

Carbon Impact Factor

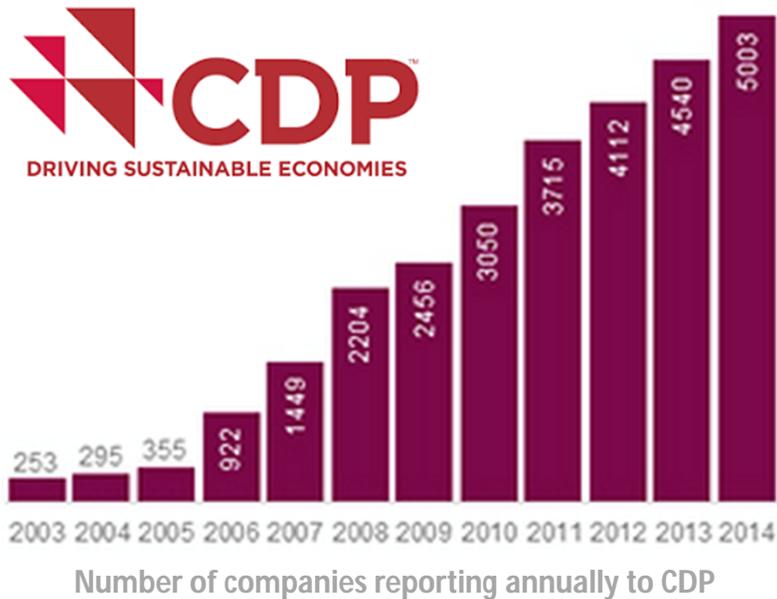
Business Perspectives on the Road Ahead for Environmental Commodities

Environmental Law Institute: The Circular Economy: Regulatory and Commercial Law Implications
February 23, 2016 Washington, D.C.



Joe Madden, CEO, EOS Climate

Capital markets are driving climate action



- CDP provides 822 institutional investors representing > US\$95 trillion in assets with carbon risk information
- >5,000 companies voluntarily report GHG data through CDP
- Stranded assets associated with fossil fuel holdings “awakened” markets to carbon risk
- Divestment + new low GHG financial products signal movement of financial capital away from carbon

Action previously driven by regulators is also being driven by **investors**

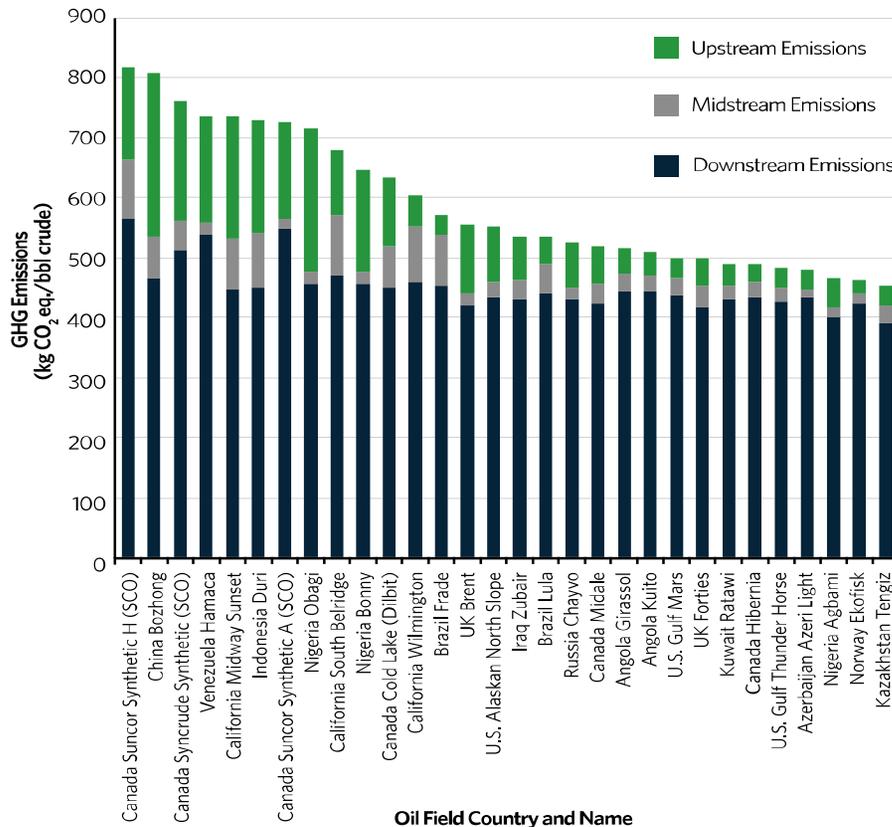
Capital markets differ from compliance markets

Characteristic	Existing Capital Markets	Existing Regulatory Markets
Reach	Global	Regional
Driver	Apolitical	Political
Time	Future: What will happen?	Past: What did happen?
Measurement	Comparative: Better or Worse?	Comply: Yes or No?
Modality	Dynamic: No set target and market forces drive efficiency	Pre-determined: Targets set years in advance

Legal definitions have a significant role to play in facilitating the inclusion of carbon risk in capital markets

Raw material inputs = unique opportunity

Total GHG Emissions for 30 Phase 1 OCI Test Oils¹



~80% Variance in aggregate GHG impact between highest and lowest

All commodities are not created equal

- Multiple commodity origins feed a global market
- Markets will differentiate (via price signal) where information is available & credible
- Circular inputs (generally) have lower impact

Source: authors' calculations

Note: Unlike the other OCI test oils, Cold Lake dilbit is not comprised of a full barrel of oil. It is about 75 percent bitumen mixed with diluent to allow it to flow.

¹Reprinted by permission of the publisher from *Know Your oil: Creating a Global Oil-Climite Index*, by Deborah Gordon, Adam Brandt, Joule Bergerson, and Jonathan Koomey (Washington, DC: Carnegie Endowment for International Peace, 2015) pp36. www.CarnegieEndowment.org

INTEGRITY is the road & **SCALE** is the destination

Information integrity & transferability at scale is critical for inclusion of environmental metrics in global markets

- Legal definitions must be:
 - Globally accepted
 - Applied programmatically
 - Simultaneously foundational & dynamic enough



New tools enable transformation

Mobile Technology

- GPS & remote tracking
- Real-time information feeds

Blockchain

- Global, transparent & secure registry for environmental metrics
- Reduced transaction fees, quicker settlement, mobile payment

Big Data Analytics

- Large, secondary data sets (i.e. satellite imagery) can verify primary data

Global Solution Networks

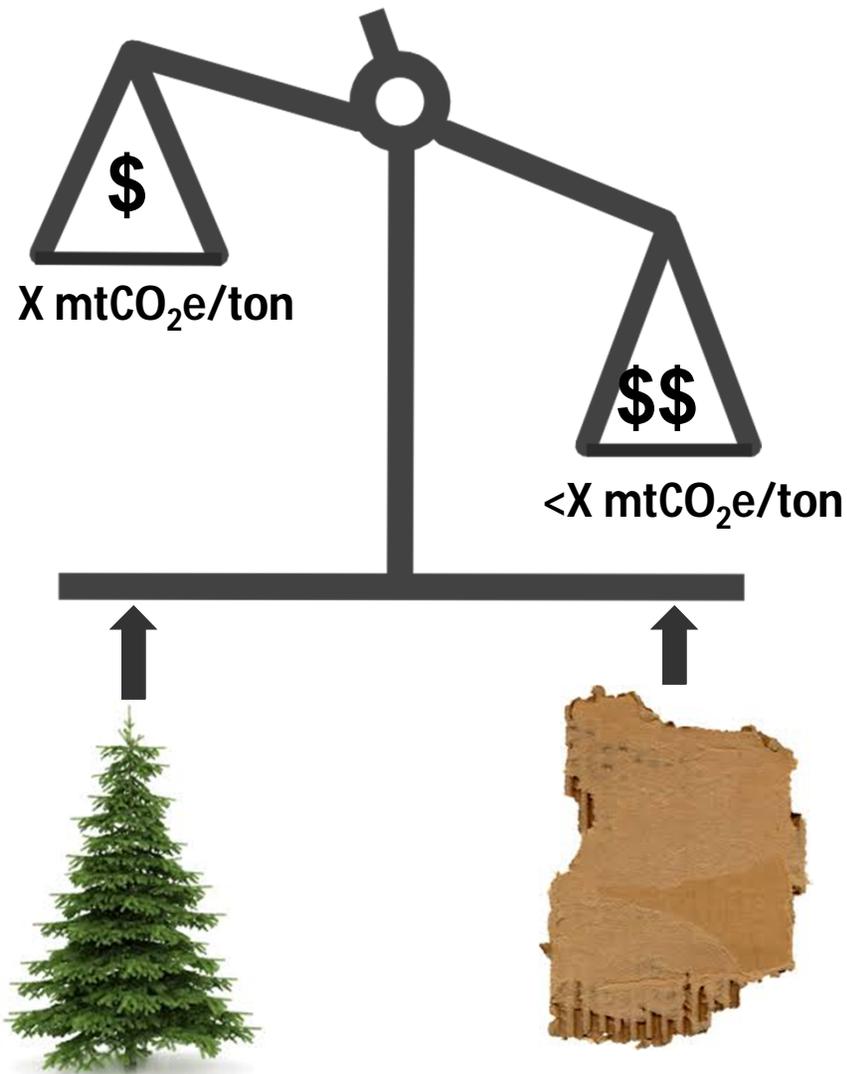
- Online collaboration tools and content management systems



Integrating environmental metrics and commodity markets

1. Utilize Global Solution Networks to create dynamic, globally accepted standards stipulating:
 - Quantification methods
 - Verification processes
2. Apply standards through a robust, pre-qualification process for market producers to determine specific impacts
3. Utilize secondary data sets according to stipulated verification processes to confirm integrity of data associated with production
4. Place environmental data into blockchain format, creating a transparent, secure and global “registry” for environmental metrics accessible to commodity market participants
5. Let market forces work

Global markets react to information via price signals



- In a carbon (resource) constrained world where GHG emissions equate to financial risk, markets will value carbon (resource) efficiency
- The principle is particularly relevant for raw material inputs with multiple points of origin flowing into the global marketplace
- Low-impact metrics for “Circular Inputs” will be valued in existing markets
- **Legal definitions for “intangible attributes” are a critical component in harnessing the power of the markets to bolster the Circular Economy**

Legal Definitions for intangible attributes will quickly become the new frontier

The concept of integrating intangible attributes within existing global markets brings up several issues in this complicated arena:

- How will this legal construct be established & transferred across owners, geographic jurisdictions and/or time?
- How will title to environmental attributes to low carbon (impact) processes be established?
- Who prevails in instances where rights to environmental attributes have been promised to more than one entity?
- What legal issues will result from separating physical commodities and selling off their underlying environmental attributes separately?
- How can buyers of low carbon attributes be assured of the validity of their products?
- How will intangible attributes be incorporated into international treaties?

CIF Development

- **CIF Phase 1.0: Conceptualize and Publish (complete)**
 - Published in Journal for Environmental Investing (www.thejei.com)
 - Presented at UN Sponsored Side Event at COP21 in Paris
- **CIF Phase 2.0: Multi-Stakeholder Process to Prove at “Bench Scale” (complete 12.31.16)**
 - The CIF Pilot Program has 5 primary objectives aimed at proving general CIF System design:
 - Prove assumptions associated with proposed system automation and scalability
 - Understand user needs of primary participants to enable comprehensive system design
 - Demonstrate user community trust/uptake of new system
 - Demonstrate the integrity of environmental claims generated by the system
 - Create a comprehensive economic model for capital allocation across the system
- **Opportunity:** We would welcome engagement from ELI and broader legal community in helping to support CIF Phase 2.0 and beyond..

Thank You.

For more information on integrating and pricing externalities in existing global markets, please visit:

www.cifsystem.com