

Presentation to the
New York State Federation
2018 Conference

**GREEN BONDS FOR
SOLID WASTE PROJECTS**

Richard N. McCarthy, President



May 21, 2018

Introduction to Green Bonds

An increasingly popular instrument for financing environmentally beneficial projects is the “green bond”.

According to Bloomberg New Era Finance, the worldwide volume of issuance has grown dramatically from \$14.8 billion in 2013 to \$163.0 billion in 2017.

The Climate Bonds Initiative puts 2017 volume at \$155.5 billion.

Green bond issuance backed off in Q1 of 2018 by 34%.

Green bonds have been issued all over the world and in the United States.

Used for everything from traditional green projects, such as water and sewer projects, to projects specifically targeted to reduce global warming (sometimes called climate change bonds).

What are Green Bonds?

No national or international organization or agency is the final arbiter of what a green bond is.

A “green bond” is a bond that its issuer says is “green”.

Companies and organizations have proposed definitions and criteria for green bonds, as well as processes for issuing and monitoring them in the future.

- World Bank
- Investor Network on Climate Change
- International Capital Markets Association
- Climate Bonds Initiative
- Moody’s Investors Service
- Standard & Poor’s

What are Green Bonds?

I. World Bank Definition

- Original issuer of green bonds
- Issued the first green bond in 2008
- Issued \$10.05 billion of green bonds for 130 projects

A green bond is “a debt security that is issued to raise capital specifically to support climate related or environmental projects.”

II. Investor Network on Climate Change (“INCC”)

- Has a similar definition
- Adds concept of transparency to its definition

III. International Capital Markets Association (“ICMA”)

- Association of very large global banks whose mission is to promote resilient and well-functioning international debt capital markets.
- Defines green bonds as “any type of bond instrument where the proceeds will be exclusively applied to finance or refinance eligible Green Projects”.

What Are Green Bonds?

- In 2014, the ICMA published a set of Green Bonds Principles, which it has updated several times.
 1. Green Bond Principles “promote integrity in the green bonds market through guidelines that recommend transparency, disclosure and reporting before and after issuance”.
 2. Has four core components, including:
 - Use of proceeds
 - Process for project evaluation and selection
 - Management of proceeds and
 - Reporting.
 3. Ten types of projects, including:
 - Climate change,
 - Natural resource depletion,
 - Loss of biodiversity and
 - Air, water and soil pollution
 4. Specific projects relevant here include:
 - Pollution prevention and control including greenhouse gas control, waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy
 - Waste water treatment
 - Sustainable water and wastewater management

What are Green Bonds?

IV. The Climate Bond Initiative (“CBI”) is a self-described international, investor focused not-for-profit

Developed the Climate Bond Standard and Certification Scheme (“CBSCS”) as “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.”

The CBSCS provides a process for identifying and reporting on:

- Qualifying projects
- Demonstrating internal processes and controls to assure bond proceeds are spent for qualifying project costs and
- Providing post issuance reporting at least annually on the expenditure of proceeds

What are Green Bonds?

CBSCS sets forth types of projects and well defined criteria to qualify.

The CBI has developed specific criteria for:

1. Solar
2. Wind
3. Water
4. Low carbon buildings
5. Low carbon transport and
6. Geothermal

It is working on additional sets of criteria in additional categories.

The CBSCS is focused on mitigation of **climate change**.

Includes requirement for **independent third party certification** of compliance with the CBSCS

What are Green Bonds?

V. Moody's Investors Service

Recently began providing green bond assessments to bond issuers.

Moody's defines green bonds as "fixed income securities, both taxable and tax-exempt, that raise capital for use in financing or refinancing projects and/or activities with specific climate or environmentally sustainable purposes".

Provides an evaluation of the bond issuer's management, administration, allocation of proceeds to and reporting of environmental projects financed with the proceeds of the green bonds.

Green bonds are scored in five key areas, including:

- Organization,
- Use of proceeds,
- Disclosure on the use of proceeds,
- Management of proceeds and
- Ongoing reporting and disclosure

What are Green Bonds?

Purpose is to enable potential investors to judge the relative likelihood that bond proceeds will be used for environmentally beneficial projects as designated by the issuer.

The Green Bond Assessment ranges from Green Bonds 1, or excellent, to Green Bonds 5, or poor.

Moody's references the Green Bonds Principles as a frequently used guide for what kind of projects may be financed with green bonds.

What are Green Bonds?

VI. Standard and Poor's Green Bond Evaluation

Also recently began providing green bond evaluations to bond issuers.

Aligned with green bond principles

Provides a second opinion

Provides a relative green impact score

They use a somewhat complicated process to evaluate transparency, governance, mitigation or adaptability

Current projects evaluated are :

- Green energy, transportation and buildings

- Energy efficiency

- Fossil fuel power plant projects that decrease carbon intensity

- Nuclear power

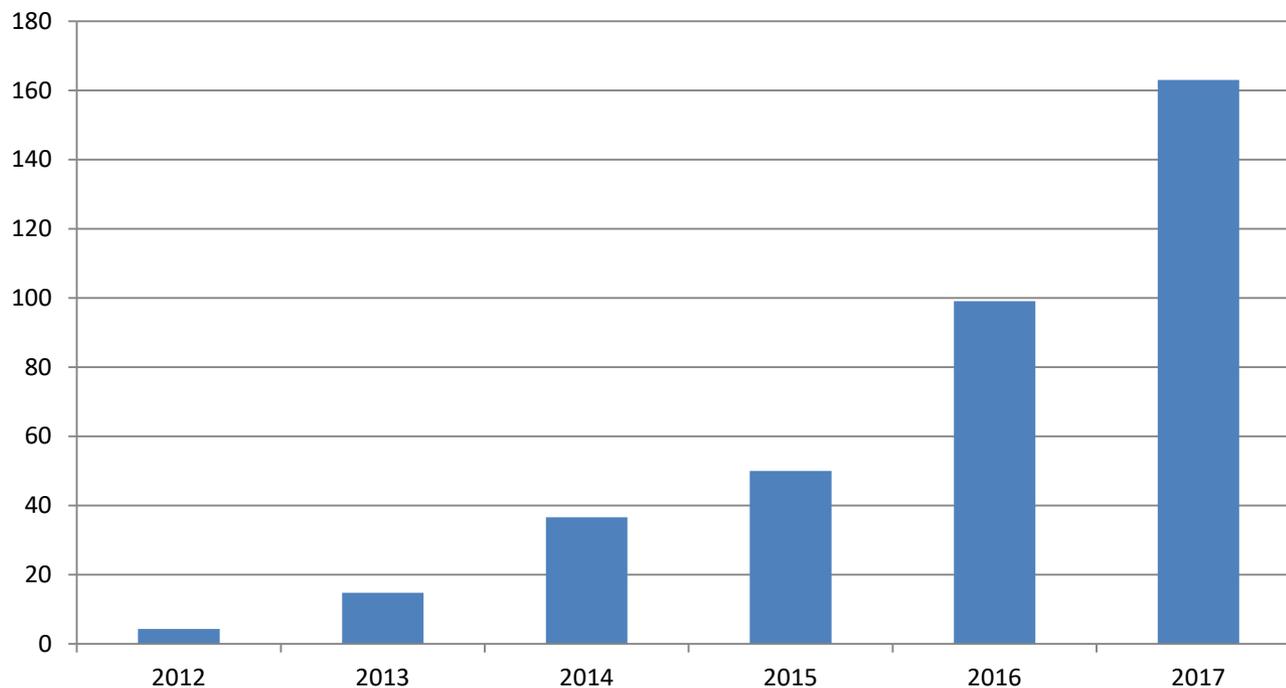
- Water

Size of the Green Bond Market

The green bond market has expanded rapidly. The following chart from Bloomberg New Energy Finance shows the rapid expansion of the green bond market.

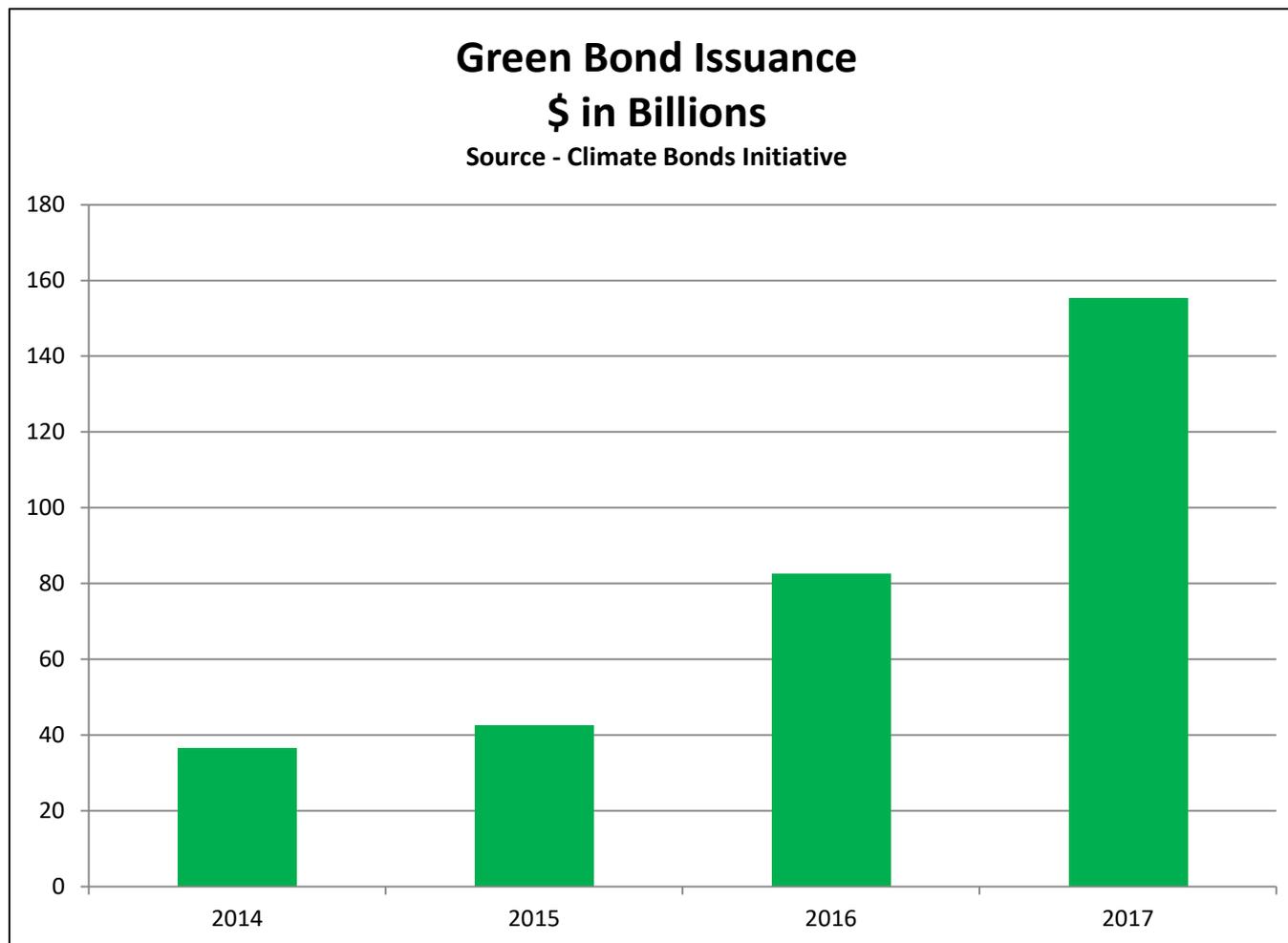
Green Bond Issuance \$ in Billions

Source - Bloomberg New Energy Finance



Size of the Green Bond Market

By contrast, the Climate Bond Initiative provides the following amounts of issuance:

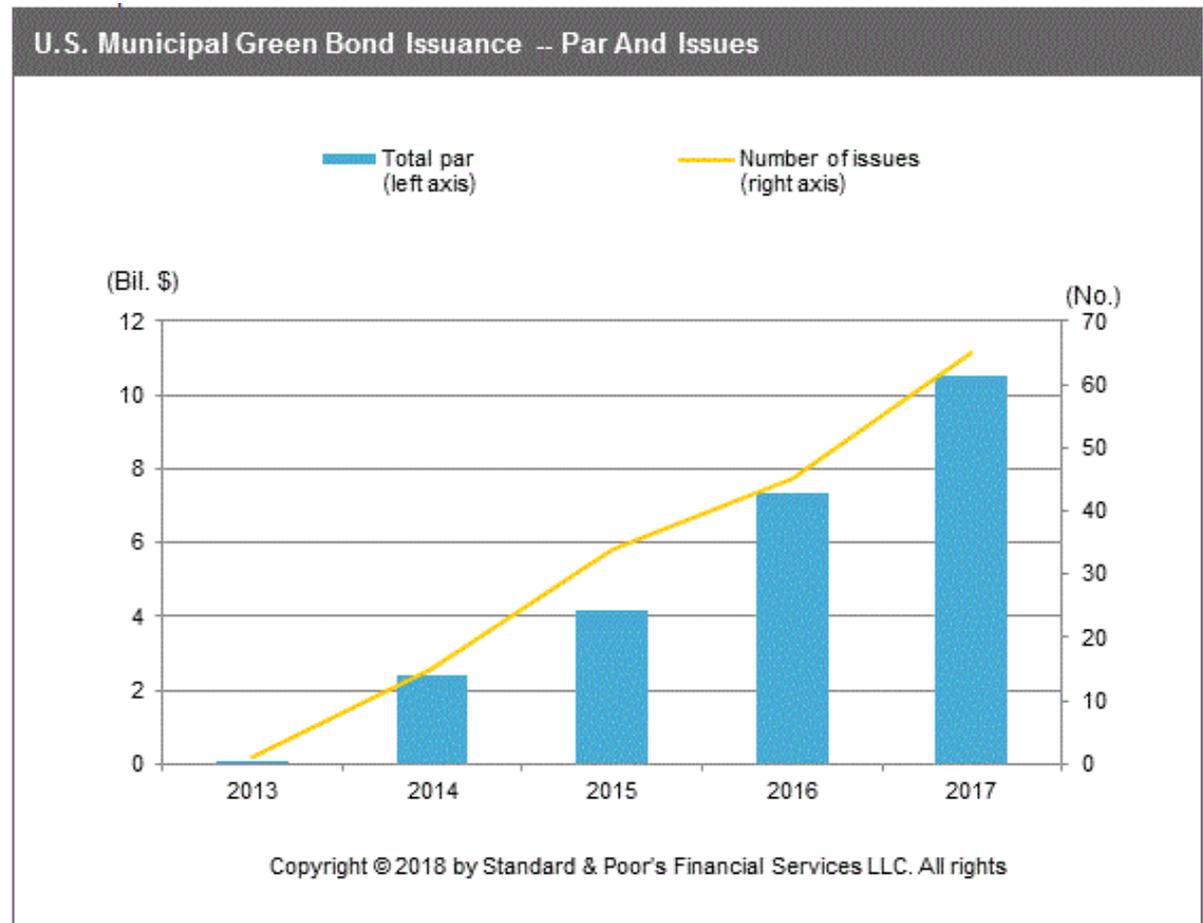


Who has issued Green Bonds?

- U.S. municipal issuers
- Sovereign governments
- Non-U.S. cities and provinces
- U.S. and non-U.S. government agencies
- State backed entities
- International development banks
- Corporations and commercial banks

U.S. Municipal Green Bonds Issuance

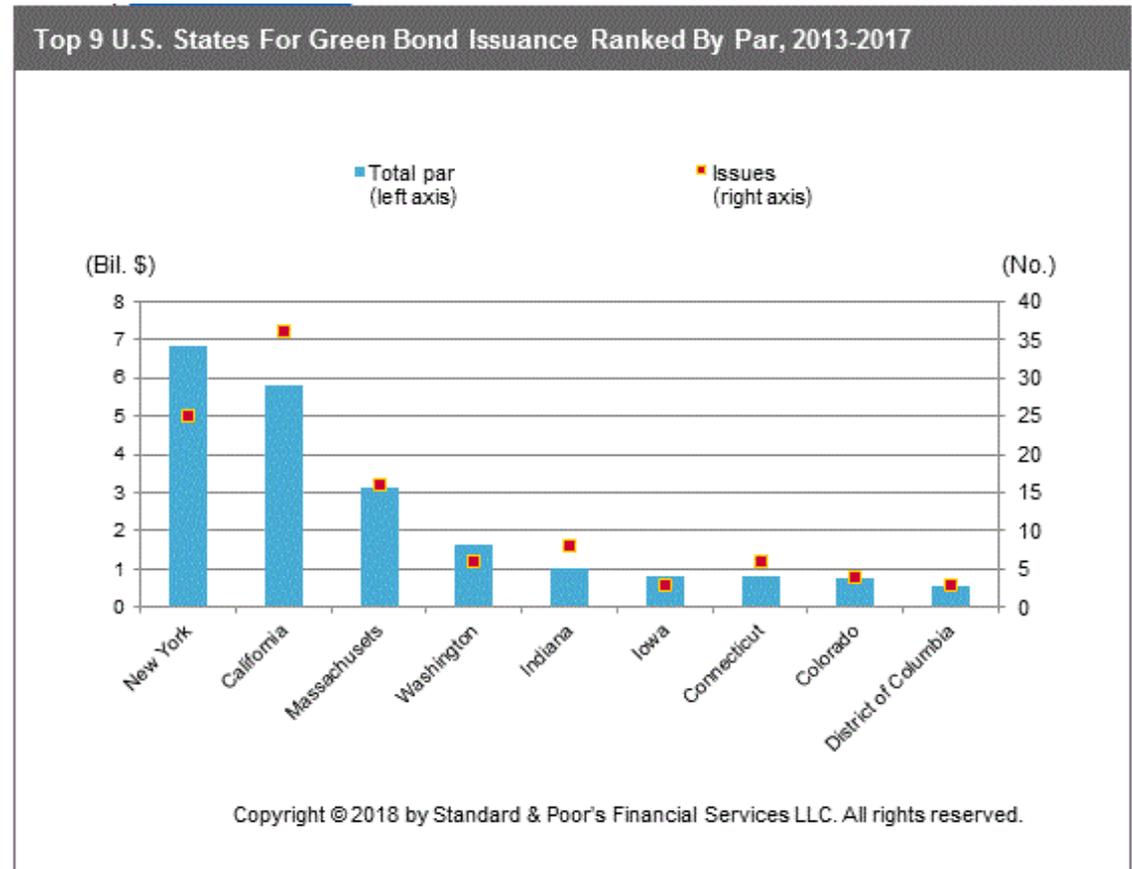
- U.S. tax-exempt green bond issuance has also grown rapidly from \$100 million in 2013 to \$6.685 billion in 2016 to \$10.4 billion in 2017.
- Between 2013 and 2017, 88 separate U.S. tax-exempt issuers had issued \$25.4 billion of green bonds¹



¹ Moody's Investor Service

U.S. Municipal Green Bonds Issuance

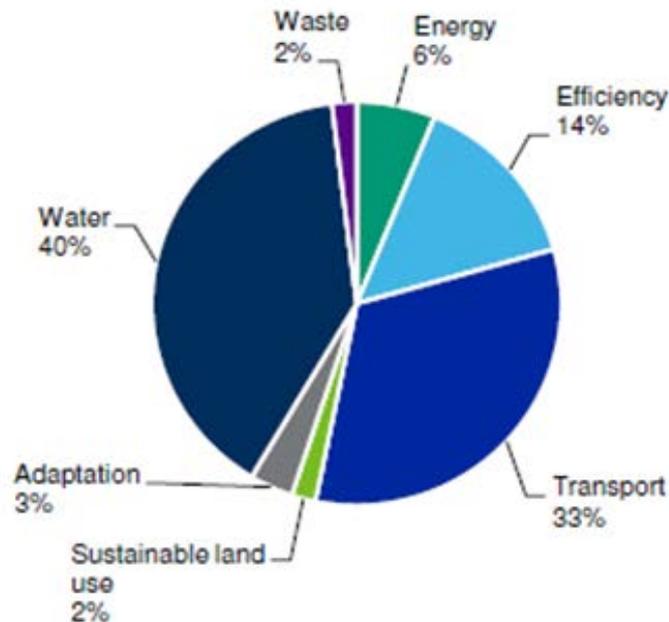
- New York, California, and Massachusetts accounted for \$16.43 billion in issuance.
- New York State alone accounted for \$6.76 billion in issuance. MTA, EFC, and NYSHFA accounted for almost all of that.
- U.S. municipal issuers include states, counties, municipalities, school districts, colleges and universities and various agencies and authorities, such as water and sewer agencies



U.S. Municipal Green Bonds Issuance

- U.S. Issuance is dominated by Water and Transport

Percent of green bond proceeds by project type, 2013-2017



Use of proceeds categories provided by Climate Bonds Initiative

For purposes of this analysis, where there are multiple eligible projects financed by a single green bond, proceeds are split equally across the project types

Sources: Climate Bonds Initiative, Municipal Securities Rulemaking Board's Electronic Municipal Market Access, Moody's Investors Service, DAC Bond

Solid Waste and Green Bonds

- EMMA (the Electronic Municipal Market Access), the repository of almost all municipal public financing documents shows 8 bond issues that were labeled as “Green Bonds” and issued for solid waste purposes

- The use of proceeds included:
 1. Compressed natural gas truck fleets and equipment,
 2. Recycling center upgrades,
 3. Resource recovery facilities
 4. Energy from MSW – reengineered feed stock

Benefits of Green Bonds

1. Reputational or branding benefits
2. A demonstration of the issuer's commitment to environmental improvement and efforts to reduce global warming
3. Call attention to the environmentally beneficial projects being financed
4. Possible financial benefits
 - The jury is still out.
 - Possibly more and new investors
 - Growing number of investment funds specifically dedicated to green and socially responsible investing, so that this would seem reasonable
 - It has not been demonstrated that green bonds price better than non-green bonds (that is, sell at lower interest rates for otherwise comparable bonds)

Benefits of Green Bonds

- CBI issued a report in November 2017 entitled green bonds “Pricing in the Primary Market April-June 2017” (the international bond market) in which they find some evidence of advantageous comparative interest rates, but nothing conclusive.
- HSBC Global Research published a report in September 2017 entitled “Global Green Bonds – Value or Vanity”.
 - i. Report concludes that “there is little evidence that green bonds price tighter (have lower interest rates) than non-green bonds in primary” market.
 - ii. They also found that “there is mounting evidence that some green bonds trade inside non-green bonds in the secondary market” in the developed market (that is at lower comparative interest rates than non-green bonds when compared to recognized interest rate benchmarks).
- Little evidence that demonstrates that green bonds price differently than comparable non-green bonds in the U.S. tax-exempt market.

Costs of Green Bonds

1. There are very few costs of issuing green bonds, especially if the issuer self-certifies its bonds as green bonds.
2. For issuers that desire to use one of the green bonds processes described earlier, the largest cost is the time and attention required of management.
3. Time must be taken to understand and adopt a process and then to follow it.
4. If the issuer desires third party review and certification, there will be the cost of the report provided.
5. For larger issues, those costs do not seem onerous.

Summary

- Green bonds are an increasingly popular vehicle for raising funds for environmentally beneficial projects.
- Green bonds have been used for a wide variety of international and domestic projects that combat climate change and for projects with other more traditional environmental benefits.
- The market has grown dramatically.
- Many issuers and observers see green bonds as providing benefits, such as a heightened focus on and awareness of the environmental good produced by green bond projects and their issuers.
- While investors seem enthusiastic about green bonds, this has not yet manifested itself in an interest rate advantage for green bonds over traditional bonds.
- However, the green bond market is still young and subject to new developments.

Questions?

Richard N. McCarthy, President

E-mail: Rmccarthy@encapllc.com

Telephone: (212) 302-4227