Carbon Markets: Forestry Opportunity

Karen Haugen-Kozyra, M.Sc. P.Ag.
Principal, KHK Consulting

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Ramada Inn, Edmonton
The Evolving Global Carbon Market

Global Carbon Markets
$126B in 2009*  2 Main Commodities

*Point Carbon 2010
Standardizing means making policy decisions!
• **Additional/Incremental**
  ◦ beyond business as usual practices (needs a valid and defensible baseline at the project start); surplus to regulations/received incentives

• **Measurable, Quantifiable**
  ◦ agreement on best available science and farm activity data – develop a Protocol. Must stand up to a Review Process; account for all 6 GHGs.

• **Verifiable**
  ◦ carbon accounting, and tracking process must be clear, defensible, and have good QA/QC procedures; verified by qualified 3rd party.

• **Permanent**
  ◦ must protect against carbon reversals; account and replace mechanisms

• **Functionally Equivalent – Consistent Metrics**
  ◦ same level of quantity or service between baseline and project
    • *Intensity comparisons are critical*
**Project Documentation**
- Project / Baseline Description
- Monitoring Plan and Methodology
- GHG emission calculation

**Validation and Registration**
- Review
- Approve
- Registration

**Monitoring and Verification**
- Implement
- Monitor
- Verify

**Offset Issuance**
- Issuance of tradable units

*Note – no issuance of credits in the Alberta Offset System*

**Driven by Reporting Rules**

**Transparency Market Oversight**

**3rd Party Verification Monitoring Requirements**

** Tradable Commodity**

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**Coalescing of the Pathway to Market**
Generic Carbon Value Chain

Source: adapted from E. Harris, 2007
<table>
<thead>
<tr>
<th>Phase</th>
<th>Steps</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Development</td>
<td>Offset Project Plan</td>
<td>Quantification Protocol</td>
</tr>
<tr>
<td></td>
<td>Data Management</td>
<td>3rd Party Validation (Alberta optional)</td>
</tr>
<tr>
<td></td>
<td>Project Report GHG Assertion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To Alberta Environment</td>
<td>Registry (Required)</td>
</tr>
<tr>
<td>Offset Submission</td>
<td></td>
<td>Verification</td>
</tr>
<tr>
<td>(Regulation Facility/Buyer)</td>
<td></td>
<td>• Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Report</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Statement</td>
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<tr>
<td></td>
<td></td>
<td>• Statement of Qualifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conflict of Interest Checklist</td>
</tr>
</tbody>
</table>

Alberta’s Carbon Offset Path
Sites

Aggregator

Verifier Firm

Registry

Intermediaries

Buyers

Potential Tonnes

Verified Tonnes

Compliance Report

In Alberta...land-based tonnes
9.5 Mt Offsets Verified; 7.5 Mt Used for Compliance to Date
Forestry Offset Challenges
- National Sink Tables/Forestry Round Tables
- FCM Science – Pollution Probe (Dec ‘08)
- FCM Draft Protocol submitted to Alberta (July ‘08) (New Brunswick)
- Binational Effort – FPAC/AF&PA/SAF/CIF
- CCFM FCM Quantification Framework (July ‘09)
- Federal Call on Fast Track List (July ‘09)
- Pembina/CPAWS FCM protocol
- REDD Action – Forest Carbon Partnership Facility
- Alberta Protocol Development - closest
Different project types, different risks, different prices

Source: Carbon Finance and Ecosystem Marketplace, 2008

Note: volume-weighted averages from OTC supplier data at all levels of the supply chain
How important, if at all, are each of the following for establishing the credibility of a carbon offset?

- Reputation of offset provider: 18 very important, 4 moderately important, 3 slightly important
- Clear institutional arrangement: 17 very important, 3 moderately important, 2 slightly important
- Established ownership: 25 very important, 2 moderately important, 2 slightly important
- Use of registry to avoid double counting: 28 very important, 2 moderately important, 2 slightly important
- Verification and monitoring: 30 very important, 3 moderately important, 2 slightly important
- Permanence: 30 very important, 3 moderately important, 1 slightly important
- Transparency: 33 very important, 2 moderately important, 2 slightly important
- Additionality: 29 very important, 2 moderately important, 2 slightly important

Source: adapted from GOA, 2008
How credible, if at all, is each type of Project?

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Slightly Credible</th>
<th>Moderately Credible</th>
<th>Very Credible</th>
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<tbody>
<tr>
<td>Renewable energy certificates (REC)</td>
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<td>5</td>
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<tr>
<td>Rangeland soil carbon</td>
<td>9</td>
<td></td>
<td>5</td>
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<tr>
<td>Agriculture soil carbon</td>
<td>10</td>
<td></td>
<td>6</td>
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<tr>
<td>Avoided deforestation</td>
<td></td>
<td></td>
<td>6</td>
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<tr>
<td>Reforestation</td>
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<td></td>
<td>9</td>
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<tr>
<td>Afforestation</td>
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<tr>
<td>Energy efficiency</td>
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<td></td>
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<tr>
<td>Non-REC renewable energy</td>
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<tr>
<td>Industrial gases</td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Coal mine methane</td>
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<td></td>
<td>11</td>
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<tr>
<td>Landfill methane</td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Fuel switch</td>
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<tr>
<td>Agricultural methane</td>
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<td></td>
<td>20</td>
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</table>

Source: adapted from GOA, 2008
What sellers report buyers look for when buying OTC offsets

Source: Carbon Finance and Ecosystem Marketplace, 2008

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Additionality</th>
<th>Certification</th>
<th>Reputation</th>
<th>Advertising</th>
<th>Convenience</th>
<th>Environmental Co-benefits</th>
<th>Social Co-benefits</th>
<th>Other</th>
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<tr>
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<td>4.6</td>
<td>3.6</td>
<td>1.2</td>
<td>1.8</td>
<td>3.4</td>
<td>3.8</td>
<td>5.0</td>
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<td>4.2</td>
<td>2.2</td>
<td>2.2</td>
<td>3.9</td>
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<td>Vol Weigh-Av</td>
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<td>2.2</td>
<td>3.9</td>
<td>3.8</td>
<td>4.1</td>
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</table>
What to include in Forestry Protocols
- Meeting Additionality and Establishing Baselines
- Ensuring permanence – mechanisms exist
- Ownership risk – public/crown lands
- Harvested Wood Products are important

Precedents are out there
- REDD discussions internationally
- Climate Action Reserve and RGGI in the US
- CDM a poor example

Establishing the Monitoring, Measuring and Verification rules will be key

What is the objective evidence that will be gathered to support the offset claim?
- Climate Action Reserve (California)
  - 20 Projects Registered (Reforestation, Avoided Conversion, Conservation Forests, Urban Forests)
  - 1.2 Mt of Offsets issued (all from Conservation Forests) - all from California ($6.30/ton)
  - 100y period, with 100 y permanence after that.
- VCS – no forestry projects registered yet; aligns with CAR forestry protocol 3.1 (but no buffer is a problem)
- RGGI
  - Afforestation – conservation easement, in perpetuity
- Alberta - under development
- Pacific Climate Trust
- WCI – makes mention