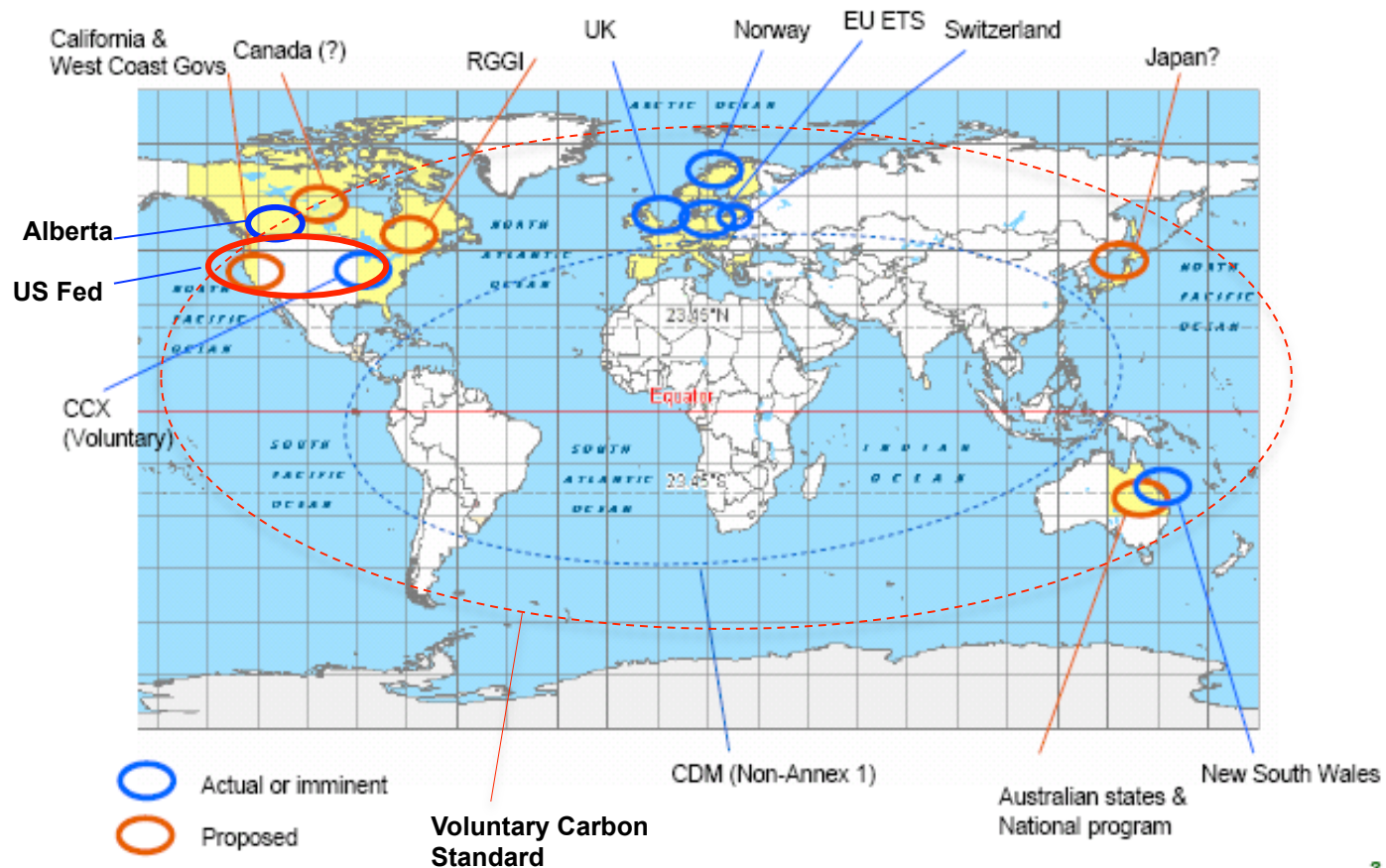


Carbon Markets: Forestry Opportunity

Karen Haugen-Kozyra, M.Sc. P.Ag.
Principal, KHK Consulting

May 6, 2010
AFGO Forest Offsets Workshop #2
Ramada Inn, Edmonton

The Evolving Global Carbon Market



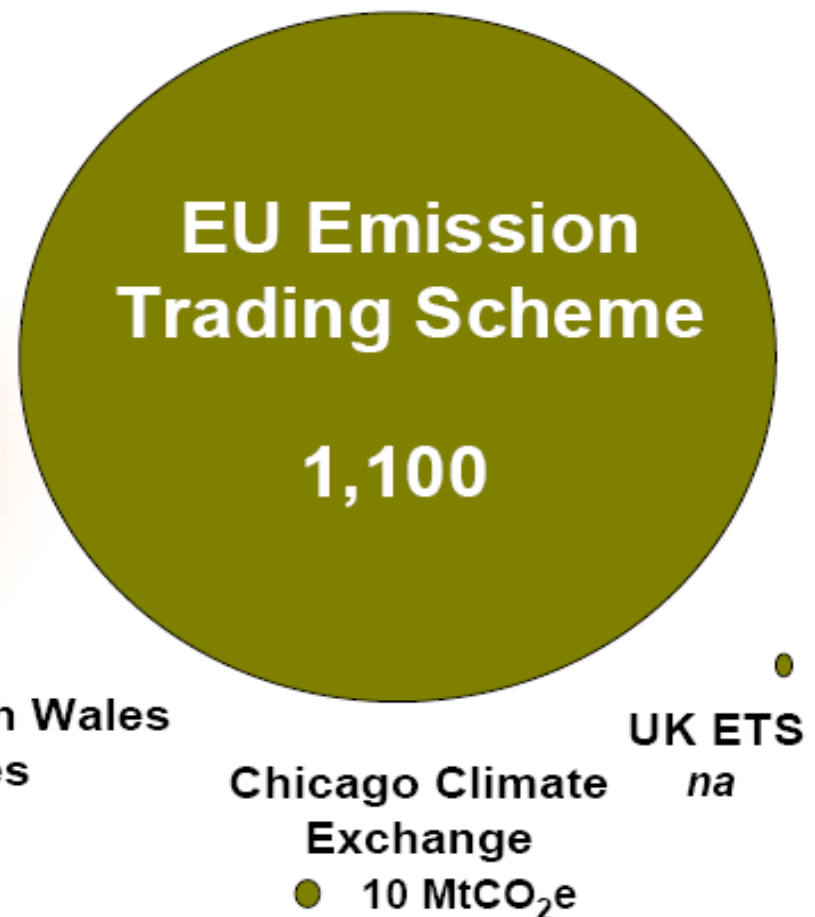
Global Carbon Markets

Project-Based Transactions



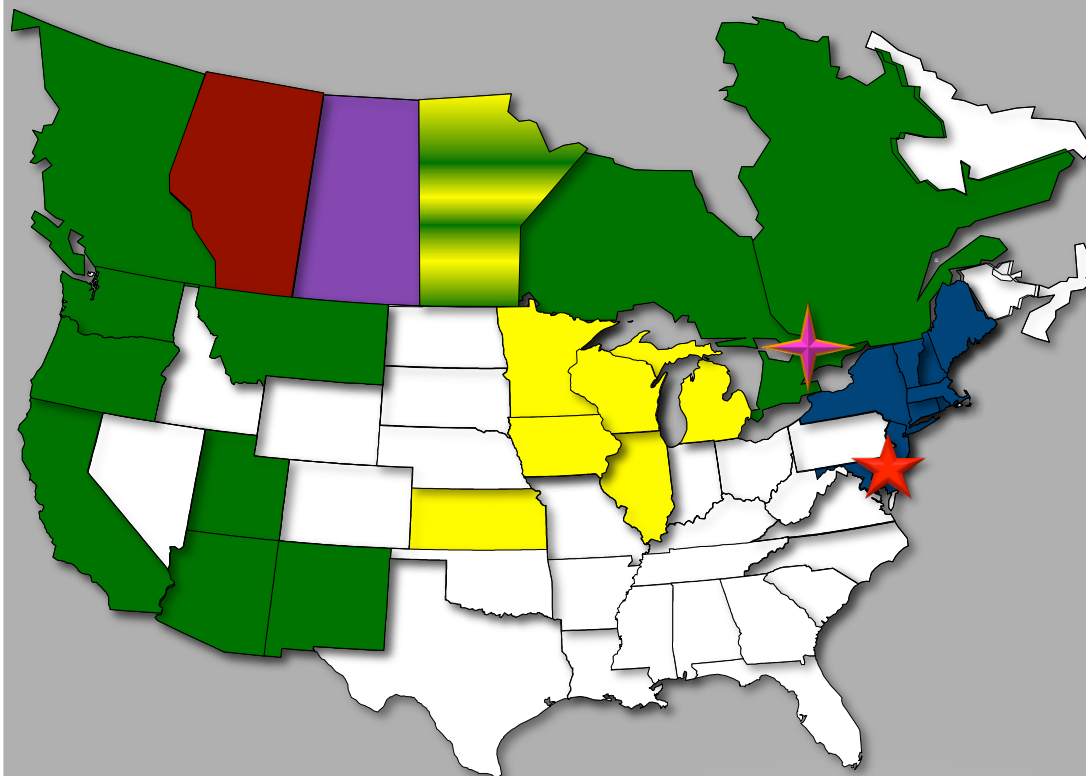
Secondary CDM
25 +








Allowance Markets



\$126B in 2009* 2 Main Commodities

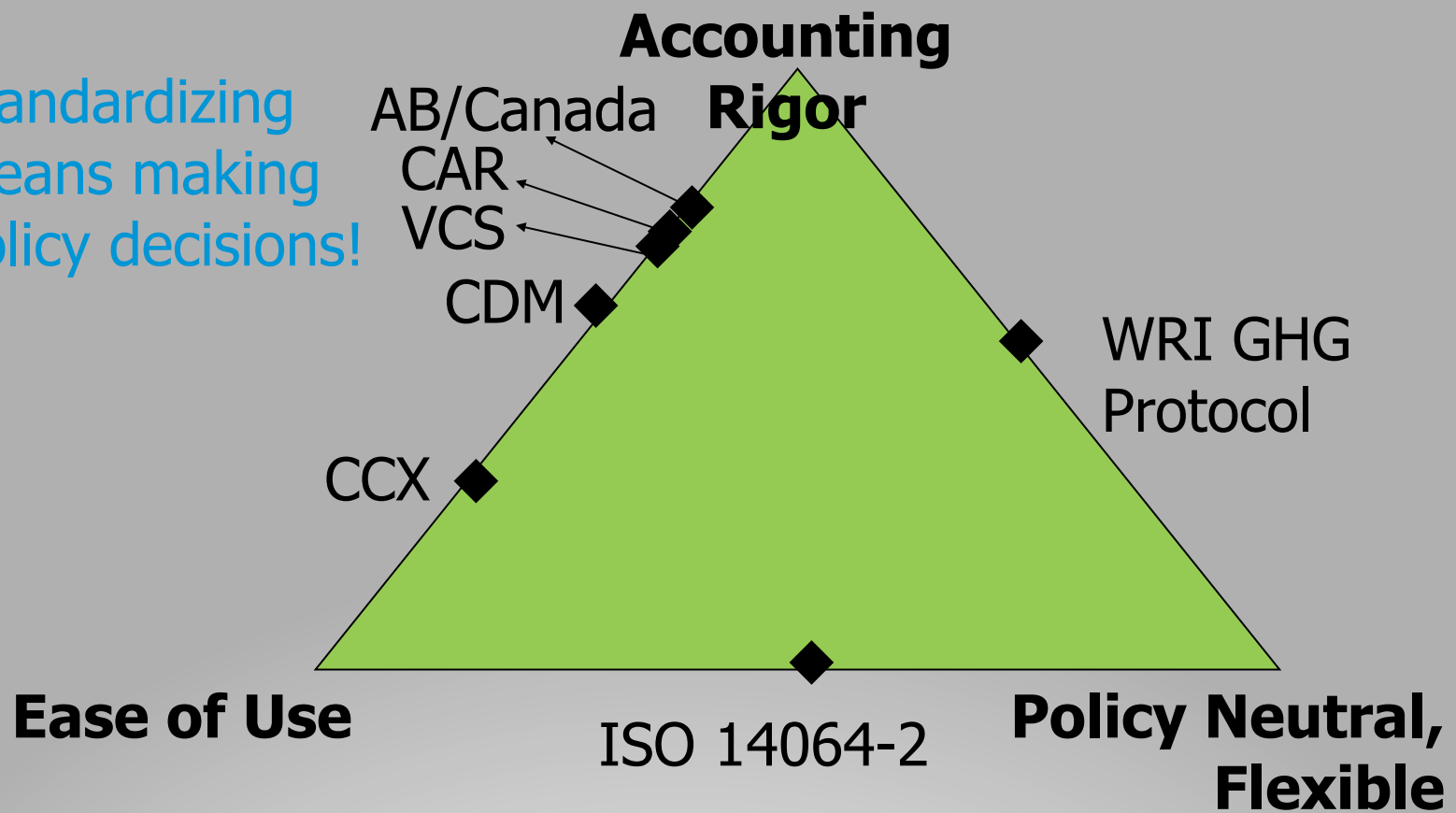
***Point Carbon 2010**



-  Western Climate Initiative
-  Regional GHG Initiative
-  Midwest GHG Reduction Accord
-  AB Specified Gas Emitters Regulation
-  SK Bill 95/126
-  Canada's Regulatory Framework
-  The American Clean Energy Security Act/
GKL Senate Bill

Key Climate Change Policies

Standardizing
means making
policy decisions!

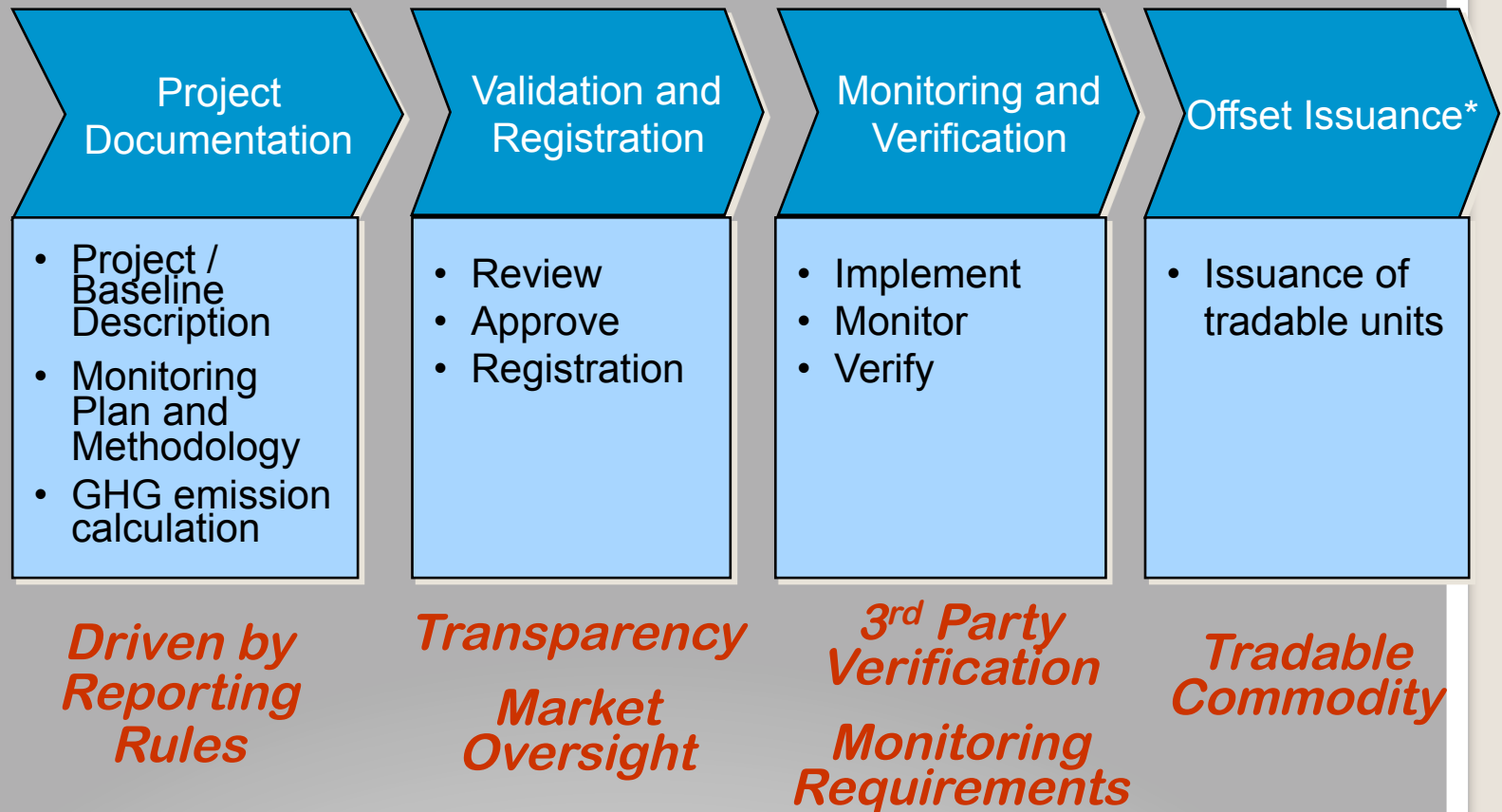


A Coalescing of Standards for Offset Programs

- **Additional/Incremental**
 - beyond business as usual practices (needs a valid and defensible baseline at the project start); surplus to regulations/received incentives)
- **Measurable, Quantifiable**
 - agreement on best available science and farm activity data – develop a Protocol. Must stand up to a Review Process; account for all 6 GHGs.
- **Verifiable**
 - carbon accounting, and tracking process must be clear, defensible, and have good QA/QC procedures; verified by qualified 3rd party.
- **Permanent**
 - must protect against carbon reversals; account and replace mechanisms
- **Functionally Equivalent – Consistent Metrics**
 - same level of quantity or service between baseline and project
 - *Intensity comparisons are critical*

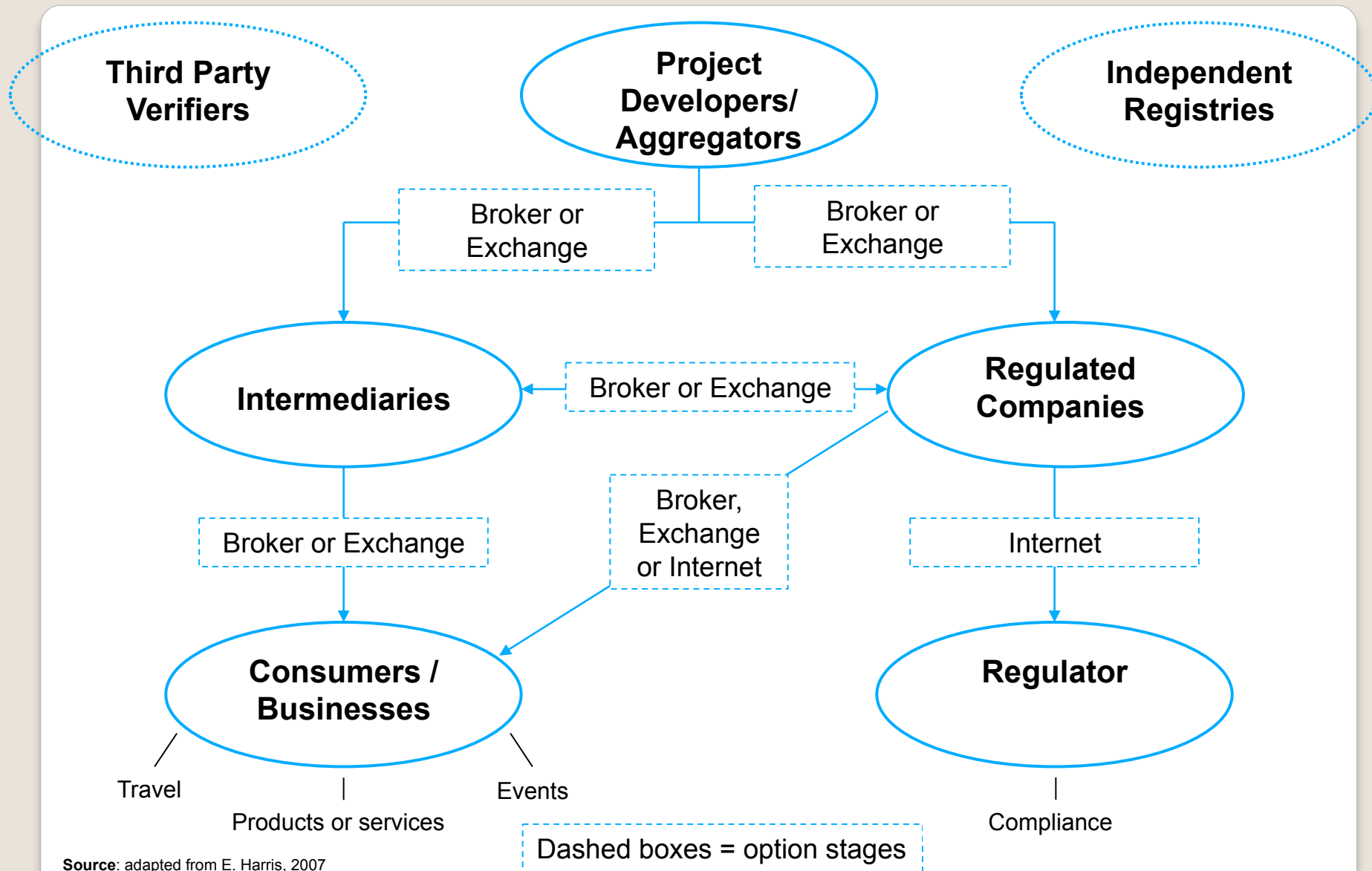
Coalescing of Offsets Policy Criteria

Quantification Protocols



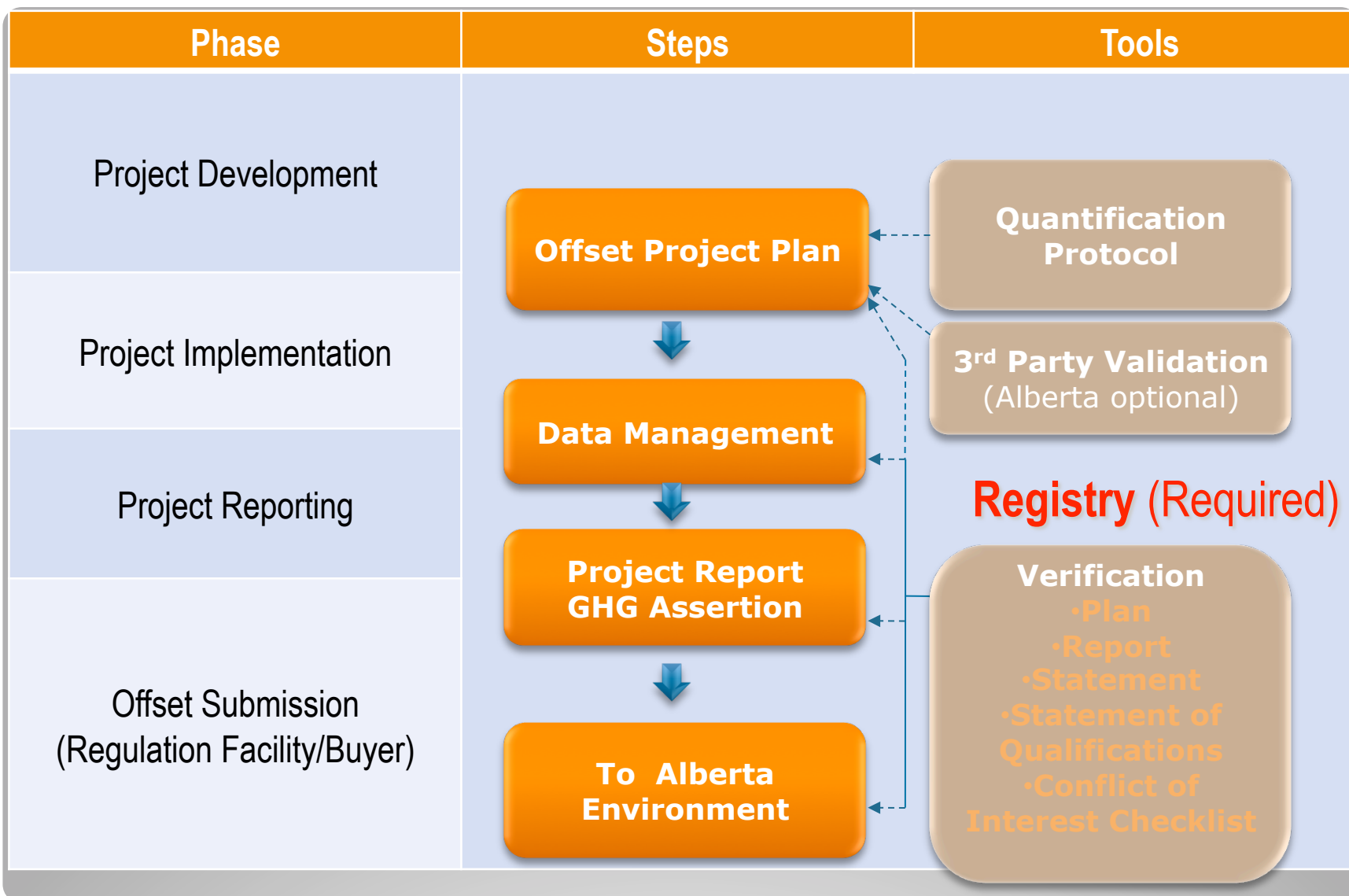
* Note – no issuance of credits in the Alberta Offset System

Coalescing of the Pathway to Market



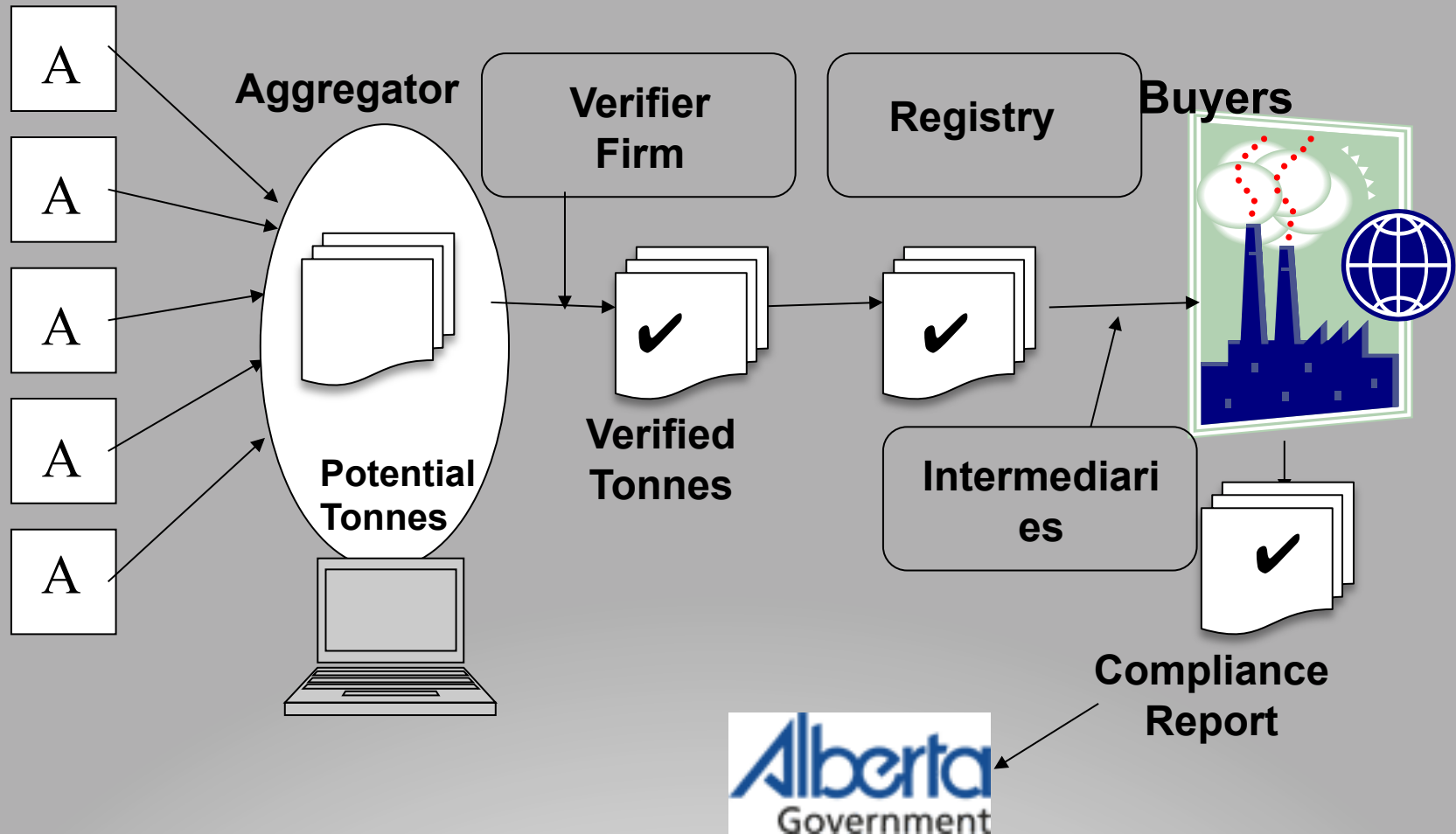
Source: adapted from E. Harris, 2007

Generic Carbon Value Chain



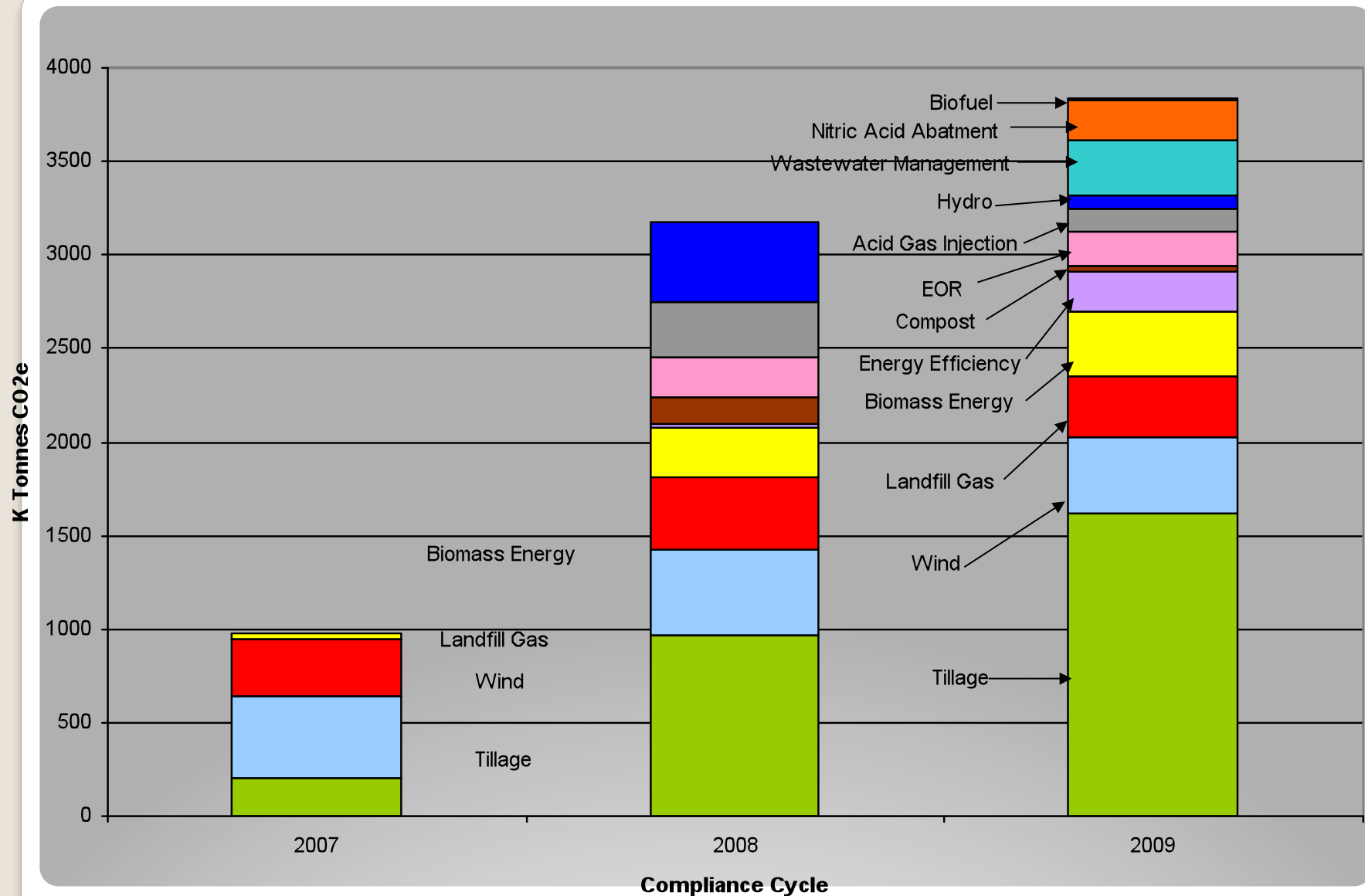
Alberta's Carbon Offset Path

Sites



In Alberta...land-based tonnes

Offset Credits Submitted for Compliance



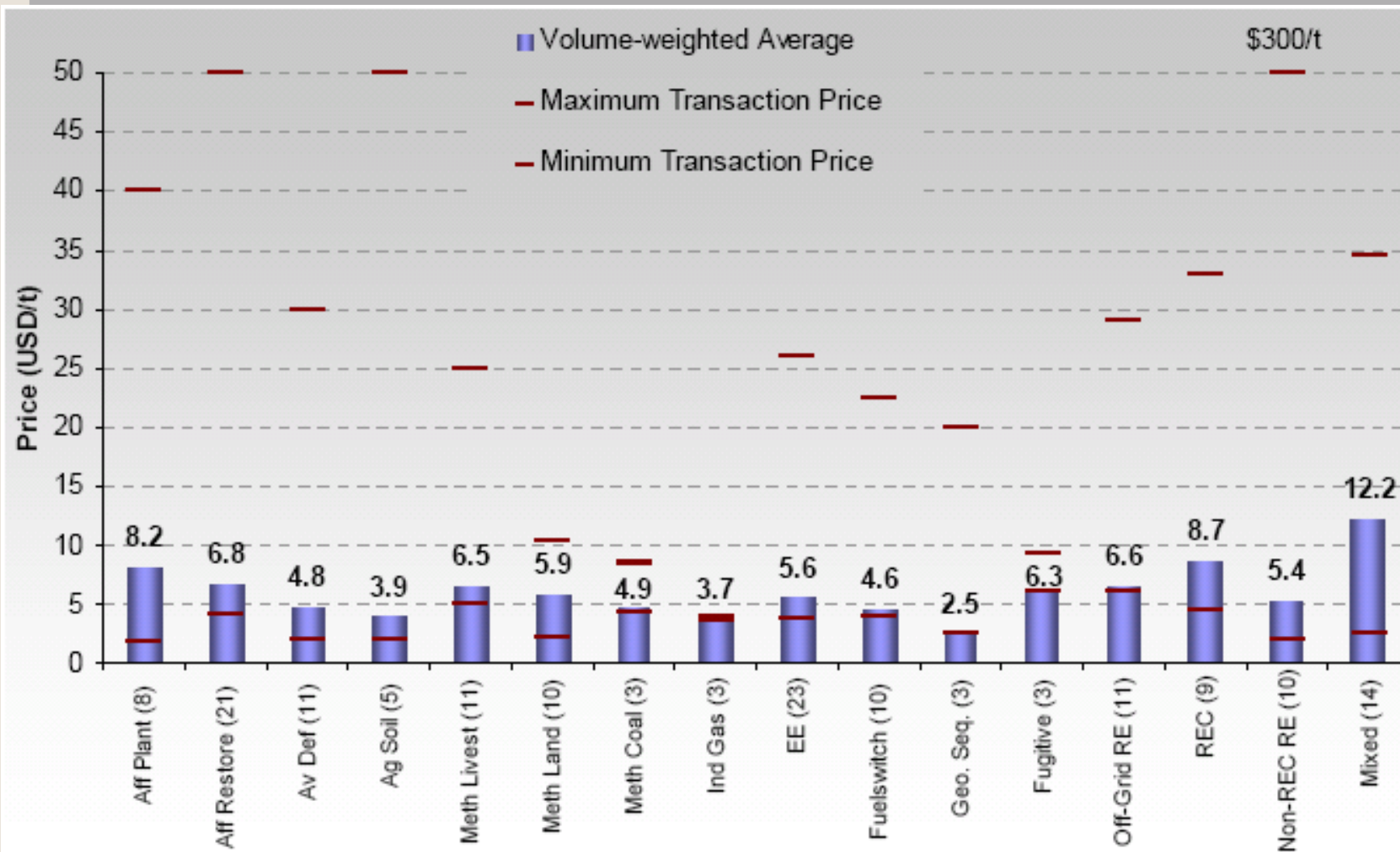
9.5 Mt Offsets Verified; 7.5 Mt Used for Compliance to Date

Forestry Offset Challenges

- National Sink Tables/Forestry Round Tables
- FCM Science – Pollution Probe (Dec '08)
- FCM Draft Protocol submitted to Alberta (July '08) (New Brunswick)
- Binational Effort – FPAC/AF&PA/SAF/CIF
- CCFM FCM Quantification Framework (July '09)
- Federal Call on Fast Track List (July '09)
- Pembina/CPAWS FCM protocol
- REDD Action – Forest Carbon Partnership Facility
- Alberta Protocol Development - closest

A lot of Talk in Canada

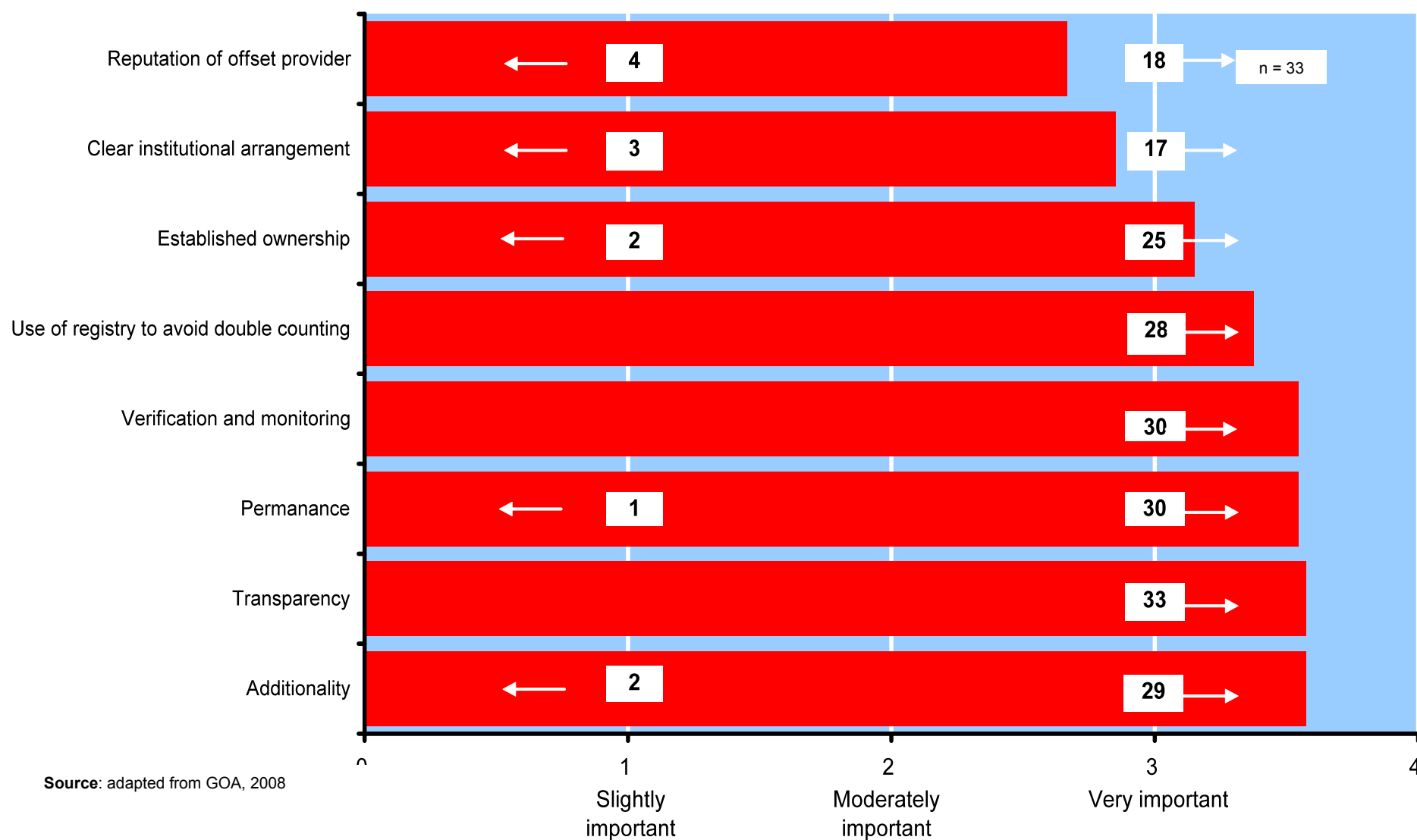
Different project types, different risks, different prices



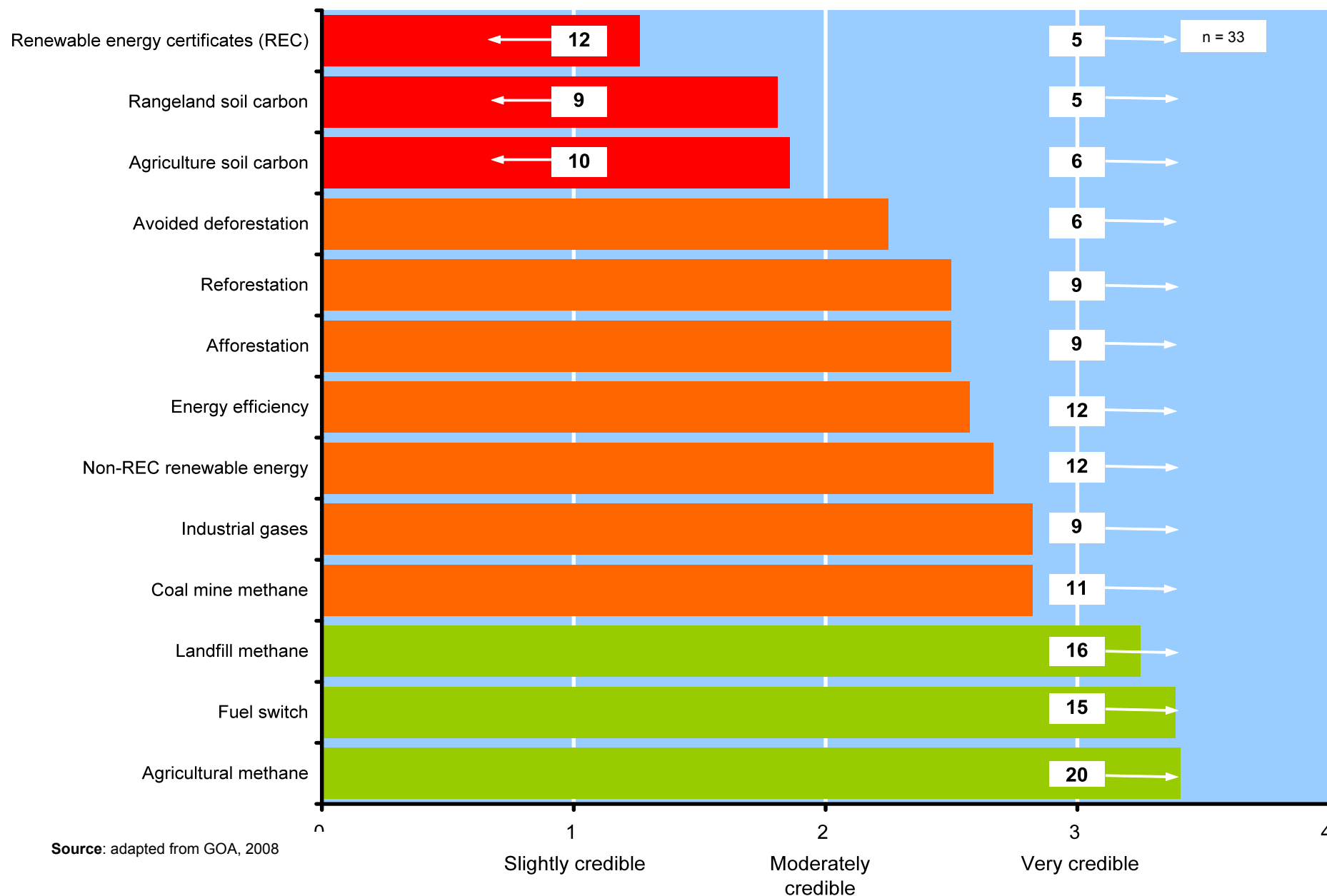
Source: Carbon Finance and Ecosystem Marketplace, 2008

Note: volume-weighted averages from OTC supplier data at all levels of the supply chain

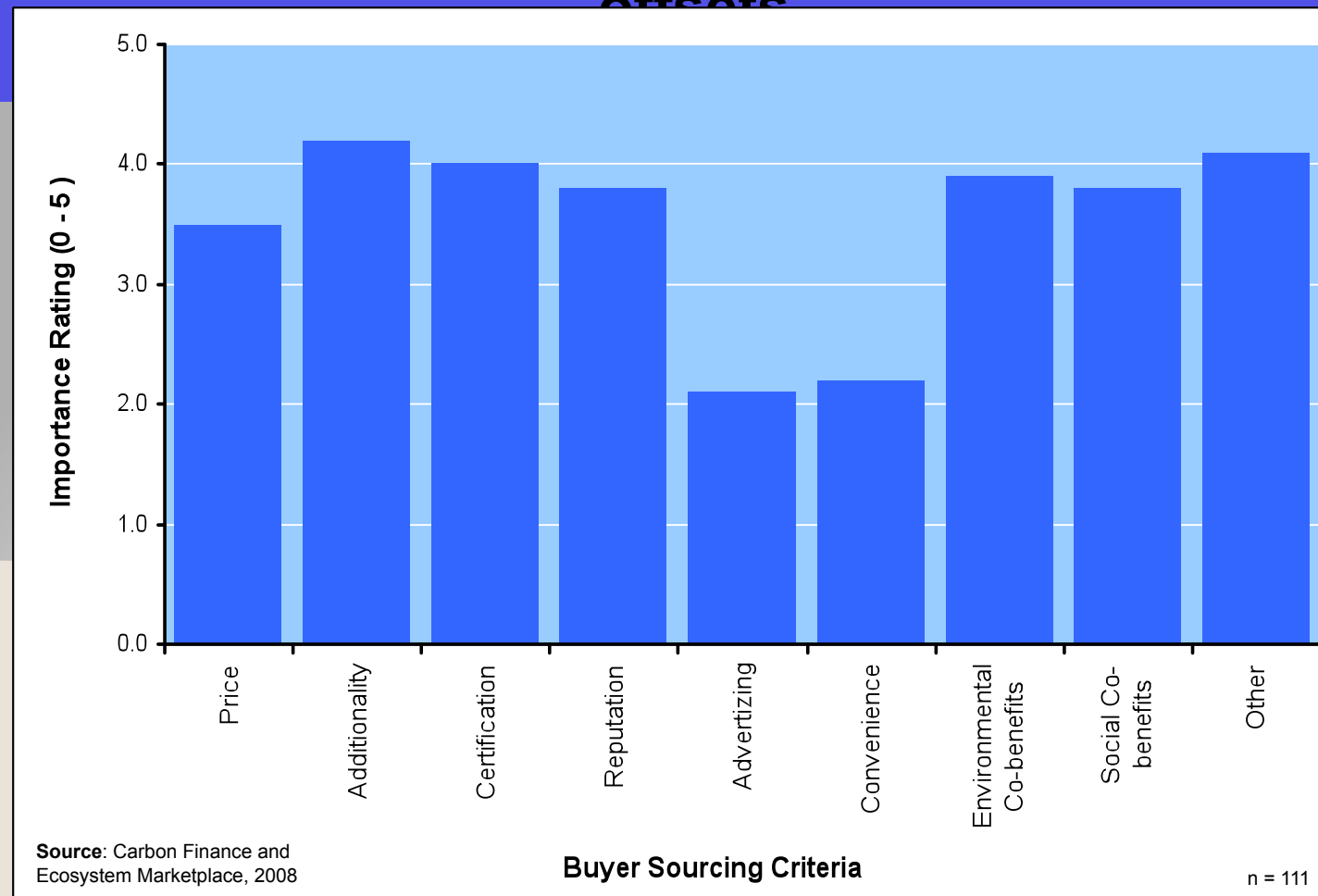
How important, if at all, are each of the following for establishing the credibility of a carbon offset?



How credible, if at all, is each type of Project?



What sellers report buyers look for when buying OTC



	Price	Additionality	Certification	Reputation	Advertizing	Convenience	Environmental Co-benefits	Social Co-benefits	Other
Project Developer	3.4	3.6	4.6	3.6	1.2	1.8	3.4	3.8	5.0
Aggregator	3.4	4.7	4.1	4.2	2.2	2.2	3.9	3.6	4.5
Retailer	3.3	4.3	3.8	3.8	2.4	2.3	4.3	4.0	3.2
Broker	3.7	4.1	4.3	3.9	2.3	2.3	3.9	3.5	4.6
Vol Weigh-Av	3.5	4.2	4.0	3.8	2.1	2.2	3.9	3.8	4.1

- What to include in Forestry Protocols
 - Meeting Additionality and Establishing Baselines
 - Ensuring permanence – mechanisms exist
 - Ownership risk – public/crown lands
 - Harvested Wood Products are important
- Precedents are out there
 - REDD discussions internationally
 - Climate Action Reserve and RGGI in the US
 - CDM a poor example
- Establishing the Monitoring, Measuring and Verification rules will be key
- What is the objective evidence that will be gathered to support the offset claim?

- Climate Action Reserve (California)
 - 20 Projects Registered (Reforestation, Avoided Conversion, Conservation Forests, Urban Forests)
 - 1.2 Mt of Offsets issued (all from Conservation Forests) -all from California (\$6.30/ton)
 - 100y period, with 100 y permanence after that.
- VCS – no forestry projects registered yet; aligns with CAR forestry protocol 3.1 (but no buffer is a problem)
- RGGI
 - Afforestation – conservation easement, in perpetuity
- Alberta -under development
- Pacific Climate Trust
- WCI – makes mention

Forestry Market Activity