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Forest Carbon Offsets in British Columbia

Opportunities in a Low-Carbon Economy

BC Community Forest Association
Annual General Meeting
June 11, 2011

James Sandland
Carbon Solutions
Ministry of Forests, Land & Natural Resource Operations

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Outline

- Role of MFLNR Carbon Solutions
- Carbon market setting
- Forest Carbon
- Overview of Offsets

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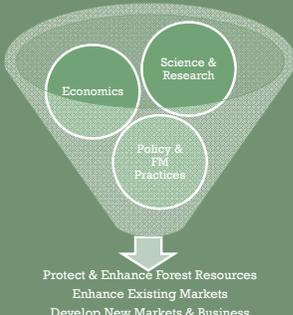
Who We are:

- Climatologist
- Economists
- Forest Carbon Research Scientist
- Forest Carbon Expertise
- Climate Change Policy Expertise

Goal: Foster a Sustainable Low-Carbon Economy

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Carbon Solutions



Protect & Enhance Forest Resources
Enhance Existing Markets
Develop New Markets & Business Opportunities

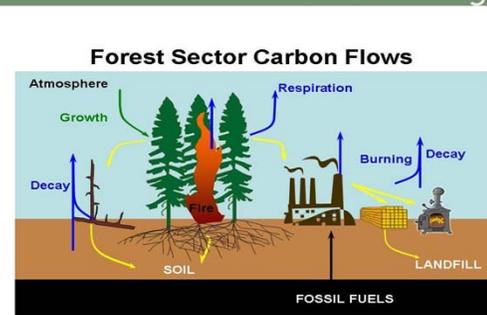
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Carbon Markets

- International – voluntary
 - Eco-profile and Green Image are becoming increasingly important to be competitive
- Local market
 - Carbon Neutral Provincial Government
 - Pacific Carbon Trust (Crown Corp)
 - Carbon Neutral Local Government (supply your own community offsets!)
- WCI
 - Coalition of North American jurisdictions plan to implement a regulated carbon market in 2012
 - Predicted to use up to 235 Mt. of offsets by 2020

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Forests Carbon & ClimateChange



Forest Sector Carbon Flows

Atmosphere: Growth, Respiration, Burning, Decay

SOIL: Decay

LANDFILL: Burning, Decay

FOSSIL FUELS

 **What is an "Offset"**

- A reduction in greenhouse gas that is made to compensate for (or "offset") an emission elsewhere
- Forest offsets remove carbon from atmosphere as it is converted to trees through photosynthesis



 **Offset Criteria**

1: Real	<ul style="list-style-type: none"> An identifiable project Sound methods available to quantify GHG emissions
2: Additional	<ul style="list-style-type: none"> Beyond business as usual & regulatory req. Allows project to overcome economic/tech. barriers
3: Permanent	<ul style="list-style-type: none"> Offset has an impact that is lasting measured relative to a 100 year time scale
4: Verifiable	<ul style="list-style-type: none"> Can be quantified, monitored and audited Minimize measurement uncertainty
5: Clear Ownership	<ul style="list-style-type: none"> Clear ownership of the offset attributes

 **What is a "Protocol"**

- A "protocol" provides defined methodologies to quantify and obtain recognition of GHG emission reductions/sequestrations so they can be traded/sold

 **Forest Carbon Offset Protocol**

BC's Forest Carbon Offset Protocol (FCOP) provides guidance on four eligible offset project types:

- Afforestation:** establish new forested land base
- Reforestation:** re-establish forests beyond existing BC requirements
- Improved Forest Management:** enhanced forest management practices in addition to those required by law
- Conservation/Avoided Deforestation:** prevent deforestation of land for non-forest land uses

 **Forest Carbon Offset's in British Columbia**

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 **Outline**

- The FCOP model
- Forest Management Regime (FMR) approach
- Offset Supply Analysis
- Potential Opportunities for CFA's
- How can CFA's get involved

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FCOP Model

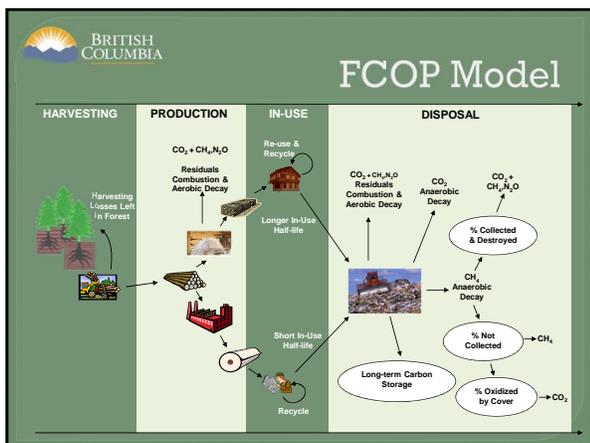
Focuses on:

- enhancing sequestration (removal) of carbon dioxide by forests and wood products
- reducing carbon dioxide emissions from forests and forestry operations
- maintaining or increasing stores of carbon in forest and wood product carbon pools.
- reducing emission of methane and nitrous oxide.

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FCOP Model

- Flexible approach
- Enables consistent valuation of the carbon in BC's forests
- Recognizes carbon storage properties of HWP's
 - based on type of product, re-use and recycling and final disposal
- About managing carbon pools to optimize total forest carbon and generate high quality offset credits

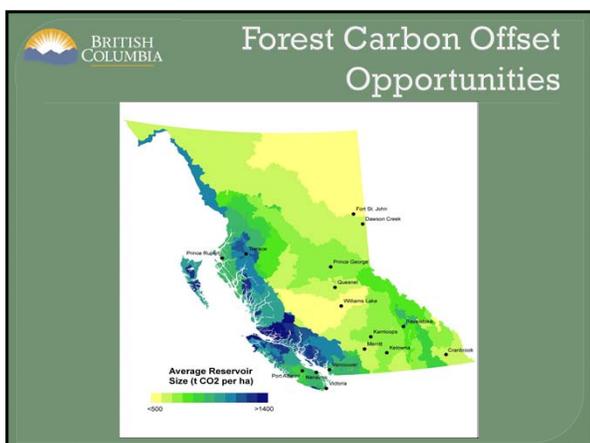


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Forest Carbon Offset Opportunities

Opportunities for Forest Carbon Offsets in B.C.

Region	Forest Management Type	Project Timeframe (years)	Incremental Carbon Sequestration/yr/ha	Total Project Carbon Sequestration on a single ha. at mean year
Coast	IFM	10-20	1.83	27 tonnes
	Reforestation and Afforestation	50-60	3.88	213 tonnes
Interior	IFM	10-20	0.92	14 tonnes
	Reforestation and Afforestation	80	2.67	213 tonnes



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Forest Carbon Offset Opportunities

Incremental carbon gain = gains in future timber supply

- Timber can still be harvested at a future date, the timber is not locked away indefinitely
- Timelines depend on carbon verification scheme/project selected
- Older, larger trees often produce more valuable timber. Carbon offsets can help soften the cost of waiting to capitalize on this

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FMR Approach

Managing for timber and carbon can and should be synergistic

Some Forest Carbon Offset activities can create revenue streams in the near term (via offset crediting)

These revenues can be re-invested in other forest carbon offset activities to ensure medium to long term offset revenues combined with timber gains, future harvest and employment opportunities

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FMR Approach

Reduced Emissions

- Provide immediate carbon revenue
- Generally low implementation costs
- Example: Reduced harvesting, Reduced burning

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FMR Approach

Increased Sequestration

- Need to wait for carbon revenues
- Significant implementation costs
- Example: afforestation, fertilization, enhanced reforestation, etc

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FMR Approach

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Community Forest Opportunities

Use forest carbon offset opportunities to compliment SFM practices

IFM, reforestation, afforestation provide:

- mid-long term timber supply gains
- community job opportunities
- Positive impacts to Forest sector GDP (harvest and manufacturing opportunities)

Obstacles:

- Investments required to undertake activities (potential for aggregating projects)

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How to Get Involved

FLNRO Carbon Solutions can help identify and develop potential forest carbon offset opportunities

Community Forest Carbon Working Group?

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Questions



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More Info

<http://www.for.gov.bc.ca/hre/topics/climate/Misconceptions.htm>

<http://canadaforests.nrcan.gc.ca/indicator/carbonemissions>

<http://www.pacificcarbontrust.com/BCOffsets/WhatisaCarbonOffset/tabid/95/Default.aspx>

http://carbon.cfs.nrcan.gc.ca/FAQ_e.html

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Example Project Benefits

Benefits from Example Projects on 1,000 hectare project areas

Benefits	Coast: Fertilization	Interior: Fertilization	Interior: MPB Reforestation
Treatment Investment	\$0.44 million	\$0.44 million	\$1-1.5 million
Short Term Jobs	1.4	.7	8.9
Long Term Jobs with 90% harvest	20.1	9.9	126.4
Long Term Jobs with 50% harvest	11.2	5.5	70.2
Additional CO ₂ e Sequestered (tonnes)	25,600	12,600	161,300
Additional Timber Growth (m ³)	28,000	13,800	176,000
Additional GDP after 90% Harvest	\$4.02 million	\$1.98 million	\$25.3 million
Additional GDP after 50% Harvest	\$2.24 million	\$1.1 million	\$14.0 million

