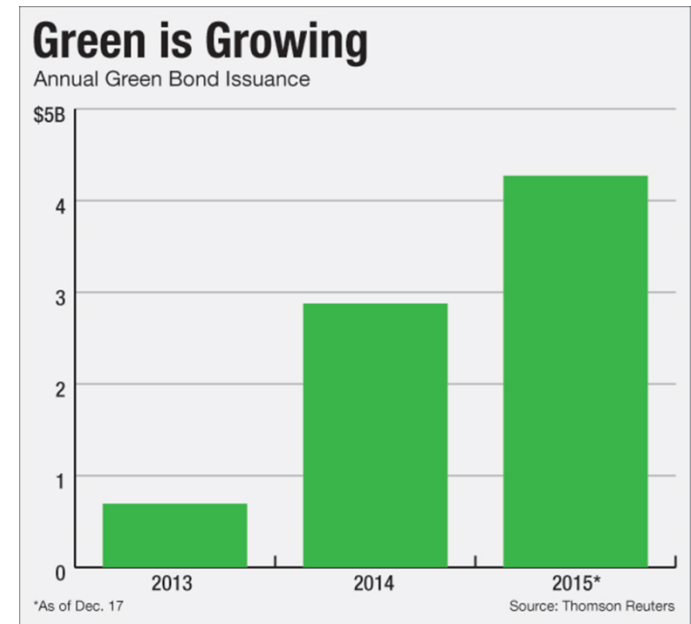
Green Bonds – available designation for bonds issued in capital markets

Gov't Sponsored Consumer Funding	Municipal Natural Resource Mgmt. Projects	Carbon Reduction Based Benefits	Green Banks
Property Assessed Clean Energy (PACE)	Energy Service Company (ESCO) Financing Assist	Opportunity Evaluation Studies	Evaluation Studies
Utility On-Bill Financing	Renewable Generation (solar, etc.) Financing Assist	Tracking Matrices for Client Use	Policy Development
Community Choice Aggregation	Multi-Agency Initiatives (Streetlights, EE, solar, other)	Aggregation, Reporting and Monetization	Funding Initiative Deployment
Green = Current	Revolving Loan Funds	Market Tracking and Analysis	Blue = Developing

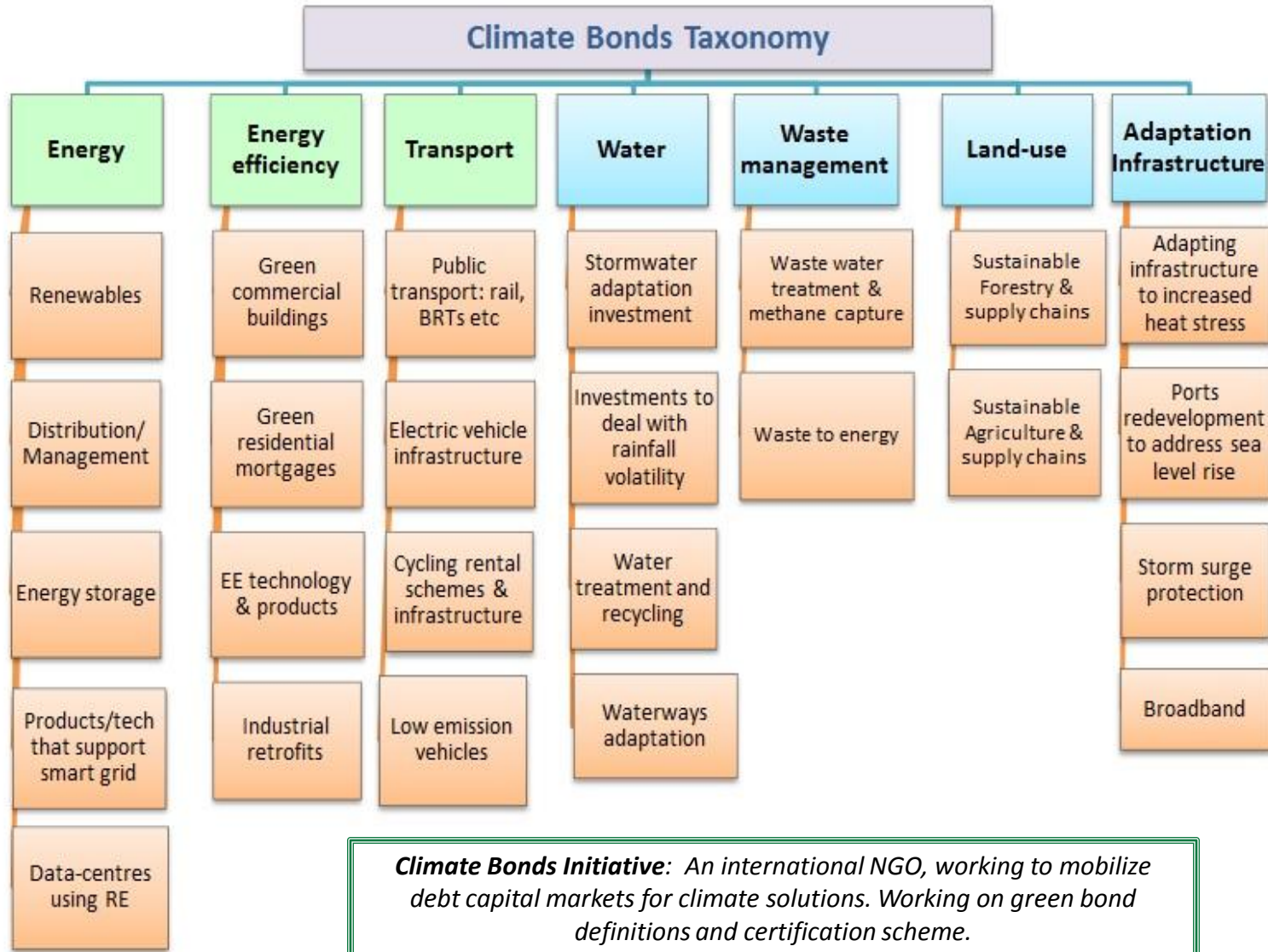
Quick Review: What is a Green Bond?

- “Green Bond” was first coined and issued in 2008 by the World Bank
- Issuance in the early stages of the market was from supranationals (e.g., World Bank, IFC, EIB)
- A “Green Bond” is used to finance climate change resilient projects or other environmentally beneficial projects. Examples include:
 - Renewable energy and energy efficiency projects
 - Sustainable waste management projects
 - Sustainable land use and biodiversity conservation projects
 - Clean transportation
 - Clean drinking water
 - Protection against flooding
 - Sustainable resource management

As of Dec. 17, green bond volume has increased 48% to \$4.27 billion from \$2.88 billion in 2014 and \$693 million in 2013, according to data from Thomson Reuters.



Green Bond Categories



¹ Source: Climate Bonds Initiative, Climate Bonds Taxonomy, climatebonds.net

ICMA: Green Bond Principles

Green Bond Principles do not specify exactly what classifies a use of proceeds as 'green' but does provide an internal, voluntary framework that can help ensure that a green bond label is credible.

International Capital Market Association (ICMA):

2015 Green Bond Principles

1. Use of proceeds
 - Define and disclose criteria for what is 'green' and how bond proceeds will be used
2. Process for Project Evaluation and Selection
 - Define the process that will be used to apply 'green' criteria, determine project eligibility, and set sustainability objectives
3. Management of Proceeds
 - Implement processes and controls to ensure proceeds are used as specified
4. Ongoing Reporting, Verification & Validation
 - Determine how projects will be evaluated and progress reported against both environmental and financing criteria

CBI: Green Bond Standards

Climate Bonds Initiative (CBI)

- “The Climate Bonds Standard is a screening tool for investors and governments which allows them to easily prioritize climate and green bonds with confidence that the funds are being used to deliver climate change solutions.”¹
- Standards complete:
 - Solar power, related manufacturing, direct grid connections
 - Wind power, related manufacturing, direct grid connections
 - Low carbon buildings and energy efficiency
 - Bus Rapid Transit Systems
- Standards soon to be announced:
 - Low Carbon Transport – passenger and freight rail, urban electronic rail, electric vehicles...
 - Bioenergy
 - Geothermal
- Standards “under development”:
 - Water (started Nov 2014; 60 day public consultation to start Nov 2015)
 - Sustainable agriculture & forestry

1. <http://www.climatebonds.net/standards>

Green Bond Categories

Green City Bonds Coalition

- “Green Muni Bonds Playbook”

Step by Step Guide:

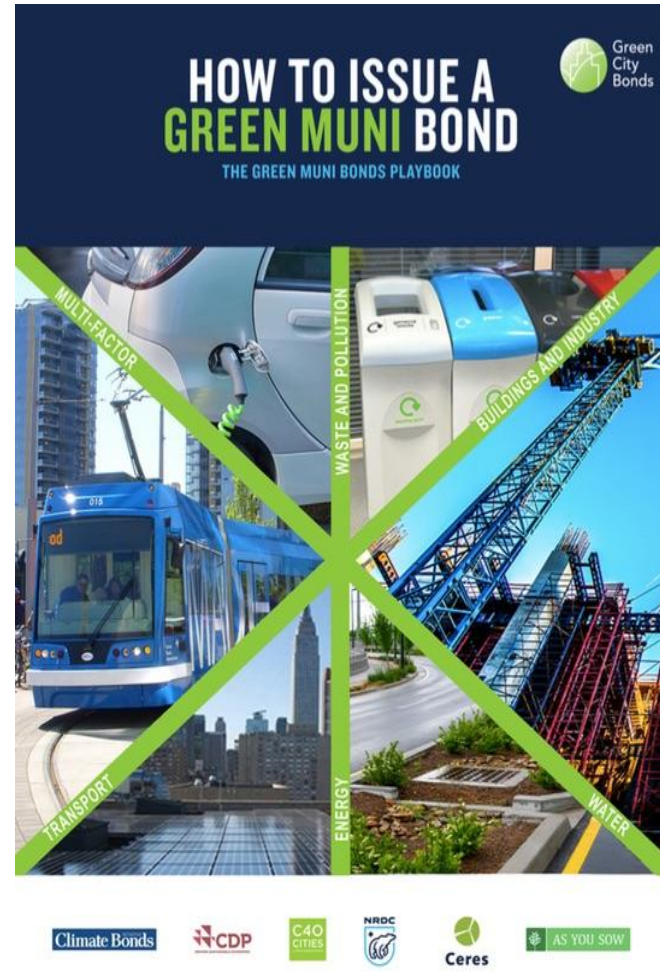
Preparation

- Identify Qualifying Green Projects and Assets
- Arrange Independent Review
- Set Up Tracking and Reporting

Issuance

- Issue your Green Muni Bond
- Monitor Use of Proceeds and Report Annually

<http://www.climatebonds.net/files/files/GreenCityPlaybook.pdf>



Green Bond – Other Information

- New Moody's Release
 - “Green Bonds Start to Bloom”, Sector In Depth Report, May 27, 2015
 - “We expect green bond ratings will generally correspond to the ratings assigned to any other issuers or issues whose proceeds are not earmarked for environmentally beneficial purposes”
- Verification/ Opinion Providers
 - CBI: Approved Verifiers: Ernst & Young, KPMG, Bureau Veritas, and DNV GL
 - CBI: Second Opinion providers: Vigeo
 - First Environment

The screenshot shows a report from Moody's Investors Service, dated May 27, 2015, under the 'SECTOR IN-DEPTH' category. The report title is 'Green Bonds Start to Bloom'. It includes a 'TABLE OF CONTENTS' section with the following items: Summary (1), Green bonds a small segment of the global market (2), Issuance trends and outlook (3), Drivers behind green bond issuance (5), Challenges to growth (6), First update to Green Bond Principles (7), How we rate green bonds (8), Appendix I - Types of green bond (9), Appendix II - Green bond issues 2014 (10), Appendix III - Green bond issues so far in 2015 (11), and Moody's Related Research (14). There is also an 'ANALYST CONTACTS' section listing Brian Cahill, Falk Frey, Henry Shilling, Raffaella Altamura, Lisa Heller, and Lisa Heller with their respective phone numbers and email addresses. The main body of the report contains several key points: Green bonds are a small, but growing, segment of the global bond market; We expect a wider range of issuers, maturities, currencies and bond features as the market develops; Sustainable, responsible and impact (SRI) investing is a key driver; Issuers need to address standards and accountability for green bonds to gain more credibility; First update to the Green Bond Principles was a welcome step; and How we rate green bonds.

Municipal Green Bonds since Nov 2014

Date	Issuer	ST	\$	Date	Issuer	ST	\$
11/4/2014	Martha's Vineyard Land Bank	MA	35	6/17/2015	NYC Housing Dev Corp	NY	494
11/13/2014	Jefferson County IDA	NY	20	6/23/2015	Winnebago Co Housing Auth	IL	9
11/18/2014	Spokane	WA	181	6/30/2015	Virginia College Bldg Auth	VA	67
11/21/2014	Connecticut	CT	557	7/9/2015	Rhode Island CWFA	RI	56
12/3/2014	Univ of Cincinnati	OH	85	7/21/2015	New York State Environmental Fac Corp	NY	112
12/9/2014	Utah Associated Municipal Power Systems	UT	21	8/4/2015	Central Puget Sound RTA	WA	150
12/9/2014	Massachusetts St College Building Auth	MA	138	8/4/2015	Central Puget Sound RTA	WA	793
12/10/2014	Indiana University	IN	122	8/5/2015	New York State Environmental Fac Corp	NY	367
12/11/2014	Massachusetts Clean Water Trust	MA	228	8/7/2015	Colorado State University System	CO	156
12/15/2014	Met Water Reclamation District	IL	296	9/30/2015	State of Washington	WA	51
1/20/2015	Indiana Finance Authority	IN	100	10/6/2015	DC Water and Sewer Auth	DC	350
2/5/2015	Iowa Finance Authority	IA	322	10/6/2015	State of Vermont	VT	29
2/11/2015	Tacoma	WA	21	10/15/2015	State of Hawaii	HI	738
2/20/2015	Venice	FL	15	10/23/2015	Vermont Educ and Health Bldgs Fin Agency	VT	18
2/25/2015	Indiana Finance Authority	IN	140	11/10/2015	New Jersey Environm Infrastructure Trust	NJ	10
3/4/2015	University of Virginia	VA	185	11/18/2015	State of Connecticut	CT	650
3/4/2015	Arizona Board of Regents	AZ	362	11/18/2015	San Diego USD	CA	471
3/31/2015	Mass Development Fin Agency	MA	158	12/3/2015	Rhode Island Infrastruc Trust	RI	23
4/8/2015	Saint Paul	MN	9	12/9/2015	Town of Vienna	VA	6
4/21/2015	BOE - Chicago	IL	300	12/10/2015	Mission Econ Dev Corp	TX	48
4/23/2015	Connecticut	CT	250	1/6/2016	University of Texas System BOR	TX	115
5/7/2015	PUC San Francisco	CA	40	1/6/2016	University of Texas System BOR	TX	91
5/12/2015	Asheville	NC	51	1/25/2016	Ramsey County	MN	18
5/21/2015	Los Angeles	CA	230	1/27/2016	Massachusetts Clean Water Trust	MA	208
6/2/2015	East Bay MUD	CA	74	2/19/2016	Metropolitan Transpo Auth (NY)	NY	783
6/9/2015	Los Angeles	CA	231		TOTAL		9,981

Rationale for Green Bonds

- Increasing investor diversity and demand, which should translate to lower cost of capital
 - Investors compete to have more **ESG** (environment social and governance) assets under management
 - Growing number of institutional asset owners and investors that have signed up to the **Principles for Responsibility Investment (PRI)**, an initiative to incorporate ESG issues into investment practices.
 - Expanding pool of **Socially Responsible Investing (SRI) funds**, focused on green efforts, can lead to investor diversification
 - Increased **corporate pension fund** investor participation (e.g. Ford, Microsoft)

"Investors are currently paying a premium to acquire green bonds, at least in the secondary market. Our model finds an approximately 20 basis points (bps) difference between the spread of green bonds and comparable issues, which we see as partly attributable to opportunistic pricing based on strong demand from environmentally focused funds"

Barclays Research, "The Cost of Being Green", September 2015

EFC Overview

- Public benefit corporation that provides low-cost capital and grants for water-quality improvement projects
- New York's Water Infrastructure Bank
- Provides low-cost financial assistance for local wastewater and drinking water infrastructure through Clean Water and Drinking Water State Revolving Fund Programs



National Leader in Water Infrastructure Investment

- NYS leads the nation with the largest annual investment in water-quality infrastructure of any state
- Since 2011, EFC has provided more than \$9 billion in subsidized loans, grants and loan re-financings to local governments
- Largest 5-year investment in clean water infrastructure since creation of State Revolving Fund Programs



NYS Water Grants

- \$200 million in grants over three state fiscal years (SFYs 2015/16, 2016/17, and 2017/18) for drinking water and wastewater infrastructure upgrades approved in the enacted state budget
- Funds administered by EFC and DOH
- **2015 (Round 1):** \$50 Million Awarded in December 2015
- **2016 (Round 2):** \$75 Million Available
- Additional \$100 million proposed for SFYs 2016/17 and 2017/18
- If additional funds are appropriated in the enacted 2016-17 state budget, additional grant funding will be available for current round

NYS Water Grants

- Clean Water Projects: Up to 25% of net project costs for wastewater projects, not to exceed \$5 million
- Drinking Water Projects: Up to 60% of total eligible project costs for drinking water projects, not to exceed \$2 million

EFC Green Bond Sales

- 2014 EFC green bond sale was the first ever for SRF's nationally
- EFC issued \$213 million in green bonds in 2014 (2014 B,C,D)
 - \$82 in refunding; \$159 in new money
- EFC green bonds were the first to be issued under the Green Bond principles that were established by consortium of large investment banks
- EFC issued \$475 million in green bonds in 2015 (2015 B,C,D)

Factors EFC Considered for Green Bond Sale

- Growing popularity of Green Bonds
- Demand for green bonds is boosted when use of funds can be established as “green”, improving market access and broadening investor appeal, supporting best pricing efforts
- Reporting mechanisms
- Corporation mission lines up well with Green principles
- Purpose of Green Bond Designation: Provide investors an opportunity to invest in bonds issued to finance and refinance environmentally beneficial projects of the type being funded.

EFC Green Bond Project Selection

- Broad Categories from the Green Bond Principles
 - Renewable energy
 - Energy efficiency (including efficient buildings)
 - Sustainable waste management
 - Sustainable land use (including sustainable forestry and agriculture)
 - Biodiversity conservation
 - Clean transportation
 - Sustainable water management (including clean and/or drinking water)
 - Climate change adaptation

NYSEFC's Approach to Issuing Green Bonds

Use of Proceeds: Finance or refinance water pollution control and drinking water projects that are eligible for SRF financial assistance pursuant to the Federal Water Quality Act and Federal Safe Drinking Water Act.

Project Evaluation and Selection Process: NYSEFC prepares an Intended Use Plan (IUP) in conjunction with the Department of Environmental Conservation and the Department of Health for both its CW and DW SRFs. Each SRF applicant's project must be scored, ranked and listed on the IUP in order to be considered for financing.

NYSEFC's Approach to Issuing Green Bonds

Green Bond Proceeds Management: All of NYSEFC's CW and DW SRF projects must address a water quality improvement purpose. Proceeds are deposited into a separate account by NYSEFC, invested consistent with NYSEFC's investment policies, and disbursed to recipients consistent with the terms of the financing agreement. Proceeds related to projects financed by public authorities are invested in accordance with the applicable authority bond resolution or indenture.

Ongoing Reporting: NYSEFC plans to post semi-annual updates on use of Green Bond proceeds via its website (www.efc.ny.gov) including projects' identification, amount of assistance provided and completion status.

EFC Green Bonds – Investor Presentation

CW Projects funded with the Series Green Bonds have been certified by NYS Department of Environmental Conservation to be:

- In conformance with any applicable comprehensive studies and reports made pursuant to the State Environmental Conservation Law
- Necessary for accomplishment of the state water pollution control program
- Intended to satisfy State Pollutant Discharge Elimination System requirements where applicable
- Consistent with any applicable plans developed pursuant to Title VI of the Clean Water Act

DW Projects have been certified by NYS Department of Health as:

- Being in accord with applicable reports and plans made pursuant to the State Sanitary Code
- Necessary to comply with the State Sanitary Code
- Being in conformity with applicable rules and regulations of NYS Department of Health

EFC 2015 Green Bonds - OS

NEW ISSUE - BOOK-ENTRY ONLY



RATINGS:
 Fitch: AAA
 Moody's: Aaa
 Standard & Poor's: AAA
 (see "RATINGS" herein)

\$111,890,000

New York State

Environmental Facilities Corporation

State Revolving Funds Revenue Bonds

(2010 Master Financing Program) (Green Bonds)

\$80,520,000

Series 2015 B (Tax-Exempt)

\$31,370,000

Series 2015 C (Federally Taxable)

DATED: Date of Delivery

DUE: As shown on the inside cover

This cover page is only a brief general summary. You must read this entire official statement to obtain essential information for making an informed investment decision.

PURPOSES

We will use the proceeds of the State Revolving Funds Revenue Bonds, Series 2015 B (2010 Master Financing Program) (Green Bonds) (the "2015 B Bonds") and the State Revolving Funds Revenue Bonds, Series 2015 C (Federally Taxable) (2010 Master Financing Program) (Green Bonds) (the "2015 C Bonds" and, together with the 2015 B Bonds, the "offered bonds") to provide financial assistance to eligible recipients in the State of New York (the "State") to finance or refinance clean water and drinking water projects.



EFC 2015 Green Bonds - OS

USE OF PROCEEDS

We will issue the offered bonds to provide financial assistance to local governments and other public entities in the State to finance or refinance clean water and drinking water projects and to refund certain bonds we previously issued to provide financial assistance to eligible recipients in the State for such purposes.....





The offered bonds are being issued to finance or refinance clean water and drinking water projects that are designed to improve the quality of the State's drinking water or reduce pollution in the State's water supply according to state and federal standards, and to refund certain bonds previously issued to finance or refinance such projects. The purpose of labeling the offered bonds as "Green Bonds" is to allow investors to invest directly in bonds which finance such environmentally beneficial projects.

EFC Green Bonds - Reporting

The Corporation issued its State Revolving Funds Bonds, Series 2014B (2010 Master Financing Program) (Green Bonds) on July 2, 2014. As noted in the Official Statement relating to such bonds, we plan to post semi-annual updates regarding the projects funded with such bonds via our website (www.efc.ny.gov) by updating Exhibit E to such Official Statement until such time as all of the projects funded are complete.

EFC Green Bonds - Reporting

Disclosure Documents

total items 4 items x page 10	
<ul style="list-style-type: none"> Document Library <ul style="list-style-type: none"> Disclosure Documents Annual Information Statements FY Budget and Financial Plans <li style="border: 2px solid yellow;">Green Bond Reporting Official Statements Preliminary Official Statements & Notices of Sales 	Document ▾ <ul style="list-style-type: none">  2014B Official Statement Exhibit E - Green Bond Projects Updated 14-12-31.pdf  2014B Official Statement Exhibit E - Green Bond Projects Updated 15-07-28.pdf  2014B Official Statement Exhibit E - Green Bond Projects Updated 15-12-31.pdf  2015B,C,D Official Statement Exhibit E - Green Bond Projects Updated 15-12-31.pdf

EFC Green Bonds – Exhibit E Reporting

- NYSEFC Series 2014B Green Bonds Project Update – 2 pieces
 - Projects Financed or Refinanced with Series 2014 B Bonds
 - Projects Financed or Refinanced with Refunded Bonds
- Includes:
 - Recipient (example: Buffalo Sewer Authority)
 - Program (Clean water or Drinking Water)
 - Green Bond Financed (\$ Amount)
 - Project Description
 - Wastewater Treatment Plant and Collection System Improvements
 - Combined Sewer Overflow
 - Final Effluent Disinfection System
 - Construction Completion Date



Audra Nowosielski
Deputy Director of Public Finance
Audra.Nowosielski@efc.ny.gov
518.402.7085

Financing for a Sustainable Future

www.efc.ny.gov

IFA's Official Statement Disclosure re: "Green Bonds"

The Finance Authority has designated the Series 2016 Bonds as "Green Bonds" because the Eligible Projects financed or to be financed under the SRF Programs are environmentally beneficial. Eligible Projects are designed to improve the quality of the State's drinking water and/or reduce pollution in the State's water supply according to state and federal standards, which may include environmental remediation activities, pursuant to the SRF Acts and Federal Environmental Law (as defined in Appendix G hereto). The purpose of this labeling as Green Bonds is to allow investment in a program that restricts funding to environmentally beneficial projects.

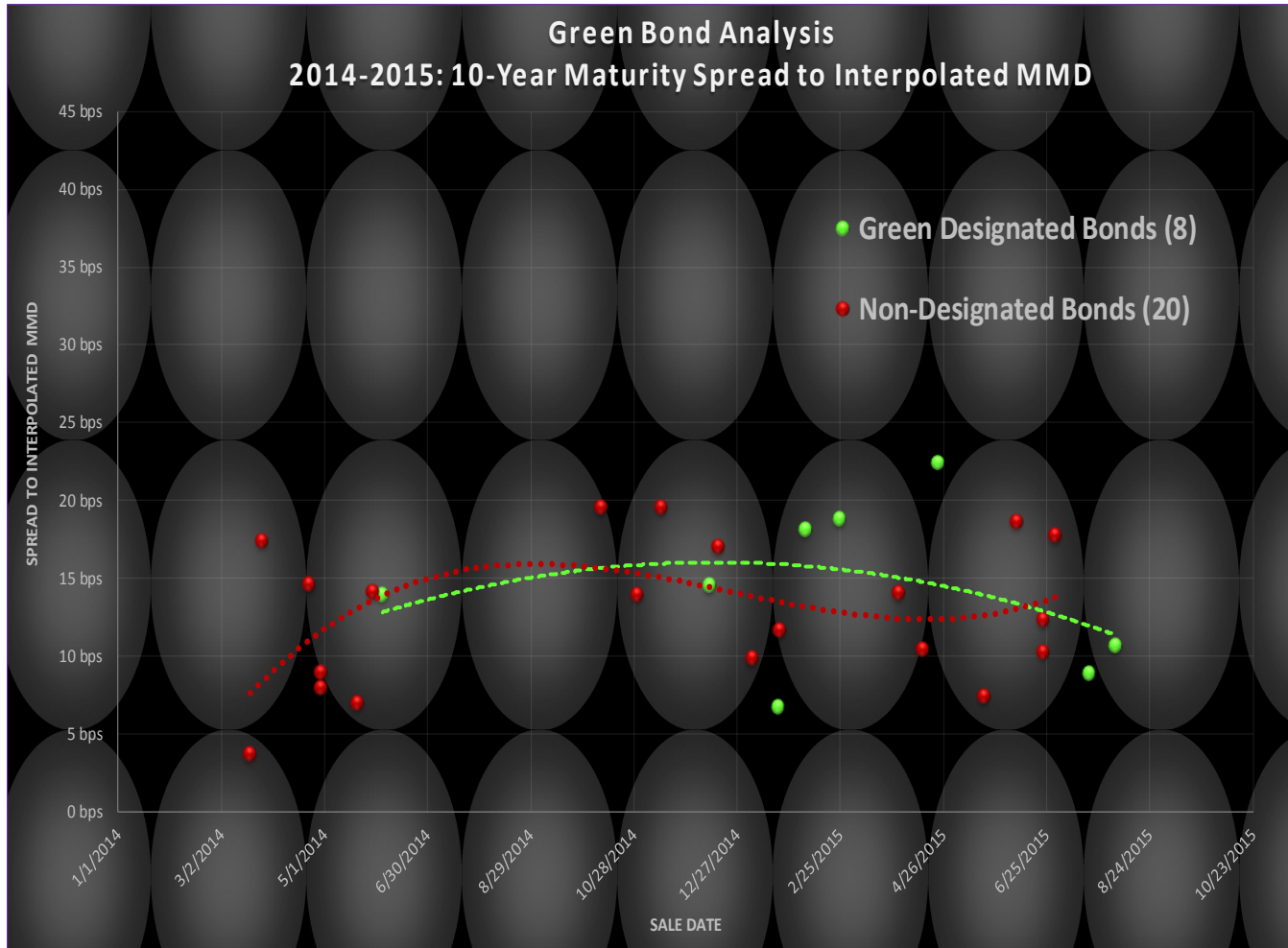


The Contrarian...

(now is not the time)

- No Price Differential
- Resource Requirements
- Lack of Standardization
 - Greenwashing
 - Future Implications of a Wrong Choice
 - Secondary Markets
 - Reputation

SRF Pricing Results by Green Designation



- Green bonds are relatively nascent
- Currently, there are no Environmentally Friendly or Socially Responsible Municipals funds
- To date, there has been no meaningful price impact for the green designation

* Spreads shown assume 5% coupon spreads to interpolated MMD

Rationale for Green Bonds

- Environmental Attributes - highlight important work regarding green initiatives
- Reputational Benefits
- “Too Green to Fail”
 - Economic and environmental resiliency appears to be translating into political clout
 - Chinese government developing a green bond standard
 - Securities and Exchange Board of India (SEBI) has started drafting framework that will define requirements and may include incentives for issuing domestic green bonds
 - In U.S., EPA has not shown any interest in participating in a discussion on standards or endorsement

Greenwashing

Lack of Market Standard and Definition of “Green”

- *Greenwashing*— Potential mislabelling of issues for the purposes of marketing, ultimately harming the value and credibility of the classification
- The risk that the market becomes a very ‘pale’ shade of green – where the lowest possible hurdle/standards have been used to determine “greenness” and the green market has minimal long-term impact but, in the short-run, only a high PR value
- Misuse of proceeds post issuance – the risk that the bond does not end up financing the types of products that it set out to at the point of issuance
- No explicit standards—without standards, the “greenness” of projects can justifiably be contested as different people have different views as to what is green and what is not: nuclear energy or carbon capture
- Regulatory risks – Will Greenwashing potentially incite regulatory concern? Especially, if green fraud begins to translate into pricing advantages.

Questions

