

BC Community Forest Association Presentation to AGM



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BC Community Forest Association

- Introduction
- Forest Carbon 101
- Forest Carbon Offset Potential
- Key Challenges
- Business of selling GHG offsets
- Q&A



Forest Carbon 101

- 50% of the dry weight of wood is carbon.
- 1 m³ of wood contains ~ 0.25 tons of carbon
- when burned releases ~ 1 ton of CO₂
- C x 3.7 = CO₂
- C in 1 m³ of wood similar amount as in ~350 litres of gasoline.

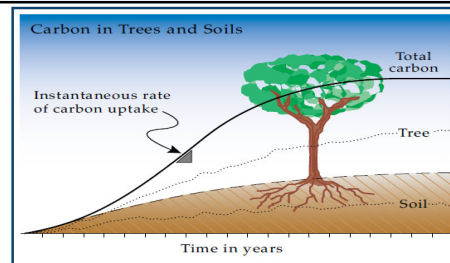
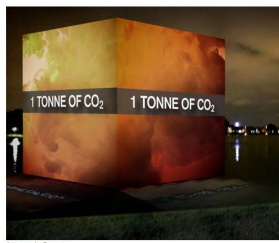


Figure 2. The sequestration of carbon by a tree occurs in the living biomass of the tree and in the soils. The total amount of carbon sequestered is the amount of carbon stored at ecosystem maturity in the sum of the carbon in the standing trees and the soil. The rate of annual carbon sequestration is the amount of carbon stored in any one year.

Tree Canada

Forest Carbon Offset Potential



557 m³

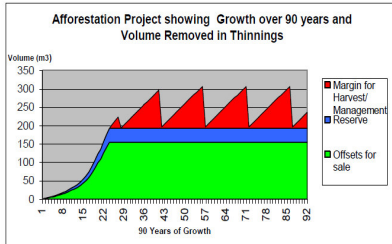


Four Types of Forest Carbon Projects

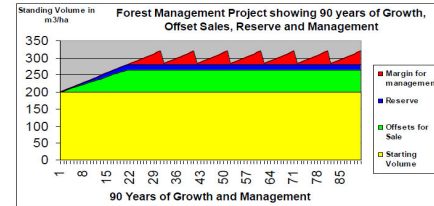
- Afforestation
- Improved Forest Management Projects
- Conservation
- Reforestation



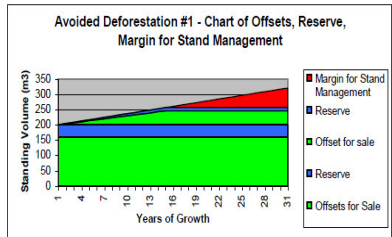
Afforestation Project



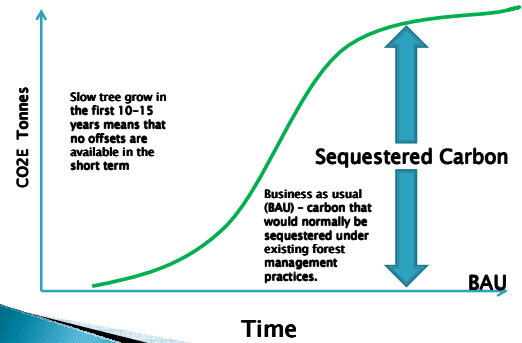
Improved Forest management Project



Conservation



Reforestation



Look-up Tables for the Emissions Trading Scheme

March 2009
Ministry of Agriculture and Forestry



New Zealand Government

sustainability

New Zealand ETS Carbon Look Up Table

Appendix 1: Carbon Stock Look-Up Tables

Schedule 4: Tables of Carbon Stock per Hectare for the 1000 Forest Land

Table 1: Carbon stock per hectare by forest type and age class

Forest Type	Age Class	Carbon Stock (t/ha)	Carbon Stock (t/ha)	Carbon Stock (t/ha)	Carbon Stock (t/ha)	Carbon Stock (t/ha)	Carbon Stock (t/ha)	Carbon Stock (t/ha)	Carbon Stock (t/ha)
1	1	100	100	100	100	100	100	100	100
2	2	200	200	200	200	200	200	200	200
3	3	300	300	300	300	300	300	300	300
4	4	400	400	400	400	400	400	400	400
5	5	500	500	500	500	500	500	500	500
6	6	600	600	600	600	600	600	600	600
7	7	700	700	700	700	700	700	700	700
8	8	800	800	800	800	800	800	800	800
9	9	900	900	900	900	900	900	900	900
10	10	1000	1000	1000	1000	1000	1000	1000	1000

Mitigation Options in the Forest Sector

- increase (or maintain) forest area
 - Reduce deforestation, increase afforestation
- increase stand-level carbon density
 - Silviculture, harvest systems with partial cover, avoid slash burning, reduced regeneration delays, species selection
- increase landscape-level carbon density
 - Longer rotations, conservation areas, protection against fire and insects
- increase C stored in products, reduce fossil emissions through product substitution and bioenergy
 - Longer lived products, wood in building sector, recycling,

Key Challenges



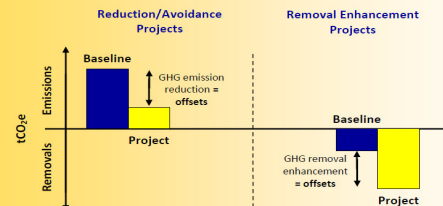
EOR Criteria

- ▶ Project Eligibility
- ▶ Clear Title to Carbon Offsets
- ▶ Baseline Establishment
- ▶ Forest Carbon Pools – stems, soil, litter, shrubs, deadwood
- ▶ Additionality – remove and hold CO₂
- ▶ Permanence – 100 year storage of carbon
- ▶ Leakage
- ▶ Risk Assessment (fire, breach of contract, material errors in measurements
- ▶ Unique – counted and sold once



Definition of Carbon Offsets

Carbon offsets are created through projects/actions that reduce or avoid GHG emissions from entering the atmosphere, or removal enhancement projects/actions that increase the amount of GHG emissions being taken out of the atmosphere

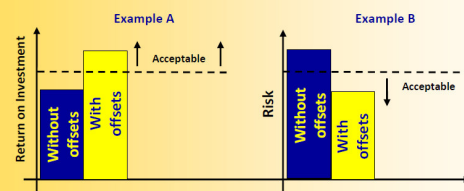


Challenges

- ▶ Does the carbon market have potential for our Community Forest? *Yes, provided you manage the risks.*
- ▶ What would we have to invest? *Carbon Inventory, human resources, legal*
- ▶ What kind skills would we need? *Management, marketing and sales, forest management*
- ▶ When would we see a cash flow? *Conservation – one year plus, others options 2 to 15 years out.*
- ▶ If conventional forestry bounces back, can we be in both businesses? Are they compatible? *YES*

Concept of Additionality

An offset project faces a financial barrier if, for example, return on investment (Example A) or risk (Example B) is deemed unacceptable by the project proponent



To be effective at reducing **greenhouse gas (GHG)** emissions, **carbon offsets** need to

- ▶ produce **measurable** results
- ▶ prevent **leakage**
- ▶ produce **additional** reductions
- ▶ produce reductions with some **permanence**
- ▶ be managed according to **protocols**
- ▶ be **validated and verified**



Aggregation and Economies of Scale

- ▶ Size of transaction unit – 5 – 10 000 tonnes
- ▶ BC Community forest – aggregator model in BC
 - Enlisting landowners to participate
 - Completion of agreement with participating landowners
 - Development of management plans
 - Provision of planning and tending services for afforestation projects
 - Forest measurement and quantification/calculation of offsets
 - Risk management and establishment
 - Arrangement of verification services
 - Participation in pooled program
 - Manage of offset sales
 - Distribution of revenues back to land owners.



Business of selling GHG offsets



Economics to be considered when developing an offset project

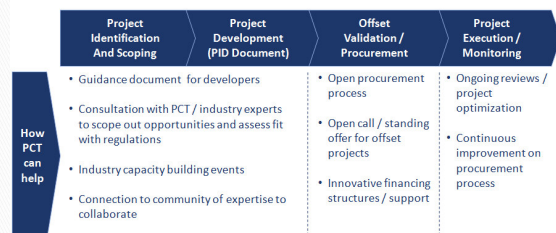
Must compare potential offset project revenues vs. costs

Project Stage	One-time Cost	Annual Cost
Protocol Development (if required)	~\$5,000 to 20,000 +	
GHG Project Plan	~\$7,000 to 15,000	
Monitoring and Data Quality Management Systems	Wide range, depending on complexity and existing systems	
Validation	~\$10,000 to 20,000	
Project Reports		~\$3,000 to \$5,000
Verification		~\$10,000 to 20,000
Legal costs	Varies	Varies

*costs are estimates only, based on past experience and subject to a variety of factors
Offset project generally must generate at least 5,000 tonnes to be economic

Pacific Carbon Trust works with project proponents across all stages of the project development process

Project Development Lifecycle



PacificCarbonTrust.ca



Pacific Carbon Trust buys high quality offsets that adhere to BC's Emissions Offsets Regulations

BC Offset Criteria

- | Key Offset Recognition Criteria | Criteria | Description |
|---------------------------------|--------------|---|
| 1 | Real | <ul style="list-style-type: none"> There is an identifiable project that leads to GHG reductions There are sound methods available to quantify the GHG emissions from the proposed project |
| 2 | Additional | <ul style="list-style-type: none"> Start date after November 2007 Reduction in GHGs over and above business as usual (incl regulatory) Offset sale allows the project to overcome economic/tech. barriers |
| 3 | Permanent | <ul style="list-style-type: none"> The offset has an impact that is lasting (i.e., 100 years +) |
| 4 | Verifiable | <ul style="list-style-type: none"> The impacts of the project can be readily identified, monitored, and audited post-implementation All efforts are made to minimize the residual uncertainty associated with the measurement of the project's impact |
| 5 | Counted Once | <ul style="list-style-type: none"> There is clear, singular, ownership of the offset attributes of the project |



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Pacific Carbon Trust pursues 3 core types of GHG reduction / offset projects

Opportunity	Description	Sample projects
1 Low carbon fuel supply opportunities	<ul style="list-style-type: none"> Facilitating switch to a fuel source with lower CO₂ emissions (e.g. From coal to natural gas) 	<ul style="list-style-type: none"> Elimination of coal / coke use in industrial processes through a switch to nat gas or biomass
2 Energy efficiency initiatives	<ul style="list-style-type: none"> Reducing amount of energy required to achieve similar output Minimizing waste energy lost from a process (e.g. methane loss) 	<ul style="list-style-type: none"> Elimination of waste methane from landfills Coal mine methane destruction Co-Gen / CHP
3 Terrestrial carbon sequestration	<ul style="list-style-type: none"> Increased storage of CO₂ in sinks, such as forests Capture and sequestration of CO₂ from industrial emissions 	<ul style="list-style-type: none"> Forestry projects Carbon Capture and Storage (CCS)



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PCT Procurement Process

Pre-Qualification

Public RFQ

Evaluate Responses

Meets Criteria?

No

Debriefing

Yes

Pre-Qualified

- Potential projects are pre-qualified based on Emission Offsets Regulation criteria
- Continuous intake process
- Does not result in contractual obligations

Project Selection

Issue RFP to Pre-Qualified Suppliers

Evaluate Proposals

Project Selected?

No

Debriefing

Yes

Contract

- By invitation only to pre-qualified suppliers
- Legally binding process
- Proposals include validated project plans, pricing, and delivery volumes.
- Results in contracts with selected suppliers.

Questions?



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