

Greenhouse Gas Reductions from Gas Sector Energy Efficiency Activities – Realizing Carbon Market Opportunities

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Blue Source
Canada

Outline

- Part 1: Introduction to offsets
 - What are they, and what's being done with them
- Part 2: BMP and Protocols
 - Which BMPs have GHG Protocols
- Part 3: Business Case
 - Creating an additional revenue stream

Blue Source Canada

- Previously operated as Baseline Emissions in Canada
- Offices in Canada and the US
- Two primary businesses:
 - Carbon Credit Portfolio
 - Carbon Infrastructure Investment
- Strategic Partnerships

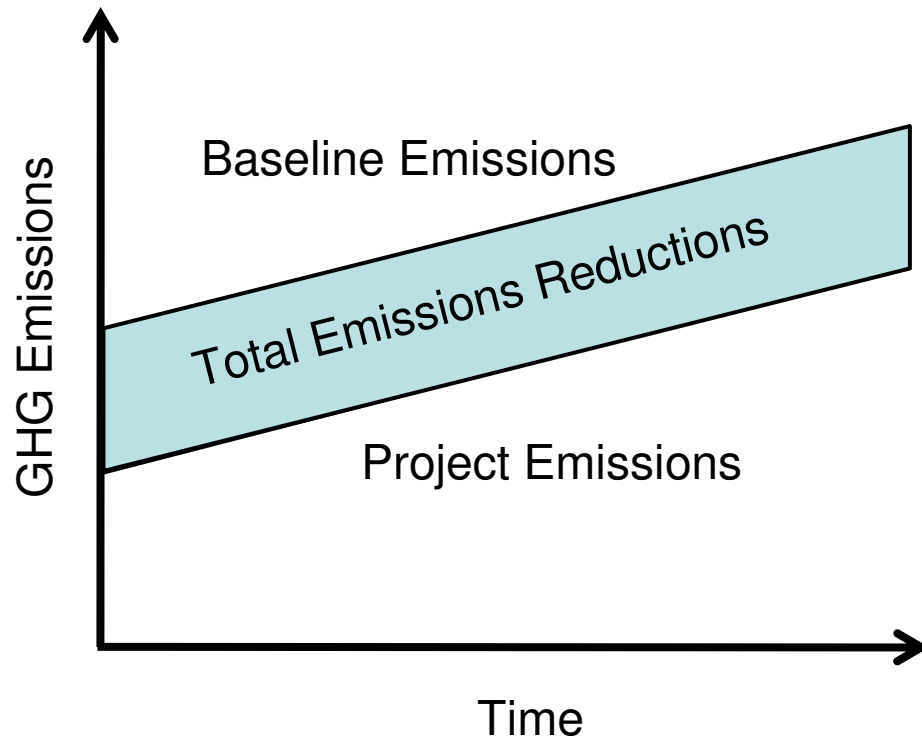
Blue Source has built the largest portfolio of North American emission reduction credits and projects.

Blue Source Canada

- Canada's leading marketer of environmental attributes
- Supply-side model, act as seller's agent
- Provide full suite of offset services from GHG strategies to commercialization of offsets
- Provide offset-related technical services
 - Development of protocols for AB, federal system
 - Write / adapt protocols for specific projects
 - Project documentation, analysis, risk assessment

What are Offsets?

An offset or carbon credit is created by a GHG emission reduction project that achieves GHG reductions relative to a baseline condition



Example project types:

- Acid Gas Injection
- Reduced Tillage
- Wind Power
- Landfill Gas Capture
- Energy Efficiency
- Waste Heat Recovery

What are Offsets?

- Credit for a specific project's "avoidance, reduction, removal or sequestration" of GHG emissions
- Beyond BAU (regulation, common practice)
- One offset credit = One tonne of CO₂e avoided
- Created by proving avoidance, reduction, removal or sequestration (data and documentation)
- Reductions by one party can be used by a second party to offset their own emissions

Offset Markets - Voluntary

Demand

- Company commitments
 - e.g. Chicago Climate Exchange
- Green products
 - e.g. green gas/electricity
- Low Price
 - \$1/tonne to \$8/tonne

How

- “You pick the rules”
 - Transaction specific rules for eligibility and measurement



Offset Markets - Compliance

Demand

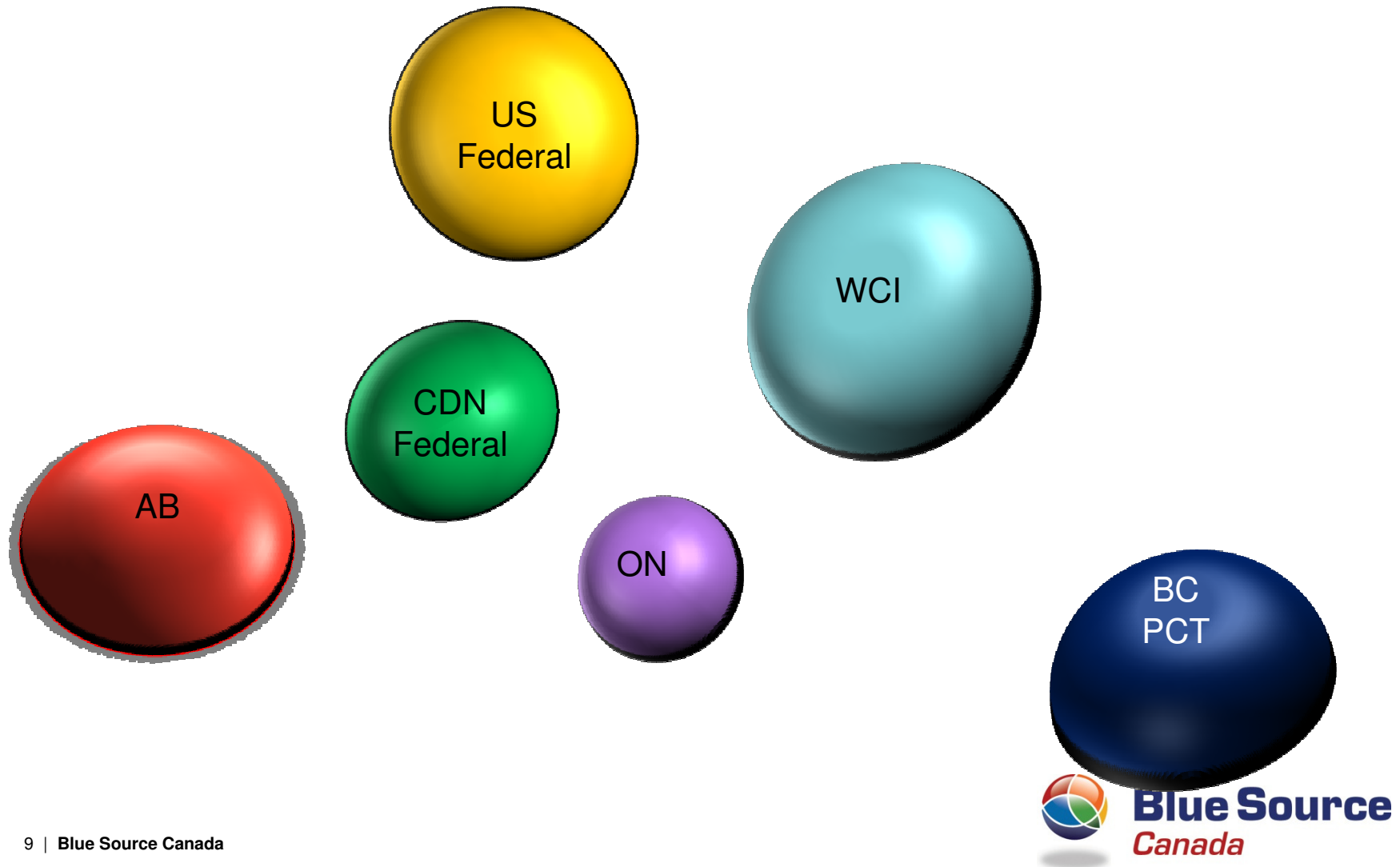
- Government mandated reductions creates demand
 - E.g. large emitters must reduce by x%/yr
- Higher Price
 - AB: \$13 to \$8 (capped at \$15)
 - BC: \$20 to \$10 (capped at \$25)

How

- “Government creates the rules”
 - Each jurisdiction creates specific rules for offset eligibility and measurement

Offset Markets

- Spheres of Influence



Offset Markets - Compliance

- US – Federal
 - Energy bill, RFS, and RES
 - Agriculture protocols
- WCI
 - Draft recommendations for cap and trade, and offset process in next few months
- Canadian – Federal
 - Cdn commitment to align w/US GHG policy
- ON
 - Reporting Regulation in effect
 - ON looking to create right conditions for offset market
 - Will work in conjunction with WCI partners



Offset Markets - Compliance

Alberta

- Emission reduction targets set on facility basis
 - 100,000 kilotonnes threshold
 - 12% reduction on an intensity basis
- Currently in third compliance cycle
- Three Compliance mechanisms
 1. Internal reductions
 - Performance credits
 2. Climate Change and Emissions Mgmt Fund
 - \$15 per tonne, and unlimited access
 3. Offsets
 - AB based project, start after Jan 1st, 2002



Offset Markets - Compliance

Alberta cont

- Government Protocol Approval
 - Developed extra-governmental
 - Long lead time
- Crediting process is extra-governmental
 - Application of government approved protocol
 - Third-party verification
 - Eligible project
 - Defined ownership
 - Valid quantification

Opportunity in Alberta

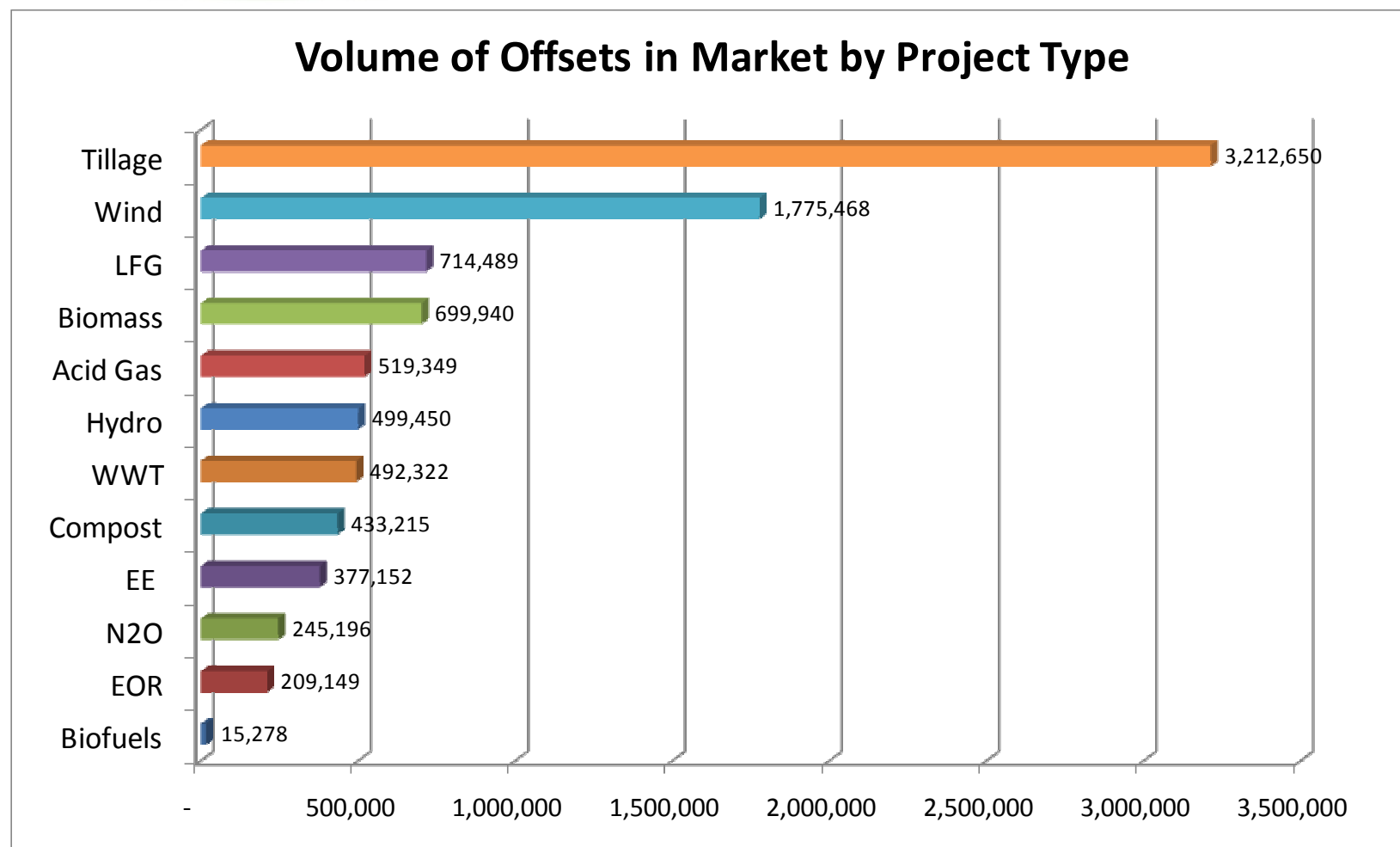
GHG Compliance

- 4.1 Mt of offsets registered in 2009
- 1.7 Mt of offsets retired in 2009
- 9.2 Mt of offsets in the system (2007 to 2009)

Offset buyers include:

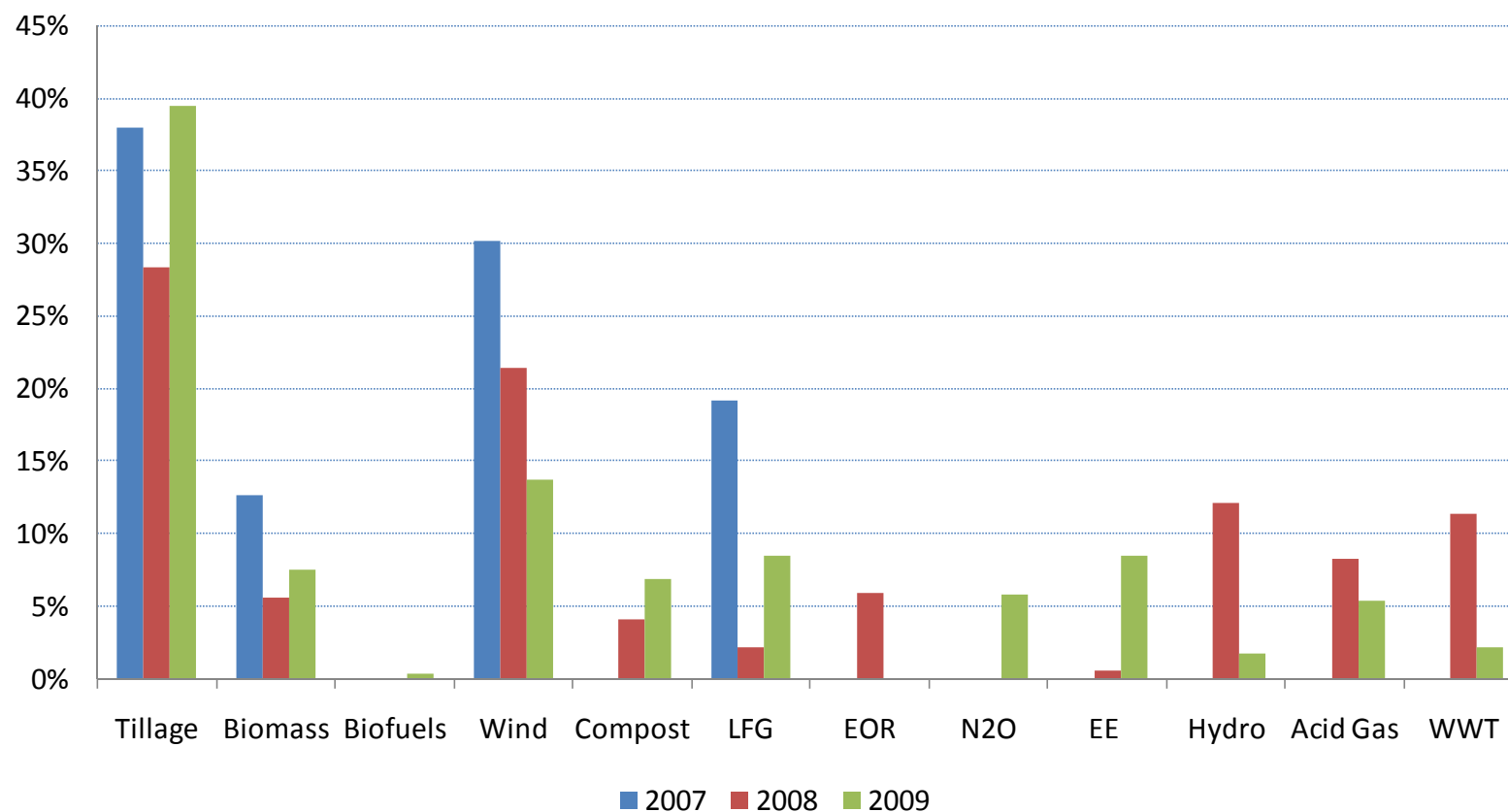
- Agrium, Alliance Pipeline, AltaGas, Apache, Atco, Capital Power, Conoco Philips, Devon, Enbridge, Enmax, Epcor, Keyera, Nova Chemicals, Shell, Suncor, TransAlta, TransCanada Pipelines

Opportunity in Alberta

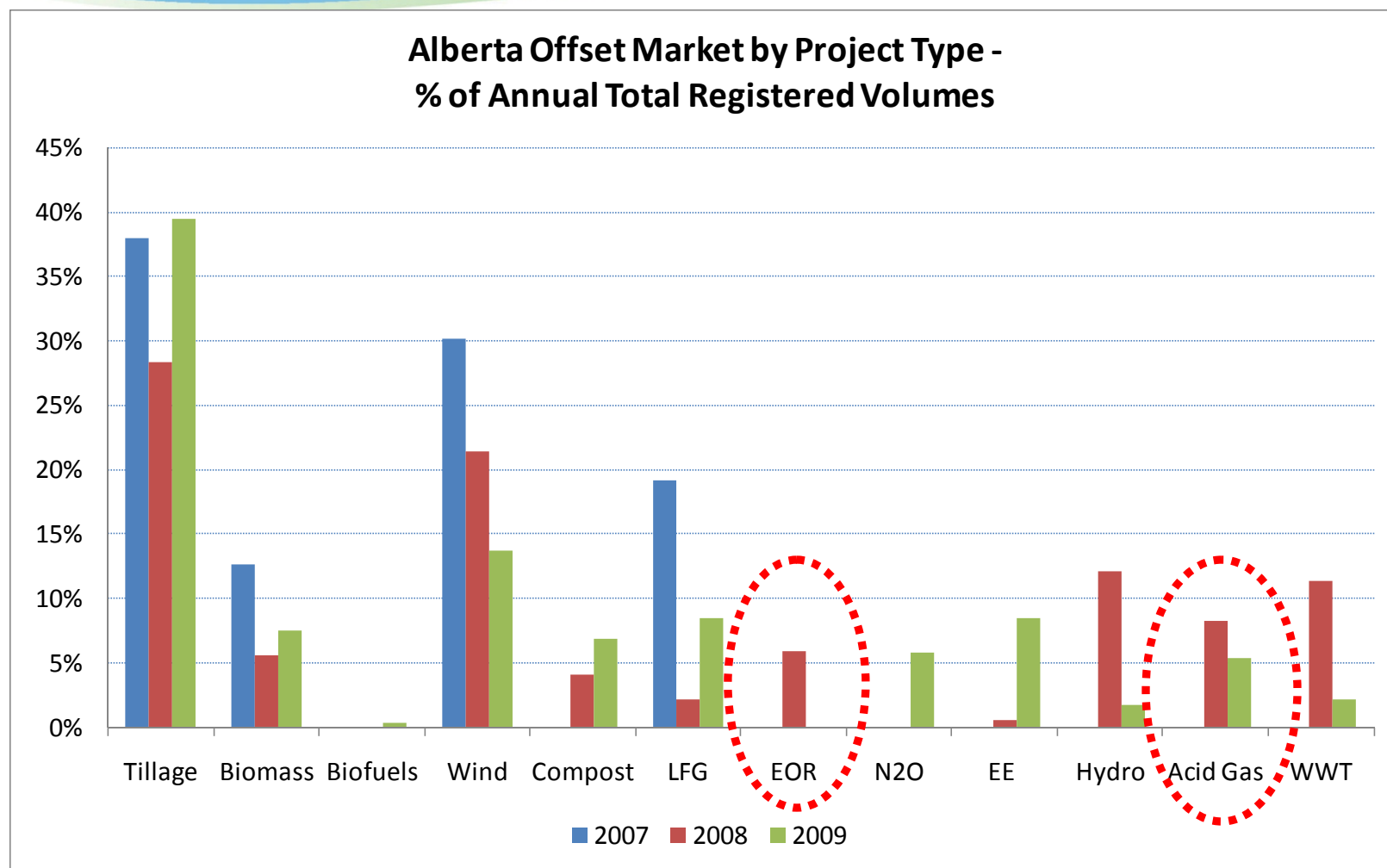


Opportunity in Alberta

**Alberta Offset Market by Project Type -
% of Annual Total Registered Volumes**



Opportunity in Alberta



Offset Markets - Compliance

BC

- WCI member
 - Developing rules for industry
- Pacific Carbon Trust
 - Crown owned buyer of offsets for govt carbon neutral
 - BC based (project, maybe tech), post Nov 2007
 - Any other jurisdictions approved GHG protocol or looking at developing own protocols
 - Third-party validation and verification
 - Eligible project (pre and post)
 - Defined ownership
 - Valid quantification (pre and post)



Part 2: Protocols and BMPs

Protocols

- Remember,
 “Government creates the rules”: Each jurisdiction creates specific rules for offset eligibility and measurement
- Protocols are the rulebooks for measuring and quantifying projects

Part 2: Approved Protocols and BMPs

Approved O&G Related Protocols	Closest Matching BMP(s)
Engine Fuel Management and Vent Gas Capture	Efficient Use of Fuel Gas in Engines
Instrument Gas Conversion to Instrument Air	Efficient Use of Fuel Gas in Pneumatic Instruments
Waste Heat Recovery Quantification Protocol	Efficient Use of Fuel Gas in Engines Efficient Use of Fuel Gas in Fired Heaters
Acid Gas Injection Quantification Protocol	Efficient Use of Fuel Gas in Acid Gas Injection
	Efficient Use of Fuel Gas in Tail Gas Incinerators
	Efficient Use of Fuel Gas in Sulphur Recovery Units
Enhanced Oil Recovery Protocol	N/A

Part 2: Draft Protocols and BMPs

Draft O&G Related Protocols	Closest Matching BMP(s)
Solution Gas Conservation Projects	Efficient Use of Fuel Gas in Flaring Operations
Pump System Conversion Projects	Efficient Use of Fuel Gas in Chemical Injection Pumps

Part 3: Business Case

Revenue Streams related to BMPs

- Gas savings
- GHG offsets: two valuations
 - External sale: \$10 to \$14/tonne
 - Internal use: \$15/tonne

Business Case #1

Instrument gas to instrument air conversion project

	Gas (GJ / yr)	GHG (tCO2e / yr)
Baseline Emissions		
Vented Gas, Fuel Extraction / Processing	46,356	858
Project Emissions		
Air Compression & Mgmt (electricity)		22
Total Project Savings	46,356	836
Revenue (\$4 GJ, and \$10 t)	\$185,424	\$8,360
Total Revenue	\$240,140.00	

Business Case #2

Replacement of gas assisted glycol pumps with electrical pumps

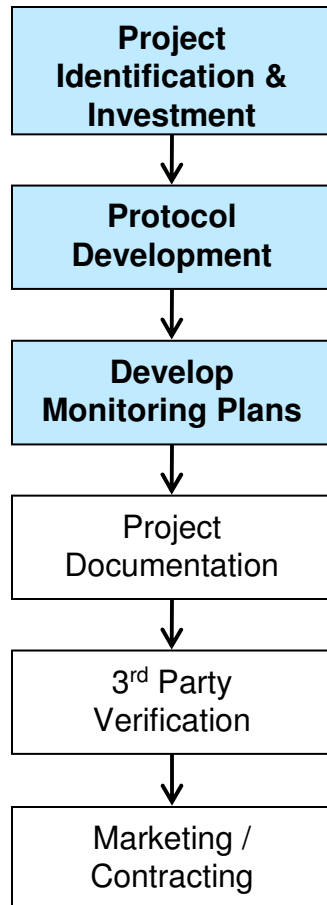
	Gas (GJ / yr)	GHG (tCO2e / yr)
Baseline Emissions		
Vented Gas	63,012	24,741
Project Emissions		
Electrical Pumps (electricity)		209
Total Project Savings	63,012	24,532
Revenue (\$5 GJ, and \$10 t)	\$315,060	\$245,320
Total Revenue	\$560,379.86	

Business Case #3

6 engines equipped with AFR controllers + 2 vent gas capture installations

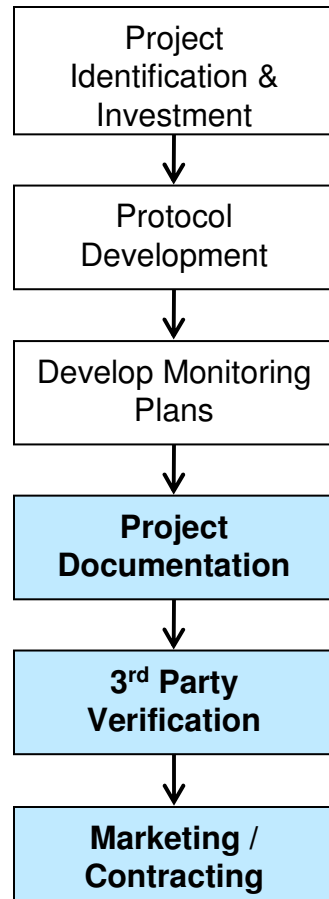
	Gas (GJ / yr)	GHG (tCO2e / yr)
Baseline Emissions		
Methane vented + Fuel Consumption	66,996	33,498
Project Emissions		
Fuel Consumption	11,676	23,351
Total Project Savings	55,321	10,147
Revenue (\$5 GJ, and \$10 t)	\$276,603	\$101,470
Total Revenue	\$378,072.50	

Steps to Develop an Offset Project



- Project Identification & Investment
 - Due diligence on data integrity, potential offset yield and project eligibility & risks
 - Financing, quantify upside from GHG component
- Protocol Development (if needed)
- Develop Monitoring Plan
 - Implement data collection systems to conform with protocol
 - Ensure verifiability & eliminate surprises

Steps to Develop an Offset Project



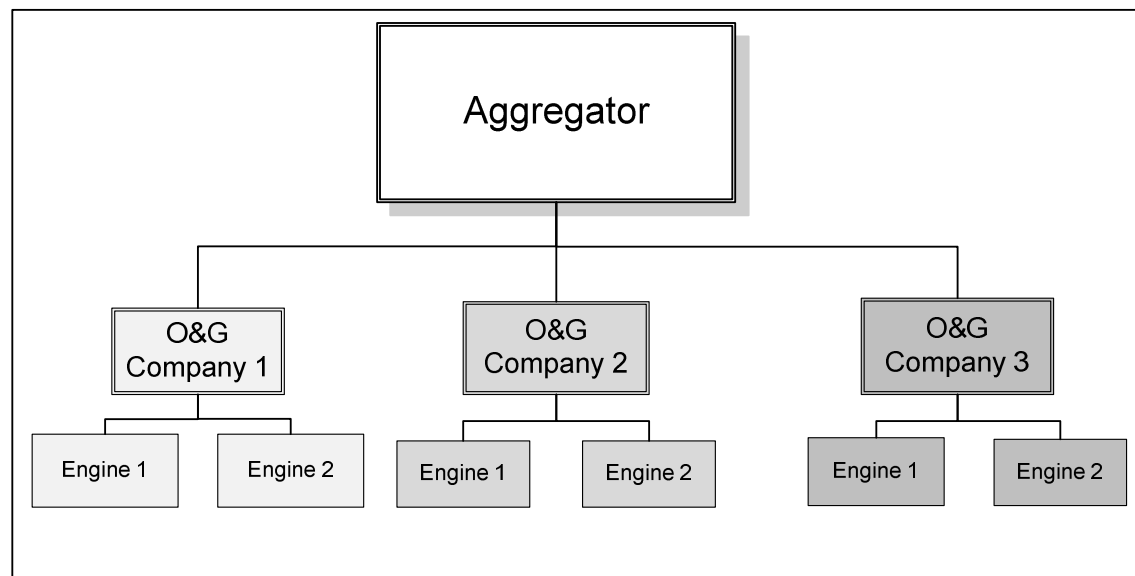
- **Project Documentation**
 - Collect data and quantify reductions
 - Complete Project Plan and Project Report
 - Notice of Creation, Registration
- **3rd Party Verification**
 - Audit of data & quantification, conformance with protocol requirements
- **Marketing / Contracting**
 - Realizing full value from the transaction through access to multiple buyers
 - Mitigate contracting risks

Aggregation

- Challenge: need to create large volume of offsets
 - Few operators have enough individual projects to economic volumes
 - Reward to effort ratio
- Need volume to balance effort to collect data, quantify, document and verify

Aggregation

- Solution: Aggregation or pooling of small projects
 - Creates the necessary volume to justify effort to collect data, quantify, document and verify
 - All parties share proportional in revenue and costs



Contact Info

If you've got questions, drop me a line

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