

## CLIMATE CHANGE: EMERGING STANDARDS AND BEST PRACTICES

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May 9, 2017



## Agenda

### **UNFCCC Updates**

- Paris Agreement
- Focus on sustainable energy

### Financing to support 1.5°C goal

- Financial industry interest
- Green / climate bonds

# MARRAKECH COP22 2016 CMP12

UN CLIMATE CHANGE CONFERENCE

### **Standards development for climate change**

- Next steps for climate change standards
- About ISO standards



## OVERVIEW OF PARIS AGREEMENT

1.0

### Why a Global Agreement is Important



**Global Temperature 1916** 



**Global Temperature 2016** 

#### Source: NASA (2017), http://climate.nasa.gov/vital-signs/global-temperature



## Global Temperature Change (1850 – 2017)





#### Source: The Lab Book (2017), https://www.climate-lab-book.ac.uk/spirals/



NJ Water & Environment Association May 2017

## Summary of the Paris Agreement

- First universal climate deal and crucial instrument to mitigate negative impacts of climate change
- Keep global temperature rise <2°C and drive efforts to limit even further to 1.5°C above pre-industrial levels
- Peak countrywide emissions ASAP
- Submit updated Nationally Determined Contributions by 2020 and then every five years
- Engage in UNFCCC process to enhance mitigation and adaptation efforts

- Mobilize \$100 billion in climate finance annually by 2020
- Implement transparent accounting system to clarify implementation efforts
- Not the end point, but a tipping point for climate movement
- Without continuous and ambitious measures from big emitter countries, combat against climate change can not succeed



## Paris Agreement – Long-term Goal

Paris Agreement governments committed to net-zero GHGs well before end of the century. Five commitments comprise the goal:

- Hold increase in global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit temperature increase to 1.5°C above pre-industrial levels
- Reach global peak of emissions ASAP and undertake rapid reductions thereafter in accordance with best available science
- Achieve balance between anthropogenic emissions by sources and removals by sinks of GHGs
- Deliver this in second half of this century
- Deliver this on basis of equity



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## Key Provisions of the Paris Agreement

### **Long Term Climate Agreement**

- Self-defined national climate action plans should outline mitigation pledges and should increase over time
- All nations from 2020 will present Intended Nationally Determined Contributions every five years

### Loss and Damage

### Article No. 9

 Cases of "Loss and Damage" will be addressed through various means, including "risk insurance facilities, climate risk pooling and other insurance solutions"





## Key Provisions of the Paris Agreement

### Climate Finance Article No. 9.3.9.2

- Developed countries lead finance, and finance supply, should grow over time
- Developing countries can voluntarily provide climate finance
- \$100B annual minimum for finance going forward, beyond 2020

### Transparency Issues Article Nos. 12.1, 13.7

- "Enhanced transparency framework" for mitigation and financial support
- Almost all countries "regularly" measure emissions and report progress against Intended Nationally Determined Contributions
- Reporting at least every two years



### **Benefits of Paris Agreement**

### <u>Level Playing Field, all Countries Actively Engaged</u> The commitment to climate action is universal, involving all major economies and a total of 196 Parties

- For the first time U.S. and China both committed to emissions reductions
- Global business now knows all geographies spanning entire value chain will be committed to regulatory environment supportive of low carbon development
- Some of the most long-standing political arguments against climate action undermined; the idea that the U.S. would only act if China acted has been broken, along with idea that only industrialized countries should reduce emissions



## Limitations

- No mention of specific measures for Parties to decarbonize economies
- Countries pledge to "reach global peaking of GHG emissions as soon as possible," but the text doesn't specify a date
- No legal actions can be taken on potential adaptation costs as well as loss and damage liabilities





### **Update of Paris Agreement**

- Paris Agreement Went into Force November, 2016 at COP 22 (Marrakech)
- Partial Funding of the Green Climate Fund (GCF)
  - ✓ Goal is \$100 billion by 2020 (\$10.3 billion pledged so far)
- Creation of an Adaptation Fund
  - Goal is to equal the GCF in size and overall scope
- Support by the International Civil Aviation Org. (ICAO)
- Many Challenges Identified to Progress
- U.S. Administration is seriously considering pulling out of the Paris Agreement
- Many U.S. companies and asset mangers support the Agreement



## FINANCING TO SUPPORT 1.5°C GOAL

## **Financial Industry Participation in COP21**

- Surge of participation in climate change discussions by the financial industry compared to previous years
- Focus on funding for 'green' (or climatefriendly) projects
- Recognize we will never be able to achieve 2°C goal without significant investments in renewable energy
- Financing mechanisms such as certified Green Bonds (i.e., Climate Bonds) and grant funding (i.e., Green Climate Fund, Adaptation Fund, etc.) more in demand





## **International Climate Finance**

- Global Climate Fund works with "Accredited Entities" (development banks and approved financing authorities)
- Approximately \$10.2 billion raised to date
- Eight projects funded for \$168 million
- Projects cover water access, disaster risk management, land-use management, energy efficiency, and small-scale renewables
- Resources shared equally between mitigation and adaptation





## Green/Climate Bonds

- Emergence of the Green Bond Principles and Climate Bonds Standard
- Private sector beginning to realize opportunities in this area
  - Investors demand is growing rapidly potentially driving down the cost of project capital.
- Implementing mechanisms to expand on funds
  - BlackRock and others launch green bond index funds
- Green bond market growing quickly
- For first time, investors have project eligibility, technical specifications and 3<sup>rd</sup>-party verification defining certified Climate Bonds





## Green/Climate Bond Market

- Significant potential
- \$600+ billion climate-related bonds issued in past decade\*
- Green sectors typically include:
  - ✓water efficiency
  - ✓alternative energy
  - ✓ real estate
  - ✓energy efficiency

- Issuers include:
  - ✓ development banks
  - ✓ corporations
  - ✓ municipalities
  - ✓utilities
- New buyers
  - Responsible and impact investors
  - Pensions funds
  - ✓Insurance companies



## Green/Climate Bond Market

### **Drawbacks**

- Additional transaction costs
- Potential risks (e.g., greenwashing)
- Market uncertainties, including evolving standards and expectations
- Lack of preparedness to emerging standards (i.e., Climate Bonds Standard)

### **Benefits**

- Access to new investors
- Enhanced green reputation for issuer and buyers
- Resilience/adaptation acceptable categories
- Increased demand resulting in pricing premium





## Green/Climate Bond – DC Water

### July, 2015, AA+, \$350 million\*

- DC Water Authority issued first 100-year term green bond to expand and upgrade its water infrastructure
- Environmental benefits included improving water quality, climate resilience, and overall environmental quality of life (biodiversity, recreational river use, etc.)
- Financial benefits included locking in historically low interest rates for a century while attracting a new group of buyers
- Mark Kim, DC Water CFO, stated he believed by issuing a green bond, cost of capital was lowered by "two to five basis points (bps)"

### February, 2017, Additional \$100 million

Additional green bond issued to help finance a 25-year project to reduce sewerage overflows into D.C. waterways and flooding.



\*Has undergone Climate Bond Pre and Post-issuance Certification process

### Highlights of U.S. Muni Green Bonds Last 60 Days

Agency	Date Issued / Anticipated	Value
BART San Francisco	May 2017	\$388M
Renovate America/Hero Funding	April 2017	\$232M
Commonwealth of Massachusetts	April 2017	\$100M
Massachusetts Clean Water Trust	April 2017	\$207M
Rhode Island Infrastructure Bank	April 2017	\$28M
City of St. Paul	April 2017	\$8M
California Infrastructure and Economic Development Bank	March 2017	\$450M
New York State Housing Finance	March 2017	\$56M
New York MTA	March 2017	\$325M



## **Green Bond Fact Sheet**



Green bonds are one of the fastest growing classes of fixed-asset investments They offer the same features as regular bonds, but proceeds must be used to achieve a recognized environmental benefit (i.e., reduction of greenhouse gas emissions). First Environment is quickly becoming a leader in verifying green bond offerings to emerging quicklines and standards, and la working with the Climate Bonds Initiative and World Business Council for Sustainable Development to further standards development.

The International Capital Market Association's Green Bond Principles are the most widely accepted financial industry guidelines for developing green bonds. In addition. bonds that meet these requirements and help communities advance toward a low-carbon economy are eligible for certification under the Climate Bonds Initiative certification program. As the Inst U.S. based approved verifier for Climate Bond Standards 20, we are qualified to assess the readiness:

#### **Green Bond Verification**

We are currently working with the Climate Bonds Initiative and the World Businesa Council for Sustainable Development to further atandarda development and thought leadenhip for green bonds. As the first U.S.-based approved verifier for the Climate Bond Standards 2.0, Fist Environment is qualified to assess the 'readinesa' of a green bond offering to meet the requirements of the newly released standard. Once a green bond has been issued. First Environment verifies the annual report, resulting in creditfocation by the Climate Bonds Initiative (assuming the bond meets all necessary requirements) and increased investor confidence.

#### Areas of Expertise

- Environmental impact assessment
- Green bond risk assessment and management
   Greenhouse gas emission quantification
- Greenhouse gas report verification
- · Green bond principles in practice
- Climate change adaptation and resilience
- Climate Bond Standards compliance
- Life cycle analysis assessment
- Litigation support
  Sustainable cities and green infrastructure
- International environmental program review



Third Party Verification/Certification and Litigation Support

#### Services

- Presentations and Educational Workshops
  - Criteria for Assessing Green
     Emerging Guidelines and Standards
  - Indices, Benchmarks and Metrics
  - Risks and Rewards
- Reporting to Stakeholders
- Green Bond Framework Development
- New Technologies
   Sustainable Cities (municipal Infrastructure)
   Corporate Programs
- Green Bond Principles and Climate Bond Standard Reviews
   Gap Analysis
- Readiness Assessments
   Reporting
- Climate Bond Approved Verification
- Pre-Certification Verification (pre-issuance)
   Full Certification Verification (post-issuance)
- For more information:

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See back for Green

Bond FAOs!



#### **GREEN BONDS** Your Questions Answered

#### What is a Green Bond?

Green bonds are one of the fastest growing classes of faud-assests investments. They offer the same features as regular bonds, but proceeds must be used to achieve a recognized environmental benefit (i.e., reduction of greenhouse gas emissions). The Green Bond Principles (GBPs) are the mast widely accord guidelines of developing green bonds. Under these principles, green projects are defined as projects that promote progress on environmental sustainability in line with the issue? s process for project evaluation and selection. Project cracgories include the following:

- · Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management
- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Clean transportation
- Sustainable water management (including clean and/or drinking water)
   Climate change adaptation

#### What are some examples of Green Bonds?

With the emergence of the next generation of Green Bond Principles and Climate Bonds Standard in 2015, the public and private sectors are beginning to realize the opportunities for funding. Since its creation in 2007, the green bond market exceeded \$41 billion in 2015. The following are excellent examples of recent high profile green bonds that have cropped up in the U.S.:

#### DC Water (July, 2015, AA+, \$350 million)

DC Water Authority issued the first 100 year term green bond to expand and upgrade its water infrastructure. Environmental benefits included improving water quality, climate resilience, and overall environmental quality of life. Financia benefits included locking in historically tow interest rates for a contrary while attracting a whole new group of green bond buyers.

#### New York Metropolitan Transportation Authority (Feb., 2016, AA-, \$500 million upsized to \$782 million)

New York's Metropolitan Transportation Authority issued the first Certified Climate Bond in the LIS. Flands were used to refinance existing electrified rail assets that comply with the Climate Bonds Low Carbon Transport oriteria, Because of storegi investor demand, the offering was expanded from \$500 to \$782 million, making it the largest certified green bond in the LIS. Municical Bond market.

#### Apple (Feb., 2016, Aa1e, \$1.5 billion)

As part of an overall \$12 billion bond offering, Apple carved out \$1.5 billion for renewable energy, green buildings, and waste management projects. Though not Climate Bond Certified, the bond is structured to follow the GBPs, including a second-party review and annual third-party verification.

#### What are the benefits of going "green"?

Green bond investments are unique in that both financial and non-financial benefits must be considered. They include the following:

#### Economic Upsid

Although anecdotal, there is growing evidence that investors are willing to pay a pricing previum for labeled green bonds. A recent study by Barciays Research concluded there was an approximate 20 basis points difference between the separat of green bonds and comparable unlabeled issues in the secondary markets. To put this in perspective, the current 20 basis points on a \$1 billion green bond is a \$2 million pring premium. F 1 RST ENVIRONMENT



#### **Reputation Benefits**

In general, quality labeled Green Bonds have received favorable press coverage - especially if the bond is first for a given juriadiction or industry. For bond underwriters and lawyers, green bonds offer an opportunity to grow their reputation as a high-wall service provide. For some, certified green bonds that have been third party werlied offer a simple way to buy a complex field asset while differentiating themselves.

#### **Environmental Attributes**

There is potential for economic value to the environmental attributes financed by green bonds. For example, value related to natural resources (e.g., ar, soil, water, biodiversity, etc.) is referred to as Natural Capita): similarly, green bonds could fund carbon reductions, resulting in additional financial yields to issues and/or investors from the said of carbon redits.

#### First Mover Advantage

As the labeled Green Bond market grows, the opportunity lies with "first movers" to capitalize on market share and customer loyaliy. Organizations that start early have more time than competitions to accumulate and master knowledge in issuing, implementing, and verifying green bonds.

#### Are there any unique risks to consider?

As with all investments, investors must assume some level of risk to garner a commensurate reward. Bond investors typically assess markets conditions, cendit raings, indiaion, liquidity, economic and sector trends; taxes, political considerations, and so on. Their reward is the expected benefit of a monetary yield. By understanding the following risks related to green bonds, participants can minimize the while maximizing the value of the investment offering.

#### Greenwashing

Defined as the superiical or insincere display of concern for the environment; greenwashing is the most recognized risk and requires investors to have access to relevant and reliable (read-verified) information to assess the level of "greenness". It is incurteent on the issues and underwriters to provide sufficient, reliable environmental impact information to allow an informed decision.

#### Green Fraud

Although related to greenwashing, green fraud entails deliberate misrepresentation for unfair financial advantage. One of the largest green fraud cases currently involves Volkswagen AG cheating on U.S. air pollution tests for their "clean" diesel cars.

#### Non-disclosure Risks

It can be argued that the GBPs have become accepted standard of care for issuing a listed green bond. Offering documents should appropriately present the elements of the principles, including disclosing details about the use of proceeds, how projects will be selected, etc.

#### **Regulatory Risk**

Although independence and completeness concerns can lead to regulatory risks, it is the lack of evidence failing to support green claims (i.e., greenwashing) that has led to past regulatory actions involving consumer products. This includes misrepresentation, either directly or indirectly by implication, that an environmental benefit will be delivered.

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## STANDARDS DEVELOPMENT FOR CLIMATE CHANGE

# Standards Development for Climate Change

- Consensus reached between UNFCCC & International Organization of Standardization (ISO) that internationally accepted standards will be promoted to organizations and governments around the world
- Include processes for inventories, 3rd party verification, competency, etc. to ensure accurate GHG emission reductions
- Establish best management practices for climate adaptation planning
- Create common guide for jurisdictions worldwide to aid in developing requirements to meet country, municipal and private commitments



# International Organization of Standardization (ISO)

### About ISO

- Largest developer of voluntary international standards
- Made up of 162 member countries from all regions
- All sectors agriculture, construction, engineering, manufacturing, transport, healthcare, environment, energy, safety, technology, etc.

Importance of Standards: Facilitate trade Disseminate advancements in technology Inform regulations



### **Existing Climate Change Standards**

ISO Standard	Technical Area
ISO 14063	Life cycle interpretation
ISO 14064	Greenhouse gas emission measurement, verification, and reporting
ISO 14065	Greenhouse gas verification accreditation
ISO 14066	Competency requirements for verifiers
ISO 14067	Carbon footprinting



### **Emerging Climate Change Standards**

ISO Proposal	Technical Area
Radiative Forcing Management	Guidance for the quantification and reporting of radiative forcing-based climate footprints and mitigation efforts
Green Bonds	Environmental performance of nominated projects and assets
Financial Disclosure	Framework and principles for assessing and reporting investments and financing activities related to climate change



### Standards Development for Climate Change

## Why?

- Municipalities need flexible and cost-effective ways to providing evidence of positive environmental impact
- Responsible Investors want to know what they are getting in terms of environmental impact
- Internationally accepted standards provide framework for achieving and verifying reductions, allowing flexibility for municipalities to implement projects in ways that make sense for their budgets and with their stakeholders



### Standards Development for Climate Change

## How?

- It will take time and a strategic, methodical approach to develop (or, in some cases, update) standards that are integrated, consistent, and functional
- Next steps include designation of ISO to develop standards, working with United Nations Framework Convention on Climate Change toward common goals
- ISO's Climate Change Coordinating Committee (CCCC) already engaging stakeholders, conducting gap assessments, and communicating recommendations to ISO's Technical Management Board (TMB)





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