

Carbon Offsets and the Policy Context

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Outline

1. Policy

- Alberta-Canada Drivers

2. Science

- Standards-based protocols

3. Transparency

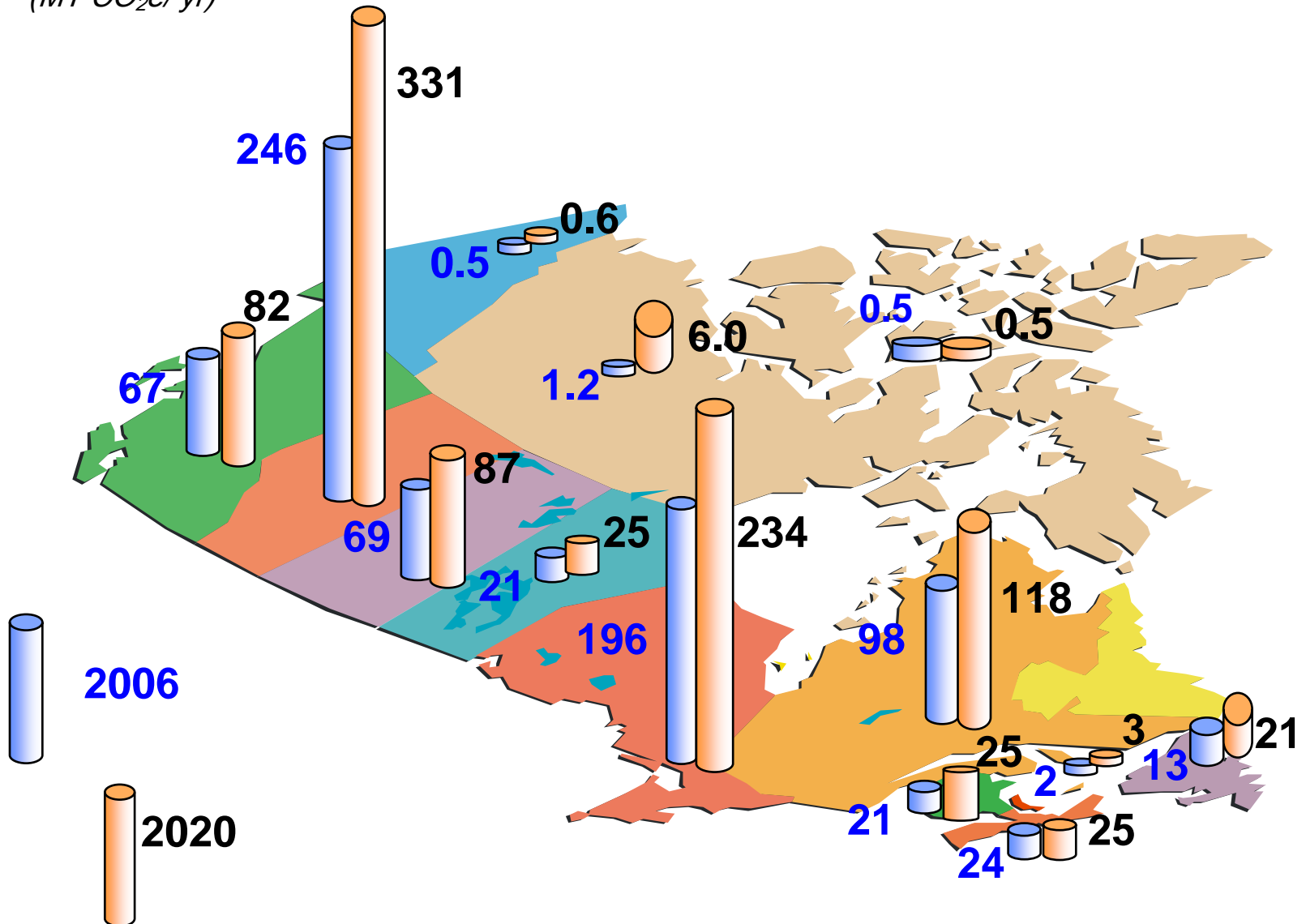
- Consistency, scrutiny of protocol review process/projects

4. Business

- Responding to the price signal and commercializing the opportunity through Projects
- Enhanced environmental management

Alberta's GHG Emissions in the Canadian Context

(MT CO₂e/yr)





Provincial Context

- Strong, growing, export-oriented economy
 - Key product is energy – oil sands to meet increased US demand
 - Disbursed population
 - Limited but growing concentration in a few urban areas
- About 90% of electricity from fossil fuels (coal and natural gas)
- 100 large point source facilities account for about 50% of total economies emissions
- International recognition of the need for action on climate change
 - Wealth as a metric for ability to act
- Polling shows environment is one of the major top of mind issues for Canadians
- Growing interest in full life cycle impacts
 - Implications for exports (Low Carbon Fuel Standard)
- Impacts of a changing climate are being felt today
- Ideal geology and potential technology conditions for large scale carbon sequestration

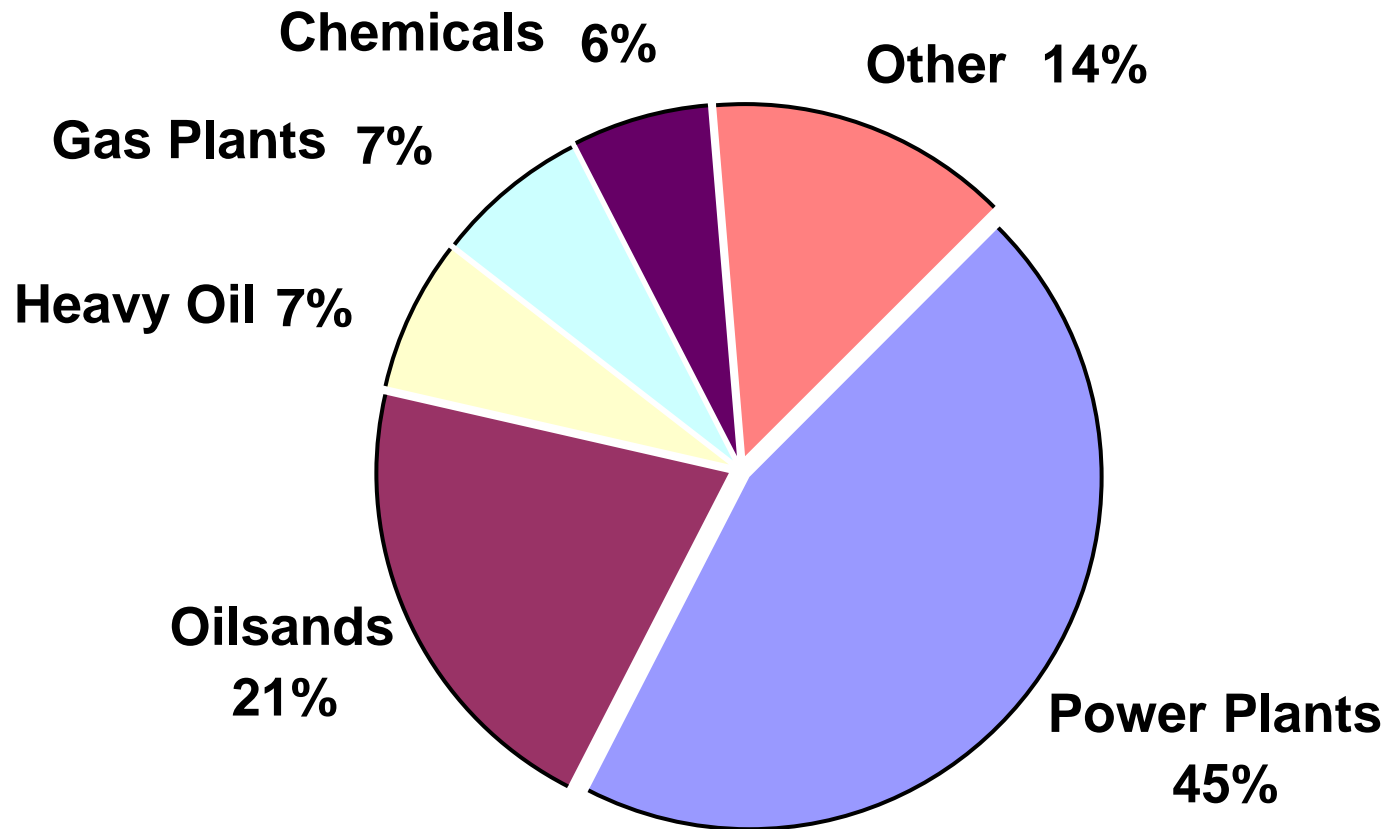


Alberta Approach

- Long term issue
 - Need to start with practical, achievable objectives
- Policy certainty for industry
 - Large investments being made now – expensive to retrofit, investment is for 40 years+
- Implementation of new technology will be a big part of the long-term solution.
 - Linked to our unique role as North America's energy supplier
- Market instruments - bridge gap between current emissions and long-term solutions.
- Consumers must be part of the solution
- Requires strategic and focused investment in transformational changes (technology, behavioral)
- Remain Globally Competitive

Large Emitters Profile

(*>100,000 tonnes CO₂e/year*)



Alberta-Canada Frameworks

	ALBERTA		FEDERAL	
	Existing Facilities	New Facilities	Existing Facilities	New Facilities
APPROACH	Intensity targets		Intensity targets	
TRIGGER	>100 Kt CO _{2e} <i>Possible 50 kt CO_{2e} baseline</i>		>50 kt CO _{2e} ; 10 MW; 3kt for Upstream Oil and Gas	
START-DATE	1 July, 2007	After 3 years operation	2010	After 3 years operation
BASELINE	Average of 2003, 04 & 05	Third year of operation	2006	Third year of operation
REDUCTION TARGET	12% by end of 2007	2% per year	18% (6%/yr from 07 to 10) then 2% / yr thereafter	2% per year And Clean fuel standard*
DURATION	Until end of 2014		CEPA review in 2015?	
RESULTS	12%	2% to 12% age dependent	26%	2% to 8% (2010 onwards)

*Clean Fuel Standards -IGCC and CCS emission levels by by 2018

Compliance Options

	ALBERTA	FEDERAL
COMPLIANCE OPTIONS	1. <u>Emissions Management Fund</u> <ul style="list-style-type: none"> ▪ \$15 per tonne CO₂e ▪ No limits on amount of credits 'purchased' 	1. <u>Technology Fund</u> <ul style="list-style-type: none"> ▪ \$15 per tonne CO₂e credit, \$20/t in 2013, indexed to GDP thereafter ▪ Credit purchases capped at 70% in 2010, decreasing to 0% by 2018 ▪ 100% if Pre-Investment certified for CCS
	2. <u>Performance Credits</u> <ul style="list-style-type: none"> ▪ For bettering target ▪ Credits bankable / tradable 	2. <u>Surplus Credits</u> <ul style="list-style-type: none"> ▪ Similar process to Alberta's. ▪ Credits bankable / tradable
	3. <u>Offsets</u> <ul style="list-style-type: none"> • Project assurance occurs after credits created (ex poste verified – no validation) • Project Start Date - 2002 • Eligible Crediting Period – 2002 onwards • Comprehensive set of Government-approved protocols available • No external offsets allowed • Limited or review level of assurance 	3. <u>Offsets</u> <ul style="list-style-type: none"> • Mandatory <i>validation/registration</i> • Project assurance occurs before and after credits created • Government- approved protocols only • Project Start Date – 2000 • Eligible Crediting Period – 2008 onwards • 10% CDM allowed • Highest level of assurance



Options to Achieve Targets

1. Emission Performance Credits

- These are credits for better than target performance – created by regulated companies

2. Fund Credits

- Invest in the Climate Change and Emissions Management Fund at \$15/tonne – funds used to develop or invest in Alberta based technologies, programs, and other priority areas (as per CCEMA)

3. *Carbon Offsets*

- *Emission Reductions by unregulated sectors sold to 'offset' target reductions by LFEs*



Offsets – Core System Elements

- A **demand** for credits
 - Created through the Specified Gas Emitters Regulation (SGER)
- A **supply** of credits
 - Creation allowed through the regulation; government approved protocols and methodologies
- **Rules** to govern the system
- **Consequences** for non-compliance
 - All projects are being audited this cycle



Offset Rules – Regulatory Definition/Supporting Infrastructure

- **Emission Offsets:**
 - Action (project) taken on/after January 1, 2002
 - All actions must occur in Alberta
 - Must be *real, quantifiable and measurable*
 - Not otherwise required by law; clearly owned
 - Must be verified by 3rd party
 - Guidance Documents (Projects, Verification, Protocols)
 - Protocols – Most comprehensive set in NA
 - First 23 Approved
 - 9 more in protocol review process
 - 5 more signalled their intent
 - Project-based Registry launched = Alberta Offset Emission Registry (AEOR)

Connect to www.carbonoffsetsolutions.ca



Alberta Carbon Offsets – Defined by Science-based Protocols

- **ISO 14064-2:2006 Framework**
 - Leveraging previous national work (2003-2006)
- **Standards are Stringent**
 - Considers all GHG's impacted by the Project
 - Streamlined life cycle assessment
- **Development and Review Process**
 - Transparent, based on Good Practice Guidance
 - Guided by Four Criteria:
 - Environmental Integrity; Practicality; Building on past knowledge and good practice; Streamlined life cycle

Standards-Based Protocols

ISO 14064-2

- Defines the Requirements
- Tells the developer what to do not how to do it
- Generic, nonsectoral

Alberta OS Rules

- Some requirements defined through the Policy
- Some procedures are a given
- Sectoral

Alberta Protocol Application

- Performance-based standard' approach:
-simplified and prescriptive to achieve a certain level of performance
- Project Type
- Many criteria and procedures established and justified – the how to's

Project Plans



- Project specific
- Must show they meet the requirements
- Establish some criteria and procedures

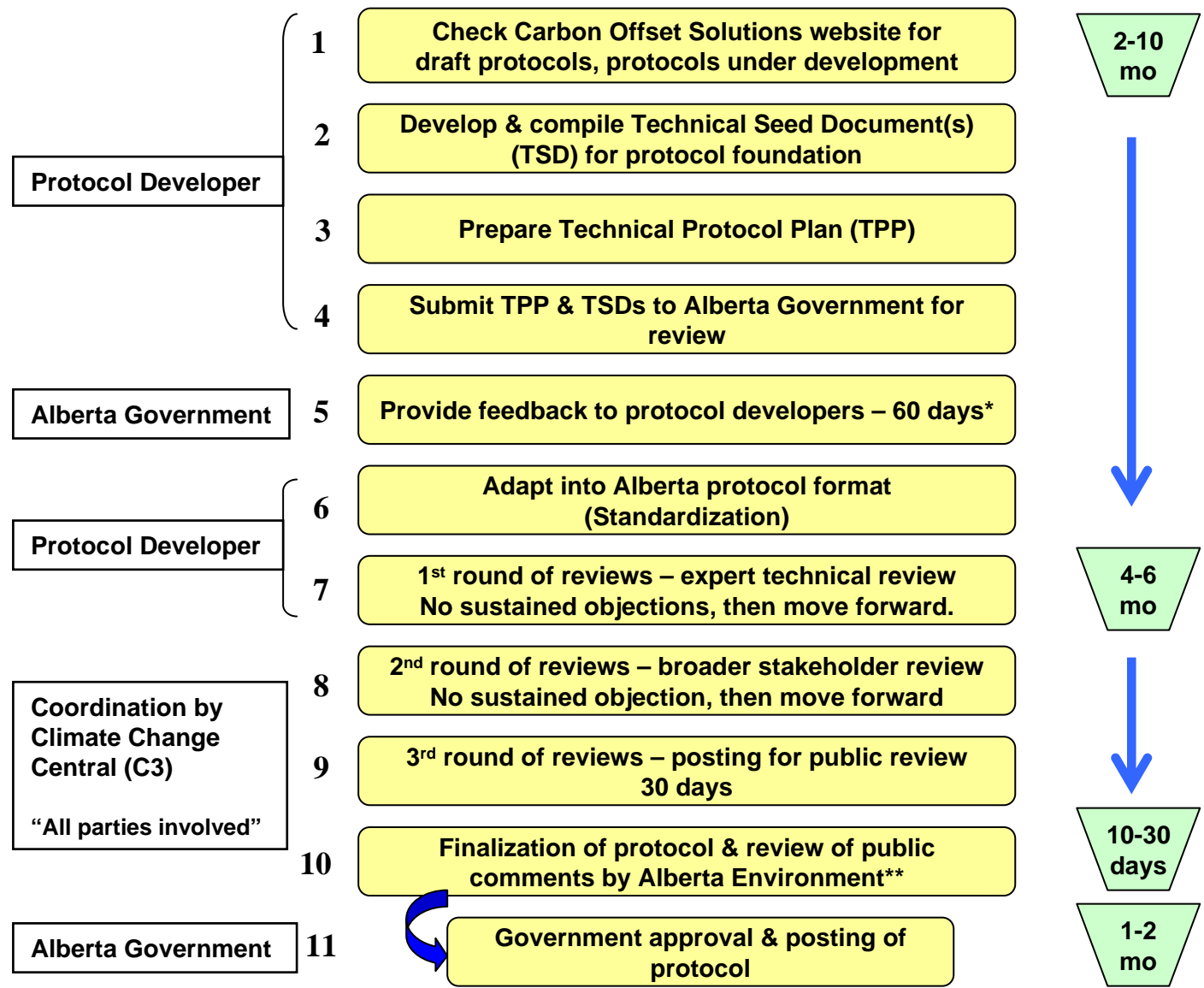


Quantification Protocols

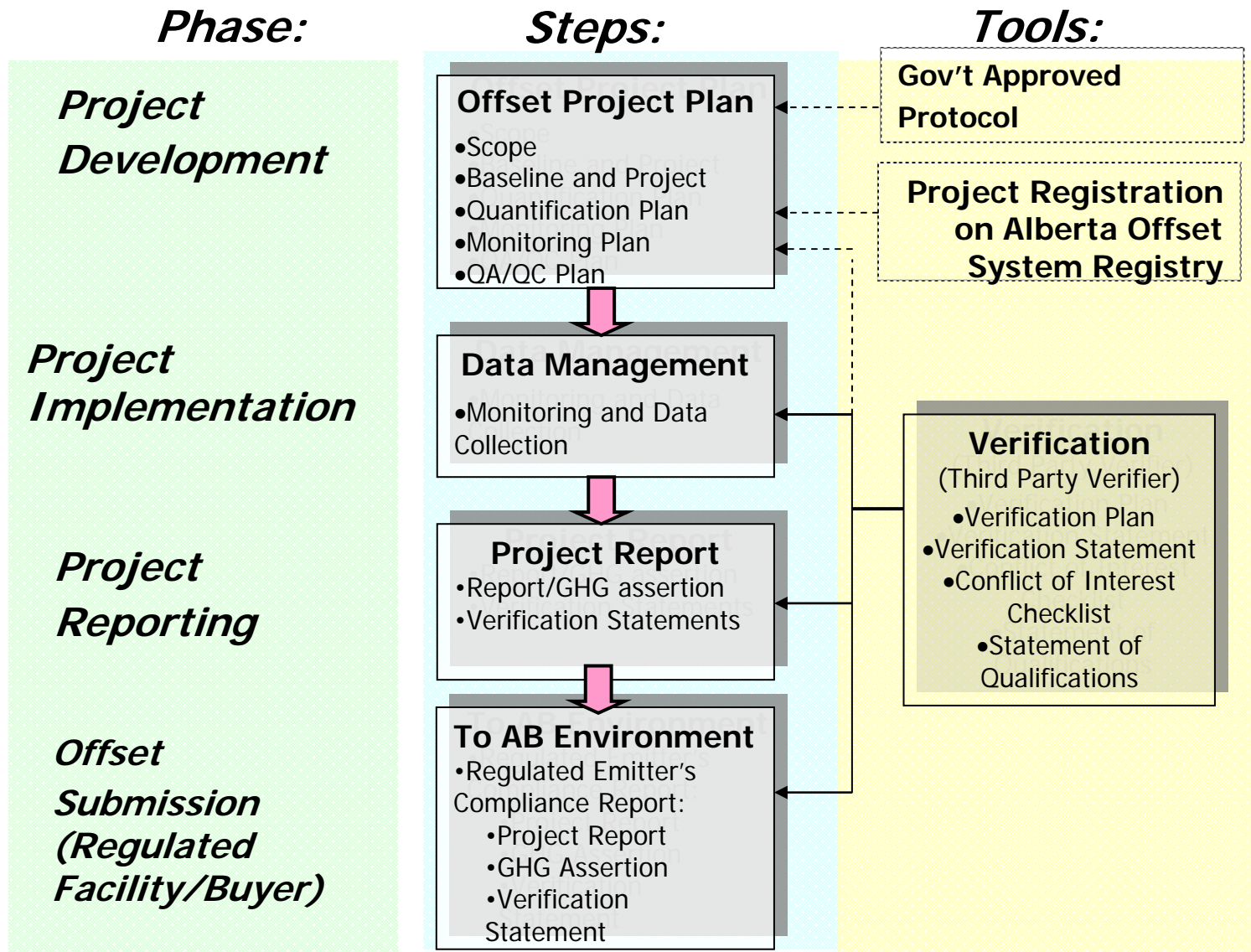
- Government Approved Protocols:
 - Science-based
 - International compatibility
 - Streamlined use
 - Transparency and consistency
 - Reduced costs and administration
 - Considerable technical review
 - Provides certainty for investors – GHG tonnes reduced

Defines the Supply – Size of the Reduction

Protocol Development/Validation Process



Creating the Offset Credit



Alberta Emissions Offset Registry

www.carbonoffsetsolutions.ca

Carbon Offset Solutions A-EOR - Windows Internet Explorer

http://www.carbonoffsetsolutions.ca/aeor/index.php?p=search_projects&search_asking=all&search_project_type=-1&search_emissions_from=0&search_emissio

Carbon Offset Solutions A-EOR

CARBON OFFSET SOLUTIONS

brought to you by: **Alberta** Climate Change Central

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Search Projects

Search Projects > Search Projects Results

Showing results 1 - 10 of 10.

Page 1

Project Name: 2007 Tillage Auction Project [Send Message](#)

Project Status: Approved

+ **Project Developer:** Emission Credits Corporation
Project Location: North Central
Vintage: 2002-2007

Project Name: Aggregation of Carbon Credits from No-till or Reduced Till Agricultural Practice [Send Message](#)

Project Status: Approved

+ **Project Developer:** Baseline Ag. Services Inc.
Project Location: North West
Vintage: 2002-2007

Project Name: Carbon Reduction Offset Project [Send Message](#)

Project Status: Approved

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First Year of the Market: How Did Alberta Businesses Respond to Commercializing the Opportunity

Compliance Volume 2007

- Compliance focus on the Fund (\$40 million or 68%)
- 1.5 million tonnes of verified Offsets created; 1 Mt used for compliance (25%)
 - 7 Projects – 3 Tillage, 2 Wind, 1 LFG, 1 Biomass
 - 60% of offsets through reduced tillage
- Approx. 1 million tonnes of EPCs created
 - 258,000 tonnes (6.8%) used for compliance in first cycle
 - Mostly from cogeneration

Note – Demand approx 10 to 12 Mt per year



Price Trends

- No transparency; investigation required
- 3 tillage projects = Complex, involved bilateral contracts, price negotiations
 - Prices ranged from \$12.50 to \$6/tonne
 - Return to supplier (farmer) - \$8.50 to \$3.50/tonne
- LFG, 2 Wind = Power purchase agreements
- Biomass = Unsure (Green Energy Exchange)

Lessons Learned

- Alberta's Offset System – proved the aggregator model
- Intense interest in Biosequestration projects – model works
- Market - now competing on reduced transaction costs
- More Project Documentation templates required
- Verification Standard for more complex projects
- Ownership issues – barred up to 40% of tillage offsets
- Less red tape – more market uncertainty
- Audits of 2007 Offset Projects will reveal more
- Accreditation of Verifiers likely needed
- Unanticipated costs on project developer side – will lead to more diversification of Projects (\$15 safety valve a challenge)



Conclusions

- Foundations of a Carbon Market Laid
 - Businesses were able to commercialize
- Transparent Protocol Development and Review Process
 - Nitrous Oxide Protocol well on its way
- Science-based is critical; but recognize this will be a 'First Generation Protocol'
 - Opportunity to improve every 5 years
- The ISO 14064-2 Standard was chosen because it's a risk-based approach to Protocol Development