MUNICIPAL DISCLOSURE | MARCH 28-29, 2023

LAKE NATOMA INN | FOLSOM, CALIFORNIA

CDIAC

Session 1

The Evolving Landscape of Municipal Disclosure

Mark Blake, Deputy City Attorney, City & County of San Francisco

Daniel Deaton, Partner, Nixon Peabody LLC

Dave Sanchez, Director, Office of Municipal Securities, Securities and Exchange Commission

CDIAC

Mark Blake
Deputy City Attorney
City and County of San Francisco

Daniel Deaton
Partner
Nixon Peabody LLC

Dave Sanchez
Director, Office of Municipal Securities
Securities & Exchange Commission

15-Minute

Break

Session 2

Disclosure Practices for Successful Issuance of Labeled Debt

David Blair, Managing Director, Portfolio Manager, Nuveen Asset Management

Eric McKean, Managing Director, Ramirez & Co., Inc.

Michael Paparian, California Representative, Climate Bonds Initiative

Monica Reid, Chief Executive Officer, Kestrel Verifiers

Nikolai Sklaroff, Capital Finance Director, San Francisco Public Utilities Commission

CDIAC

My Agency…

1) Has issued green or labeled bonds.
2) Is considering green or labeled bonds
3) Might consider issuing green or labeled bonds now that we know more about them.
4) Would never consider issuing green or labeled bonds.

What is the approximate cumulative total of labelled green bonds issues in California since 2014?

1) $5 Billion
2) $10 Billion
3) $20 Billion
4) $30 Billion

Source: Financial Times

Overview of Green Bond Market Development

2007/2008
- EIB, World Bank issue first green bonds

2009
- Green bond market takes off with the World Bank issuing first USD green bond

2012
- Launch of Climate Bond Standard
- Start of green definition, clear labeling process

2013
- Green Bond Market takes off with larger deals and increased investor interest

2014
- Green Bond Principles (GBP) published by ICMA
- First green bond indices
- First US&California labelled green bonds

2015/2016
- Maturing market
- Surge of Asian issuance
- Stock exchange launches green segments
- Guidance and regulations begin to emerge

2019
- Cumulative Calif Muni Issuance tops USD8 billion
- California Green Bond Market Development Committee launched

2020/2021
- 3 California Issuers issue green bonds over $1 billion:
  - LA Metro
  - San Diego Unified School District
  - Calif CCA

2023
- California tops $30 billion in labelled green muni bonds
- Range in size from $4 million to over $1.2 billion

Many Types of Labels

- Green
- Social
- Climate Aligned
- Sustainability
- Sustainable Development Goals (SDG)
- Shades of Green (Light, Medium, Dark)
- ESG

Many Ways to Verify Claims

CLIMATE BONDS STANDARD CERTIFIED

The Green Bond Principles

The Social Bond Principles

BAM℠ GREENSTAR

kestrel

The Sustainability Bond Guidelines

°C

°CICERO Dark Green

SUSTAINABLE DEVELOPMENT GOALS

How do California Issuers Justify Labels?

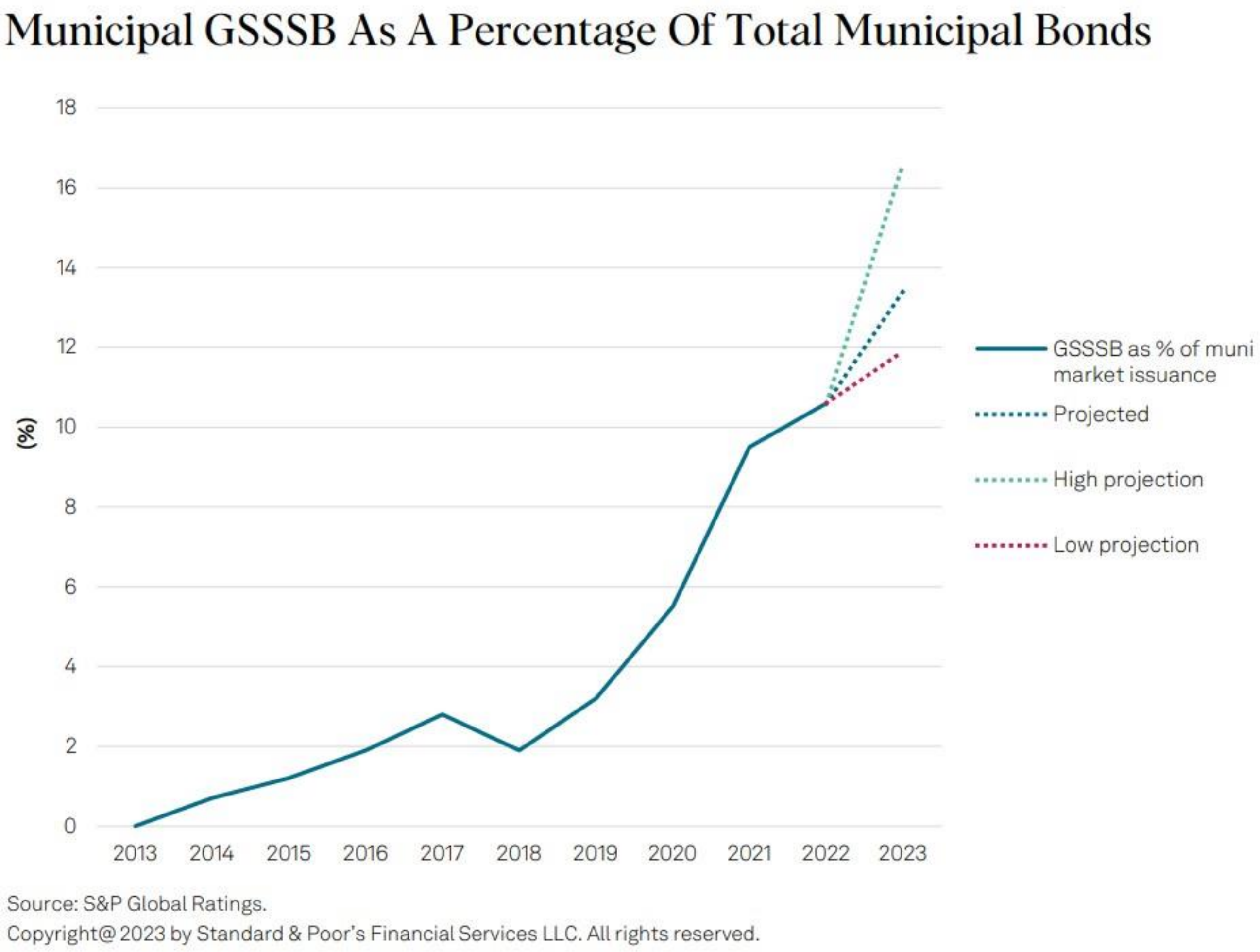
- **Self labeled (with or without criteria)**
  - Reasons stated in Official Statement
  - May be general (e.g. green building built to Title 24) or more specific (e.g. meeting internal green criteria)
- **Verification/Second Party Opinion**
  - Alignment to known definitions/standards such as ICMA
- **Certification**
  - Independent review to confirm alignment with climate goals & sector specific standards (Climate Bonds Initiative)

Why Consider Issuance of Labeled Debt?

Nikolai J. Sklaroff
Capital Finance Director
San Francisco Public Utilities Commission

Labeled Bond Market Growth

- U.S. Labeled Municipal Market is relatively new
- SFPUC entered the Green Bond Market in 2015 with Power Bonds
- City released first Climate Action Plan in 2004
- Has been leading local climate action, environmental justice and developing innovative programs since then.



S&P Global Ratings

Our 1st Labeled Bonds

- First SFPUC Green Bonds issued for $30.2 million of project funds.
- SFPUC self-certified the bonds.
- Proceeds funded (i) Hetch Hetchy Project hydroelectric generation facilities; (2) Other renewable energy project such as biomass, biowaste, solar and wind.
- Self-certified. Retained Sustainalytics in early 2016 to review reallocation of green bonds proceeds.

NEW ISSUE—Book-Entry Only

Ratings:
Fitch: "AA-"
S&P: "A+"
(see "RATINGS")

In the opinion of Orrick, Herrington & Sutcliffe LLP, San Francisco, California, and Curls Bartling P.C., Oakland, California, Co-Bond Counsel to the SFPUC, based upon an analysis of existing laws, regulations, rulings and court decisions, and assuming, among other matters, the accuracy of certain representations and compliance with certain covenants, interest on the 2015 Series AB Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986 and is exempt from the State of California personal income taxes. In the further opinion of Co-Bond Counsel, interest on the 2015 Series AB Bonds is not a specific preference item for purposes of the federal individual or corporate alternative minimum taxes, although Co-Bond Counsel observe that such interest is included in adjusted current earnings when calculating corporate alternative minimum taxable income. Co-Bond Counsel express no opinion regarding any other tax consequences related to the ownership or disposition of, or the amount, accrual or receipt of interest on, the 2015 Series AB Bonds. See ***TAX MATTERS***.

$39,555,000
PUBLIC UTILITIES COMMISSION
OF THE CITY AND COUNTY OF SAN FRANCISCO
Power Revenue Bonds,
2015 Series AB

San Francisco Water Power Sewer

$32,025,000	**$7,530,000**
2015 Series A Bonds	**2015 Series B Bonds**
(Green Bonds)	

Dated: Date of Delivery | **Due:** As shown on inside front cover

The Public Utilities Commission of the City and County of San Francisco (the "SFPUC") is issuing its Public Utilities Commission of the City and County of San Francisco Power Revenue Bonds, 2015 Series A (Green Bonds) (the "2015 Series A Bonds"), and its Public Utilities Commission of the City and County of San Francisco Power Revenue Bonds, 2015 Series B (the "2015 Series B Bonds" and, together with the 2015 Series A Bonds, the "2015 Series AB Bonds"), pursuant to authority granted by Sections 9.107(6) and 9.107(8) of the Charter of the City and County of San Francisco (the "City") and a First Supplemental Trust Indenture, dated as of May 1, 2015, by and between the SFPUC and U.S. Bank National Association, as trustee (the "Trustee"), which supplements a Trust Indenture, dated as of May 1, 2015 (collectively, the "Indenture"), by and between the SFPUC and the Trustee.

The 2015 Series AB Bonds are being issued to finance reconstruction or replacement of existing facilities of the SFPUC's Hetch Hetchy Project to fund capitalized interest on the 2015 Series AB Bonds, to fund a debt service reserve account for the 2015 Series AB Bonds and to pay costs of issuance of the 2015 Series AB Bonds.

The 2015 Series AB Bonds will be available in denominations of $5,000 or any integral multiple thereof and will mature in the years and amounts and accrue interest from their date of delivery at the rates set forth on the inside cover page of this Official Statement. Interest on the 2015 Series AB Bonds is payable semiannually on May 1 and November 1 of each year, commencing November 1, 2015.

The 2015 Series AB Bonds will be issued as fully registered bonds, registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"), and will be available to ultimate purchasers (the "Beneficial Owners") under the book-entry only system maintained by DTC. Beneficial Owners will not receive physical certificates representing their interests in the 2015 Series AB Bonds. The principal of, premium, if any, and interest on the 2015 Series AB Bonds are payable to DTC by the Trustee, and, so long as DTC is acting as securities depository for the 2015 Series AB Bonds, disbursements of such payments to DTC Participants is the responsibility of DTC and disbursements of such payments to the Beneficial Owners is the responsibility of DTC Participants.

The 2015 Series AB Bonds are subject to optional and mandatory redemption prior to maturity as described in this Official Statement.

Under the Indenture, the SFPUC has irrevocably pledged the Revenues of its Power Enterprise, after payment of Operation and Maintenance Expenses and any Priority R&R Fund Deposits, to the punctual payment of principal of, premium, if any, and interest on the Bonds, which consist of all outstanding parity revenue bonds issued under the Indenture, including the 2015 Series AB Bonds. The 2015 Series AB Bonds, all other Bonds and outstanding parity obligations permitted by the Indenture are secured by a parity lien on Revenues, after payment of Operation and Maintenance Expenses and any Priority R&R Fund Deposits.

The 2015 Series AB Bonds are special limited obligations of the SFPUC. The SFPUC is not obligated to pay the principal of, premium, if any, or interest on the 2015 Series AB Bonds from any source of funds other than Revenues, after payment of Operation and Maintenance Expenses and any Priority R&R Fund Deposits. Neither the general funds of the SFPUC nor the funds of any SFPUC enterprise (other than the Revenues and the funds pledged therefor under the Indenture) shall be liable for the payment on the 2015 Series AB Bonds. The SFPUC has no taxing power. The General Fund of the City is not liable for the payment of the principal of, premium, if any, or interest on the 2015 Series AB Bonds, and neither the credit nor the taxing power of the City is pledged to the payment of the principal of, premium, if any, or interest on the 2015 Series AB Bonds. The 2015 Series AB Bonds are not secured by a legal or equitable pledge of, or charge, lien, or encumbrance upon, any of the property of the City or of the SFPUC or any of its income or receipts, except Revenues, after payment of Operation and Maintenance Expenses and any Priority R&R Fund Deposits.

MATURITY SCHEDULE
(See inside cover)

This cover page contains information for general reference only. It is not intended to be a summary of this issue. Potential purchasers are advised to read the entire Official Statement to obtain information essential to making an informed investment decision.

The 2015 Series AB Bonds are offered when, as and if issued by the SFPUC and received by the Underwriter, subject to the approval of validity by Orrick, Herrington & Sutcliffe LLP, San Francisco, California, and Curls Bartling P.C., Oakland, California, Co-Bond Counsel, and to certain other conditions. Certain matters will be passed upon for the SFPUC and the City by the City Attorney of the City and County of San Francisco and for the Underwriter by Nossaman LLP, Irvine, California. Orrick, Herrington & Sutcliffe LLP, San Francisco, California, is also acting as Disclosure Counsel. Public Financial Management, Inc., San Francisco, California, and Kitahata & Company, San Francisco, California, Co-Financial Advisors to the SFPUC, assisted in the structuring of this financing. It is expected that the 2015 Series AB Bonds in fully registered form will be available for delivery in book-entry form in New York, New York, on or about May 20, 2015.

Wells Fargo Securities

May 7, 2015

Linkage to Our Core Mission

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

My Account | Report A Problem | Careers | Contact Us | Translate | Alerts

Accounts & Services | Programs | Learning | Construction & Contracts | About Us

Home / About Us / Who We Are / **Our Mission**

Who We Are

- **Our Mission**
- Executive Management
- Community Benefits Approach
- Our History

Our Mission

We Are Here to Serve You.

Our mission is to provide our customers with high quality, efficient and reliable water, power, and sewer services in a manner that is inclusive of environmental and community interests, and that sustains the resources entrusted to our care.

The San Francisco Public Utilities Commission provides retail drinking water & wastewater services to the City of San Francisco, wholesale water to three Bay Area counties, green hydroelectric & solar power to Hetch Hetchy electricity customers, and power to the residents & businesses of San Francisco through the CleanPowerSF program.

We are comprised of three essential 24/7 service utilities: Water, Wastewater and Power. These functions are supported by the Business Services, Infrastructure and External Affairs bureaus.

Headquartered at 525 Golden Gate Avenue in San Francisco, we have about 2,300 employees working in seven counties with a combined annual operating budget of over $1billion.

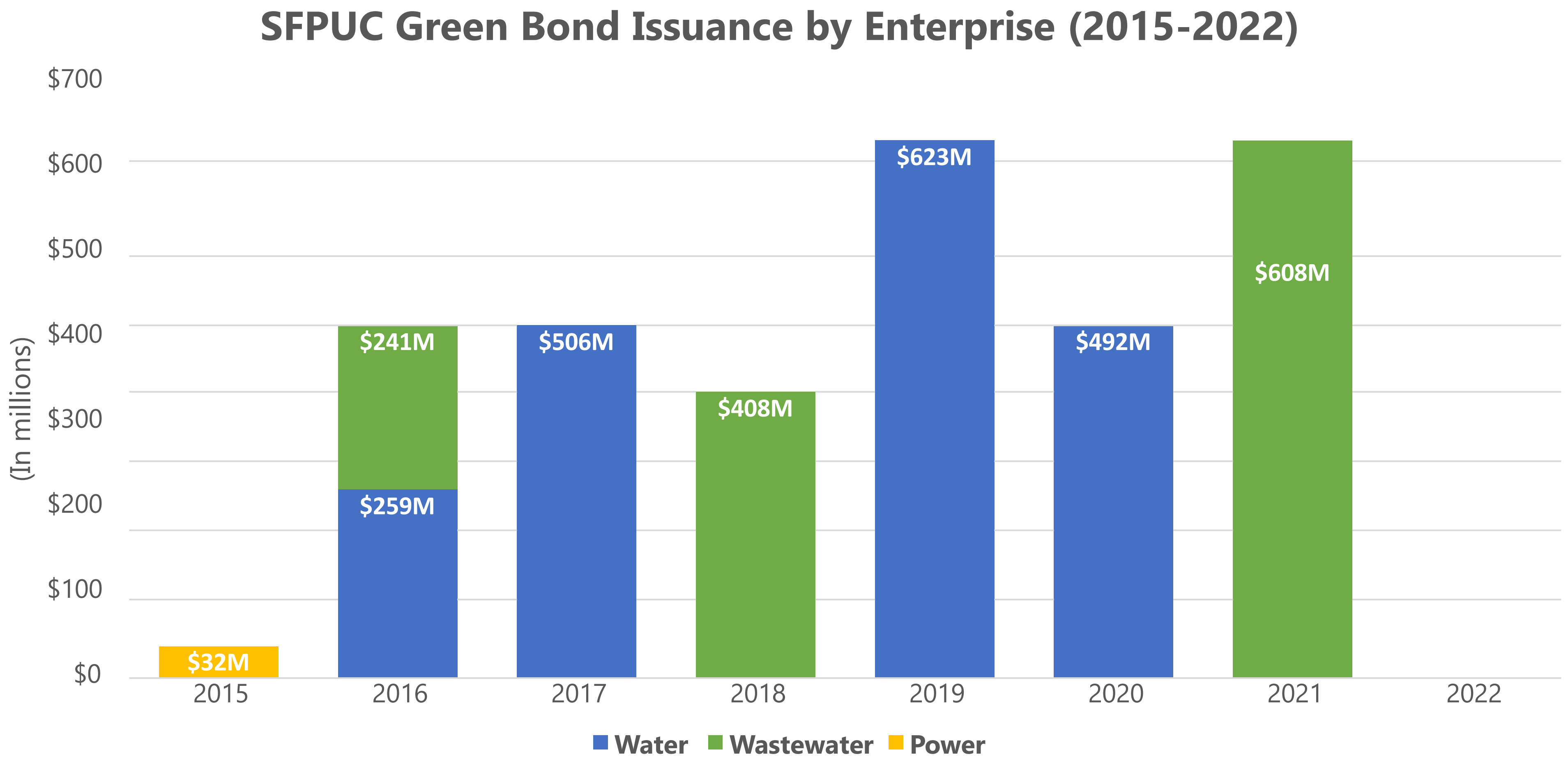
SFPUC and Green Bonds

- After first Self Certified Power Enterprise Green Bonds in 2015, more in 2021
- Have sold more than $3.1 billion in certified green bonds across two enterprises: Water and Wastewater
- Projects increased water storage, application of green infrastructure to manage stormwater and upgrades to renewal energy generation.

Leadership in Green Bonds

- **2015**: Our 1st Green Bonds
- **2017:** Recognized by the Climate Bonds Initiative as the first issuer worldwide to sell bonds under its water criteria
- **2019 & 2021:** US Municipal Green Bond of the Year by *Environmental Finance*
- **2020:** First US Municipality to list Green Bonds on an exchange in Europe (the London Stock Exchange)
- **2021:** Combined green bond programs of the City of San Francisco and SFPUC recognized as a global leader in the C40 report Cities100

SFPUC Green Bond Issuance



SFPUC Green Bond Issuance

Green Bond Issuance Total by Enterprise

Water Green Bonds Total (7):	$1,880M
Wastewater Green Bonds Total (6):	$1,257M
Power Green Bond Total (2):	$106M

SFPUC Total Green Bond Issuance (15): $3,243M

SFPUC Water Certified Green Bonds Issued to Date (7 issuances)	
Water Revenue Bonds Series 2016C (Green Bonds)	$259,350,000
Water Revenue Bonds Series 2017A (Green Bonds)	$121,140,000
Water Revenue Bonds Series 2017D (Refunding) (Green Bonds)	$350,305,000
Water Revenue Bonds Series 2017G (Refunding) (Green Bonds)	$34,280,000
Water Revenue Bonds Series 2019A (Refunding) (Green Bonds)	$622,580,000
Water Revenue Bonds Series 2020A (Green Bonds)	$150,895,000
Water Revenue Bonds Series 2020E (Green Bonds)	$341,435,000
Total	**$1,879,985,000**
SFPUC Wastewater Certified Green Bonds Issued to Date (6 issuances)	
Wastewater Revenue Bonds Series 2016A (Green Bonds)	$240,580,000
Wastewater Revenue Bonds Series 2018A (Green Bonds)	$229,050,000
Wastewater Revenue Bonds Series 2018C (Green Bonds)	$179,145,000
Wastewater Revenue Bonds Series 2021A (Green Bonds)	$260,835,000
Wastewater Revenue Bonds Series 2021A (Green Notes)	$218,355,000
Wastewater Revenue Bonds Series 2021B (Green Notes)	$129,110,000
Total	**$1,257,075,000**
SFPUC Power Green Bonds Issued to Date (1 issuance)	
Power Revenue Bonds Series 2015A (Green Bonds)	$32,050,000
Power Revenue Bonds Series 2021A (Green Bonds)	$74,280,000
Total	**$106,330,000**

SFPUC Wastewater
CBI Green Bond Certification

Sewer System Improvement Program (SSIP) Programmatic Certification with Climate Bonds Initiative

- The Climate Bonds Initiative (CBI) is an international, investor-focused non-profit organization, that the capital market considers the highest standard for green bond certification.

- The SFPUC received programmatic certification from CBI
  - Develop ICMA Green Bond Principles
  - Meet the Water Infrastructure Criteria under the Climate Bonds Standard
    - Mitigation Component (related to GHG emissions)
    - Adaptation & Resilience Component (Resilience to Climate Change)
  - Receive third-party verification by a CBI approved verifier (Sustainalytics)
    - The SFPUC also received a Second Party Opinion (SPO) from Sustainalytics

Certification

This is to certify that the

Wastewater Revenue Bonds Series 2023A (New Money)

Issued by

San Francisco Public Utility Commission

Has met the criteria for certification by the Climate Bonds Standard Board on behalf of the Climate Bonds Initiative

19 Jan 2023

SEAN KIDNEY
Chair of the Climate Bonds Standard Board

Certification

This is to certify that the

Wastewater Revenue Bonds Series 2023C (Refunding)

Issued by

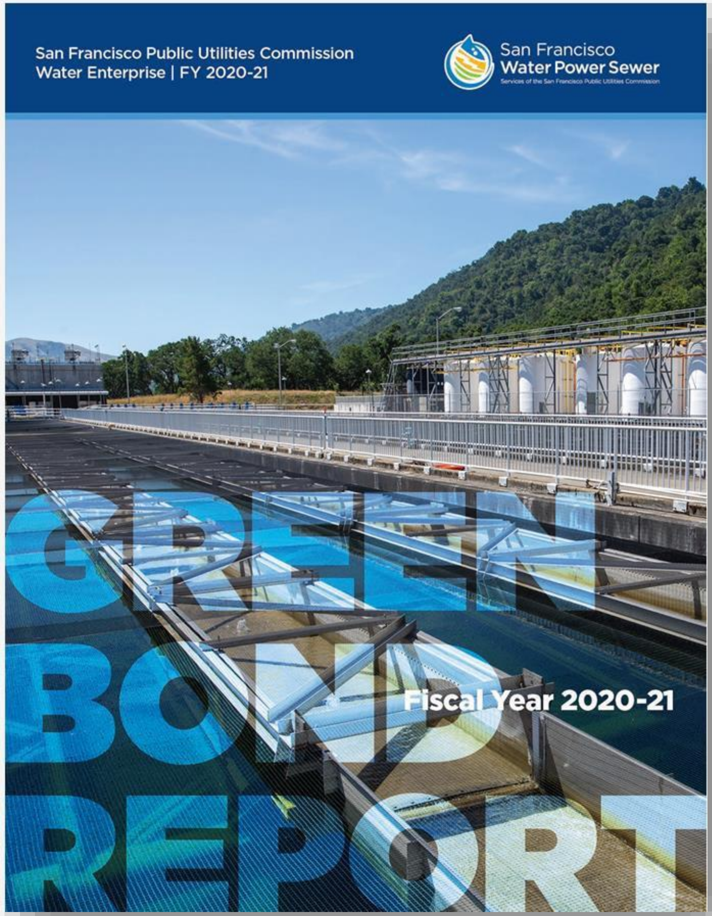
San Francisco Public Utility Commission

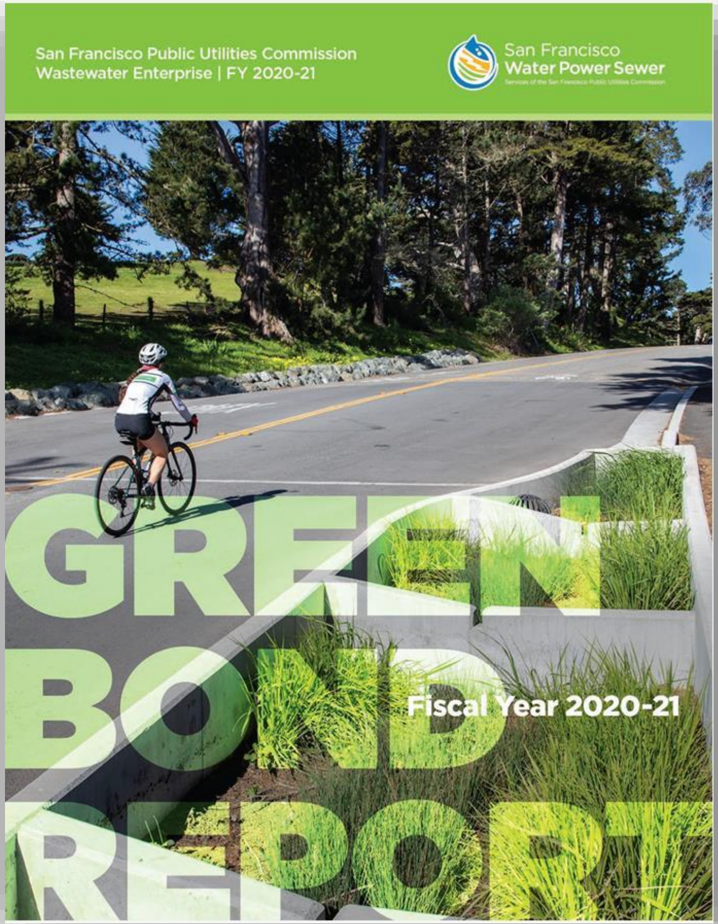
Has met the criteria for certification by the Climate Bonds Standard Board on behalf of the Climate Bonds Initiative

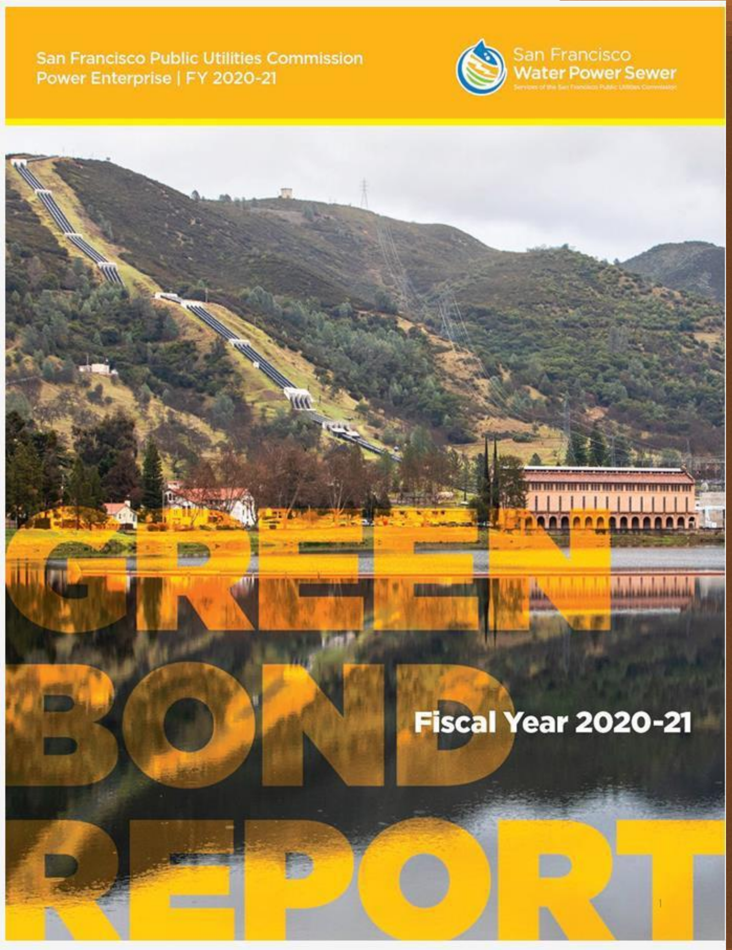
19 Jan 2023

SEAN KIDNEY
Chair of the Climate Bonds Standard Board

Reporting: Green Bond Reports







Green Bond Reports Contents

- **Introduction**
- **Enterprise Green Bond Impact Report**
  - Green Bond Proceeds
  - Project Environmental Impacts Aligned with United Nations Sustainable Development Goals (UN SDGs)
  - Case Study
- **Appendix:**
  - State, City, and SFPUC Regulations, Policies and Programs
  - SFPUC Green Bond Program
  - SFPUC Climate and Social Inclusion Impacts Aligned to the UN SDGs
  - Green Bond Verification Report (provided by third party verifier Sustainalytics)

Reevaluating Pros and Cons

Benefits	Challenges
• Articulate the values of our organization • Expand investor base • Potential interest rate benefits • Aligns infrastructure development to climate challenges • Demonstrates commitment to environmental initiatives • Earmark funds for climate projects • Ease of explaining climate initiatives to constituents • Fostering growth of the green bond market	• Regulatory responsibility • Cost (time and money) • Measuring of new metrics • Cheerleading vs. Reporting • Need to embrace new processes • Aligning reporting • Assuring green commitments are maintained • Shifting politics/Green backlash • Lack of central reporting • Aspirational: Shifting from actions taken, to impact of actions taken

Leadership in Green Bonds

Top 10 Green Bond Issuers In U.S. Public Finance 2013-2022

Issuer	Par (Mil. $)	% Green
New York MTA	12,476	13
Indiana Finance Authority	3,443	4
San Francisco Public Utilities	3,243	3
California Community Choice Financing Authority	2,768	3
San Francisco Bay Area Rapid Transit District	2,694	3
Massachusetts Water Resources Authority	2,400	3
Los Angeles County Metropolitan Transportation Authority	2,246	2
Central Puget Sound Transit Authority	2,212	2
Greater Orlando Aviation Authority	2,011	2
Power Authority of the State of New York	1,843	2
Top 10	**35,337**	**38**

*Public transport consists of mass transit and rail financings. Issuance by airports (i.e., financing terminal projects) largely resides within green buildings. Source: S&P Global Ratings

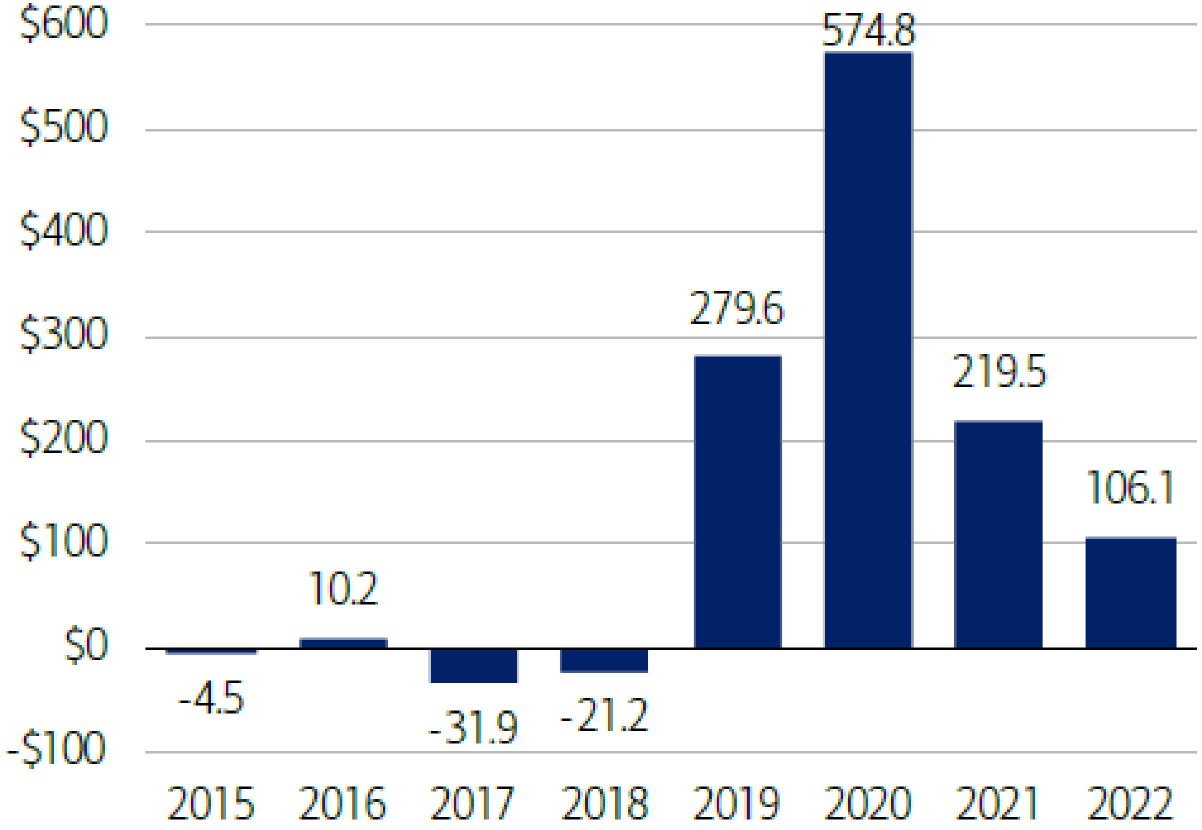
S&P Global

Why Consider Issuance of Labeled Debt?

David Blair, CFA
Managing Director, Portfolio Manager
Nuveen

Annual Municipal ESG Fund Flows ($mm)

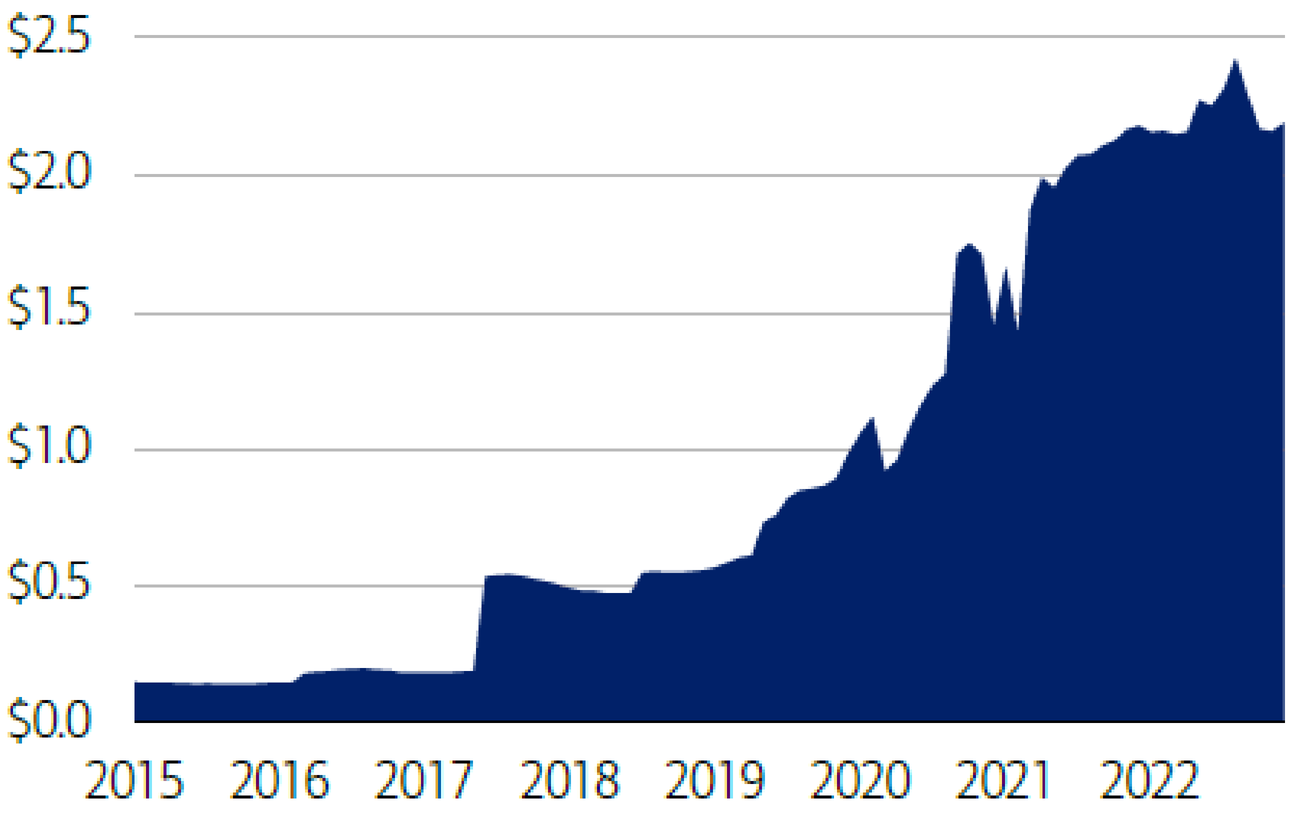
- Muni ESG flows remained positive in 2022 as non-ESG muni funds had heavy outflows



Source: EPFR Global. Includes funds that report daily, weekly and monthly. As of 31 Dec 2022.
BofA GLOBAL RESEARCH

Municipal ESG Fund AUM ($bn)

- While still a small part of municipal market, ESG funds have rapidly gathered assets

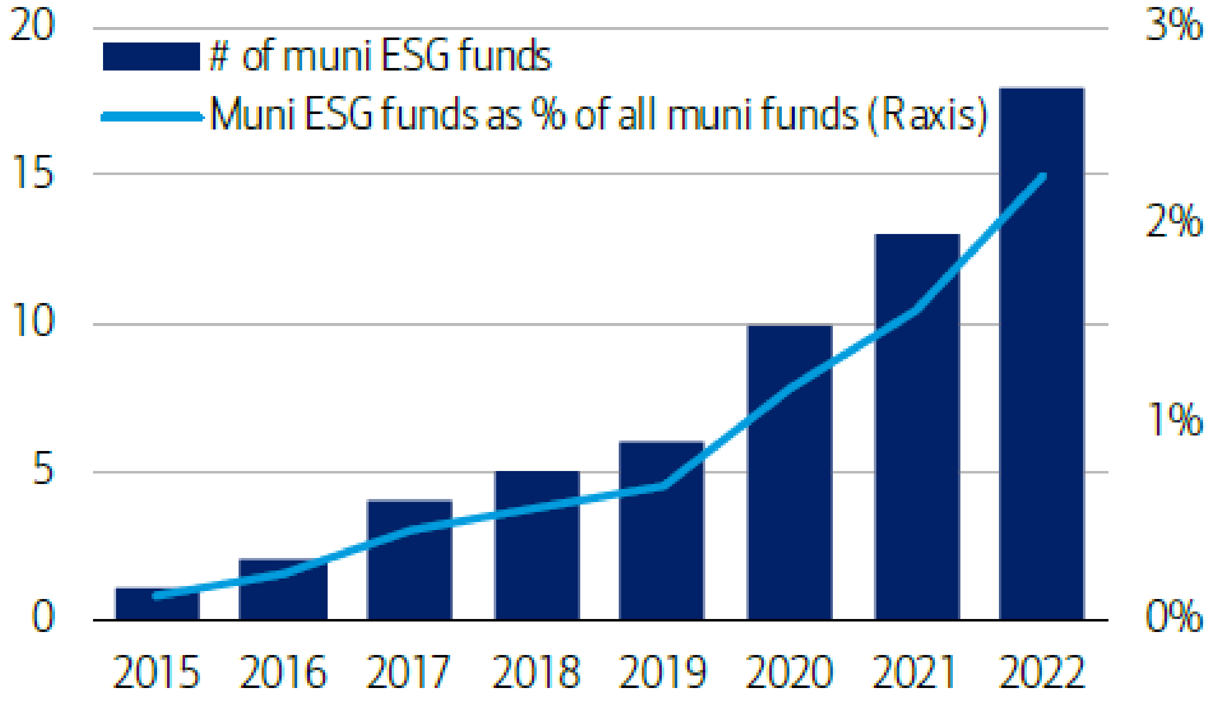


Source: EPFR Global. Includes funds that report daily, weekly and monthly. As of 31 Dec 2022.

BofA GLOBAL RESEARCH

Growing Number of Muni ESG Bond Funds

- More funds have been launched in recent years, even in 2022

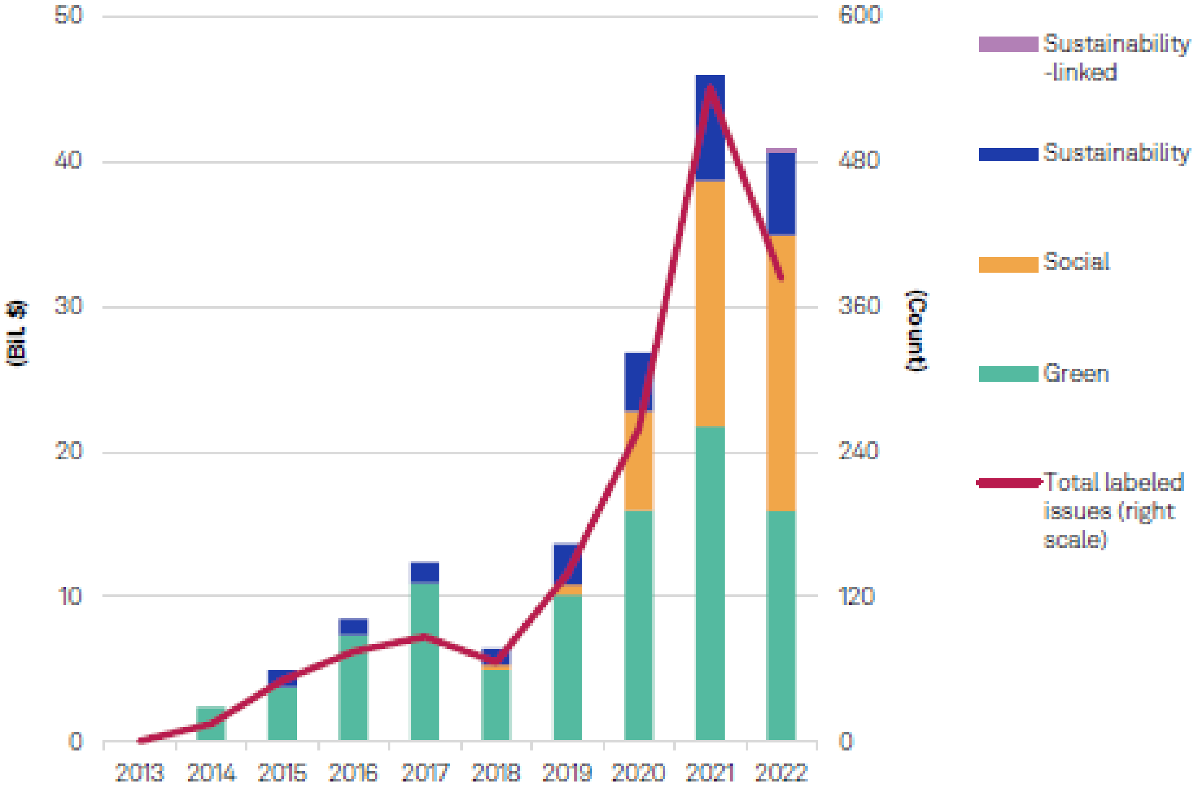


Source: EPFR Global. Includes funds that report daily, weekly and monthly. As of 31 Dec 2022.

BofA GLOBAL RESEARCH

Explosive Growth in Labeled Debt Issuance in Last Few Years

- Social Bonds issuance was roughly equal to Green Bonds in 2022



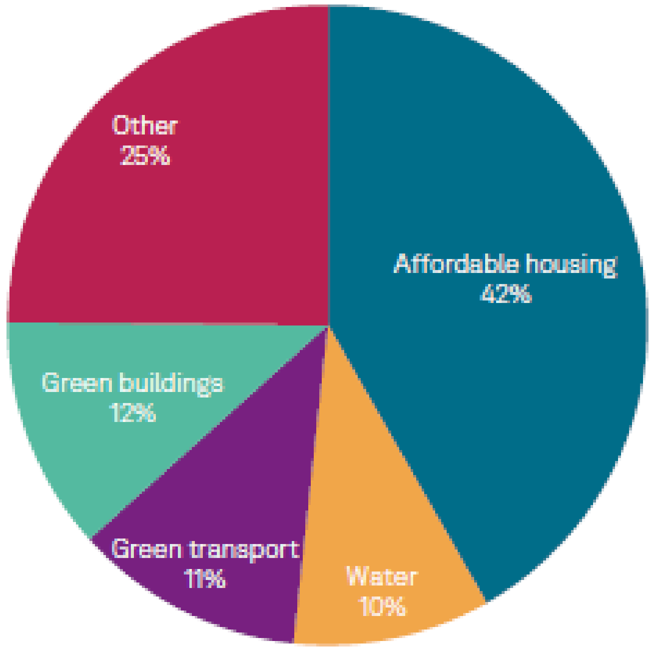
Source: S&P Global Ratings

Which sectors accounted for most of the labeled debt issuance in 2022? Rank from highest to lowest.

Affordable Housing
Green Buildings
Green Transport
Water

Labeled Debt Issuance by Sector in 2022

- Affordable housing dominates issuance but diversity of sectors overall



Other includes green energy, green manufacturing, land conservation, mixed, waste, education, and socioeconomic advancement and development. Source: S&P Global Ratings.

What does an issuer communicate to stakeholders through issuance of labeled debt?

Monica Reid
CEO/Founder
Kestrel

Self-Labeled vs External Review

- Self-Labeled Debt can communicate:
  - *Possible* Impact
    - By signaling to the market the presence of bond-financed projects that *likely* have positive environmental and/or social impacts

- Labeled Debt with an External Review can communicate:
  - Impact
    - By informing the market of environmental and social benefits of bond financed projects that have material impacts
  - Integrity
    - By communicating the alignment of bond-financed activities with internationally recognized ESG standards, including the ICMA Green/Social Bond Principles and the Climate Bond Standard
    - By using third party verification
  - Transparency
    - Through distillation of complex (and possibly elusive) project details into accessible content for the market
  - Leadership
    - By informing the market of best practices that support a just transition to a low carbon economy

Typical G/S/S Reporting Schemes

- What is basic?
  - **Continuing Disclosures:** posted to EMMA or elsewhere
  - **Bond Proceeds Reporting**: a post-issuance update report on percent of proceeds allocated to projects
  - *Frequency*: once

- What is best practice?
  - **Project Update Reporting**: post-issuance reports with construction status and project updates until the project is complete or proceeds fully spent
  - **Impact Reporting:** post-issuance report(s) with quantitative impact metrics (such as GHG emissions avoided) and qualitative outcomes (such as community response)
  - *Frequency*: annually until project is complete or until bond maturity

How is Labeled Debt Issued and What are key decision points?

Eric McKean, CFA
Managing Director
Ramirez & Co., Inc.

Steps for Issuing Labeled Debt

Approach #1	Alternative Approach
1. Identify Projects to be Financed	
2. Establish Labeled Debt Framework	2. Use of Proceeds Review by External Party
3. Designate Bonds as Green, Social or Sustainable	
4. Include G/S/S Bond Disclosure & Sell Labeled Debt	
5. Monitor Use of Proceeds and Report Annually	

What are Differences from Unlabeled Debt?

- Evaluation of projects required for alignment with Green Bond Principles and/or Social Bond Principles
- Additional consultant(s), if externally reviewed
- Additional disclosure
  - Disclosure section speaks to the specific label
  - Project description typically highlights environmental/social attributes
  - External Review" report incorporated into offering document, if externally reviewed
- Annual reporting update on use of proceeds
  - Typically done through continuing disclosure report filed on EMMA
  - Reporting requirement usually ends once all proceeds are spent

Case Study: Successful Outcomes for Less Frequent Issuers

- Security: SHREC Securitization
- Par: $24,834,000
- Project: Solar Panel Incentive Program
- Label Process: Climate Bond Certified
- S&P Rating: A
- Highlights: Marketed as Green Liberty Bonds; extensive local outreach led to almost all retail investor distribution

- Security: Water Revenue Bond
- Par: $27,380,000
- Project: Water Treatment Facility
- Label Process: BAM Green Star
- S&P Rating: A+ / AA Insured
- Highlights: No additional cost to BAM (bond insurer) label; anchor order from large ESG bond fund

Case Study: Successful Outcomes for Large, Frequent Issuers

- Security: CFD 2014-1 Special Tax Bonds
- Par: $496,055,000 (7 series)
- Project: Transbay Transit Center facilities
- Label Process: Climate Bond Certified
- Fitch Rating: AA+
- Highlights: Programmatic Certification

- Security: Airport Revenue Bonds
- Par: $330,000,000* [pricing March 27th]
- Project: Terminal improvements
- Label Process: Kestrel External Review*
- S&P Rating: AA*
- Highlights: 4th Green Bond in last year; first refunding issue as Green Bond

* Preliminary, subject to change

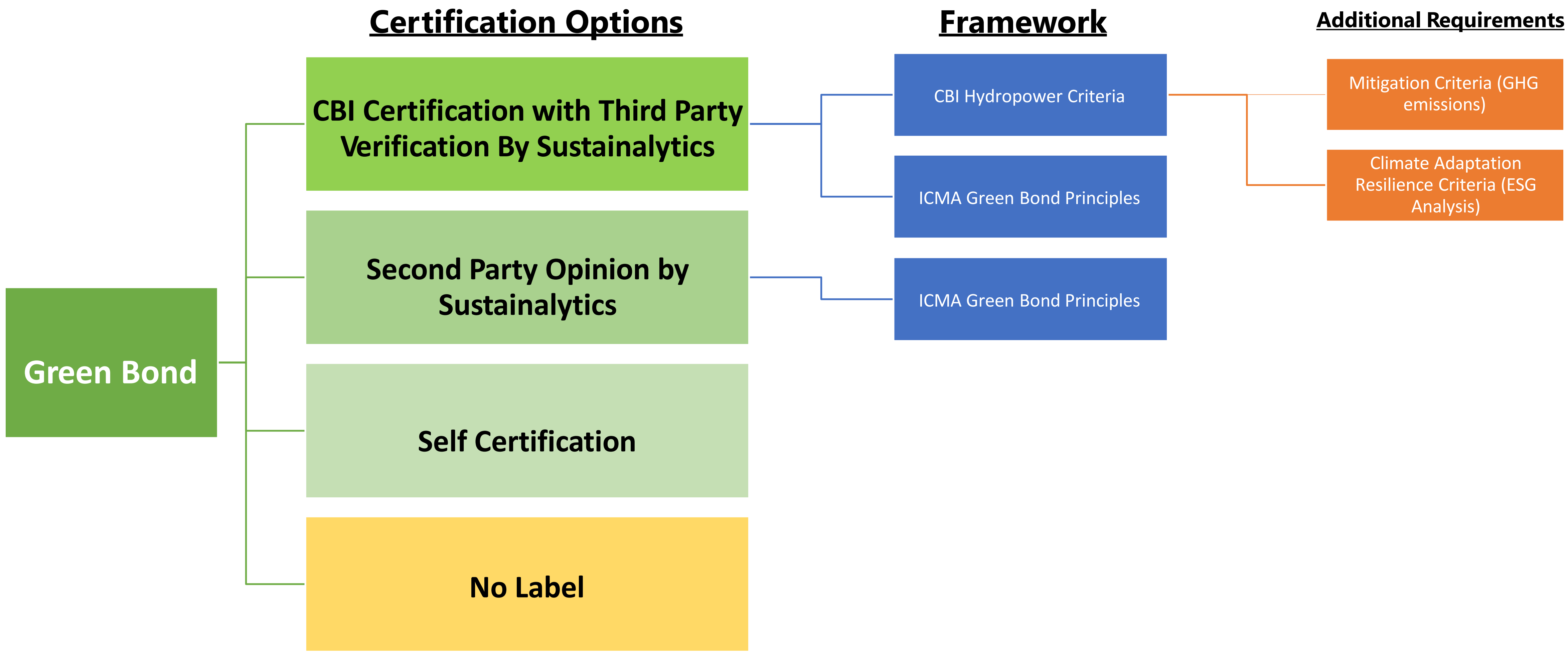
Investor Feedback

- Detailed description of Green/Social Projects in Official Statement
  - Description and/or data on why projects are labeled “Green” or “Social”
    - Body of Official Statement or in third party External Report
    - Critical for “Impact Investors”
- Taxable municipal bond investors have expressed preference for third party External Reports
  - Mixed feedback from tax-exempt investors
- Ongoing disclosure is expected
  - Issuer provides ongoing, project-level, disclosure to investors until all proceeds are spent to ensure that monies were spent appropriately – core tenant of ICMA principles

Short Case Study: SFPUC Power Bonds

Nikolai J. Sklaroff, *Capital Finance Director*
San Francisco Public Utilities Commission

Power Bond Certification



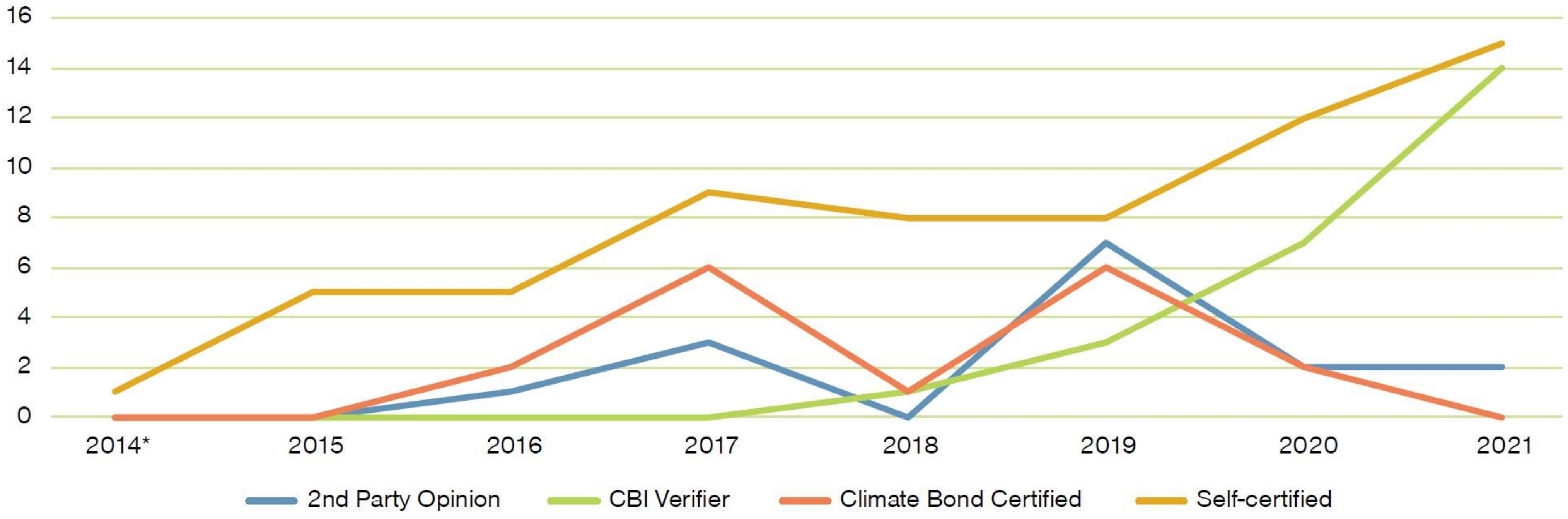
Second Party Opinion (SPO) vs. Climate Bond Certification

	The International Capital Market Association (ICMA)	Climate Bonds Initiative (CBI)
Standards and Definitions	Green Bond Principles: Proceeds will finance or refinance, in part or in full, new and/or existing eligible Green Projects	Proceeds will finance projects that contribute to a low carbon and climate resilient economy, consistent with the 2 degrees Celsius warming limit established in the Paris Agreement.
Core Components	1.Use of Proceeds 2.Process for Project Evaluation and Selection 3. Management of Proceeds 4. Reporting	In addition to meeting the ICMA core components, projects and assets will conform with the overarching Climate Bonds Standard and detailed, science-based eligibility criteria for relevant sectors.
External Review	Recommended by the ICMA	Approved "3rd Party Verifier" Required
Title of Report	"Second Party Opinion (SPO)"	"Verifier's Report"
Post-Issuance Reporting	Expected annually until full allocation of proceeds	Required – Verifier must submit within 24 months of sale

Source: *Kestrel Verifier's FAQs*

Green Bond Designation Types (By Number of Green Bonds)

GREEN BOND DESIGNATION TYPES (BY NUMBER OF GREEN BONDS)
SEPTEMBER 2014 – SEPTEMBER 2022, AS REPORTED TO CDIAC



*Period in 2014 includes September 1 through December 31, 2014

**Period in 2021 includes January 1 through September 30, 2022

Source: CDIAC Debt Line Vol.41, No.12, December 2022

Certification Type Benefits and Challenges

Type of Certification	Benefits	Challenges
CBI Certification with Third Party Verification by Sustainalytics	Highest standard for green bond certification	Additional requirements to meet CBI criteria can be time-intensive and costly
Second Party Opinion by Sustainalytics	Aligns with ICMA recommended Green Bond Principles	Requires development of green bond framework and third party verification
Self Certification	No additional cost	Speculation of “greenwashing”

LUNCH

Session 3

Assessment, Mitigation and Disclosure of Cybersecurity Risks

Donald Hester, Cybersecurity Manager, City of Livermore

Omid Rahmani, Associate Director, Fitch Ratings Agency

Joseph Santiesteban, Partner, Orrick Herrington & Sutcliffe LLP

Sean Yates, Managing Associate, Orrick Herrington & Sutcliffe LLP

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CNN U.S. + Live TV U.S. Edition +

The FBI is investigating a ransomware attack on the city of Atlanta

By Emanuella Grinberg, CNN
Updated 9:35 AM ET, Fri March 23, 2018

BUSINESS › TECHNOLOGY

Cyberattacks, like the one on CDOT, a wakeup call for local governments to prepare

After two attacks Colorado transportation department sped up implementation of security

By THE ASSOCIATED PRESS

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CIVIC

Mar. 29, 2018 12:42 pm

City: Cyber attack against Baltimore's 911 computer-aided dispatch system was ransomware

According to Baltimore's CIO, the vulnerability was left open during troubleshooting. Ransomware is among the most common attacks against public safety agencies, said SecuLore's Tim Lorello.

NOV 28, 2016 @ 08:31 AM 39,687 VIEWS

The Little Black Book of Billionaire Secrets

Ransomware Crooks Demand $70,000 After Hacking San Francisco Transport System -- UPDATED

Thomas Fox-Brewster, FORBES STAFF
I cover crime, privacy and security in digital and physical forms. FULL BIO

State Department warns staff of surge in hacking attempts

By ERIC GELLER | 04/12/2018 04:57 PM EDT | Updated 04/12/2018 06:28 PM EDT

gt MAGAZINE
government technology

SECURITY

Local Governments: Attractive Targets for Cybercriminals?

Cities and counties are attractive targets in part because they're connected to state systems or other large networks.

BY ANDY MATARRESE, THE COLUMBIAN, VANCOUVER, WASH. / MAY 4, 2016

76% of local government organisations suffered a cyber attack in the past year

SEC's Proposed Cybersecurity Disclosure Requirements

- Proposed rules in March 2022 apply to public companies
- Provide context and guidance for the municipal market
- Designed to:
  1. Better inform investors about a public company's risk management, strategy, and governance;
  2. Provide timely notification of material cybersecurity incidents; and
  3. Create consistent, comparable, and decision-useful disclosures regarding (1) and (2).

Two Overarching Categories

- Periodic Disclosure
  - Focus on <u>risk management, strategy, and governance</u>
  - Changes to Regulation S-K, and corresponding changes to Form 10-K and Form 10-Q
  - Informs an issuer's or borrower's:
    1. <u>Annual and/or quarterly continuing disclosure reports</u>
    2. Voluntary event filings;
    3. Offering documents; and
    4. Other communications to the market

- Incident Reporting
  - Focus on <u>timely disclosure of material cybersecurity incidents</u>
  - Changes to Form 8-K
  - Informs an issuer's or borrower's:
    1. <u>Material event notices</u>;
    2. Offering documents; and
    3. Other communications to the market

Periodic Disclosure – SEC Rules

The SEC's Proposed Rules Would Require Public Companies:

1. To disclose cybersecurity policies and procedures

2. To provide detailed disclosures describing board-level governance, including:
   - How the board learns about and discusses cybersecurity issues;
   - Whether the board evaluates risks as part of business strategy, risk management and financial oversight; and
   - Which directors have cybersecurity credentials.

3. To disclose cybersecurity management processes, including whether it has a chief information security officer (and their credentials) and, any consultants, auditors or other third parties to help assess cybersecurity risks

Periodic Disclosure – Muni Market

The SEC's Proposed Rules Indicate that Muni Market Participants Should:

1. Review and bolster cybersecurity policies and disclosure policies
   - Consider whether you have had any privacy or security incidents that involve confidential or personal data, and if so, whether those incidents were disclosed to the market.
   - Evaluate your procedures for periodic risk assessments both internally and with respect to third parties

2. Collect information regarding cybersecurity expertise of the governing board and key staff members (including a CISO)

3. Evaluate whether your current cybersecurity insurance coverage aligns with the entity's current risk profile

4. Develop disclosures relating to updated cybersecurity policies and procedures
   - Goal is to create forms to update and adapt for quarterly and annual reports and offering documents

Case Study

In re First American Financial Corporation (2021)

- First American's security personnel identified a vulnerability in January 2019 exposing over 800 million documents containing social security numbers and other personal financial data.

- First American failed to remediate the vulnerability.

- On May 24, 2019, a cybersecurity journalist discovered the vulnerability and contacted and received a statement from First American. On May 28, 2019, First American published an 8-K.

- First American executives were not informed about the January 2019 discovery prior to the publication of the Form 8-K.

- The SEC determined that First American failed to maintain disclosure controls and procedures to ensure that information required to be disclosed is timely disclosed, and imposed a $487,616 penalty.

Incident Reporting – SEC Rules

<u>The SEC's Proposed Rules Would Require Public Companies</u>:

1. To disclose material cybersecurity incidents within four business days from the materiality determination
   - No guidance regarding materiality determinations.
   - Extends to compromises of the company's "<u>information system</u>," including systems owned or used by the company and third-parties such as cloud infrastructure and service providers.
   - No exceptions for delayed reporting for law enforcement or national security reasons.
2. To provide periodic updates reflecting material changes or additions to previously disclosed incidents (including remediation efforts)
3. To disclose cybersecurity incidents that only become material if aggregated

Incident Reporting – Muni Market

The SEC's Proposed Rules Indicate that Muni Market Participants Should:

1. Revisit and test their incident response plans
   - Consider whether your cybersecurity policies and procedures require employees to quickly escalate cybersecurity incidents to those empowered to make materiality and disclosure determinations.
     - *See in re First American Financial Corporation*.
2. Consider whether contracts with third parties comprising the "information system" provide for incident reporting and cooperation necessary to make materiality and disclosure determinations regarding third-party cybersecurity incidents.

3. Discuss with bond or disclosure counsel the implications of any cybersecurity incidents and possible voluntary disclosures.

Case Study

In re Pearson plc (2021)

- On March 21, 2019, Pearson learned that millions of rows of data had been accessed and downloaded by a sophisticated threat actor.
- On July 19, 2019, Pearson mailed a breach notice to its affected customers.
- On July 25, 2019, Pearson filed its Form 6-K, which included as a risk factor only that the company faced a hypothetical risk of a data privacy incident and failed to disclose that the company had in fact already experienced such a data breach.
- On July 31, 2019, Pearson posted a media statement which misstated the character and contents of the data breach.
- The SEC determined that Pearson's Form 6-K and media statement were misleading, and imposed a $1,000,000 penalty.

ICMA LG Cybersecurity Survey 2020

Local Governments are at Risk

- Top officials in organizations are often not engaged in cybersecurity at high levels
- Top management is not sufficiently well informed about or committed to cybersecurity
- Top officials fail to insist on a cyber safe culture
- Top officials fail to act appropriately in their own cyber responsibilities

"Understanding these issues will enable local officials not only to see why cybersecurity is crucial to their government's digital well-being, but will help ensure that cybersecurity has their full support and is adequately funded and properly managed."

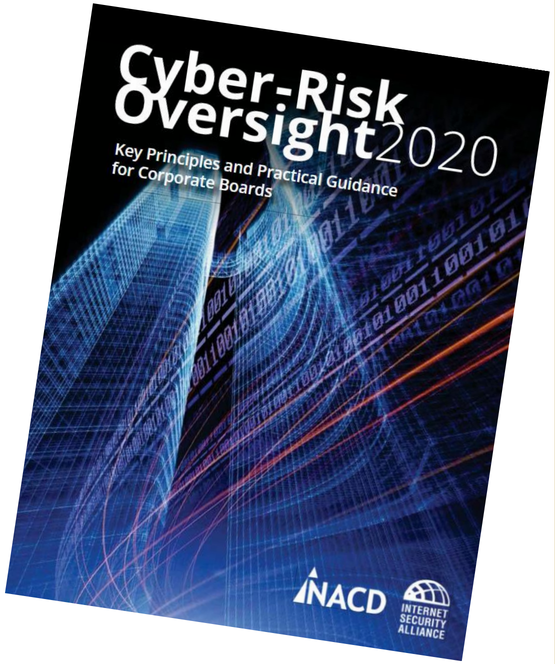
https://icma.org/articles/pm-magazine/look-local-government-cybersecurity-2020

Governance Roles for Boards/Councils

- How should Council (board) view cyber risk?
- What role does Council (board) play in managing cyber risks?
- What expectations should Council (board) set for management?
- What questions should the Council (board) be asking?

Many executives and boards still have dated views about cybersecurity:

"Board members need to ensure that management is fully engaged in making the organization's systems as resilient as economically feasible. This includes developing defense and response plans that are capable of addressing sophisticated attack methods."



Key Principles

For elected and appointed local government officials

Enterprise Risk

Understand cyber risk is enterprise risk and cybersecurity is strategic

Assign Budget

Ensure budget is sufficient to reduce cyber risk to an acceptable level

Oversight

Culture, Cyber Literacy, Clear Expectations, Accountability

Framework

Select a framework and assign responsibility for cybersecurity

Monitor & Report

Data and reporting sufficient for decision making

CYBERSECURITY
FRAMEWORK
VERSION 1.1
IDENTIFY
PROTECT
DETECT
RESPOND
RECOVER

Incident Preparedness

Exercises

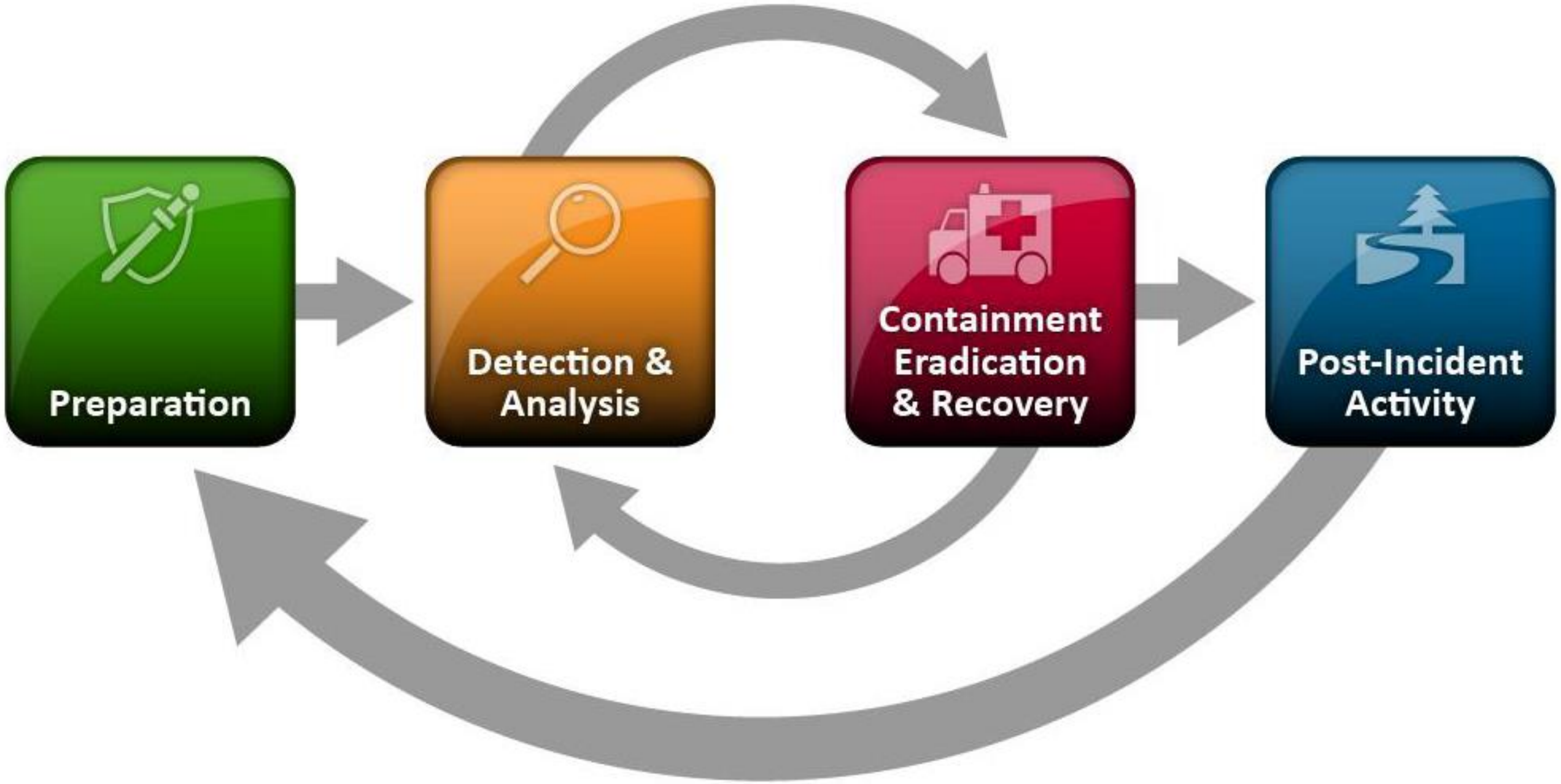
Purpose

Examine the coordination, preparation, and capabilities in response to a significant cyber incident within the organization, and identify areas for improvement in policies, plans, and procedures.

Objectives

- Strengthen the organization’s cybersecurity awareness to enhance the effectiveness of protecting the community’s systems and services.
- Examine information sharing processes with internal and external stakeholders.
- Assess preparedness to respond to, mitigate, and recover from cybersecurity incidents.
- Explore processes for requesting state/federal incident response resources once county/state resources are exhausted.
- Understand potential threat and how incident might materialize.

Incident Response



Source: NIST SP 800-61 Revision 2, Computer Security Incident Handling Guide

15-Minute

Break

Session 4

Assessment and Disclosure of Climate Change Risks

David Blair, Managing Director, Portfolio Manager, Nuveen Asset Management

Daniel Deaton, Partner, Nixon Peabody LLC

Kim Nakahara, Senior Research Analyst and Portfolio Manager, Allspring Global Investments

Nikolai Sklaroff, Capital Finance Director, San Francisco Public Utilities Commission

CDIAC

Defining Climate Change Risk

Physical Risk

- Event-Driven (Acute)
  - Extreme Weather Events, such as floods and hurricanes
  - Earthquake
- Longer-Term (Chronic)
  - Rising Sea Levels
  - Changing Precipitation, including drought

Transition Risk

- Potential Negative Impacts from a transition to a lower greenhouse gas-emitting economy
  - Regulatory
  - Technological
  - Market
  - Liability
  - Reputational

Source: US Environmental Protection Agency, “Climate Risks and Opportunities Defined”

Impact on Pledged Revenues

Revenues

- Reduced revenue from decreased production capacity
- Reduced revenue from lower sales/output

Capital Costs

- Increased capital costs due to facility damage
- Write-off of assets due to property damage/“high risk locations”

Economic Profile

- Higher costs from negative impacts on workforce (e.g., health, safety, absenteeism)
- Supply chain interruptions or transport difficulties

Source: US Environmental Protection Agency, “Climate Risks and Opportunities Defined”

Transition Risks and Finance

Renewable Energy

- Increased operating costs (i.e., insurance, compliance)
- Increased costs due to fines or judgements

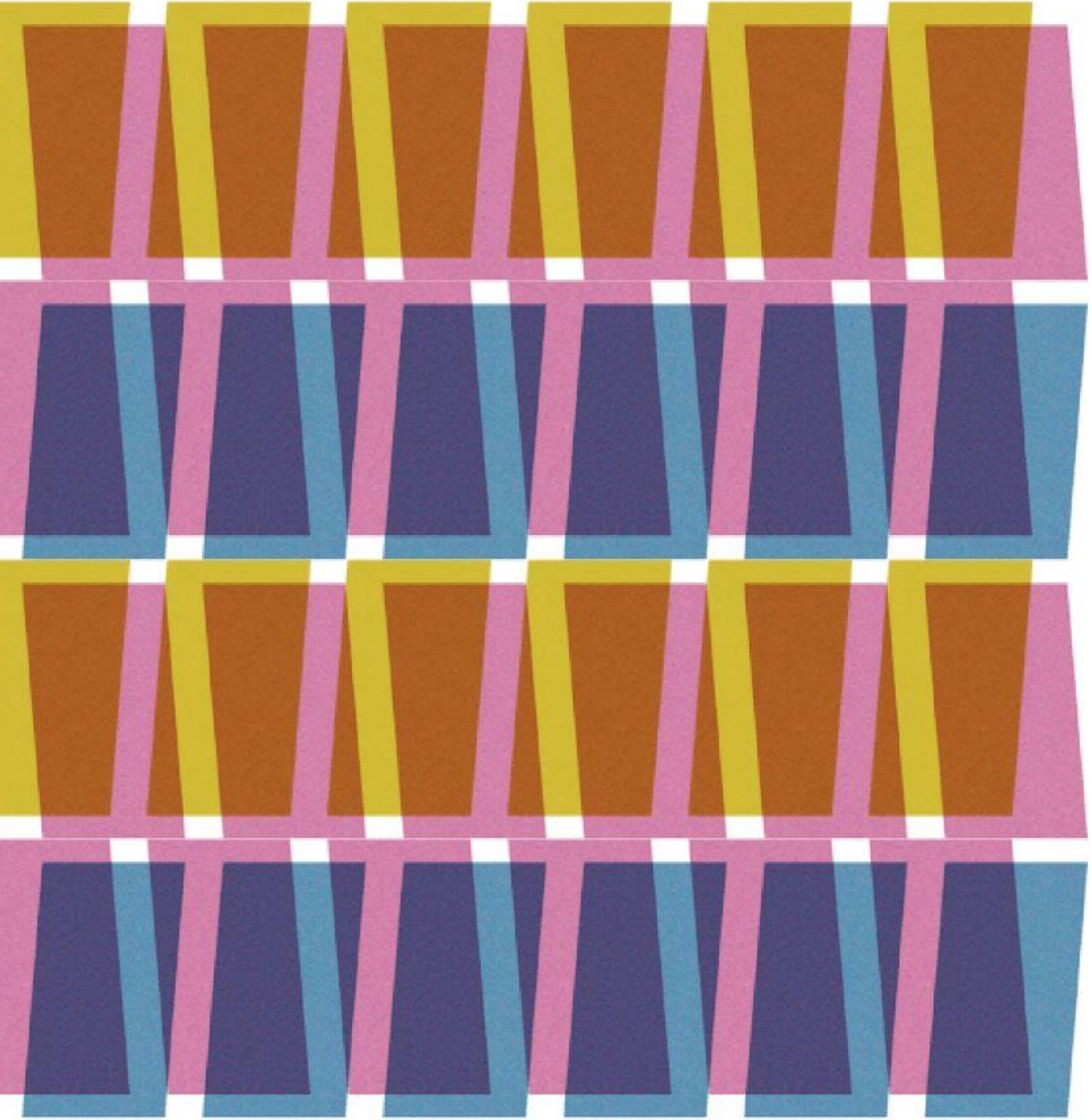
Technology

- R&D or capital investments in new technology
- Early retirement or write-off of assets

Market & Revenues

- Changing customer behavior, i.e., reduced demand
- Abrupt shifts in energy costs

Source: US Environmental Protection Agency, "Climate Risks and Opportunities Defined"



Please complete the seminar evaluation & leave it on your table.

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