

# Green Bonds in the Golden State: A Practical Path for Issuers



Webinar One: Green Bond Fundamentals  
August 14, 2019

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**GOLDMAN SCHOOL**  
OF  
**PUBLIC POLICY**  
UNIVERSITY OF CALIFORNIA BERKELEY

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## Live captioning

Available at <https://www.streamtext.net/player?event=CDIAC>

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Available about 2 weeks after the initial webinar



# Welcome

Remarks by  
California State Treasurer  
Fiona Ma, CPA



# Our Vision

- Provide a fundamental understanding of Green Bonds.
- Describe the market, growth impediments, and indicators of expansion.
- Clarify different types and stages of green label certification.
- Prepare participants to have open conversations, internally and externally, regarding a Green Bond issuance.



# Presenter Introductions



**Climate Bonds** INITIATIVE

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# Part 1: Fundamentals

## Outline

- Why Green Bonds?
- Green Bond Basics
- The Market
- Standards and Certification
- The Path Forward

## Presenter



**Michael Paparian**  
*California Representative*  
*Climate Bonds Initiative (CBI)*  
**[Mike.Paparian@climatebonds.net](mailto:Mike.Paparian@climatebonds.net)**

**Climate Bonds** INITIATIVE

# Audience Polling

Please use the polling feature to participate in questions that will help speakers understand who is in the audience.

- 1) What role do you serve on the issuance team?
- 2) How many Green Bond issues has your organization been involved in?

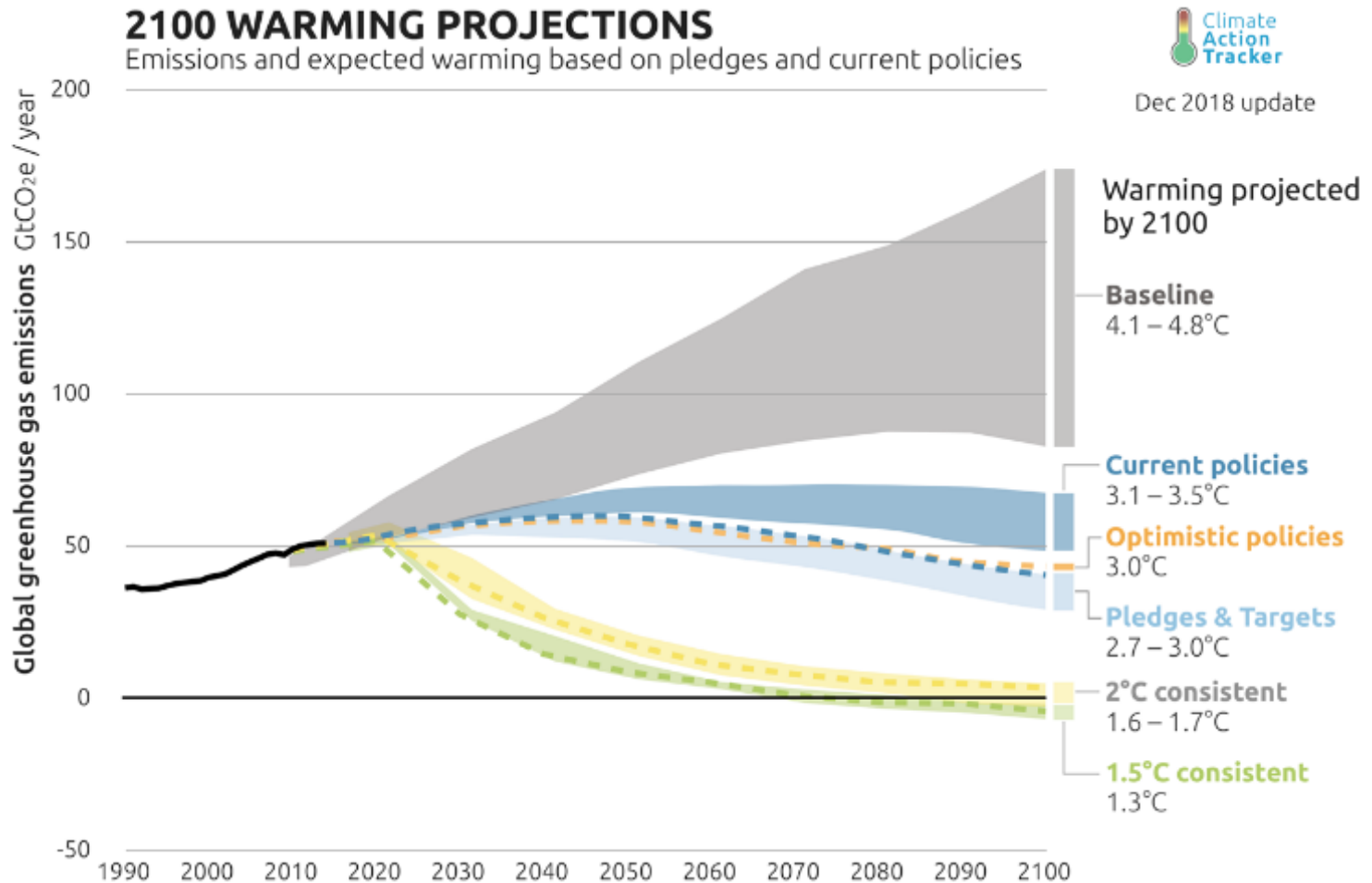




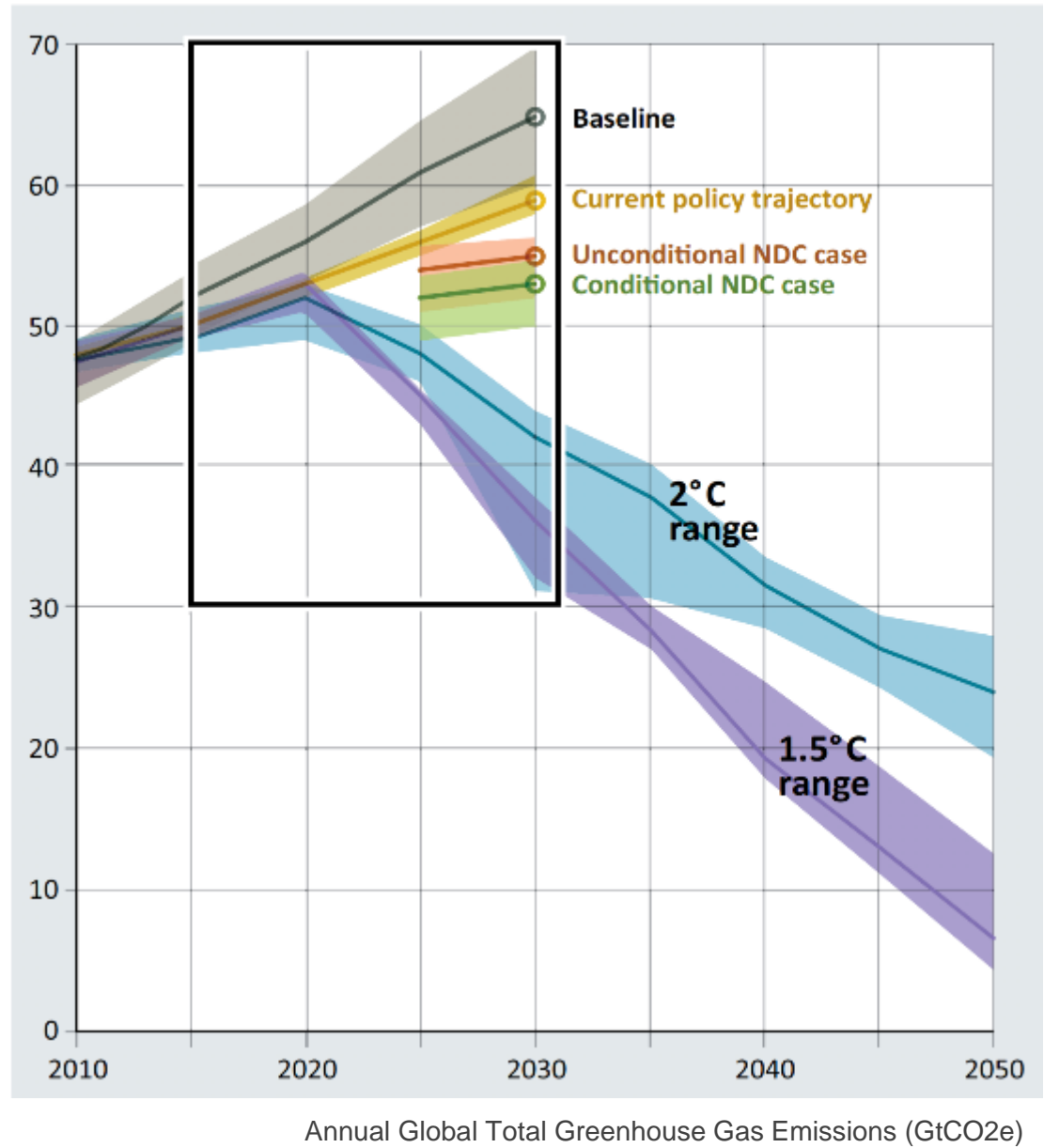
# Why Green Bonds?



# Climate change will impact infrastructure...



**...and the next 10 years will determine how bad it will get.**





*“We need to build trust and reduce risk, make the best use of available resources, and find innovative ways of financing, such as **Green Bonds** whose viability and success are already realities,” the Secretary-General said. **Finance is the key to successful climate action. We need more ambition – climate change is moving faster than we are and this is a war we cannot afford to lose.**”*

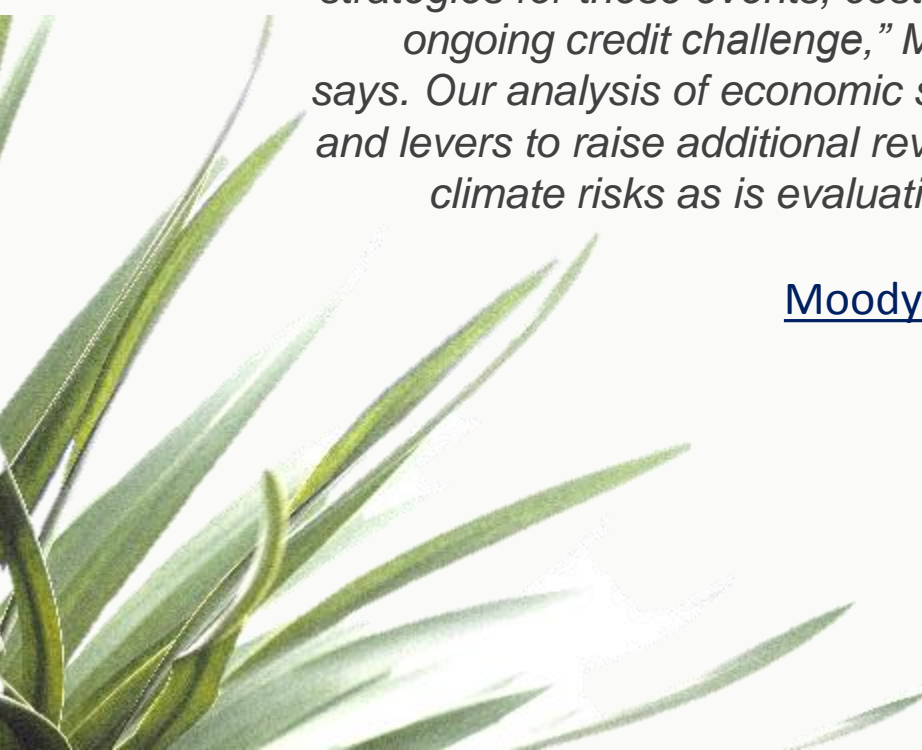
*“The world should adopt a simple rule: **If big infrastructure projects aren’t green, they shouldn’t be given the green light.** Otherwise we will be locked into bad choices for decades to come. Investing in climate-friendly development is where the smart money is needed.”*

António Guterres  
UN Secretary General

*Climate shocks or extreme weather events have sharp, immediate and observable impacts on an issuer's infrastructure, economy and revenue base, and environment. As such, we factor these impacts into our analysis of an issuer's economy, fiscal position and capital infrastructure, as well as management's ability to marshal resources and implement strategies to drive recovery.*

*“While we anticipate states and municipalities will adopt mitigation strategies for these events, costs to employ them could also become an ongoing credit challenge,” Michael Wertz, a Moody's Vice President says. Our analysis of economic strength and diversity, access to liquidity and levers to raise additional revenue are also key to our assessment of climate risks as is evaluating asset management and governance.*

[Moody's Announcement, November 28, 2017](#)



# Quick Bond Primer

Borrower agrees to pay investor back over an understood rate and time.

Enable many investors to lend and get repaid for the borrower's project.

Unlike stocks, bonds are not a form of ownership of a business.


Typically considered safer investment than equity.

Transaction costs are more than conventional loan.

Taxable vs. Tax Exempt

More Info: [CDIAC's Debt Financing Guide](#)





# **Green Bond Basics**

# Green Bond Definitions

There are several accepted definitions, including:

Fixed income securities which finance investments with environmental or climate related benefits.

[Bis.org](https://www.bis.org)

Bonds issued by municipal entities, private sector or multilateral institutions (e.g., the World Bank) to finance projects with an environmental or climate impact. For example, Green Bonds might be issued to finance renewable energy and energy efficiency projects, clean public transportation, pollution prevention and control, conservation, sustainable water and wastewater management, and green buildings.

Green Bond projects, generally, are intended to have material, positive net benefits for the climate or environment. Projects that are not primarily climate-focused typically contribute to conservation and/or sustainable and efficient management of natural resources; reduce waste or pollution; and otherwise enhance environmental quality and contribute to sustainable living.

[MSRB, About Green Bonds](#)

# Essentially....



The bond needs to be financing or refinancing, in whole or in part, a **project or asset** that benefits the climate or environment.

Later in this presentation, we will discuss **taxonomies** that are being developed to help identify qualifying projects or assets.

Throughout this series we will discuss **considerations** of adding a green label.

Later in this presentation, we will cover **standards and certification** of the use of funds to qualify attaching the green label. This will continue into the second webinar with a deeper dive into **how** the issuer attaches the green label prior to issuance, and the ongoing administration.



# What can Green Bond proceeds be used for?

Examples include...

- Clean energy, such as solar or wind installations
- Energy-efficient buildings
- Technologies to reduce greenhouse gas (GHG) emissions
- Clean transportation
- Sustainable waste and water management
- Sustainable forestry and agriculture
- Protection against flooding, watershed management, wetlands restoration, and biodiversity conservation
- Infrastructure consistent with a climate-challenged world
- Climate adaption



# At a high-level....

## Issuer Considerations

### Benefits

Expanded investor base

Possible credit benefits

Aligns infrastructure development to climate challenges

Demonstrates commitment to environmental initiatives

Earmark funds for climate projects

Ease of explaining climate initiatives to constituents

### Challenges

Different from past practices; newness may be frowned upon

Aligning reporting

Additionality

Refunding vs New Projects

Marginal added costs

Assuring green commitments are maintained



# At a high-level....

## Investor Considerations

### Benefits

- 'Greening' assets under management
- Access to climate initiatives without project risk
- Strong secondary market performance
- Corporate governance / engagement on green initiatives
- Early adoption of climate-aligned investment

### Challenges

- Defending green attributes
- Assuring green commitments are maintained
- Justifying potential pricing difference "Greenium"
- Diversity of available Green Bonds
  - Sporadic deal flow
  - Small offering size
- Index ineligibility due to offerings under \$250 million
- Illiquidity in secondary market
- Lack of standardization

# Who is buying Green Bonds?

## World's largest investors, such as:

- [California Public Employees' Retirement System \(CalPERS\)](#)
- [California State Teachers' Retirement System \(CalSTRS\)](#)
- [California State Treasurer's Office](#)
- [New York Common Retirement Funds](#)
- [TIAA-CREF Green Bond Fund](#)
- [Van Eck Green Bond Fund](#)
- [BlackRock and the Global Green Bond ETF Fund](#)
- [StateStreet Green Bond Index-Fund](#)
- [Allianz Green Bond fund](#)
- [Shelton Green California Tax Free Income Fund](#)
- [Calvert Green Bond Fund](#)
- [Mirova \(Natixis\) Global Green Bond Fund](#)
- AP2 (Sweden), FMO (Netherlands), Zurcher (Germany), etc.

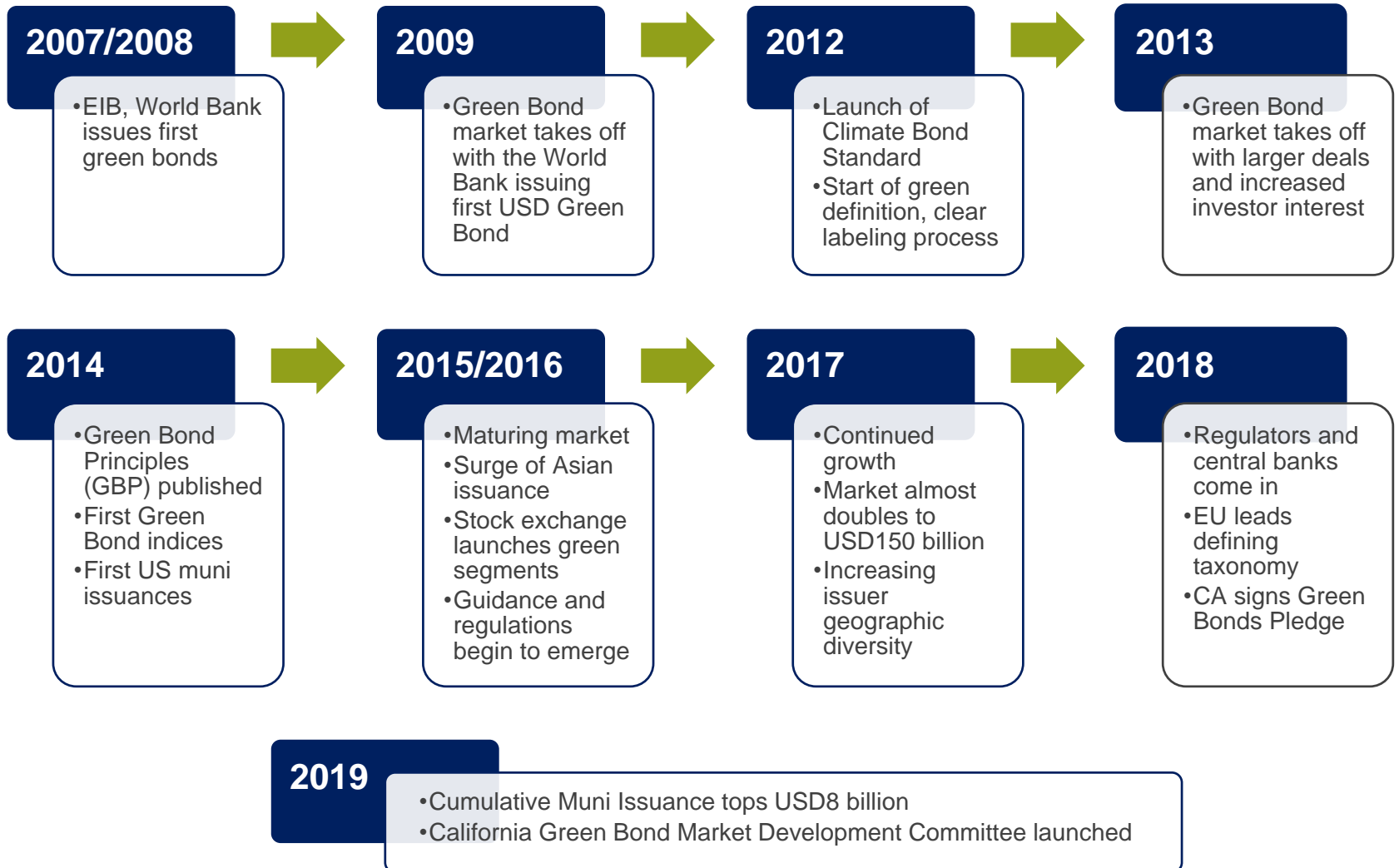
**Increasingly, individuals are participating directly in this market.**

*Links accessible in PDF version for additional research on an organization's green/sustainable initiatives.*



# The Market

# Overview of Market Development

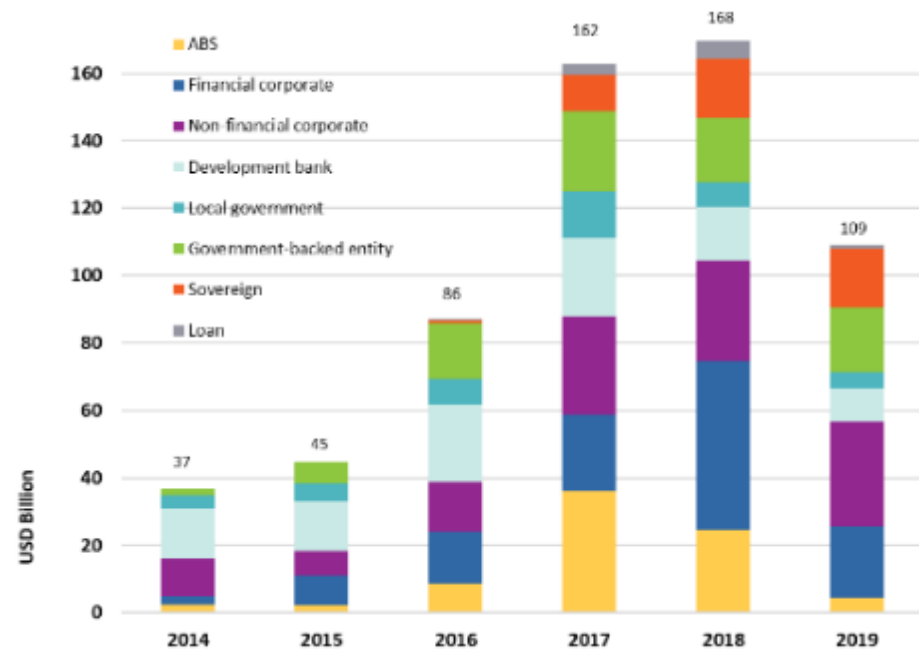


# Continued Market Growth

## Green Bond Issuance at End of 2019 Q2

### 2018 Statistics

- USD168.5bn total Green Bond issuance
- Over 1,500 green issues
- 44 countries, 8 new
- 336 issuers, 215 new
- 60% of volume by repeat issuers

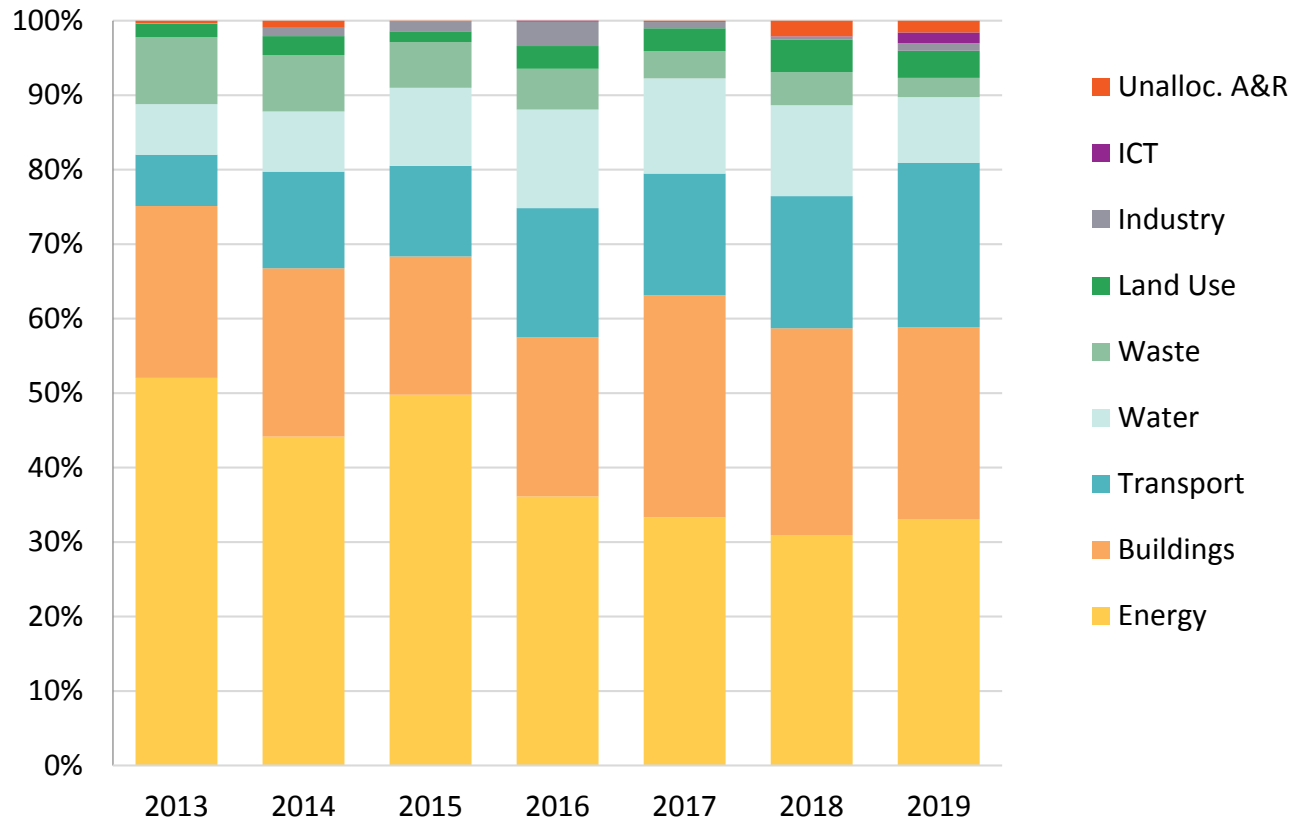


**Indication of continued market growth.**

Data courtesy of:

**Climate Bonds** INITIATIVE

# Diversification of Proceed Use



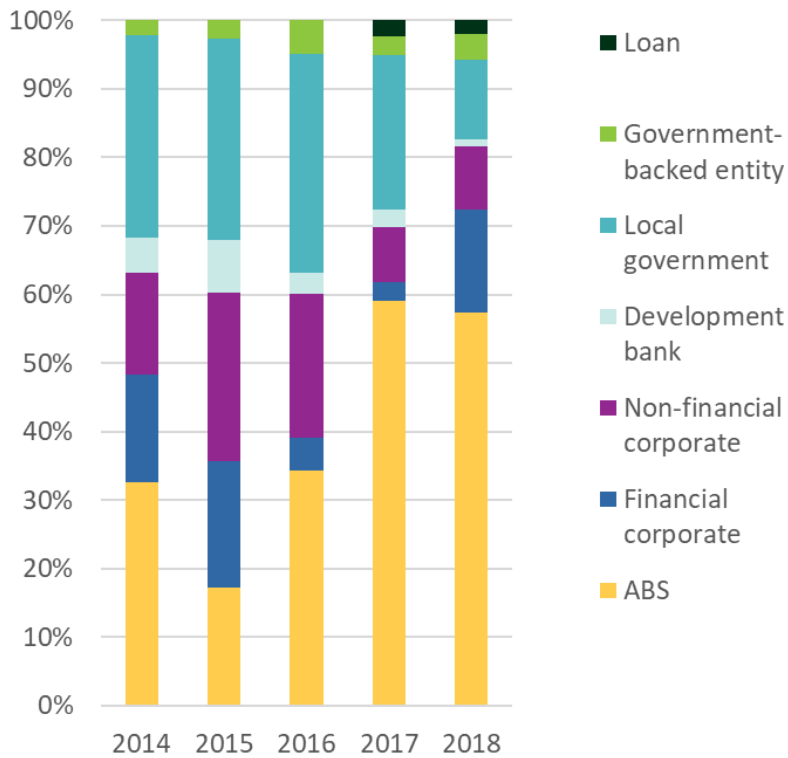
Data courtesy of:



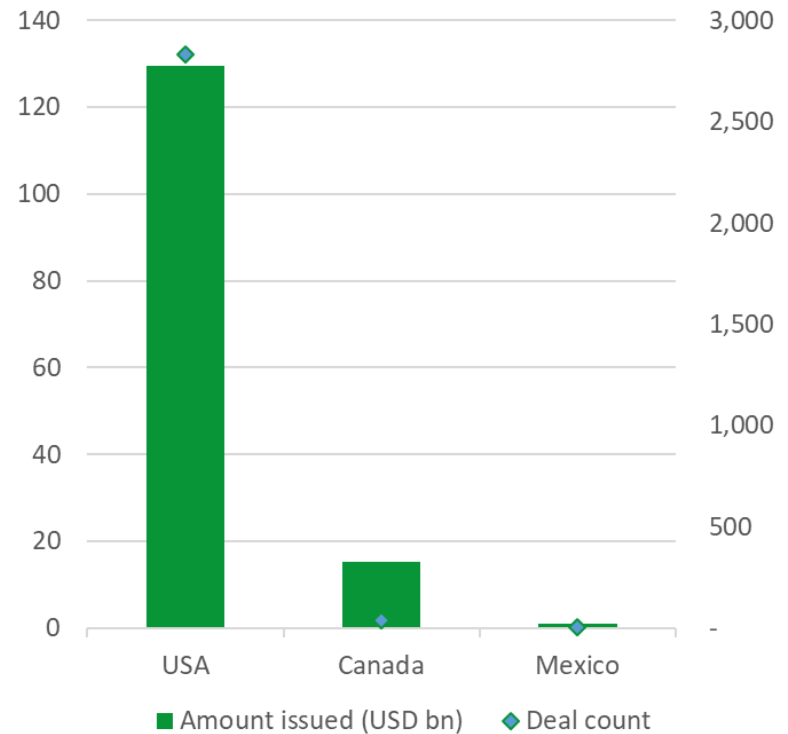


# North America Dominated by Fannie Mae

This is the region with the largest and most frequent issuances of green ABS



Green bonds in USA are small in size, but by far prevail in the market



Data courtesy of:



# Green Bond Issuance in the Golden State

California Green Muni Bond Issuances		
Bonds Issued by State/Local Government Issuers		
Issuer	Amount	General Purposes
<i>2015 Subtotal</i>	<i>\$395,950,000</i>	
<i>2016 Subtotal</i>	<i>\$1,384,990,000</i>	
<i>2017 Subtotal</i>	<i>\$3,721,450,000</i>	
<i>2018 Subtotal</i>	<i>\$1,544,382,997</i>	
<i>2019 Subtotal (to 8/14)</i>	<i>\$2,273,030,000</i>	
<b>Total All Issuances</b>	<b>\$9,619,802,997</b>	<small>Data compiled by Michael Papanian, Climate Bonds Initiative</small>

Data courtesy of:



# CA Green Muni Bond Issuances

**Bonds issued by state/local government issuers.**

California Green Muni Bond Issuances			
Bonds Issued by State/Local Government Issuers			
Issuer	Date*	Amount	General Purposes
Stockton Public Financing Authority	11/20/2018	\$145,220,000	Water System
California Pollution Control Financing Authority	1/30/2019	\$117,200,000	Bioenergy
Los Angeles Metropolitan Transportation Authority	2/20/2019	\$418,575,000	Mass transit projects (Climate Bond Certified)
City/County of San Francisco	2/26/2019	\$157,310,000	Facilities/buildings associated with transit center (taxable, Climate Bond Certified)
City of Lemoore	3/19/2019	\$27,380,000	Water facilities and related (BAM GreenStar)
Hayward Unified School District	3/20/2019	\$20,000,000	Renewable energy and sustainability projects
Imperial Public Financing Authority	5/1/2019	\$15,620,000	Wastewater treatment (BAM GreenStar)
IBank	5/9/2019	\$83,920,000	Clean water, pollution control
Fremont Union High School District	6/6/2019	\$30,000,000	Green Building
Imperial Irrigation District	6/26/2019	\$65,245,000	Renewable Energy and related
East Bay Municipal Utility District	6/27/2019	\$161,820,000	Water facility improvements and related clean water projects
South Bayside Waste Management Authority	7/9/2019	\$48,775,000	Waste and Recycling
Sacramento Municipal Utility District	7/25/2019	\$75,000,000	Green building and related
California Pollution Control Financing Authority	8/7/2019	\$73,685,000	for CalAg manufacturing rice-straw to fiberboard plant
SANDAG	8/14/2019	\$335,000,000	Transit projects in San Diego area
Bay Area Rapid Transit (BART) (taxable & tax-exempt)	8/14/2019	\$643,500,000	Transit (Climate Bond Certified)

Data courtesy of:

# Expansion of Issuance Team Roles

With an emerging market Underwriters, Issuers, Counsel, and Advisor's roles are expanding.

## **Issuer Education**

Educate investors on the Green Bond product and how it could fit into their investment policies

## **Strategy**

Help issuers clarify sustainable financing proposition and links with strategy

## **Green Bond Framework**

Help issuers design procedures to select projects and manage proceeds

## **Green Bond Alignment**

Help issuers define scope of eligible green projects

## **Deal Execution**

Match issuers with differing green & mainstream investors, provide advice on green pricing

# Creation of New Roles

**Reviewers/Verifiers**

**Certification Entities**

# **Standards And Certification**



# The Need To Define 'Green'

## The aim of a taxonomy is to:



Create a uniform and harmonised classification system - this can be used for reference internationally.



Avoid market fragmentation.











































Protect against greenwashing.




Provide the basis for further policy action such as standards, labels, incentives, etc.


# Climate Bond Standards Taxonomy


ENERGY	TRANSPORT	WATER	BUILDINGS	LAND USE & MARINE RESOURCES	INDUSTRY	WASTE	ICT
Solar 	Private transport 	Water monitoring 	Residential 	Agriculture 	Cement production 	Preparation 	Broadband networks
Wind 	Public passenger transport 	Water storage 	Commercial 	Commercial Forestry 	Steel, iron & aluminium production 	Reuse 	Telecommuting software and service
Geothermal 	Freight rail 	Water treatment 	Products & systems for efficiency 	Ecosystem conservation & restoration 	Glass production 	Recycling 	Data hubs
Bioenergy 	Aviation	Water distribution 	Urban development 	Fisheries & aquaculture 	Chemical production 	Biological treatment 	Power management
Hydropower 	Water-borne 	Flood defence 		Supply chain management 	Fuel production 	Waste to energy 	
Marine Renewables 		Nature-based solutions 				Landfill 	
Transmission & distribution 						Radioactive waste management 	
Storage 							



**Climate Bond Certified**

Certification Criteria approved 

Criteria under development 

Due to commence 

# Climate Bonds Sector Criteria

	Criteria Available for Certification	Criteria in development	TWGs launching soon
Energy	 WIND  SOLAR  GEOTHERMAL  MARINE	 HYDROPOWER  BIOENERGY	 DISTRIBUTION & MANAGEMENT
Transport	 RAIL  VEHICLES  BUS/RAPID TRANSIT		 WATER TRANSPORT
Utilities	 WATER	 RECYCLING & REUSE  DISPOSAL	 IT  COMMUNICATIONS
Buildings	 RESIDENTIAL  COMMERCIAL		
Natural Resources	 FORESTRY	 AGRICULTURE  FISHERIES	
Industry			 CEMENT  STEEL  MANUFACTURING & PROCESSING



# Developing Sector Criteria



## Formula

Climate Science

Stakeholder  
Engagement

Paris Agreement Goals

Practicality

Industry and Market  
Acceptance

+

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**CBI's Sector Criteria**

## Process

Technical and industry  
working groups

Working groups draft  
criteria

Draft criteria for public  
review

Climate Bond Standard  
Board approval

Publish final criteria for  
Certification use

Ongoing review

# Types of Reviews

Pre-issuance review	Scope	Providers
<b>Assurance</b>	Positive or negative assurance on compliance with the Green Bond Principles (GBP) or the Green Loan Principles (GLP)	EY, Deloitte, KPMG, etc
<b>Second Party</b>	Confirm compliance with GBP / GLP. Provide assessment of issuer's green bond framework, analysing the "greenness" of eligible assets	CICERO, Sustainalytics, Vigeo-Eiris, DNV GL, SynTao Green Finance, CECEP Consulting, etc
<b>Green bond rating</b>	Rating agencies assess the bond's alignment with the Green Bond Principles and the integrity of its green credentials	Moody's, S&P, CCX (China), ChinaBond Rating, R&I and JCR (Japan), RAM (Malaysia)
<b>Pre-issuance verification</b>	Third party verification confirms that the use of proceeds adheres to the Climate Bonds Standard and sector specific criteria	Approved verifiers under the Climate Bonds Standard scheme
Post-issuance review	Scope	Providers
<b>Assurance or SPO</b>	Assurance of allocation of proceeds to eligible green projects	Audit firms, ESG service providers, scientific experts
<b>Impact report</b>	Reporting that seeks to quantify the climate or environmental impact of a project/asset numerically	As above
<b>Post-issuance verification</b>	Assurance against the Climate Bonds Standard, including allocation of proceeds to eligible green projects and types of green projects	Approved verifiers

# Programmatic Certification

## Streamlined Approach for Frequent Issuers

Green Issuers using Programmatic Certification  
Data as of 3 June 2019

Climate Bonds

RL	Issuer	Sector	Country	Total USD million equivalent	Number of Issues
1.	New York Metropolitan Transport Authority (MTA)	Transport	US	6,350	10
2.	Société du Grand Paris (SGP)	Transport	France	5,675	8
3.	SNCF Réseau	Transport	France	3,513	4
4.	DNB Boligkredit AS	Buildings	Norway	2,690	2
5.	National Australia Bank (NAB)	Multiple Sectors	Australia	2,010	4
6.	Contact Energy Ltd.	Geothermal energy	New Zealand	1,475	multiple
7.	Landesbank Baden Württemberg (LBBW)	Buildings	Germany	1,465	2
8.	Queensland Treasury Corp	Multiple Sectors	Australia	1,464	2
9.	San Francisco Public Utilities Commission (SFPUC)	Water	US	1,413	5
10.	TCorp (New South Wales)	Multiple Sectors	Australia	1,300	1
11.	New York State Housing Finance Agency's (HFA)	Buildings	US	1,124	12
12.	Westpac	Multiple Sectors	Australia	1,090	4
13.	Japan Railway Construction, Transport and Technology Agency (JRTT)	Transport	Japan	890	2
14.	Bay Area Rapid Transit (BART)	Transport	US	570	2
15.	City and County of San Francisco	Transport	US	328	2

Just as rigorous and carries same assurance as normal Certification

Frontloads procedures so they only need to be done once

Easier Certification after 1<sup>st</sup> bond gets post-issuance Certification confirmed

Annual verification required

Frontloads procedures so they are done only once in the bond issuance program.

# CBI Certification Mark

## What does the Certification mark mean?

Certification under the Climate Bonds Standard confirms that the bond, loan or other debt instrument is:



1

Fully aligned with the Green Bond Principles and/or the Green Loan Principles



2

Using best practices for internal controls, tracking, reporting and verification



3

Financing assets consistent with achieving the goals of the Paris Climate Agreement.

# CBI Standards Board



**Office of the California  
State Treasurer,  
Fiona Ma, CPA**



**State Teacher's  
Retirement System  
(CalSTRS)**



**Institutional Investors  
Group on Climate  
Change (IIGCC)**



**International  
Cooperative and  
Mutual Insurance  
Federation (ICMF)**



**Investor Group  
on Climate  
Change**



**Natural  
Resources  
Defense  
Council**



**Ceres Investor  
Network**

# Green Bond Principles (GBP)

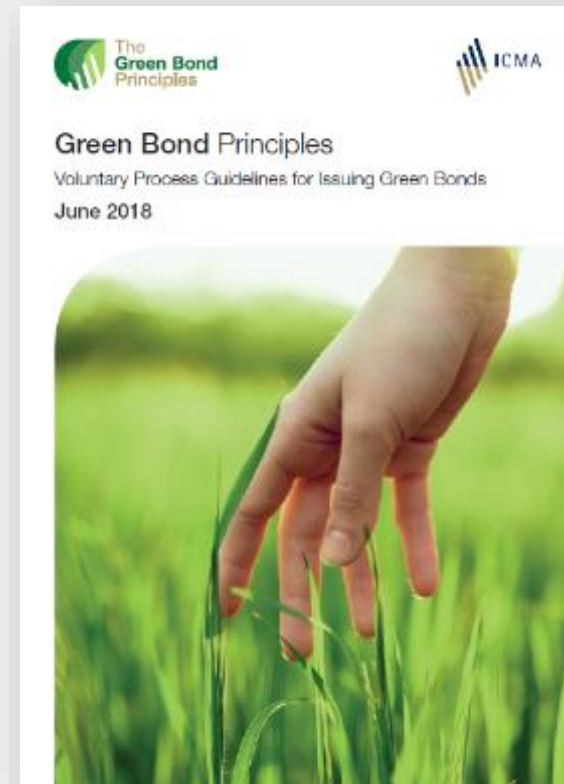
Globally leading voluntary process guidelines that recommend transparency and disclosure, while promoting the integrity in the development of the Green Bond market by clarifying the approach for the issuance of a Green Bond.

## Four Major Components

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

The principles also provide guidance for external review.

[Link to the Green Bond Principles \(accessible in PDF of slides\).](#)



# GBP Governance Structure

Green Bond designation is voluntary and the market is largely built upon the community coming together to maintain its reputation. Governance of the Green Bond Principles has been established to foster best practices and maintain market acceptance. Below are four major groups involved in governing the GBP and a high-level description of their role.

[Link to Governance Framework on ICMA's Website \(accessible in PDF\)](#)

## 1. Members and Observers

### Members

Organizations that have issued, underwritten or placed, or invested in a Green Bond qualify to apply for membership.

They elect Excom, decide on changes to the Governance, provide input on Principles, and may participate in working groups.

### Observers

Active in the field but not qualified to be a member. May provide input on the Principles and participate in working groups.

## 2. Executive Committee (Excom)

### Role

Decide updates of the Principles; with Member and Observer input. They appoint the Secretariat and establish working groups.

### Participants

24 Members who have been elected, representing investors (8), issuers (8), and underwriters (8).

### Working Groups

Currently 6: Green Projects Eligibility, External Reviews, Impact Reporting, Indices & Databases, New Markets, and Social Bonds

[Link to Excom Members and Working Groups \(accessible in PDF\)](#)

## 3. Steering Committee

Excom Chair and elected Deputy Chairs. They prepare and present feedback to update the Principles for the Excom to review.

## 4. Secretariat



# Comparison of Approaches

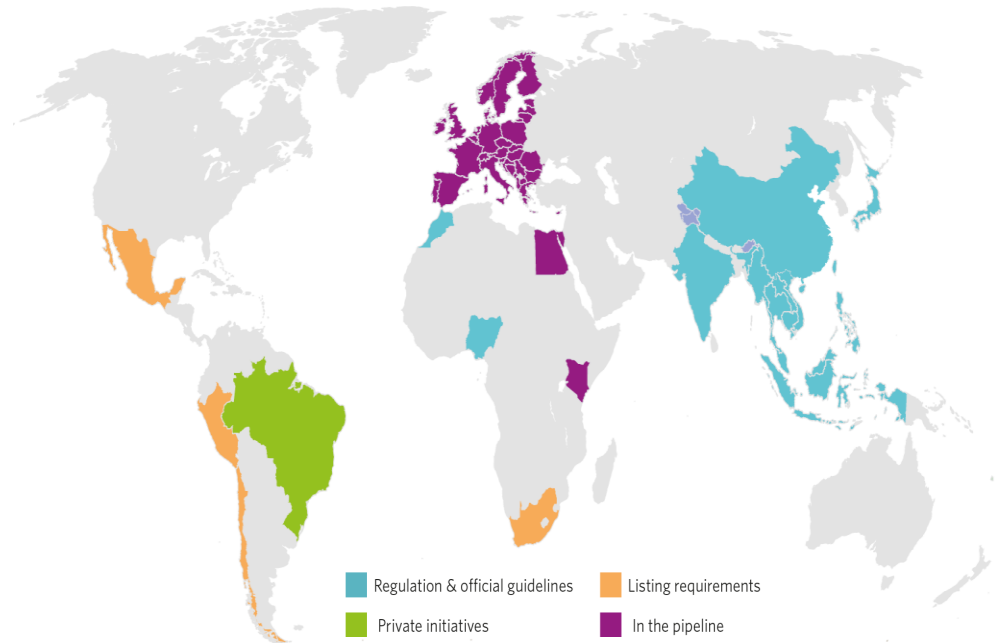
Summary of the most common approaches to standards and best practice recommendations.

	GBP	CBI	EU GBS
<i>Eligibility Criteria</i>	High-level	CBI Taxonomy	EU Taxonomy
<i>External Review</i>	Recommended <i>Not Required</i>	Required	Required
<i>Publication of External Review</i>	No	Required	Required
<i>Accreditation of Reviewers</i>	No	Yes	Yes <i>New EU system</i>
<i>Impact Reporting</i>	Recommended <i>Not Required</i>	Recommended <i>Required Eligibility Reporting</i>	Required
<i>Use of Proceeds in Legal Documentation</i>	Recommended <i>Not Required</i>	Required	Required



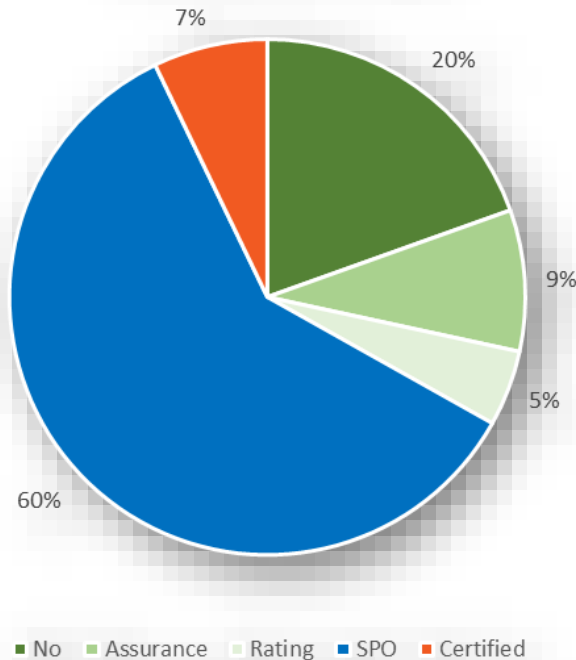
# Consistent Rules Support Market Growth

Voluntary rules drove early market growth and allowed global consistency.

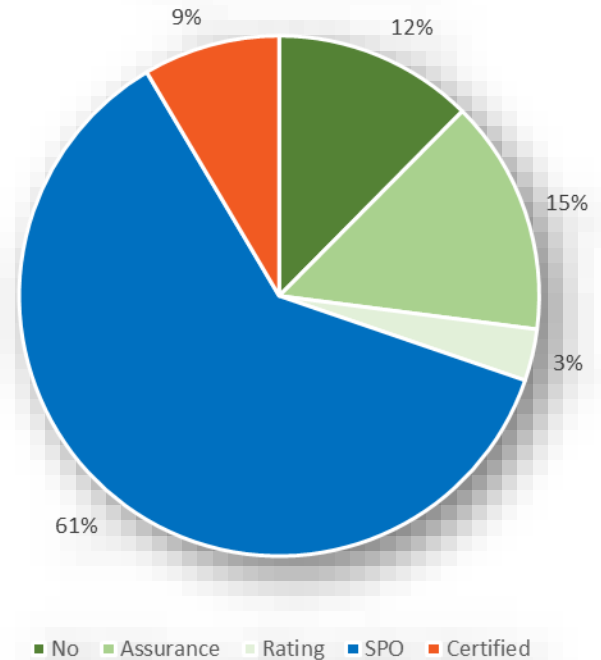


# External Reviews Are Now Dominant

More than 80% of the amount issued is covered by an external review



More than two-thirds of bonds have either an SPO or are Certified



By bond count.  
Does not include Fannie Mae bonds.  
Data as of 12/6/18

By amount issued.  
Does not include Fannie Mae bonds.  
Data as of 12/6/18

Data courtesy of:



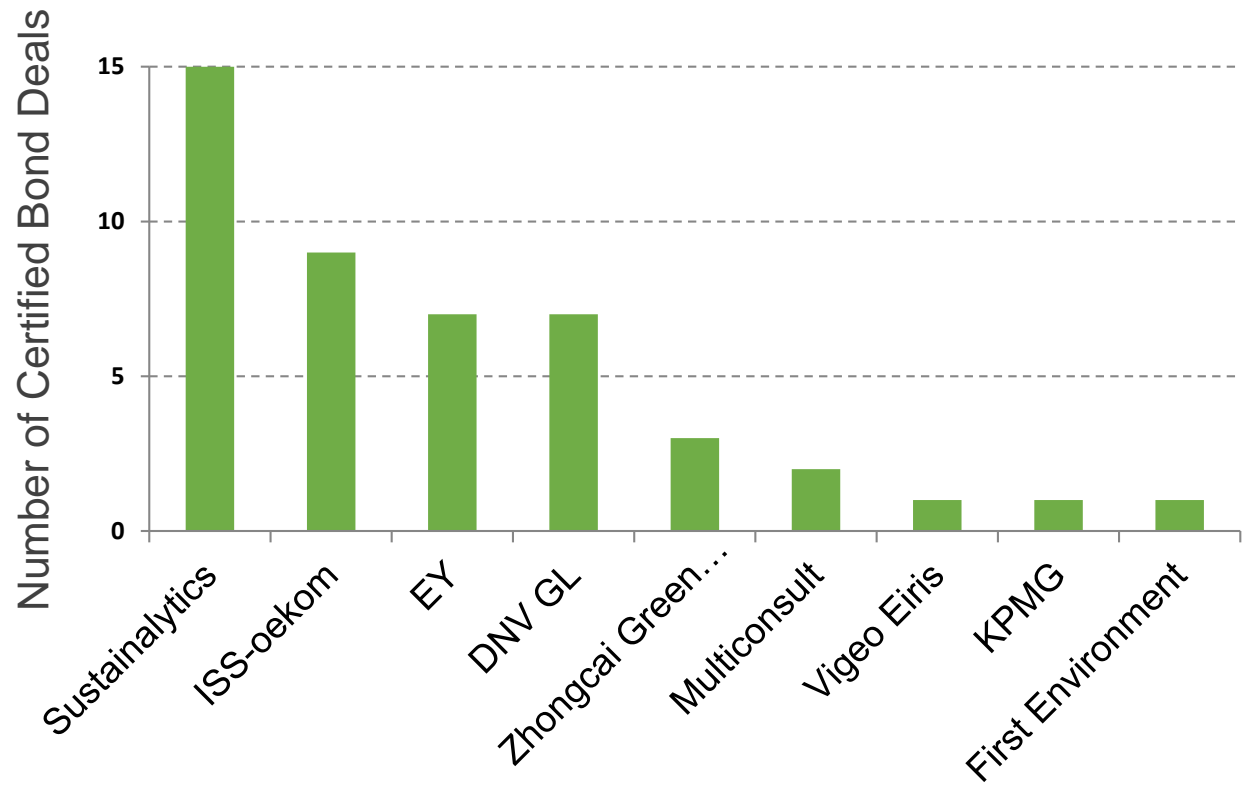


**Self  
Certification**

*Versus*

**External  
Review**

# 2018 Approved Verifier Activity Globally



Data courtesy of:

**Climate Bonds** INITIATIVE

# CBI Standard Certification Scheme

1

## Prepare the bond

- Identify assets that meet the relevant sector criteria and compile supporting information
- Create Green Bond Framework setting out how proceeds of the bond will be used

2

## Engage a verifier

- Engage an Approved Verifier for pre- and post-issuance Certification
- Provide them with relevant information
- Receive a Verifier's Report giving assurance that Climate Bonds Standard requirements are met

3

## Get Certified & issue a Certified Climate Bond

- Submit the Verifier's Report and Information Form to the Climate Bonds Initiative
- Receive a decision on pre-issuance Certification
- Issue your bond, using the Certified Climate Bond mark

4

## Confirm the Certification post-issuance

- Within 12 months of issuance, submit the Verifiers post-issuance report
- Receive notification of post-issuance certification

5

## Report annually

- Prepare a simple report each year for term of the bond
- Provide it to bond holders and Climate Bonds Initiative

# Reporting

## Hot topic in the Green Bond market.

Fourth major component in the GBP, which recommends post-issuance reporting/disclosure on:

- Use of Proceeds
- Environmental Impact (Impact Reporting)

Voluntary disclosure provides transparency, increases accountability, and underpins credibility of the Green Bond market. However, it does require ongoing commitment and resources.

As the market has grown, so has investor interest in the use of proceeds and impact reporting to inform their decision making, but the burden on issuers is also under scrutiny.

This topic will be further explored in webinars 2 and 3 of this series.

# Green Bond Issuer Reporting

Almost half of issuers provide reporting on both allocations and impact

Reporting scope		UoP reporting	Impact reporting	Both
<b>Number of issuers</b>	Reporting	251	194	172
	Non-reporting	116	173	195
	% reporting	68%	53%	47%
<b>Number of bonds</b>	Reporting	715	1,514	501
	Non-reporting	1,190	391	1,404
	% reporting	38%	79%	26%
<b>Amount issued (USDbn)</b>	Reporting	223	219	186
	Non-reporting	58	62	95
	% reporting	79%	78%	66%

*Analysis covers all Green Bonds issued up to November 2017.*

Data courtesy of:



# **The Path Forward**



# Audience Poll

Please use the polling feature to participate.

In the future, investor concern about the climate impact of bond-financed projects will:

- a) Significantly increase
- b) Moderately increase
- c) Stay about the same
- d) Moderately decrease
- e) Significantly decrease



# California Green Bond Solutions

## California Green Bond Market Development Committee

### Chair

Treasurer Fiona Ma, CPA

### Secretariat

UC Berkeley Goldman School of Public Policy



**GOLDMAN SCHOOL**  
OF  
**PUBLIC POLICY**  
UNIVERSITY OF CALIFORNIA BERKELEY

## Growing the U.S. Green Bond Market Reports

Collaboration between the Treasurer's Office and Milken Institute to provide actionable strategies to grow the California Green Bond market.

[\(Link to more info, accessible in PDF\)](#)



## Green Bond Pledge

Declaration to incorporate Green Bonds into the planning and deployment of infrastructure projects.

[\(Link to more info, accessible in PDF\)](#)

**green bond**  
**pledge**



*Green Bonds are used to finance the infrastructure of a climate-challenged world.*

California State Treasurer  
Fiona Ma, CPA

# California Green Bond Market Development Committee

## Chair



California State Treasurer  
Fiona Ma, CPA

## Secretariat

**GOLDMAN SCHOOL**  
OF  
**PUBLIC POLICY**  
UNIVERSITY OF CALIFORNIA BERKELEY

## Role

Developing strategies and solutions to expand the Green Bond market in California.

Committee will build on the first and second volumes of the *Growing the U.S. Green Bond Market Reports*, promote the Green Bond Pledge, advise policy leaders, and assist issuers.

## Participants

Finance experts, engineers, public policy experts, attorneys, climate scientists, and others.

## Meetings

Initial meeting took place in June 2019, second meeting will take place Fall 2019.

# Growing The U.S. Green Bond Market



## Drivers

- Aligning infrastructure needs with climate challenges
- Rise of Environmental, Social, and Governance (ESG) investing
- Intergenerational wealth transfer

## Expansion Opportunities

- Address barriers to expansion including undersupply, index ineligibility, and illiquidity
- Improve standardization
- Responsible issuer program
- Credit enhancement
- Green taxable bond program
- Regional/pooled issuance

## Links to Reports

(Accessible in PDF)

[Volume 1: The Barriers and Challenges](#)

[Volume 2: Actionable Strategies and Solutions](#)

The page is framed by vibrant green leaves and branches, appearing to grow from the corners and sides, creating a natural, organic border around the central text.

# green bond pledge

We agree that all infrastructure and capital projects will need to be climate resilient and, where relevant, support the reduction of greenhouse gas emissions.

We welcome the role that Green Bonds can play in helping to achieve the financing of that infrastructure.

As a signatory to this pledge, we support the rapid growth of a Green Bonds market, consistent with global best practices, that can meet the financing needs we face, and will issue, whenever applicable, bonds for infrastructure as Green Bonds.

We pledge to support this goal by establishing a Green Bonds strategy that will finance infrastructure and capital projects that meet the challenges of climate change while transforming our community into a competitive, prosperous and productive economy.

# Part 2: Issuer Experience

## Outline

- Introduction to EBMUD
- EBMUD Green Bond Issuances
- Yield Experience and Tips

## Presenter



**Robert Hannay**

*Treasury Manager*

*Easy Bay Municipal Utility District (EBMUD)*

**[Robert.Hannay@ebmud.com](mailto:Robert.Hannay@ebmud.com)**





# **Introduction to EBMUD**



# Location and Customer Base

**Municipal utility district that provides water and waste water services in the East Bay Area within the San Francisco Bay Area.**



**Water System**  
About 1.4 million customers

**Wastewater System**  
About 685,000 customers

# Sustainability is in Our Roots

Sustainability Policy adopted in 1994  
(Policy 7.05) and our [Sustainability Webpage](#)

## Organization Policy

**Sustainable and Resilient**  
Operations, Maintenance, Planning,  
Design, and Construction

+

**Management of Long-Term**  
Economic, Environmental, and  
Human Resource Benefits

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**Reliable High-quality Drinking  
Water and Wastewater Service**



# EBMUD Debt Profile



## Water System

\$2.5 billion in Water System Revenue Bonds

\$13 million in State Loans

\$360 million in Commercial Paper

Ratings: AAA/Aa1/AA+

## Wastewater System

\$370 million in Wastewater System  
Revenue Bonds

\$15 million in Commercial Paper

Ratings: AAA/Aa1/AA+



# EBMUD Capital Improvement Program

Five-year Capital Improvement Program (CIP) updated as part of biennial budget.

\$1.9 billion spending projected for FY2020-FY2024 Water System CIP.

Much of spending is infrastructure maintenance, including annual replacement of 17.5(+) miles of distribution pipeline.

Category	Cost <i>in millions</i>	Percent
Maintaining Infrastructure	\$848	44.7%
Extensions/Improvements	\$218	11.5%
Facilities, Services and Equipment	\$114	6.0%
Regulatory Compliance	\$62	3.3%
Water Supply	\$209	11.0%
Resource Management	\$11	0.6%
Water Quality	\$226	11.9%
Admin & General Expense	\$208	11.0%
<b>Total</b>	<b>\$1,896</b>	<b>100.0%</b>





# **EBMUD Green Bond Issuances**

# Green Bond Issuances

EBMUD has issued three series of Green Bonds for the Water System. Green Bonds proceeds were used to reimburse EBMUD for past capital spending for green projects.

$$\begin{array}{ccccccc}
 \mathbf{2015} & + & \mathbf{2017} & + & \mathbf{2019} & = & \mathbf{3\ Issuances} \\
 \$74.3\ \text{million} & & \$185.4\ \text{million} & & \$161.8\ \text{million} & & \$421.5\ \text{million}
 \end{array}$$

Sale Date	Series*	Par	Green Project Proceeds
June 2, 2015	2015B (Green Bonds)	\$74.3	\$80
June 6, 2017	2017A (Green Bonds)	\$185.4	\$218
June 18, 2019	2019A (Green Bonds)	\$161.8	\$200

*All Dollars in Millions*

*\*Tip: By adding 'Green Bond' to the series title, we are able to flag our Green Bond issuances in our bond documents, EMMA, and CDIAC reports*



# Example EBMUD Green Bond Projects

Pipeline Infrastructure Renewal  
Treatment Plant Upgrades  
Pumping Plant Rehabilitation

Reservoir Rehabilitation  
Dam Seismic Upgrades  
Pressure Zone Improvements

# Our Path to Board Approvals

**1994**

*Adoption of Sustainability Policy, updated seven times since adoption*

**April 2015**

*Adoption of EBMUD Guidance for Issuing Green Bonds*

**2015, 2017, 2019**

*Board presentations for specific Green Bond issuances*

**June 2019**

*Board memo on Green Bond market growth and opportunities*





# Guidance for Issuing Green Bonds

**Document adopted by the board in April 2015, with the understanding that:**

Currently, there is no standard criteria or legal definition for what constitutes 'green', but guidance built upon the ICMA's GBP.

Issuers have the choice to hire third-party verifiers or self-certify. EBMUD has elected to self-certify all three issuances.

## **EBMUD Project Eligibility Criteria**

To be eligible, the project should meet at least one of the following:

1. Maintain water quality
2. Improve water use efficiency, including conservation through reduced water loss
3. Improve biodiversity and ecosystem quality
4. Protect against flooding
5. Reduce pollution
6. Improve resilience (adaptation) to climate change
7. Reduce the combustion of fossil fuels
8. Reduce greenhouse gas emissions
9. Implement "reduce, reuse, recycle" practices in preference to raw materials
10. Adhere to sustainable purchasing guidelines

# June 2019 Board Memo

## May 2019

Presentation on  
the Series 2019A  
Green Bonds

## June 2019 Board Memo

- Green Bond market growth
- Potential pricing premium information
- Review of EBMUD's pricing experience

Board approved  
transaction, but  
requested an update on  
the Green Bond market.



# Ongoing Reporting and Verification

EBMUD typically uses new money bond proceeds to reimburse itself for past capital spending.

Therefore, past capital projects can be identified as green in advance of the bond issuance.

Under this approach, ongoing post-issuance verification has not been required.

# Disclosure

Work with Bond and Disclosure Counsel early in the process.

Counsel helps add Official Statement language, which describes the Guidance for Issuing Green Bonds adopted by the Board.

In 2017, an appendix was added describing the projects funded by Green Bonds.

Disclosure typically addresses:

- Projects to be financed
- How criteria was developed and applied
- Ongoing reporting commitments
- Disclaimers



# **Yield Comparison and Tips**



# Green vs. Vanilla Yield Comparison

In 2015 and 2017, EBMUD priced green and vanilla bonds on the same sale dates. The results:

- No yield differences noted where maturities and couponing matched.
- Although no pricing advantages, there were no additional costs.





# Tips

- Manage internal and external expectations.
- Establish 'green' project guidelines within your organization.
- Put 'Green' in the series title to flag green issuances in internal databases, EMMA, and CDIAC reports.
- Explain green intentions to counsel and advisors early in the process.

# Audience Q&A Opportunity

*Asking questions is the first  
way to begin change.*

Kubra Sait

# Additional Resources

Available [online](#).

Treasurer.ca.gov/CDIAC/Seminars  
Select link for *Green Bonds In the Golden  
State: A Practical Path for Issuers*







# **Webinar Evaluation**

# Upcoming CDIAC Programing

## Green Bonds in the Golden State:

### A Practical Path for Issuers

Free three-part webinar series on fundamental concepts, integrating green finance into projects and policies, and the status of green bonds in the municipal market.

10:00 AM to 12:00 PM on:

August 14, 2019 ✓

September 18, 2019

October 2, 2019

More information on [treasurer.ca.gov/CDIAC/Seminars](https://treasurer.ca.gov/CDIAC/Seminars)



**For more information and to register go to:**

[treasurer.ca.gov/CDIAC/seminars](https://treasurer.ca.gov/CDIAC/seminars)

## Other Programming

Ongoing Debt Administration	September 4	Sacramento
Bond Accountability	September 5	Sacramento
Bond Buyer Pre-Conference	September 23	San Francisco
Municipal Market Disclosure	October 30	Irvine
Public Funds Investing Workshop	November 19, 20	West Sacramento