



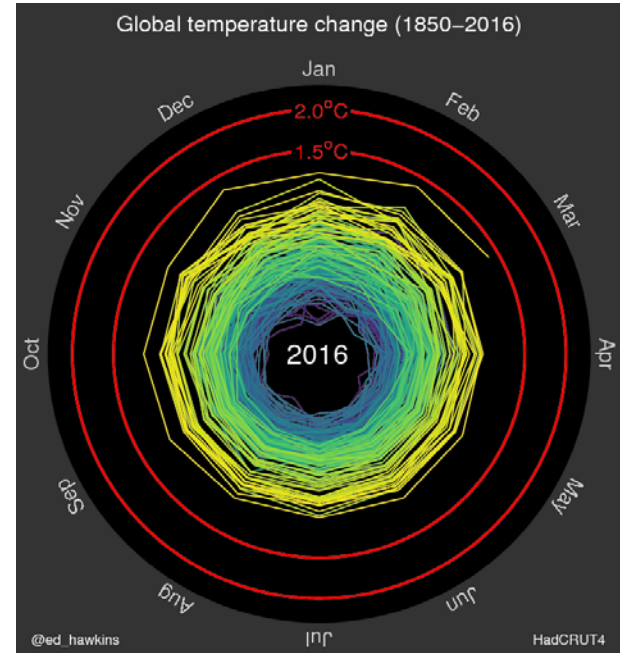
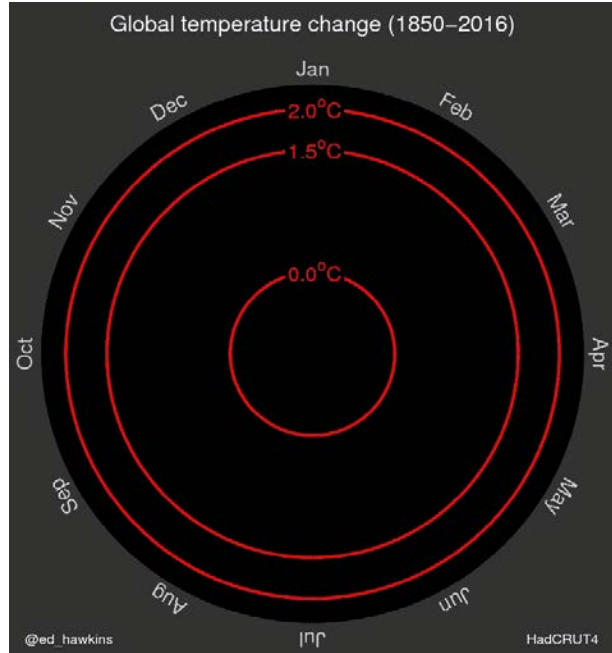
# News from COP21

## Latest on Climate Change Standards and Financing Opportunities

**May 17, 2016**

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President  
First Environment, Inc.**

# Global Temperature Change (1850 – 2016)



Source: The Lab Book (2016), <http://www.climate-lab-book.ac.uk/author/ed/>

# Agenda

## Overview of COP21

- Paris Agreement
- Focus on sustainable energy

## Financing to support 1.5°C goal

- Financial industry interest
- Green / climate bonds

## Standards development for climate change

- Next steps for climate change standards
- About ISO standards

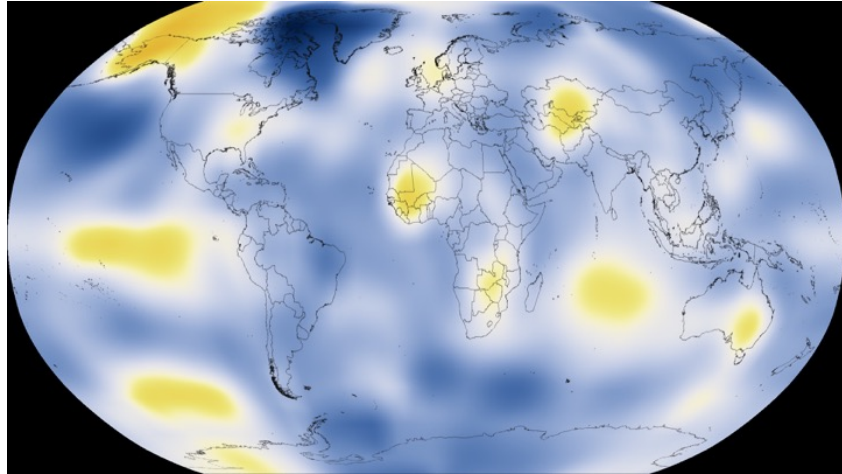


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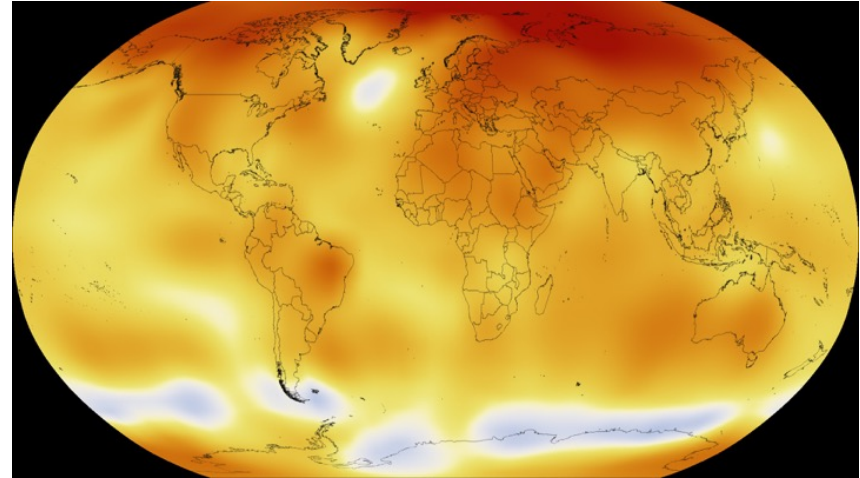
# OVERVIEW OF COP21

# Why Paris COP21 is Important

Scientists warn time and again that if greenhouse gas emissions continue to rise, we will pass the threshold beyond which global warming becomes catastrophic and irreversible



**Global Temperature 1915**



**Global Temperature 2015**

Source: NASA (2016), <http://climate.nasa.gov/vital-signs/global-temperature>

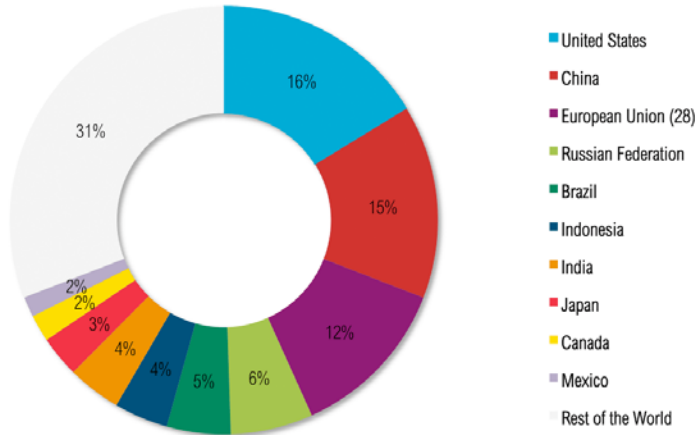
# Overview of COP21

- Hosted by United Nations Framework Convention on Climate Change (UNFCCC)
- 50,000 participants, including 25,000 official delegates from nearly 200 parties across globe (governments, inter-governmental organizations, UN agencies, NGOs, etc.)
- For the first time in over 20 years of negotiations, achieved “legally binding & universal agreement on climate, with the aim of keeping global warming below 2°C”
- Includes 195 developed and developing country commitments to work toward emission reductions

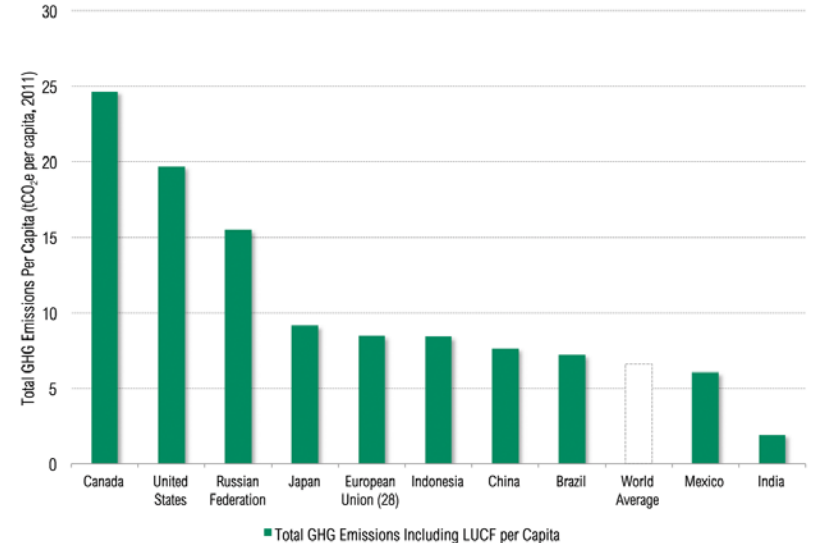
# Why Paris COP21 is Important

For the first time, the two major emitters – USA and China – made a commitment

Cumulative GHG Emissions 1990–2011 (% of World Total)




Per Capita Emissions for Top 10 Emitters



Source: Adopted from World Resources Institute

<http://bit.ly/11SMpjA>

 WORLD RESOURCES INSTITUTE

<http://bit.ly/11SMpjA>

 WORLD RESOURCES INSTITUTE

# Results from COP21

- 187 countries representing 97% of global greenhouse gas emissions (GHGs) have submitted Climate Action Plans
- U.S. committed to reduce GHG emissions by 26-28% below 2005 level
- China agreed to peak country's carbon-dioxide emissions around 2030 and increase non-fossil-fuel share of energy to around 20% by 2030
- EU committed to at least 40% domestic reductions in GHG emissions by 2030 compared to 1990 levels



# Results from COP21

## Certainty through Long-Term Goal (LTG)

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

# Results from COP21

## 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”

# Results from COP21

## Raising Ambition in Short Term

### Article No. 14.1

- Countries will undertake global “stock takes” every five years to maintain ambition in cutting emissions, implementing adaptation, and providing climate finance.

## Carbon Trading

### Article Nos. 6.2, 6.3, 6.4

- Countries can choose to “cooperate” in meeting emission targets by trading emission rights
- Establishes “sustainable development mechanism” to allow one country to pay for emissions reductions in another via a central body and count reductions as its own

# Results from COP21

## 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 COP21

## Level Playing Field, all Countries Actively Engaged

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

# Benefits of COP21

## Federal Sector

- 184 countries pledged Intended Nationally Determined Contributions, showing general enthusiasm to reach agreement
- Most world leaders welcomed Agreement, saying action taken in Paris was historic
- Least Developed Countries Group also welcomes adoption of Agreement as “not the perfect deal but it’s the best deal”

## Private Sector

- Major international companies like Unilever, Siemens welcomed deal but noted need for setting consistent long-term policies investors can rely on
- Immense creativity and innovation of private sector needed to address challenges of climate change

# 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 adaptation and loss and damage



# The Way Forward

- UNFCCC synthesis of Intended Nationally Determined Contributions estimated to amount to almost 3°C warming by end of century
- Next five years critical for scaling up climate action globally before Paris Agreement comes into force in 2020
- All countries – especially developed nations with mostly inadequate climate pledges – need to review national mitigation plans
- Agreed 2018 review combined with a mandated Intergovernmental Panel on Climate Change special report on 1.5°C
- How to reflect the principle of common but differentiated responsibility and respective capabilities;
- Parity between mitigation and adaptation; and
- How to address the means of implementation (finance technology and capacity building)



# Summary of the Paris Agreement

- First universal climate deal and crucial instrument to mitigate negative impacts of climate change
- Keep global temperature rise  $<2^{\circ}\text{C}$  and drive efforts to limit even further to  $1.5^{\circ}\text{C}$  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

# Outcomes of COP21

## For Mitigation

- Based on Nationally Determined Contributions (bottom-up)
- Legal commitment to submit Nationally Determined Contributions every five years
- Public registry of Nationally Determined Contributions
- Principle of progressive increase in levels of ambition (top-down)

## For Adaptation

- Global challenge of adaptation linked to mitigation ambition levels
- Recognition of adaptation as a global contribution
- “Should” strengthen adaptation cooperation
- National Adaptation Plans and communicate these internationally (bottom-up )
- Public registry for adaptation contributions
- Report internationally (top-down)

## For Finance

- Developed countries “shall” provide finance for mitigation and adaptation (top-down)
- Biennial communication of finance contributions

# 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 climate-friendly) 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

- \$100B by 2020 goal to fund developing countries' climate change adaptation and mitigation efforts
- Provides developing countries access to financing needed to meet country commitments for emission reductions
- Focus on most vulnerable countries

## Market Size for Adaptation:

*“The “market size” for adaptation in 2014 is estimated at \$25B and to grow to \$100B+ annually in the next 10-15 years (World Bank and IPCC estimates)”*

*“The World Economic Forum Global Risks 2015 report identified “failure of climate change adaptation” among the top global risks”*

# 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

# International Climate Finance

- Potential projects in developing countries:
  - Use of alternative energy to power water infrastructure
  - Upgrading water infrastructure to make it more climate resilient
  - Energy efficiency projects to lower water carbon footprint



# Green/Climate Bonds

- Banks willing to fund green projects worldwide to support international efforts
- Emergence of the Green Bond Principles and Climate Bonds Standard this year
- Private sector beginning to realize opportunities in this area
- Implementing mechanisms to expand on funds
- Green bond market growing quickly
- For first time, investors have project eligibility and technical specifications 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)”

\*Currently  
undergoing Climate  
Bond Post-issuance  
Certification process

# Green/Climate Bonds

## Highlights of Green Bonds to Date

Agency	Date Issued / Anticipated	Value
San Francisco Public Utilities	May 2016	\$240M
MTA	January 2016	\$500M
Puget Sound Area Transit Systems	September 2015	\$700M
DC Water	July 2015	\$350M
Ontario Finance Authority	October 2014	CAD \$202M

# Green Bonds Fact Sheet



## GREEN BONDS

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 guidelines and standards, and is working with the Climate Bonds Initiative and World Business Council for Sustainable Development to further standardize 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 first U.S.-based verifier for Climate Bond Standards 2.0, we are qualified to assess the "readiness" of green bond offerings to meet applicable requirements.

### Green Bond Verification

We are currently working with the Climate Bonds Initiative and the World Business Council for Sustainable Development to further standardize development and thought leadership for green bonds. As the first U.S.-based approved verifier for the Climate Bond Standards 2.0, First Environment is qualified to assess the "readiness" 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 certification 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
- 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



### 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)

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See back for Green  
Bond FAQs!

[www.firstenvironment.com](http://www.firstenvironment.com)



## GREEN BONDS Your Questions Answered

### What is a Green Bond?

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). The Green Bond Principles (GBPs) are the most widely accepted guidelines for developing green bonds. Under these principles, green projects are defined as projects that promote progress on environmental sustainability in line with the issuer's process for project evaluation and selection. Project categories include the following:

- Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management
- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Ocean 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 dropped 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. Financial benefits included saving in historically low interest rates for a century while attracting a whole new group of green bond buyers.

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

New York's Metropolitan Transportation Authority issued the first Certified Climate Bond in the U.S. Funds were used to refurbish existing electrified rail assets that comply with the Climate Bonds Low Carbon Transport criteria. Because of strong investor demand, the offering was expanded from \$500 to \$782 million, making it the largest certified green bond in the U.S. Municipal Bond market.

#### Apple (Feb., 2016, AA+, \$1.8 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 Upside

Although anecdotal, there is growing evidence that investors are willing to pay a pricing premium for labeled green bonds. A recent study by Barclays Research concluded there was an approximate 20 basis points difference between the spread 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 pricing premium.



### Reputation Benefits

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

### Environmental Attributes

There is a potential for economic value to the environmental attributes financed by green bonds. For example, value related to natural resources (e.g., air, soil, water, biodiversity, etc.) is referred to as Natural Capital; similarly, green bonds could fund carbon reductions, resulting in additional financial yields to issuers and/or investors from the sale of carbon credits.

### First Mover Advantages

As the labeled Green Bond market grows, the opportunity lies with "first movers" to capitalize on market share and customer loyalty. Organizations that start early have more time than competitors 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, credit ratings, inflation, 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 them while maximizing the value of the investment offering.

#### Greenwashing

Defined as the superficial 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 incumbent on the issuers 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 labeled 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 Risks

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.

# 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 emission reductions (i.e., renewable energy and other offsets)
- Establish best management practices for climate adaptation planning
- Create common guide for jurisdictions worldwide to aid in developing requirements to meet country 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

# Standards Development for Climate Change – Why?

- Developing countries committed to limit high emission activities and promote higher efficiency, low emission alternatives
- These governments require financial and technical support from outside organizations while maintaining operational control over new initiatives
- Internationally accepted standards provide framework for achieving and verifying reductions, allowing flexibility for countries to implement in ways that make sense in their economies and with their resources

# 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 goal
- 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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