



GREAT LAKES IMPACT INVESTMENT PLATFORM

Prosperity by nature.



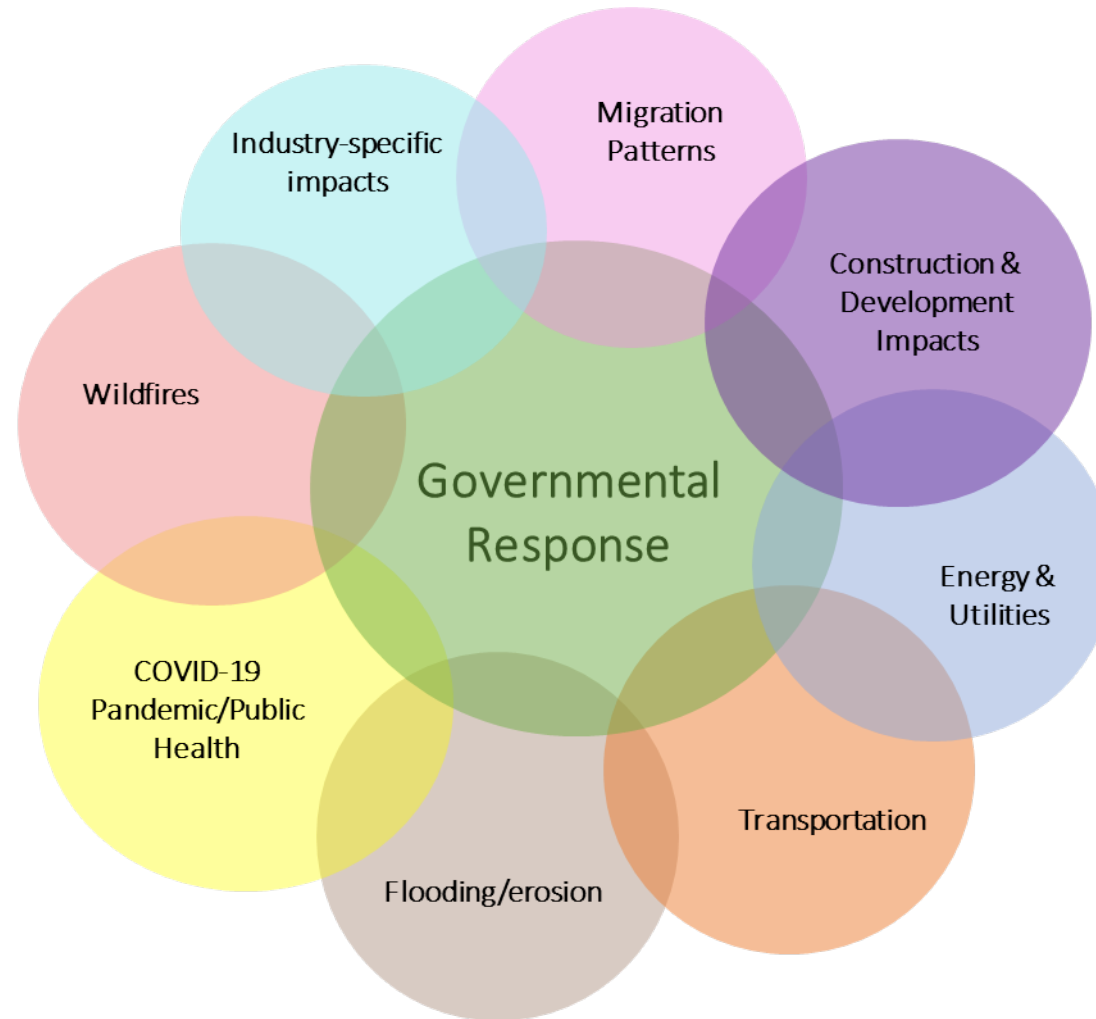
GREEN BONDS – THE UNIQUE OPPORTUNITY FOR UTILITIES, GOVERNMENTS AND CORPORATIONS IN THE GREAT LAKES ST. LAWRENCE REGION

Christine Reynolds – Partner, Orrick, Herrington & Sutcliffe LLP

May 14, 2021

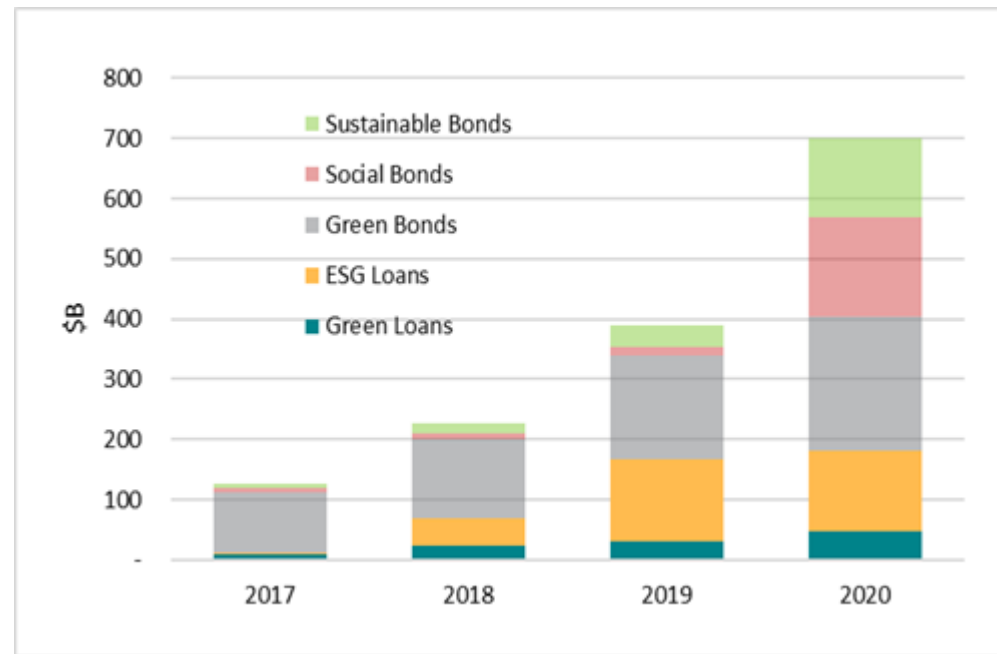


Everything is Connected – Capital Planning & ESG Considerations



Global Market for Green & ESG Lending

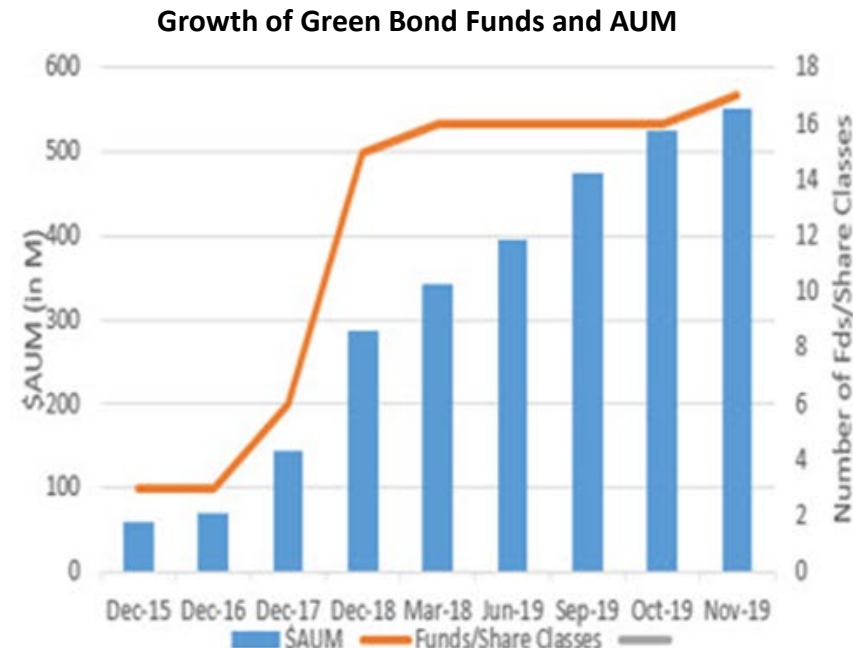
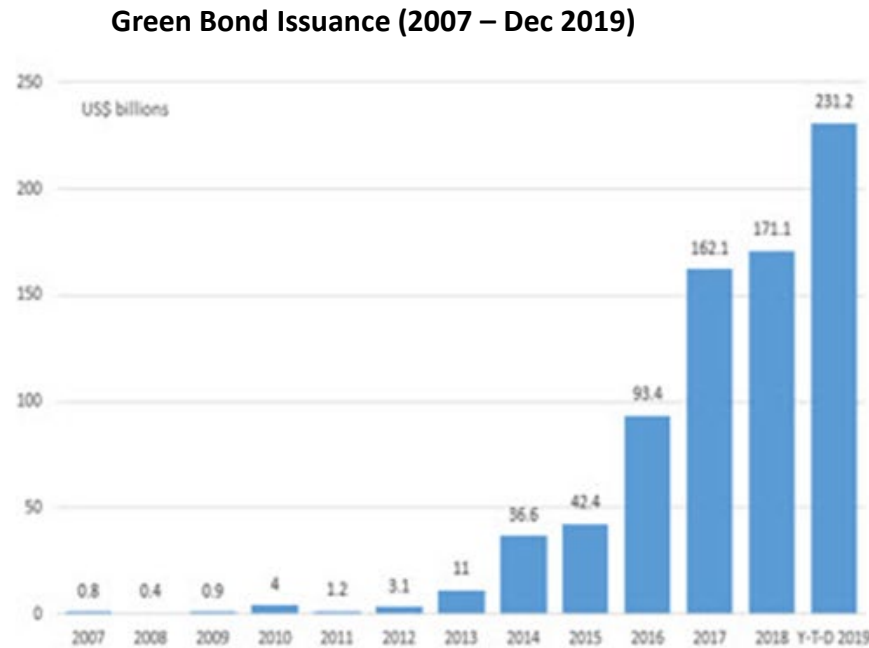
- 2020 Global Green & ESG Lending Jumps 80% to US\$701B



Source: The Loan Syndications & Trading Association

Municipal Market and Green Bonds

- The \$3.7 trillion municipal bond market - which attracts investors with its high credit quality and unique tax advantages relative to other bonds - provides an unparalleled opportunity for green investments.
- Impact investing is increasing in the U.S. municipal markets and the growth of green bonds and green bond funds continues to rise.



Municipal Market and Green Bonds (continued)

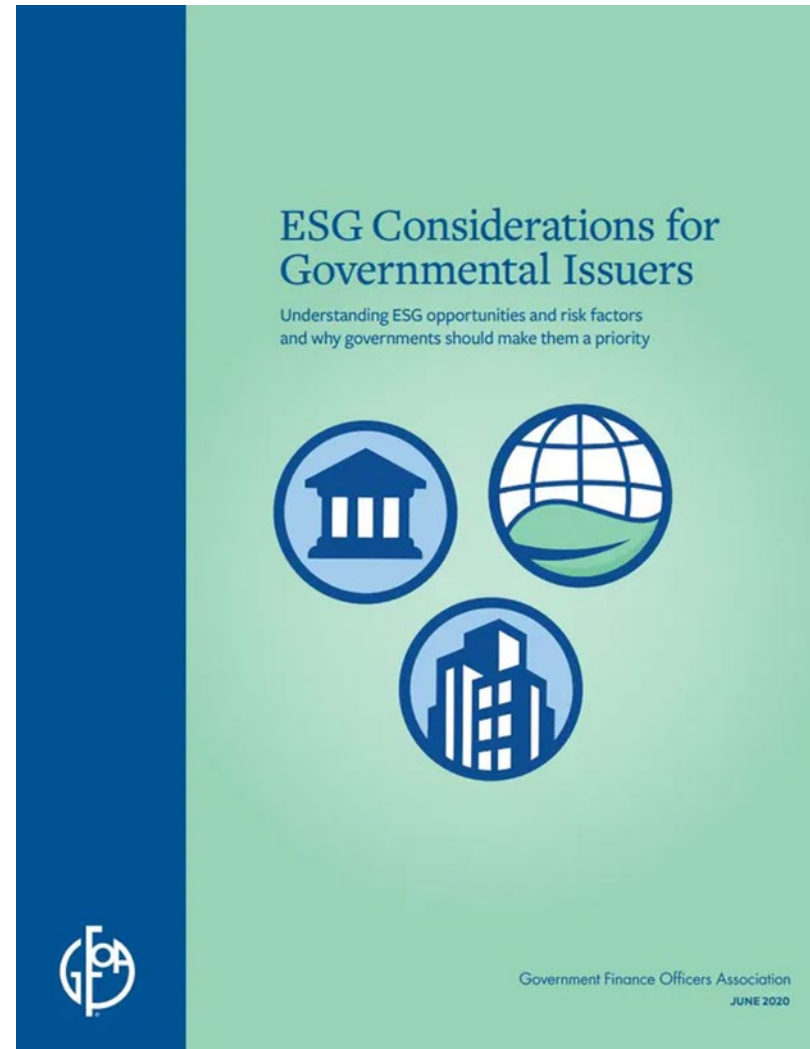
- U.S. municipal green-labeled debt is expected to be an increasingly larger share of the municipal market this year, from 3.4% of total municipal issuance in 2020 to 4.1% in 2021.*
- For the total sustainable debt market, S&P Global Ratings believes it is possible that issuance could surpass \$30 billion for 2021. As the municipal sustainable debt market diversifies, it remains mostly concentrated, with the top 10 issuers accounting for 65% of green labeled debt issued in 2020. Including*:



* Source: S&P Global Ratings

GFOA – ESG Considerations for Governmental Issuers –

White Paper issued in June 2020: [ESG Considerations for Governmental Issuers \(gfoa.org\)](https://www.gfoa.org/esg-considerations-for-governmental-issuers)



GFOA – ESG Considerations

- What is ESG Investing? Measures the sustainability and societal impact of an investment in a company
- **Environment**
 - Climate change policies, plans, and disclosures
 - Greenhouse gas emissions goals, and transparency about meeting goals
 - Carbon footprint and carbon intensity
- **Social**
 - Human rights policies, plans, and disclosures
 - Employee treatment, pay, benefits
 - Diversity and inclusion in hiring and advancement
 - Ethical supply chain sourcing
- **Governance**
 - Compensation tied to metrics that drive long-term business value
 - Executive compensation, bonuses, and perks
 - Diversity of board of directors and management team

Bond Issuance and ESG Considerations

- ESG considerations are an increasing concern for securities offerings
- Private sector companies and municipal issuers are shifting their perspective about the role capital plays in our society
- US Securities & Exchange Commission – Establishment of Climate and ESG Task Force in the Division of Enforcement (Corporate)
- Growing focus of numerous financial institutions and institutional investors
- Ongoing compliance requirements, due diligence and transaction considerations, and investor needs

Bond Structure/Disclosure



Project
Evaluation/Selection



Use/Management of
Proceeds



Reporting



Self-Designation



Second Party Opinion



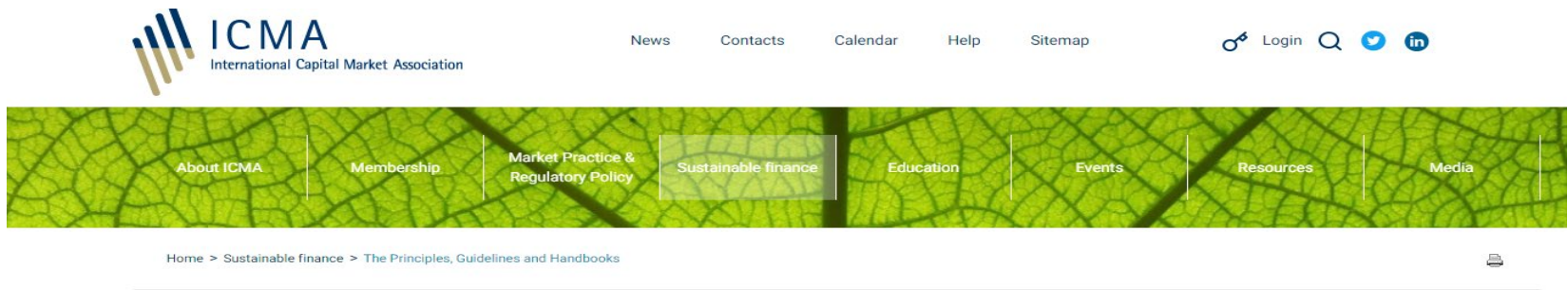
Ongoing Monitoring

Approaches to Issuing "Labeled" Bonds

- Borrowers and issuers can choose to self-designate the bonds as "green" or "sustainable" (or other designations) or engage an "Approved Verifier" to provide an opinion that the bonds conform with established guidelines
 - Self-designation
 - Disclosure must include a description of how the proposed project meets the four GBPs.
 - Second party opinion by an "Approved Verifier"
 - Certain Investors may require opinion to portfolio the bond as a green bond
 - Logo of Approved Verifier on cover; opinion issued and delivered before POS and attached as an exhibit to the POS and OS
 - Approved Verifier provides independent verification that bonds conform with agreed upon set of guidelines such as ICMA Green Bond Principles or the United Nations Sustainable Development Goals
 - Assistance with preparing prepare post-issuance reports on the use of bond proceeds

ICMA's Framework for "Labeled" Bonds

- The International Capital Market Association (ICMA) has established a variety of principles, guidelines and handbooks related to "labeled" bonds, including:



The Principles, Guidelines and Handbooks

➤ Green Bond Principles (GBP)	➤ Climate Transition Finance Handbook
➤ Social Bond Principles (SBP)	➤ Guidance Handbook and Q&A
➤ Sustainability Bond Guidelines (SBG)	➤ Mapping to the Sustainable Development Goals
➤ Sustainability-Linked Bond Principles (SLBP)	

Applying the ICMA Green Bonds Framework

- There are many approaches for a municipal issuer to use if it chooses to use a designation, such as "green" bonds for its offering.
- The ICMA's Green Bond Principles (GBPs) provide a commonly referenced framework for some of the key components and considerations for the issuance of green bonds, including:
 1. Use of proceeds
 2. Process for project evaluation and selection
 3. Management of proceeds
 4. Reporting

Use of Proceeds Considerations

- Green Projects contribute to environmental objectives such as:
 - Climate change mitigation
 - Climate change adaptation
 - Natural resource conservation
 - Biodiversity conservation
 - Pollution prevention and control

Project Evaluation and Selection

- Issuers need to clearly communicate to investors:
 - Environmental sustainability objectives
 - The process by which the issuer determines how the projects fit within the eligible green project categories
 - Related eligibility criteria, including, if applicable, exclusion criteria or other processes to identify and manage potentially material environmental and social risks associated with the project

Management of Proceeds

- A high level of transparency is encouraged
- Issuer's can choose to structure bond issue to include third party oversight, including:
 - Management/expenditure of proceeds reviewed by an auditor or other third party
 - Independent verification of tracking method and allocation of funds from the green bonds to "qualified" projects

Reporting

- Develop and maintain readily available up-to-date information about the use of proceeds
- Annual information disclosure until full allocation/expenditure of proceeds
- Timely disclosure of material developments
- Annual report about allocation of Green Bond Proceeds including:
 - List and Brief Description of Projects
 - Amount of Green Bond Proceeds Allocated
 - Expected Impact

Advantages of Bond Designation

- Increasing recommendations from underwriters and financial advisors
- Reluctance to quantifying the benefits of using a bond designation such as "green" or "sustainable" in terms of pricing results/basis points
 - More designated bonds = More data to prove out financial benefit
- Intangible benefits for designating bonds as "green" or "sustainable"
 - Widen Distribution
 - Attract Market Interest
 - Generate Positive Public Benefits



Green Bonds: A Unique Opportunity for Utilities, Municipalities and Corporations in the Great Lakes St. Lawrence Region

Peter Adriaens, PhD BCEEM NAE*

Professor of Engineering, Finance and Entrepreneurship

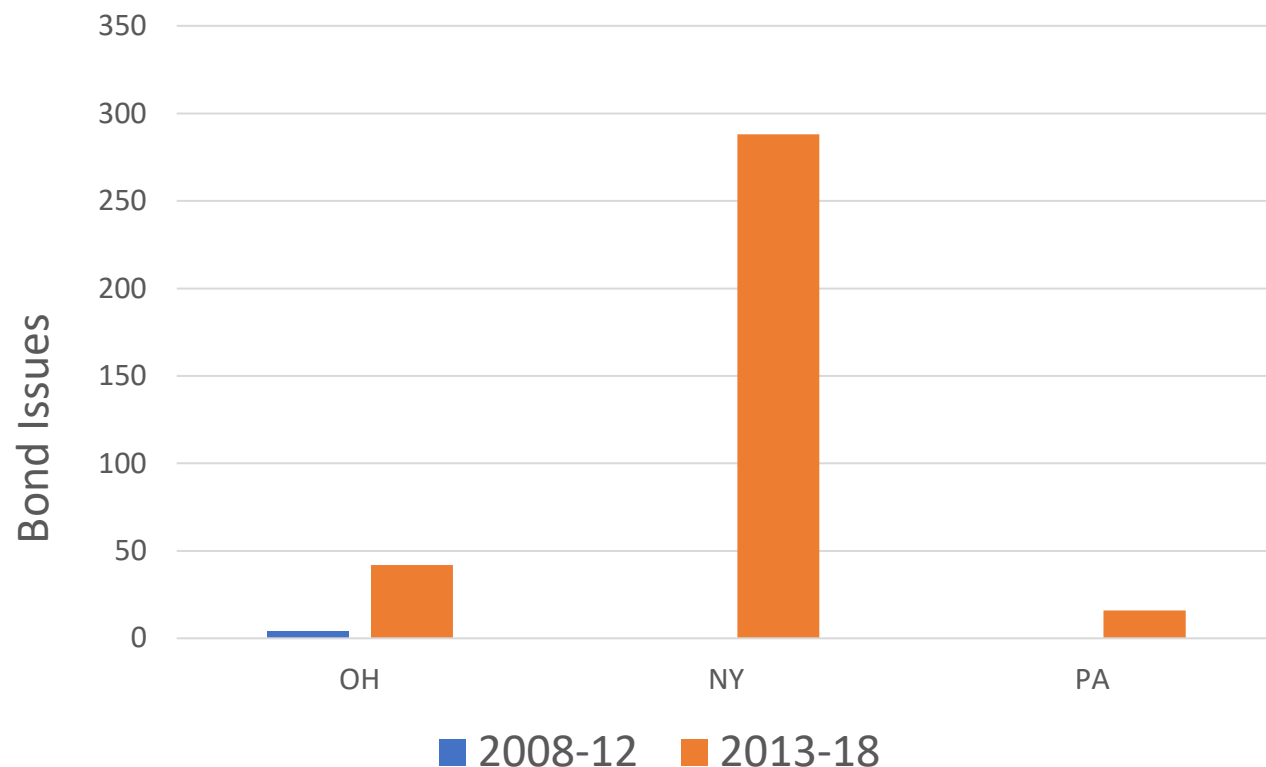
Director, Center for Smart Infrastructure Finance

Civil and Environmental Engineering, School for Environment and
Sustainability, Ross School of Business

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*Royal Academy of Science and the Arts (Belgium)

Green Bond Universe in the Great Lakes St. Lawrence Region (2008-18)

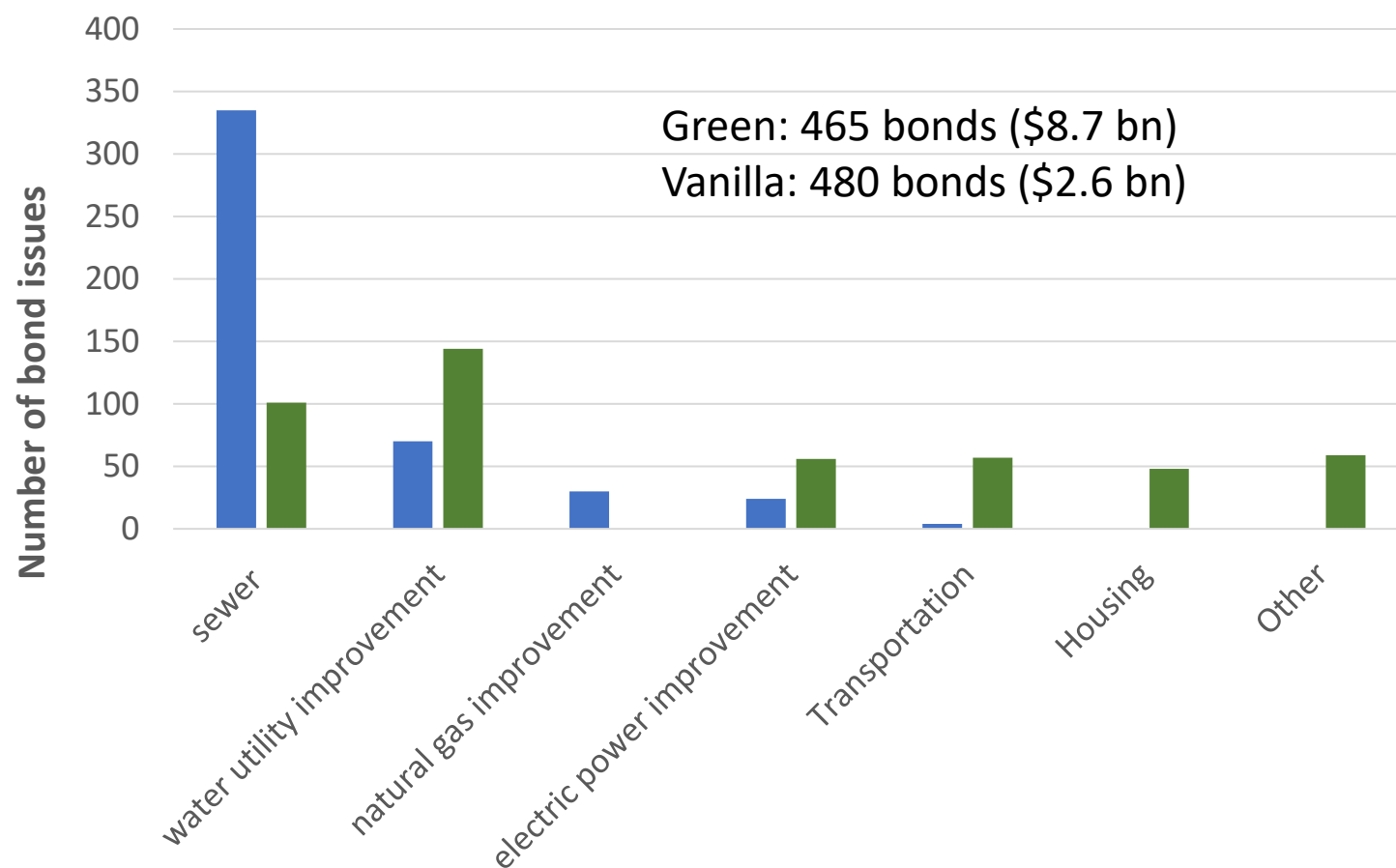


Total bond value: \$14 bn
Green bond value: \$ 6.2 bn (44%)

Total bonds: 1,772
Green bonds: 350 (33 unique)

Issuing State/Dominant Use of Proceeds:
NY: Transportation and multifamily housing
PA: Recreational facilities
OH: Municipal power

Growth in the Green Bond Universe in the Great Lakes St. Lawrence Region (2019-20)



In 2 years, there is a **25%** increase in number of green bond issues compared to 2008-18

Total green bond amount in 2 years is **40%** higher than green bond amount issued over previous 10 years

The total value of green bonds issued is **3.3x** that of vanilla bonds

US Green Bond Issuers and Use of Proceeds (2019-20)

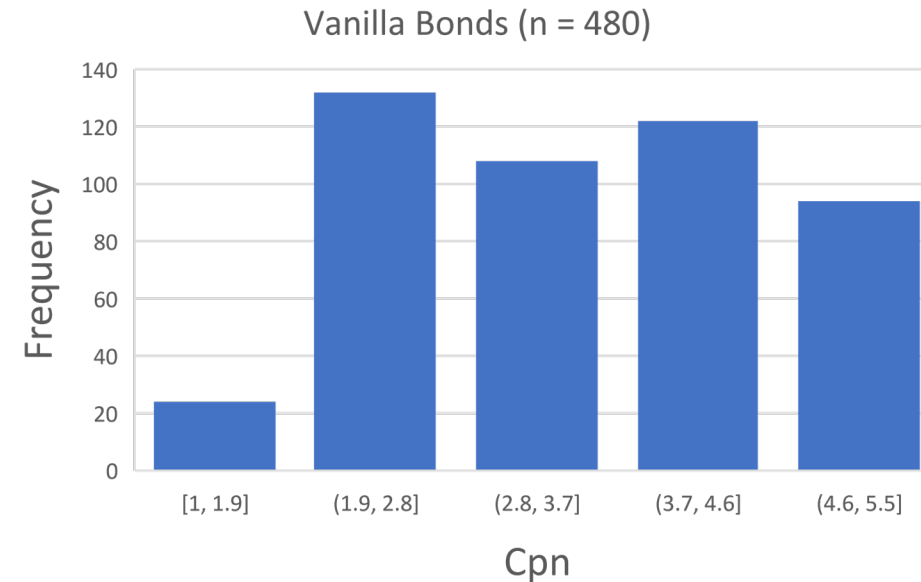
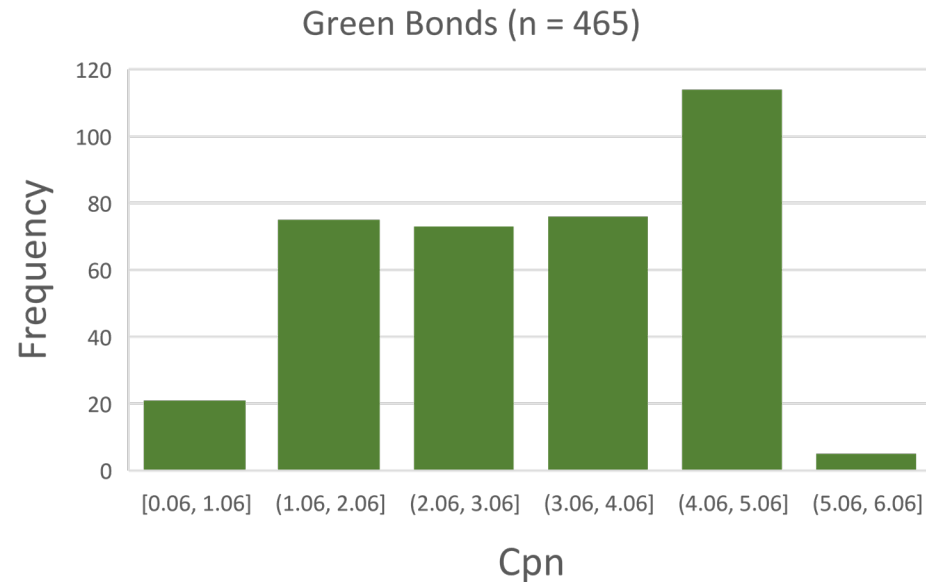
State	# of Issues	Amount	Dominant use of proceeds
New York	125	\$ 6,672,950,000.00	Transportation & Housing
Ohio	106	\$ 877,935,000.00	Water & power
Illinois	68	\$ 767,065,000.00	Water
Pennsylvania	166	\$ 202,370,000.00	Water & Sewerage
Total	465	\$ 8,721,365,000.00	

New: Water utilities
New: Illinois

Source. Bloomberg

Use of Proceeds	# Issues
IL	34
GREEN PURPOSE SWAP TERMINATION	1
GREEN PURPOSE ECONOMIC & WATER UTILITY IMPS	1
GREEN PURPOSE SEWER & WATER UTILITY IMPS.	32
NY	124
CURRENT REFUNDING GREEN PURPOSE	4
GREEN PURPOSE UNIV. & COLLEGE IMPS.	1
ELEC. LT. & PWR. IMPTS. GREEN PURPOSE	5
GREEN PURPOSE CURRENT REFUNDING	8
GREEN PURPOSE LOCAL MULTI-FAMILY HOUSING	21
GREEN PURPOSE LOCAL MULTI-FAMILY HOUSING	28
GREEN PURPOSE REFUNDING BONDS	1
GREEN PURPOSE REFUNDING NOTES	39
GREEN PURPOSE REFUNDING NOTES TRANSIT IMPS.	5
GREEN PURPOSE TRANSIT IMPS.	8
OH	60
CURRENT REFUNDING GREEN PURPOSE	8
ELEC. LT. & PWR. IMPTS. GREEN PURPOSE	20
GREEN PURPOSE ADVANCE REFUNDING	17
GREEN PURPOSE SEWER & WATER UTILITY IMPS.	15
PA	149
ADVANCE REFUNDING GREEN PURPOSE	10
ADVANCE REFUNDING GREEN PURPOSE	22
CURRENT REFUNDING GREEN PURPOSE	66
CURRENT REFUNDING SEWER IMPS. GREEN	15
GREEN PURPOSE ADVANCE REFUNDING	15
GREEN PURPOSE REFUNDING BONDS WATER UTILITY.	15
GREEN PURPOSE SEWER IMPS.	6

Green vs Vanilla Bond Coupon at Origination



Green bonds weighted towards higher coupon rate at issuance

(Note: Different issuers and not necessarily same use of proceeds – qualitative comparison)

Green Bond/ESG Premium in Secondary Market?

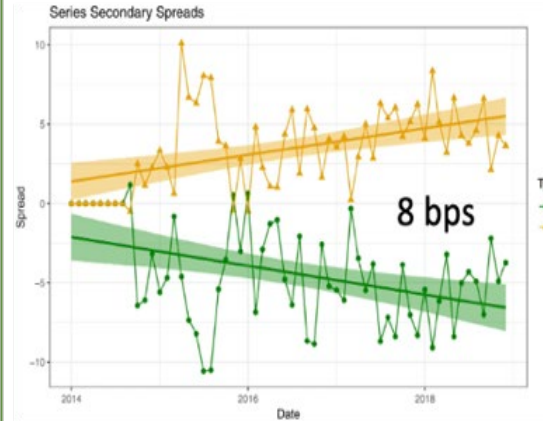
- Nationwide municipal and corporate (S&P 500) issues
- Metric: bond yield spread green vs vanilla
ESG rating of issuer
- Individual and combined effect using propensity score matching (causal inference data technique)
- Does premium in national issues show at regional scale? (not shown)

Green/Sustainable Label

ESG Score of Issuer

Municipal bond

Source: Partridge & Medda (2020)



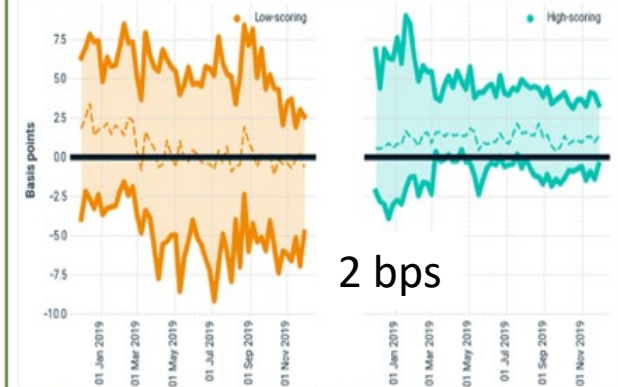
Our
current
Research

Yield spread of green (G)/low-high ESG score vs vanilla (V) bonds

Corporate bond



Source: MSCI RiskMetrics® (2020)



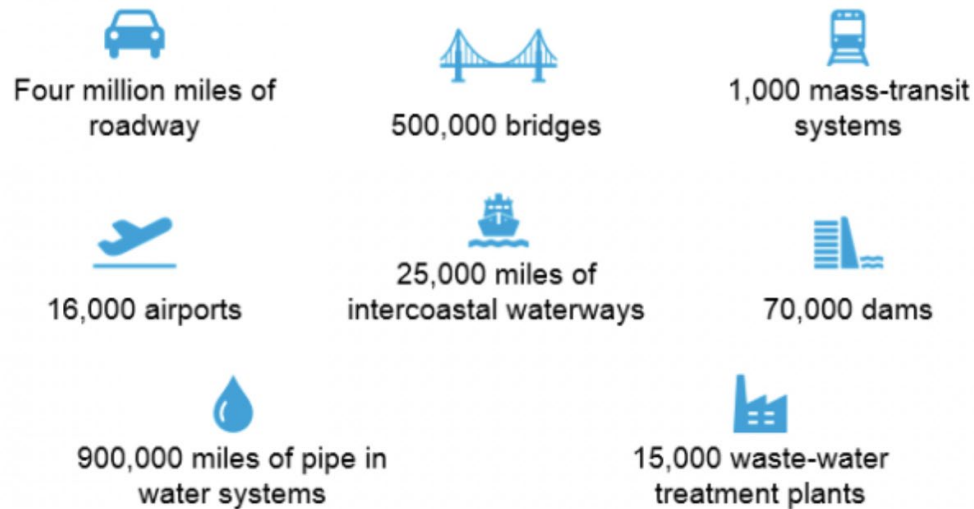
Source: MSCI RiskMetrics® (2020)

The Green Munibond Secondary Market: Nation-Wide Issues

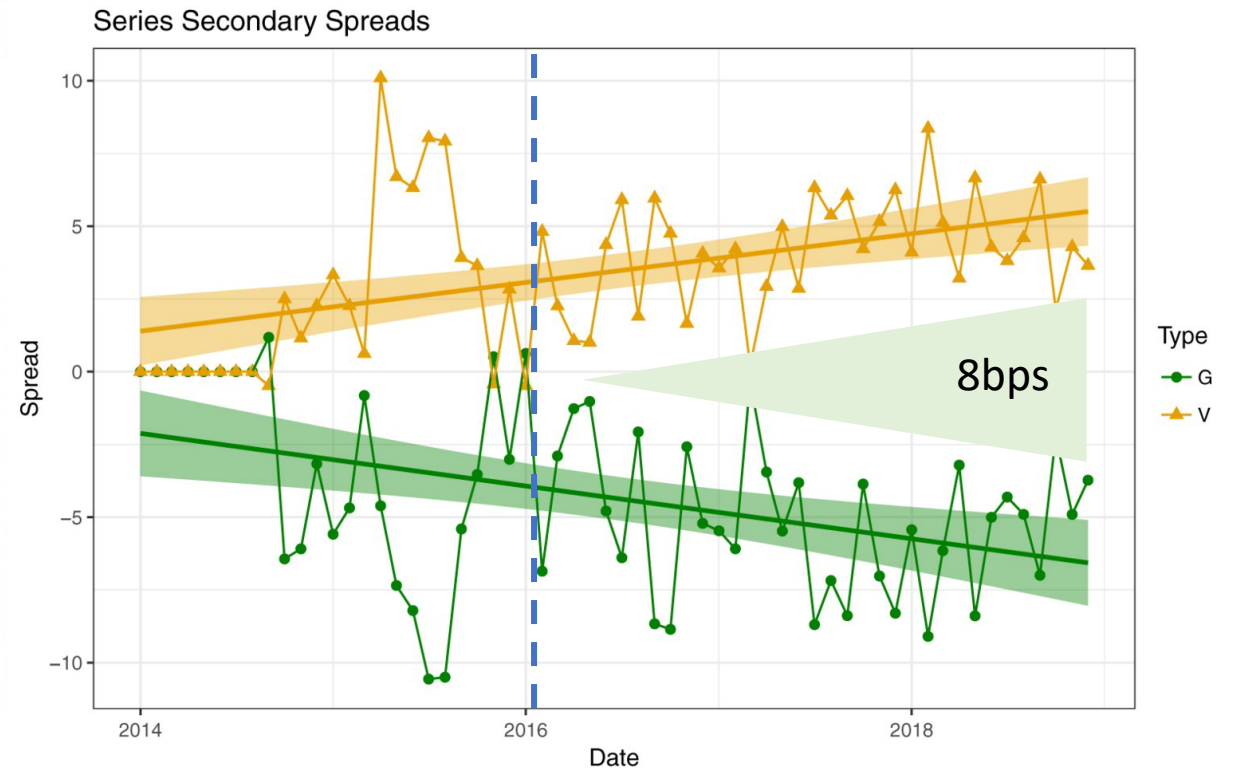
Munibonds, issued by cities, counties and states, finance a wide range of public infrastructures.

Yield spread difference since 2016, though results are not universal

Over time, municipal bonds have built:



Source: National League of Cities



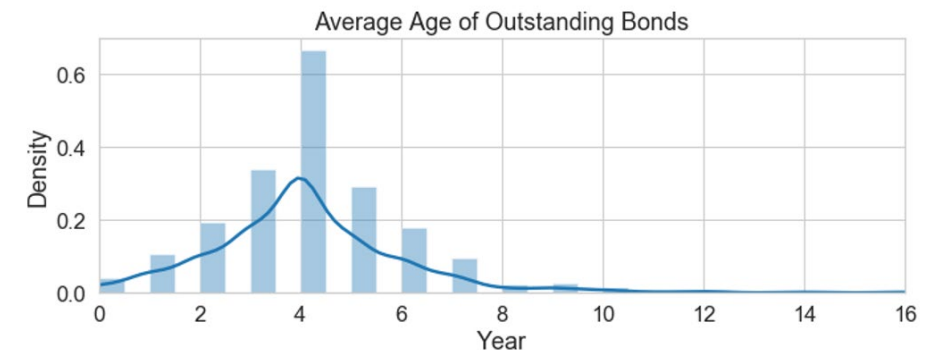
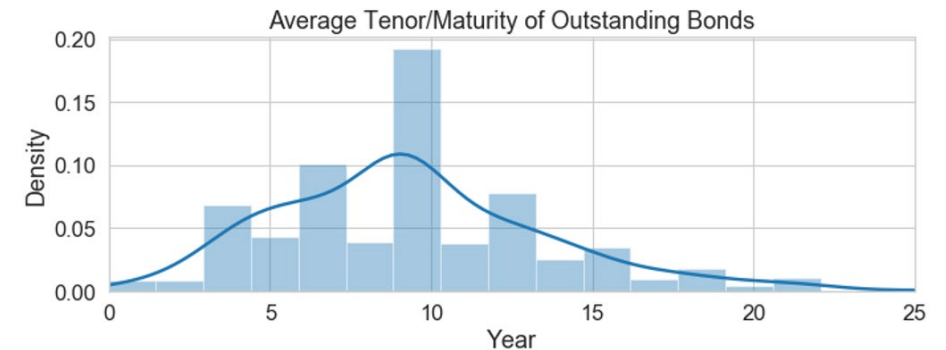
Partridge and Medda, 2020

Does Corporate ESG Score Impact the Yield Spread of Vanilla Bonds?

- Outstanding investment grade (BBB or higher) corporate bonds
- The distinction between issuers was binary (whether they disclosed their ESG risk)
- The sample universe: 505 bond issuers, of which 387 issuers disclose ESG metrics on Bloomberg.

•Utilities (28)	•Energy (25)
•Materials (28)	•Consumer Discretionary (61)
•Financials (65)	•Consumer Staples (32)
•Communication Services (26)	•Health Care (63)
•Information Technology (74)	•Real Estate (30)
•Industrials (73)	

Impact of ESG disclosure	bps
Primary	+11
Secondary	-10

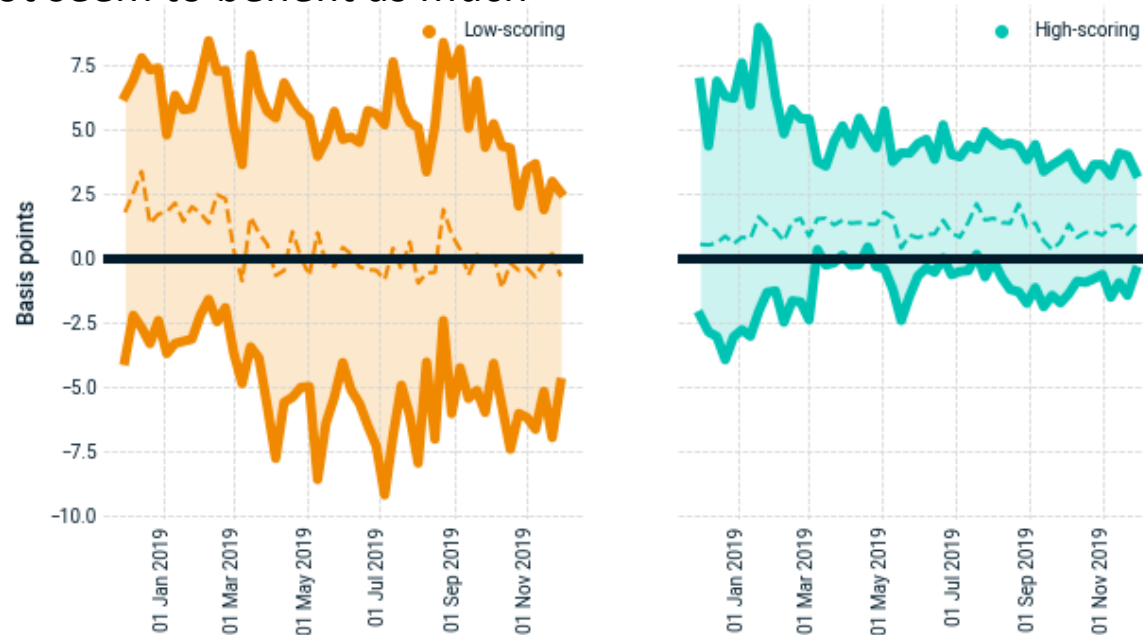


Combined Green Label and Corporate ESG Score Effect

The relationship between the greenness of a green bond and the issuer's environmental score is complex:

1. The greenness of a bond reflects the environmental quality of the project financed,
2. The issuer's ESG score measures long-term resilience in the context of environmental risks.

Only bonds of high-scoring issuers appear to demonstrate any consistent green-bond yield difference, while those of low-scoring issuers did not seem to benefit as much



Future. MuniBond Yield Spread in Relation to ESG Risk

We are working with Nuveen, a TIAA investor, 3rd largest holder of munibonds (\$3.8 trn outstanding), to screen all muni bonds through ESG models **to compare yield spreads between quintiles and reprice bond risk**

→ Proprietary models, specific to thematic area of coverage

Michigan City

Credit rating (Moody's/S&P/Fitch)	Aa1/AA+/AA+
Population	1 MM
Full market value	\$166.5 B
Per capita income (as a % of the nation)	126.9%
Direct debt (as a % of full market value)	0.6%
Overall debt (as a % of full market value)	2.4%
General fund reserves (as a % of revenue)	34.7%
Days cash on hand	122

ESG Performance
Leader

Scored in the
top 14% of cities

Considerations include

- **Air pollution:** Better performance than 58% of cities of a similar size
- **Housing costs:** Better performance than 48% of all cities
- **Violent crime rate:** Better performance than 100% of cities of a similar size

Michigan City

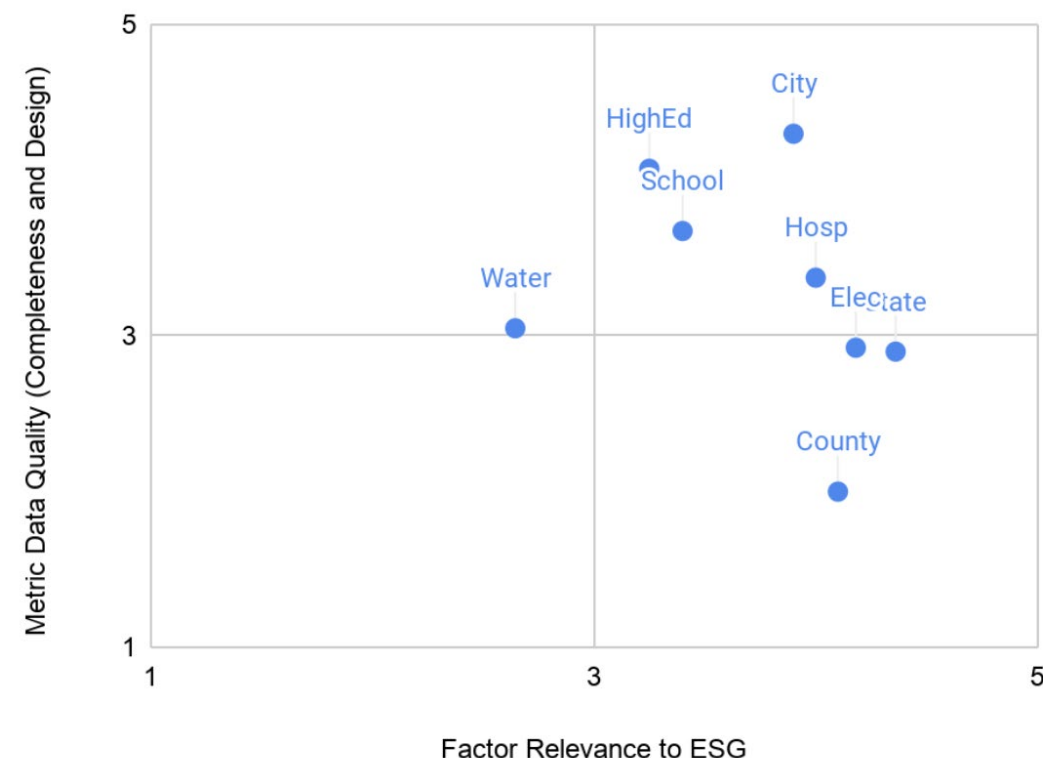
Credit rating (Moody's/S&P/Fitch)	Aa2/AA/AA-
Population	3.9 MM
Full market value	\$532.9 B
Per capita income (as a % of the nation)	100.2%
Direct debt (as a % of full market value)	0.5%
Overall debt (as a % of full market value)	2.9%
General fund reserves (as a % of revenue)	17.7%
Days cash on hand	86

ESG Performance
Laggard

Scored in the
bottom 26% of cities

Considerations include

- **Air pollution:** Better performance than 1% of cities of a similar size
- **Housing costs:** Better performance than 6% of all cities
- **Violent crime rate:** Better performance than 45% of cities of a similar size





Climate action for a
healthy, **equitable**,
prosperous **Toronto.**



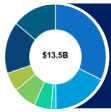
City of Toronto: Green Bond Program

Presentation for the Great Lakes Impact Investment Forum

May 14, 2021



Presentation Highlights



City of Toronto – Quick Introduction



What are Green Bonds?



Why Issue a Green Bond?



Green Bond Issuance Cycle



Green Bond Principles and Framework



Contact Information & Appendix

City of Toronto: An Innovative World-Class City



Climate action for a
healthy, **equitable**,
prosperous Toronto.



Largest City in Canada
4th Largest City in North America
Current Population: est. 3 million in 2020



\$44.7 Billion 2021 10-Year Capital Plan
\$14.0 Billion 2021 Operating Budget



#7 out of 140 ranked
Most Liveable Cities
The Economist (2019)



#10 out of 500 Cities
Most Innovative Cities in the World
Innovative Cities Index (2019)



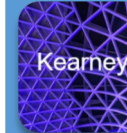
#1 out of 174 Cities
Urban Planning
IESE Cities in Motion Index 2019
(IESE Business School Barcelona)



#3 out of 70 N.A. Cities
2020 Transit Score Ranking
Walk Score, Seattle



#4 out of 50 Cities
Tech Talent Scorecard
CBRE Group, Inc. (2020)



#2 out of 131 Cities
Global Cities Outlook Index 2020
Kearney



Environmental Finance
Social Bond of The Year
Local Municipality
2021 Winner

Capital Borrowing Program

Legislative Safeguards for Investors (Ontario Municipal Act)

- City's debentures rank equally
- City annual budget must be sufficient to pay interest and sinking fund contributions to retire debt
- Annual budget must provide that estimated revenues are equal to estimated expenditures (Balanced Budget)
- Proceeds from the sale of a debenture issue cannot be applied towards the payment of current expenditures
- Debenture by-law cannot be repealed

Public Debt Issuance Program

- Build benchmark-sized offerings
 - re-open deals to enhance liquidity
- Terms of 10, 20 & 30 years Bullet maturity
- Annual contributions to the sinking funds are held in an investment fund for repayment of the original amount of the debt at maturity
 - Sinking Fund is approx. \$1.7B
- Typically 3-4 issues/year
- Conventional Bonds, Green Bonds & Social Bonds

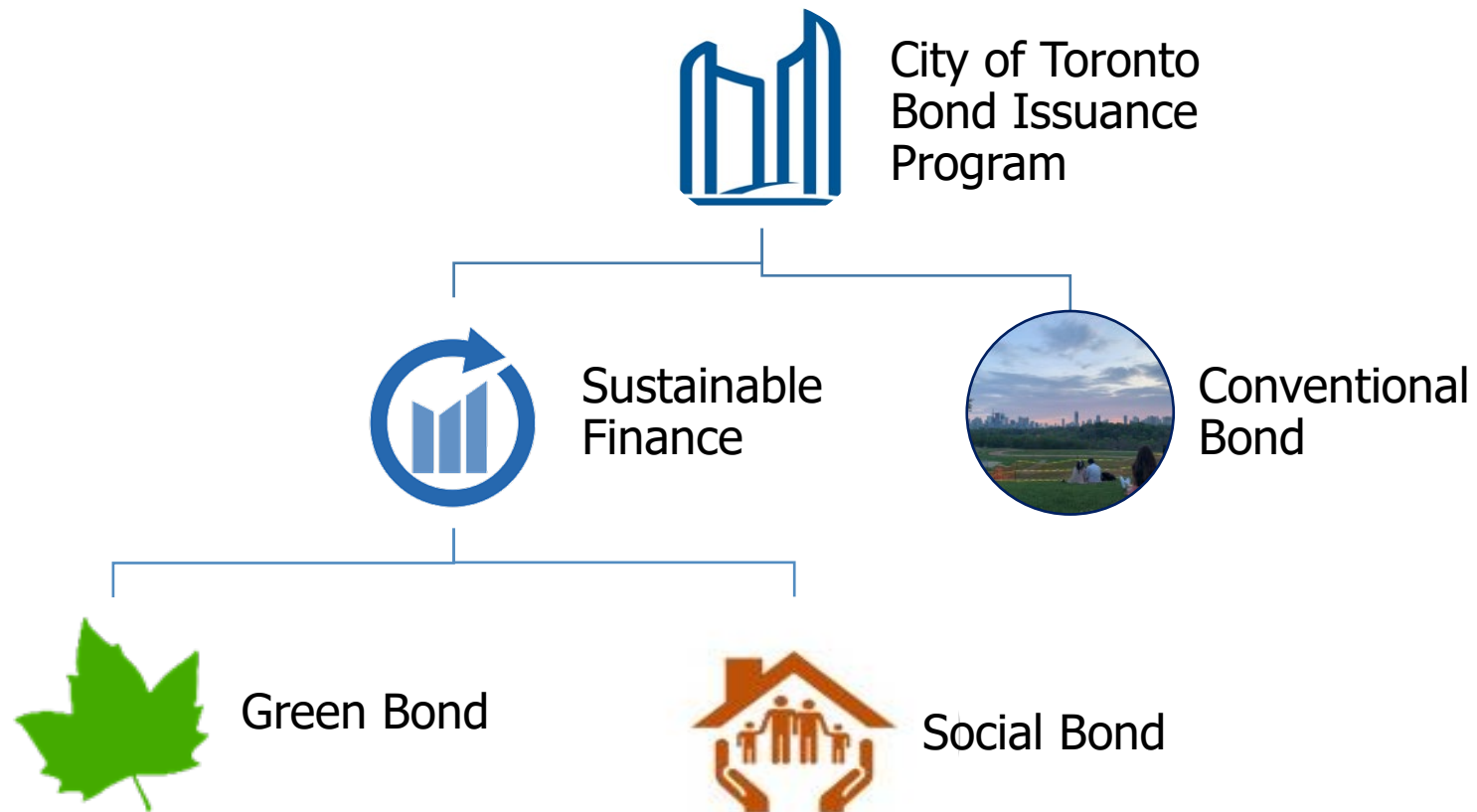


Toronto's Bond Issuance Program

(Currently \$1 Billion Annually)



Climate action for a
healthy, **equitable**,
prosperous Toronto.

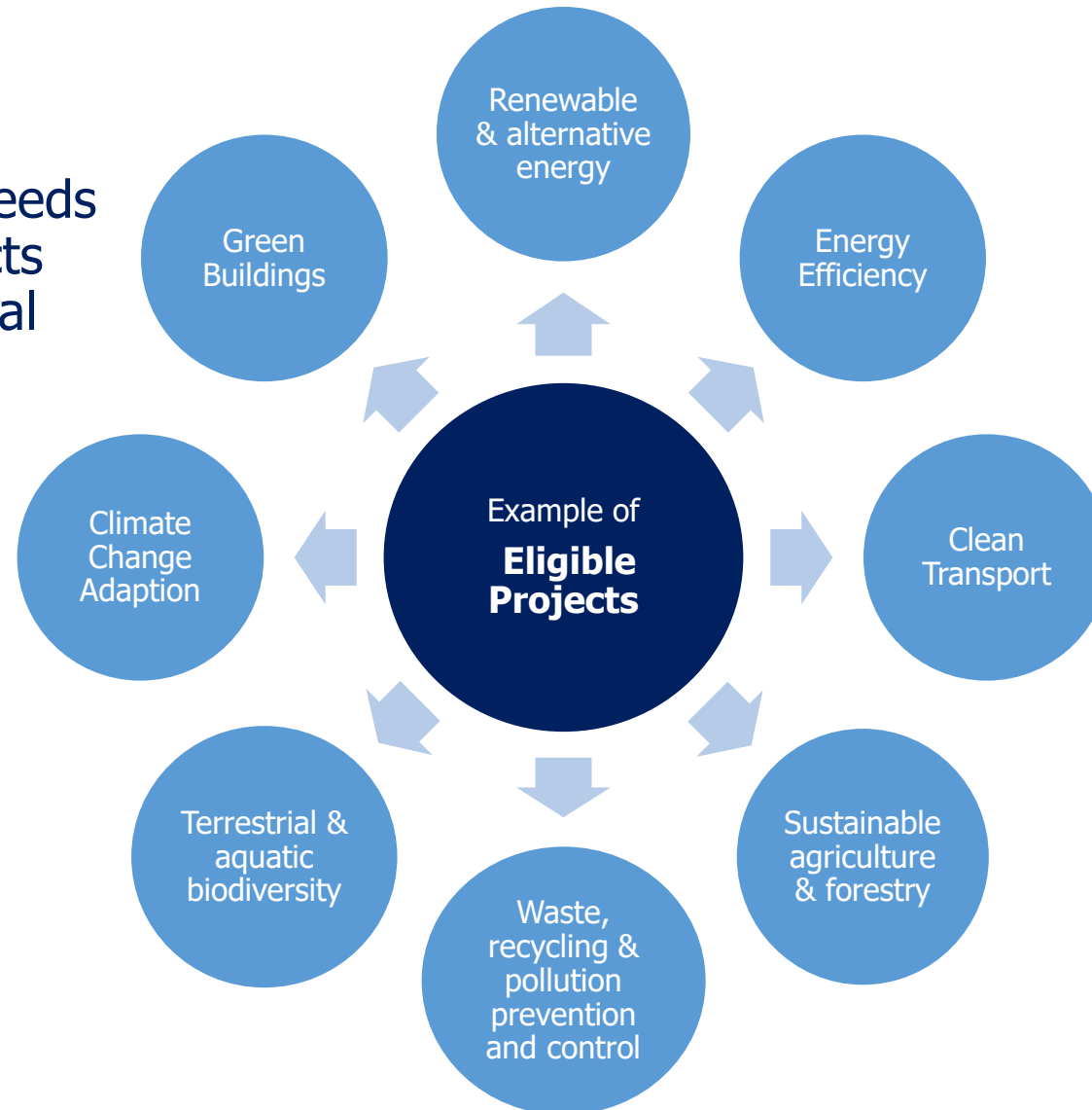




Financing Tool: Access the Capital Markets by Issuing Green Bonds

1) What are Green Bonds?

Green Bonds are debt securities where the proceeds are utilized to fund projects with specific environmental benefits.



2) Types of Green Bonds

Type	Description (Proceeds & Debt re-course)
Green "Use of Proceeds" Bond	<ul style="list-style-type: none">• Proceeds are earmarked for green projects• Bonds rank pari passu with other offerings by the issuer• Full re-course to the issuer• Format used by the majority of Green Bonds
Green "Use of Proceeds" Revenue Bond	<ul style="list-style-type: none">• Proceeds are earmarked for green projects• Revenue streams (taxes, tolls) are used as collateral
Green Project Bond	<ul style="list-style-type: none">• Proceeds are ring-fenced for a specific green project• Recourse is limited to project's assets and balance sheet
Green Securitized Bond	<ul style="list-style-type: none">• Proceeds are dedicated to specific green securitization project(s)• Recourse is a group of projects

3) Why Issue a Green Bond?

Robust Green Bonds
Market
(Demand > Supply)

- Shift towards socially responsible investing
- Green Bond issuance was up significantly in 2018
- Financing cost used to be flat as “non-green”. Now averages about 1 bps benefit due to higher net demand.

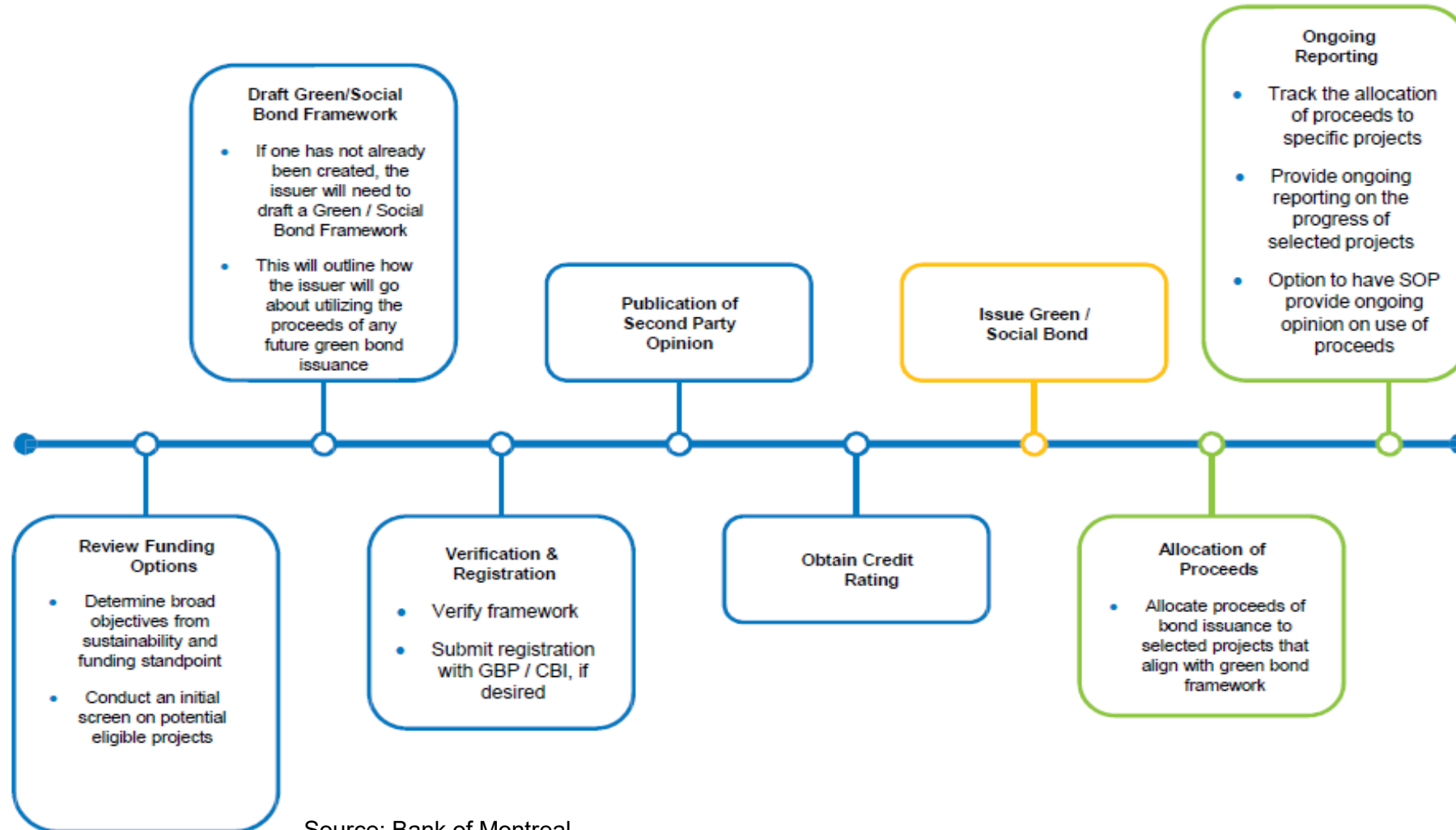
Diversify Investor Base

- Cater to both “traditional” and “green” investors
- Development of Green Bond indices
- Higher quality of investors

Alignment to Corporate
Sustainability Strategy &
Positive Environmental
Impact

- High profile demonstration of corporate strategy through a Green Bond issuance
- Committing funds raised by the Green Bond to environmental causes

4) Green Bond Lifecycle



Source: Bank of Montreal

5) Types of External Review

External Reviewers: An institution with environmental expertise & independent from the issuer

1. Second Party Opinion:

- Normally assess the framework alignment with the Green Bond Principles
- E.g. Sustainalytics, Oekom, CICERO, Vigeo

2. Verification

- Verify selected criteria with internal/external standards or issuer's claims
- E.g. Vigeo, KPMG, Oekom

3. Certification

- Certify its Green Bond or framework or Use of Proceeds against a recognized external green standard
- E.g. Sustainalytics, KPMG, Oekom

4. Green Bond Scoring/Rating

- Score its Green Bond, Green Bond framework or key feature
- E.g. S&P, Moody's, Oekom, CICERO



City of Toronto's Green Bond Program

City of Toronto's Green Bond Program

- Toronto started a Green Bond Program to support the city's capital projects starting in 2018.
- It is part of the City's overall capital borrowing program.
- Toronto is the second municipality to establish a Green Bond Program in Canada.
- Same financial and legal characteristics of other City Bonds (General Obligation) but net proceeds will be used to fund projects supporting City's environmental sustainability strategies.

*“The City of Toronto Green debenture is credible and impactful,
and aligns with the four pillars of the Green Bond Principals 2017”*

- Sustainalytics

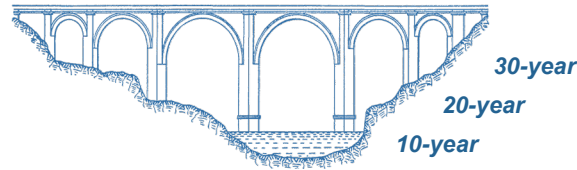
Toronto's Approach to Sustainable Finance

①



**Alignment to City's
Strategic Plan**

②



**Alignment of Useful
Life, Debt Term, and
Lookback Period**

③



**Generates
Measurable Impact**

Toronto's Sustainable Bond Program



Green Bond Framework

Use of Proceeds:

- Renewable energy production and distribution
- Energy efficiency
- Pollution prevention and control and utilizing waste as a resource
- Sustainable clean transportation
- Sustainable water and wastewater management
- Climate change adaptation and resilience
- Eco-efficient and/or circular economy principles integration
- Green buildings

Impact Reporting: • Annual Newsletter

2nd Party Opinion:  SUSTAINALYTICS



Social Bond Framework

Use of Proceeds:

- Affordable and Social Housing
- Affordable Basic Infrastructure
- Access to Essential Services
- Socioeconomic Advancement & Empowerment

Impact Reporting: • Annual Newsletter

2nd Party Opinion:  SUSTAINALYTICS

City of Toronto's Bond Issuance Program

How Toronto's Debt Issuance Program aligns with the Corporate Strategic Plan

Capital Projects – Corporate Strategic Plan



Maintain and Create Housing that's Affordable

- Capital projects that reduce GHG emission e.g. energy retrofits



Keep Toronto Moving

- Capital projects that reduce GHG emission e.g. subway



Invest in People and Neighborhoods

- Capital projects that reduce GHG emission e.g. green roofs



Tackle Climate Change and Build Resilience



Maintain a well-run City

Debenture Type		
Green	Social	Conventional
	✓	✓
✓		
	✓	✓
✓		
	✓	✓
✓		
		✓
✓		
✓	✓	✓

City of Toronto's Green Bond Program

- In 2018, Toronto issued a \$300 million (CAD) Green Bond through a syndicate of Canadian investment dealers.
- The issue was over-subscribed with orders from 36 investors.
- The issuance price was slightly less than the City's typical non-green issue (slightly lower cost of borrowing).
- Green Bond Market:

(Source: Bank of Montreal)	USD Markets (bp)	EUR Markets (bp)	City of Toronto (bp)
Average premium	1.2	1.0	1.0

- Bp = 1 basis point = one one hundredth of a percent (1/100 %)
- Also known as the "Greenium"

City of Toronto's Green Bond Framework

The Framework aligns with the four pillars of the Green Bond Principles (ICMA):



1. Use of Proceeds – Project Eligibility Criteria



2. Project Evaluation and Selection Process



3. Management of Proceeds



4. Reporting

Green Bond Framework



Assurances

- *"Toronto's Framework is credible and impactful, and aligns with the four pillars of the Green Bond Principles."*
- Sustainalytics

Management of Proceeds

- Majority of capital projects funded by bond proceeds have been completed or are substantially complete
- Bond proceeds will be applied directly to project to repay temporary funding for the project
- Debenture by-law includes schedule listing capital projects to be financed by the bond proceeds

Selection Process of Eligible Projects

- Corporate Finance Division selects eligible projects in consultation with internal and external expert stakeholders.
- Environment & Energy Division verifies eligibility.
- Eligible projects must be included in the council-approved capital budgets and verified by external legal firm

Eligible Projects

- Renewable energy production and distribution
- Energy efficiency
- Pollution prevention and control and utilizing waste as a resource
- Sustainable clean transportation
- Sustainable water and wastewater management
- Climate change adaptation and resilience
- Eco-efficient and/or circular economy principles integration
- Green buildings

Impact Reporting

- Annual newsletter to address both funding allocation and sustainability impact reporting

City of Toronto's Green Bond Framework

Eligible project categories include, without limitation:

**Eligibility
Criteria:**

Renewable energy (excl hydropower > 25MW and nuclear power)

Energy efficiency

Pollution prevention & control and utilizing waste as a resource

Sustainable clean transportation

Sustainable water and waste water management

Climate change adaption and resilience

Eco-efficient and/or circular economy principles integration

Green buildings

Project Evaluation and Selection

Selection Process of Eligible Projects:

- Capital Markets Division (CMD) responsible for selection of eligible projects in consultation with internal and external expert stakeholders
- CMD to verify suitability and eligibility in collaboration with the Environment & Energy Division
- Eligible projects must be included in the council-approved capital budgets and authority verified by external legal firm

Management of Proceeds

Management of Proceeds:

- Majority of capital projects funded by bond proceeds have been completed or are substantially completed
- Bond proceeds applied directly to project to repay temporary funding for the project
- Bond **by-law** includes schedule listing capital projects to be financed by the debenture
- In the rare cases, where substantial completion is yet to meet, funds will be held in a City account and tracked to ensure future allocation to the designated projects in compliance to the debenture by-law.

Toronto publishes an annual newsletter on its website to address both funding allocation and sustainability impact reporting including:

- Bond by-laws outlining the specific projects and amounts funded by green debentures;
- Summary of the City's green bond program developments including existing and future projects
- Updates with respect to distribution of unspent bond proceeds
- Project updates and status reports for Eligible Projects, when possible
- Key Performance Indicators on projected environmental benefits

Learn more about the City of Toronto, please visit [Investor Relations – City of Toronto](#)

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Appendix:

City of Toronto's Latest Green Bond Issue (December 2020)



Green Bond Program: 2020 Issue

2020 Deal Structure:

- CAD\$130M of a reopening of 20-year Green Bond maturing in September 2039
 - Total outstanding: \$330M (post deal)
- Priced in the context of the existing City of Toronto domestic debenture yield curve
- Welcome participation from both “green” and “non-green” investors.
- Book build process for issuance with RBC acting as Lead and BMO, CIBC and NBF sharing exempt list coverage as Joint-Leads.
- Emphasis on secondary market making by including participation of 7 major dealers in Toronto’s domestic underwriting syndicate

Key Features and History:

- City commenced a Green Bond Program in 2018
 - ❖ 2018: 30 year, \$300M debt issuance
 - ❖ 2019: 20 year, \$200M debt issuance
 - ❖ Plan to be a regular issuer of Green bonds
- Same financial and legal characteristics of other City bonds
- Green bonds rank equally with all other bonds issued by the City
- Positive second party opinion from Sustainalytics

TransformTO Goals: Climate Action for a Healthy, Equitable & Prosperous Toronto

Homes and buildings

- By 2030, all new buildings will be built to produce near-zero GHG emissions.
- By 2050, all existing buildings will have been retrofitted to achieve net-zero emissions.

Energy

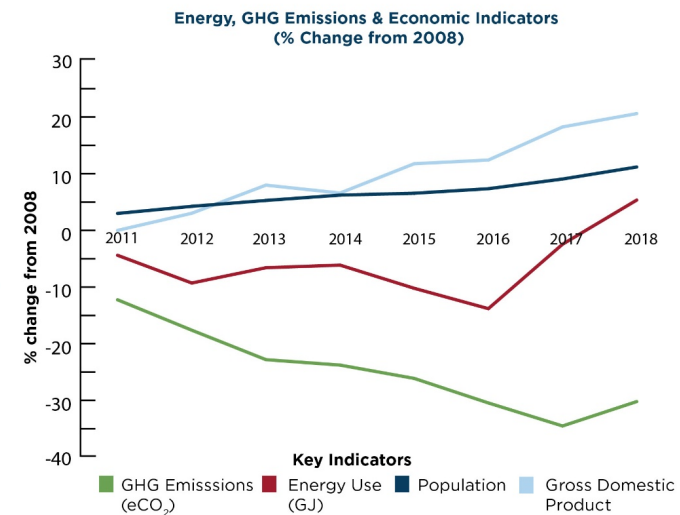
- By 2050, at least 30% of total floor space across Toronto will be connected to low-carbon heating and cooling energy.

Transportation

- By 2050, 100% of vehicles in Toronto will use low-carbon energy; 75% of trips under 5 km will be walked or cycled.

Waste

- By 2050, 95% of waste will be diverted from landfill; and we will have advanced towards a zero waste circular economy.



Eligible Projects

Three projects have been selected and received funding from Toronto's green bond offering in December 2020. These projects cover four eligible categories



Sustainable Clean Transportation

- Toronto Transit Commission (TTC) track maintenance and repair



Energy Efficiency

- Toronto Community Housing Corporation (TCHC) State of Good Repair



Climate Change Adaptation and Resilience

- Port Lands Flood Protection

Eligible Categories	2018 Issuance	2019 Issuance	2020 Issuance
Sustainable Clean Transportation	✓	✓	✓
Renewable Energy		✓	
Energy Efficiency		✓	✓
Pollution Prevention and Using Waste as a Resource			
Sustainable Water and Wastewater Management			
Climate Change Adaptation and Resilience		✓	✓
Eco-efficient and/or Circular Economy Principles Integration			
Green Buildings			

TTC Track Maintenance and Repair

Project Description

The TTC maintains and improves bridges, tunnels, and rail tracks for subways and streetcars. Investing in transit infrastructure improvements can reduce GHG emissions through increased use of public transit, and further cost savings as transit assets are improved and its life extended.

Since 2018, work has been done to replace subway rails, refresh streetcar surface tracks, and overhaul the powerline on the Scarborough Rapid Transit line. Most recently, the TTC has been upgrading the overhead wire system that feeds power to the streetcar network (more than 80% complete).



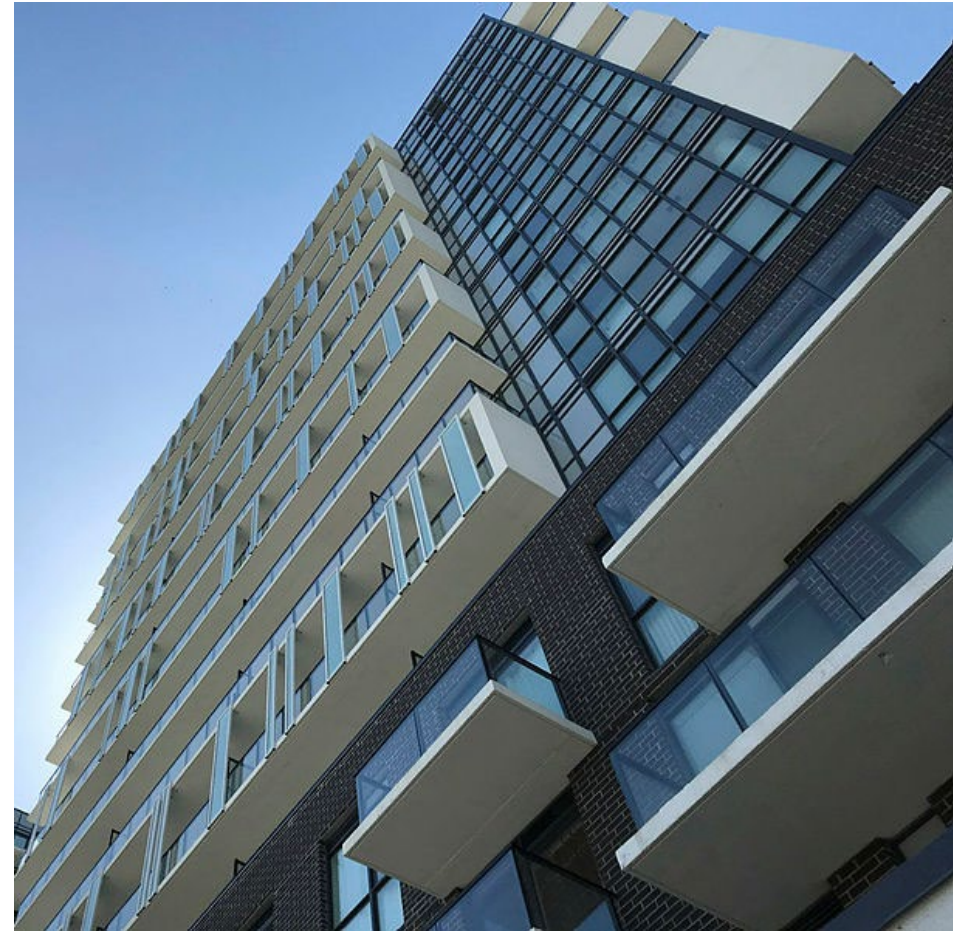
TCHC Multi-Year Retrofits

Project Description

TCHC is replacing existing diesel emergency generators with natural gas fired combined heat and power systems and installing dedicated emergency power generation equipment to provide heat and electricity to TCHC Buildings.

The combined heat and power systems are more efficient than the separate heat and power systems they are replacing. This project is expected to reduce GHG emissions by 8,408 tons.

Electrical loads will be added to the emergency power distribution system to enable sustained occupancy during power outages.

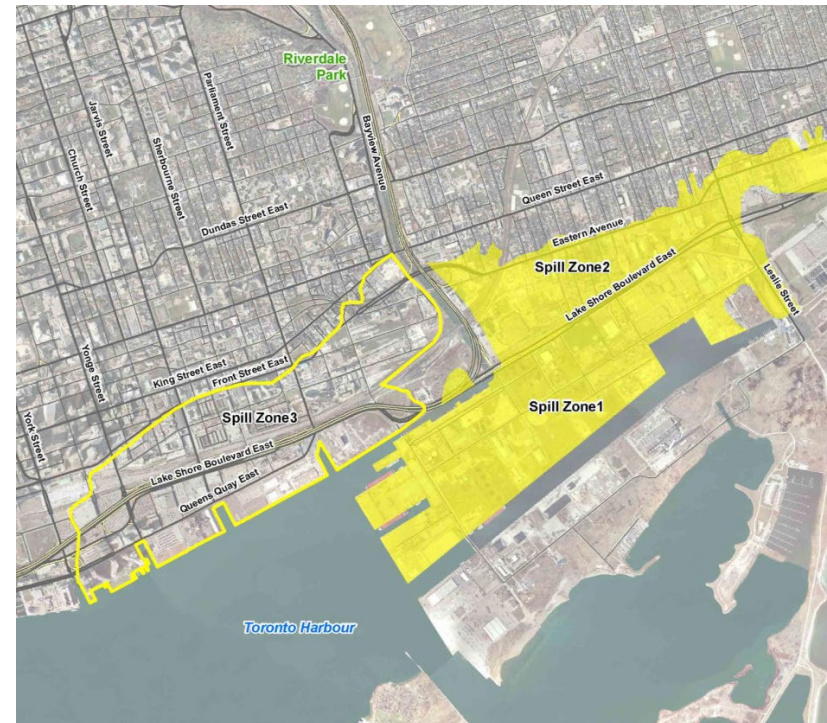


Port Lands Flood Protection

Project Description

The Port Lands Flood Projection Project is one of the largest infrastructure projects in Toronto's history and will protect Toronto's southeastern downtown area (Port Lands, South Riverdale, and Leslieville) from extreme flooding by creating a naturalized river mouth that reconnects the Don River to Lake Ontario.

This \$1.25 billion flood protection project is being funded by the Government of Canada, Province of Ontario, and City of Toronto. In 2019, Toronto Green Bonds provided over \$44 million in financing.



Source: Don Mouth Naturalization and Port Lands Flood Protection Project Environmental Assessment

Portlands Flood Protection (continued)

Described below are the three project drivers.



A Naturalized River Mouth

The naturalization of the river mouth is expected to:

- Improve aquatic and terrestrial functions
- Address sediment deposition, debris and ice jams
- Accommodate changes in water levels
- Enhance public use of land



Flood Protection

The Flood Protection Area is at risk during a Regulatory Flood

- Spill Zones were defined based on the extent of damage
- Project seeks to eliminate flood risk to over 290 hectares of land
- Alleviation of flood risk opens the area to further use



Revitalized Waterfront

There are four core principles to waterfront revitalization:

- Removing barriers & making connections
- Building waterfront parks and public spaces
- Promoting a clean and green environment
- Creating dynamic and diverse new communities



GREAT LAKES IMPACT INVESTMENT PLATFORM

Prosperity by nature.