

Developing Carbon Offset Projects

Greenhouse Gas Markets

CAPCA Spring Meeting

Asheville, NC

April 16, 2009



Blue Source

About Blue Source

Since 2001, Blue Source built the largest portfolio of North American emission reduction credits and projects.

- 2 primary businesses

1. Carbon Credit Portfolio

- >200 million tonnes, >10 million tonnes sold
- 11 project types in 45 states, Canada

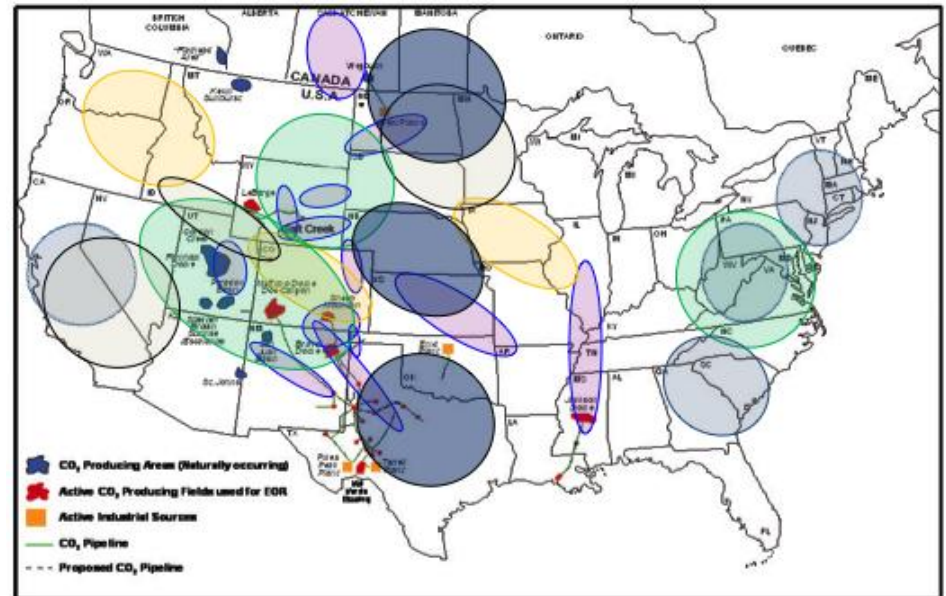
2. Carbon Project Investment

- >\$100 million project equity
 - Developed, owned or operated all anthropogenic CO2 pipelines built in North American in last 20 yrs
- 7 offices: SLC (Headquarters), Calgary, Denver, Houston, New York City, Raleigh, San Francisco

Blue Source's Carbon Credit Portfolio

At >200 million tonnes, our North American portfolio includes 11 project types across US and Canada.

- Renewable energy
- Energy efficiency
- Transportation
- Fuel switching
- Carbon capture & storage
- Landfill gas
- Coal mine methane
- Wastewater treatment
- Manure management
- Agriculture
- Forestry



Blue Source Companies

- **CO₂ Sinks - Blue Strategies, LLC**
 - Joint ownership with Univ. of N. Dakota and Univ. of Utah
 - Sink characterization for geologic sequestration
- **Blue Source Canada**
 - Leading supplier of offsets in Alberta's cap & trade market
 - Authored 25 / 27 protocols accepted by Albertan government
 - Retained by other Canadian provinces to assist in developing their programs

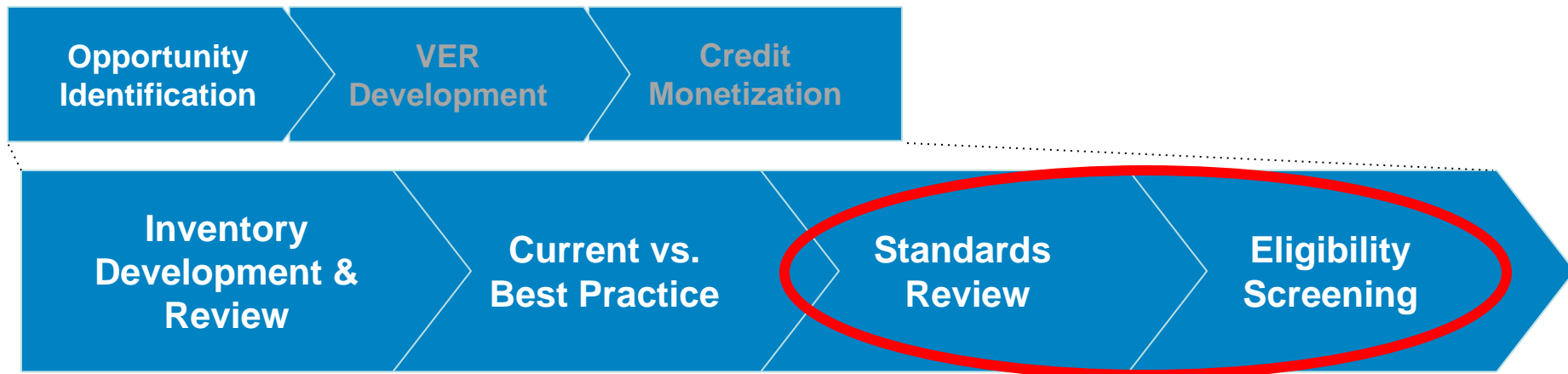
In Context: the Carbon Credit Process

**Opportunity
Identification**

**VER
Development**

**Credit
Monetization**

Opportunity Identification



Scope 1 & 2
• Operations

Scope 3
• Products
• Suppliers

Energy Efficiency
Fuels
Renewables
Transport
Sequestration
Methane
High GWP Gases
Agriculture
Forestry/Land
Other

Compliance
• RGGI
• Alberta (AB)
• CDM
Pre-compliance
• US
• WCI/MCI
• CA
• Canada
Voluntary
• VCS
• CCAR
• CCX

Type
Location
Start Dates
Project-specific

Role of Standards and Registries

- Standards
 - Establish the rules and guidelines regarding the creation of VERs
 - Create and monitor project methodologies
 - Authenticate emission reductions
 - Promote standardization and liquidity
- Registries
 - Provide the infrastructure to store, track, trade and retire offsets
 - Ensure that the environmental benefits of a VERs can only be counted once

Carbon Offset Standards/Registries

- **Voluntary Carbon Standard (VCS)**
 - Leading voluntary carbon standard
 - Voluntary Carbon Units (VCUs)
- **Climate Action Reserve (CAR)**
 - Climate Reserve Tonnes (CRTs)
- **American Carbon Registry**
 - Re-branding of the Environmental Resources Trust's GHG-Registry
 - Emission Reduction Tons (ERTs)
- **Canadian Standards Association**
 - Based on ISO 14064 standards
 - GHG CleanStart Registry
- **Chicago Climate Exchange (CCX)**
 - Carbon Financial Instruments (CFI)

Carbon Standards / Markets

Compliance:

- Clean Development Mechanism (CDM)
 - 2005 (first approval)
 - All sectors
 - Voluntary reductions sold into compliance markets (EU)
- Alberta (AB)
 - 2007 (compliance)
 - All facilities emitting over 100K tonnes / year
 - 12% reduction in intensity
- Regional Greenhouse Gas Initiative (RGGI)
 - 2009 (compliance)
 - Power sector
 - 10% reduction by 2020 (50% offsets)

Pre-Compliance:

- US
- WCI/MCI
- CA

Voluntary:

- Gold Standard
 - 2003 (CDM)/2006 (Voluntary)
 - WWF & other NGOs
- Voluntary Climate Standard (VCS)
 - 2007 (standard published)
 - IETA, WBCSD, Climate Group
- (California) Climate Action Reserve (CCAR)
 - 2008 (first project)
 - State of CA

Eligibility Screening: Overview

The following project parameters are key to determining certification standard eligibility:

- Type
- Location
- Start Date
- Project-specific
 - Mitigation technology
 - Additionality
 - Other (e.g. land use easements, species)
 - *Baseline and quantification protocol*
 - *Monitoring and verification protocol*
 - *Crediting period*

Project Type

Project Types, Standards, Protocols:

	Voluntary Markets				Compliance Markets			Pre-Compliance			
	VCS*	CCAR	CCX	GOLD	RGGI	AB	CDM	US	WCI	CA	CAN
Energy Efficiency	O		X	X	X	X	X				
Fossil Fuels	O		X				X				
Renewable Energy	O		X	X		X	X				
Transportation	O					X	X				
Geological Sequestration	O					X		o			
Methane	O	X	X		X	X	X	o		o	
High GWP Gases	O		X		X		X	o			
Agriculture	O	X	X		X	X	X	o		o	
Forestry/Land Use	X	X	X		X	X	X	o		o	
Other	O						X				

O = Eligible but no protocol established

X = Protocol established

*VCS follows many practices of Climate Trust, an aggregator of offsets for Oregon power plants and other large buyers.

Location & Start Date

	Voluntary Markets				Compliance Markets			Pre-Compliance			
	VCS	CCAR	CCX	GOLD	RGGI	AB	CDM	US	WCI	CA	CAN
Location	All	CA*	All	All	North-East States	Alberta	Non-Annex 1	US	US, CAN, MEX	CA*	CAN
Start Date	2002	2001	1999	Rolling	2006	2002	Rolling				

Mitigation “Technologies”: Energy

Project Types / Sub-Types	Voluntary Markets				Compliance Markets		
	VCS	CCAR	CCX	GOLD	RGGI	AB	CDM
Energy Efficiency	O		X	X	X	X	X
Building Retrofit (Direct/Indirect)	O		X	X	X (D)		XXXX
Green Building (Direct/Indirect)	O		X	X	X (D)		X
Industrial Equipment (Direct/Indirect)	O		X		X (D)	X	XXXX
Boiler/Steam Systems	O		X		X		XXXXXX
Waste Heat Recovery	O		X		X	XX	XXXXXX
Power Supply	O		X				XXXXXXXX
Fossil Fuels	O		X				X
Co-generation	O		X				XX
Fuel Switching	O		X				XXXX
Flaring/Venting	O						XXXXX
Renewable Energy	O		X	X		X	X
Power (Wind/Solar/Geo/Hydro/Biomass)	O		X	X			XXXXX
Thermal (Solar/Geo/Biomass)	O		X	X	X		XXX
Transportation	O					X	X
Biofuels/Alt Fuels	O					X	XXXX
Fleet Efficiency (vehicle, idling, logistics)	O						XX
Intermodal Shifting	O						X
Marine/Aviation Efficiency	O						
Geological Sequestration	O					X	
Carbon Capture and Storage	O					X	

Mitigation “Technologies”: Non-Energy

Project Types / Sub-Types	Voluntary Markets				Compliance Markets		
	VCS	CCAR	CCX	GOLD	RGGI	AB	CDM
Methane	O	X	X		X	X	X
Landfill Gas / Composting	O	X	X		X	XX	XXXXXX
Coalmine Methane	O		X				XX
Wastewater	O						XXXX
Pipeline Leaks	O						XX
High GWP Gasses	O		X		X		X
SF6 (Mg, Chips, Power)	O				X		XX
PFC (Aluminum)	O						X
HFC/CFC (Electronics, Refrigerants)	O		X				XX
N2O (Fertilizer, Nylon)	O						XXX
Agriculture	O	X	X		X	X	X
Soil Tillage	O		X			X	
Manure Mgmt	O	X	X		X	X	XXX
Livestock Mgmt	O					XXX	
Rangeland Mgmt	O		X				
Fertilizer Mgmt	O						X
Forestry/Land Use	X	X	X		X	X	X
Avoided Deforestation	X	X	X				
Forest Management	X	X	X				
Afforestation/Reforestation	X	X	X		X	X	X
Wood Products	X	X	X				
Grasslands	O		X				
Wetlands	O						
Other	O						X
Feedstock (e.g. Fly Ash-Cement)	O						XXXXXX
Ocean Sequestraton	O						
Recycling	O						
Industrial Processes	O						XXXXX

Eligibility Screening: Additionality

	Voluntary Markets				Compliance Markets		
	VCS	CCAR	CCX	GOLD	RGGI	AB	CDM
Regulatory (required)	X	X	X	X	X	X	X
Barriers							
Financial* &/or	X			X			X
Technology &/or	X						
Institutional	X						
+ Common Practice	X						
Performance Standard	X	X				X	
Listed Technology	X	X	X				

*Capital constraint or hurdle rate

Opportunity Identification

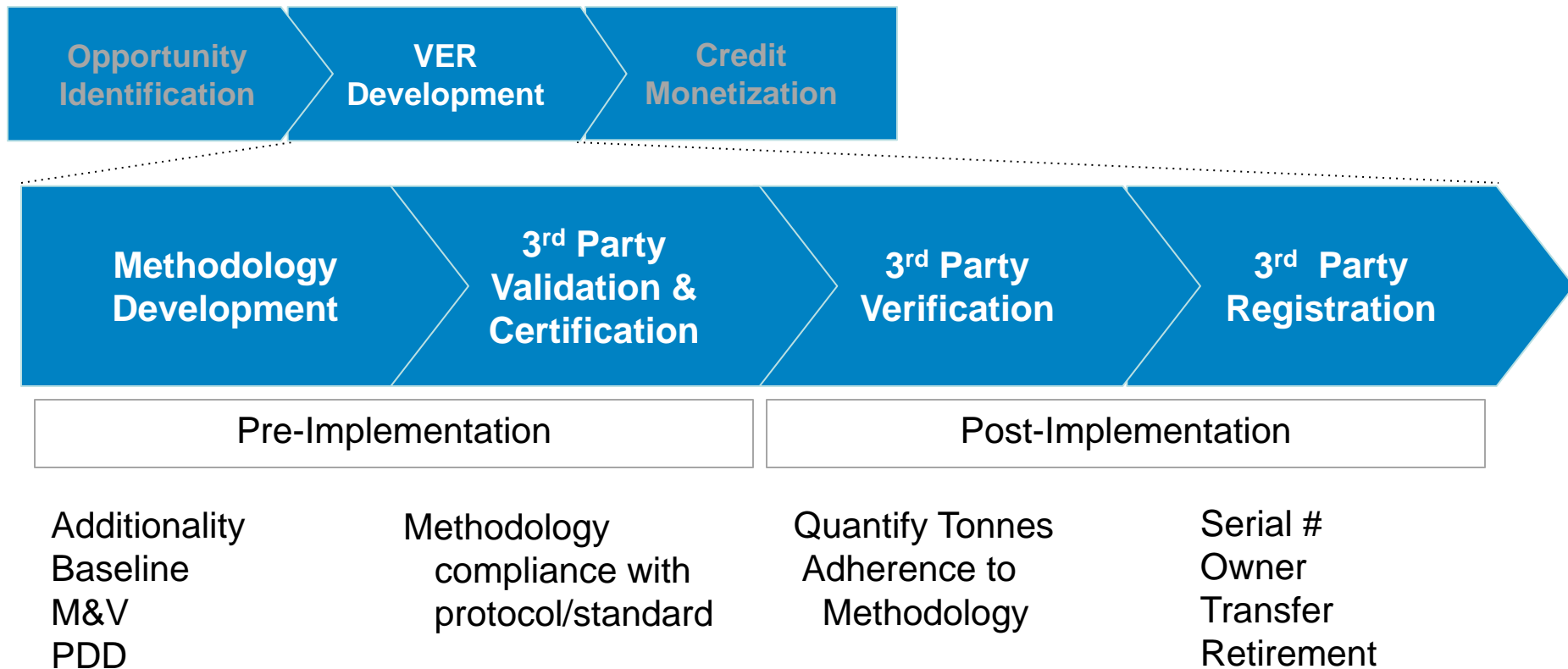
Commercial Considerations:

- Emission reduction (tonnes)
- Project ROI
 - Carbon value
 - Other environmental credits (RECs, EECs, RINs)
 - Energy/operating cost reductions
 - Capital requirements
 - Financing options
- Early action implications
 - Baseline?
 - Allowance allocation?
 - Offset banking?
 - Future direct regulation?

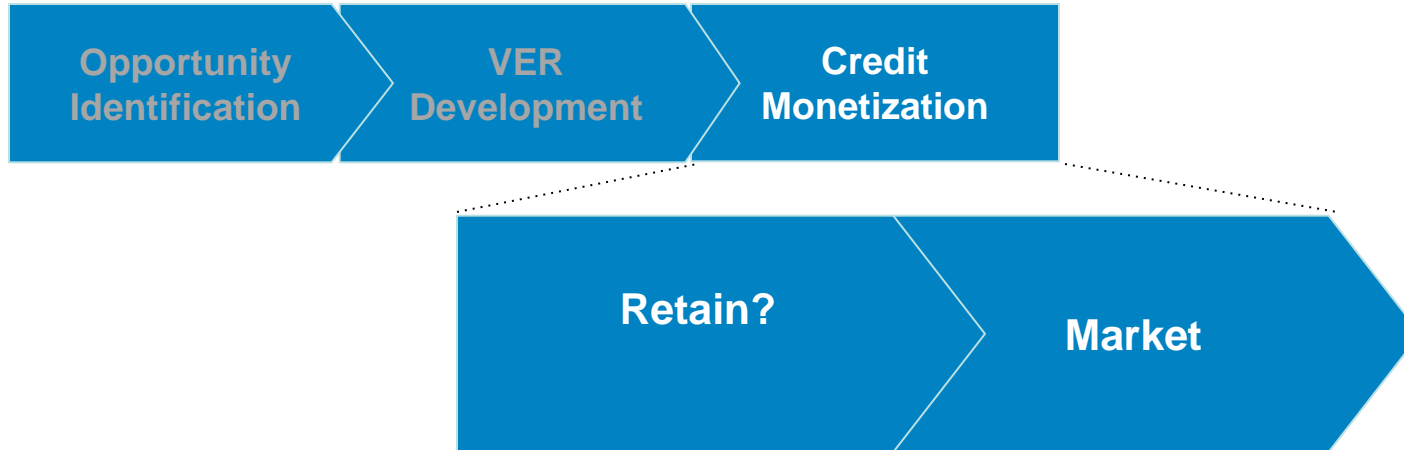
Decision:

- Pass?
- Implement project w/o VER?
- Develop VER?

VER (Credit) Development



Derive value from reductions



Pre-compliance
(banking)
Permitting
Carbon neutrality
(retire)

Identify Buyer

- Broker?
- Buyer?
- Agent? (Blue Source)

Negotiate Price

- Spot
- Forward
- Cash upfront

Mitigate Risks

- Delivery Risk
- Credit Risk
- Reversal Risk

Market Segment and Buyers

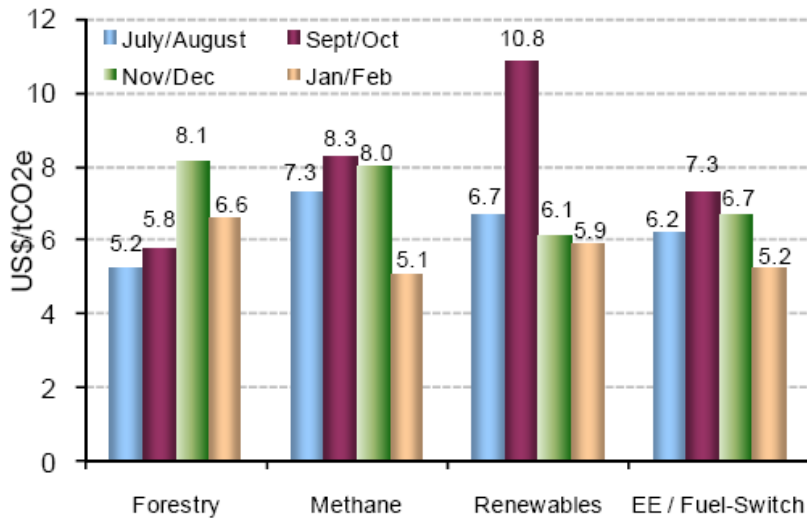
- **Voluntary Market – Consumer-Driven Climate Action**
 - Industrial companies, wholesalers, retailers, speculators
 - Carbon neutral products, PR, internal sustainability, corporate citizen
 - Offsetting past emissions
 - Independent of potential regulations
 - Buyer-specific criteria (spec, standard, type, co-benefits)
 - Robust even in presence of regulatory market (Europe represents 47% of 2007 voluntary buyers)
- **Pre-Compliance Market – Anticipating Compliance Costs**
 - Industrial companies, large emitters, new emitting facilities
 - Result of views on impending federal regulations
 - Criteria based on draft regulations
 - Securing future streams of offsets
 - Permitting issues

Carbon Value Proposition

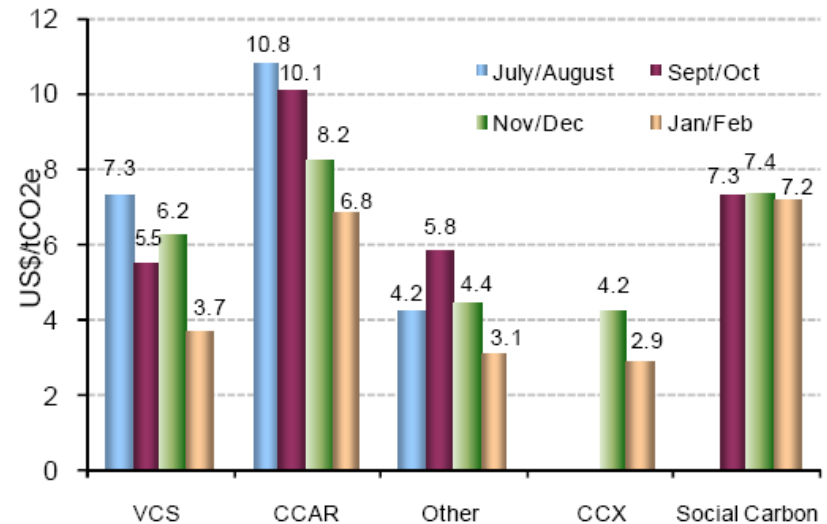
- **Product Differentiator**
 - Green products (e.g., carpet, consumer products, clothing)
- **Retail Opportunity**
 - Customers to offset (retail gas and electricity)
 - Transportation (airlines, rental car companies)
 - Gifting green
- **Corporate Communication**
 - Social corporate responsibility goals
 - Green operations and marketing
 - Green events (World Cup Soccer, Super Bowl)

VER Price Trends

VER Prices by Project Type



VER Prices by Standard



Questions?

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