

**Base Protocol Plan Form
Draft #7: March 13, 2009**

Part I: IDENTIFICATION OF THE PROTOCOL DEVELOPER

1.1 Title of the Base Protocol

Protocol for Quantification of Carbon Offsets from Forest Management

1.2 Co-Lead Protocol Developer

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1.3 Initiating Entity (To confirm who is referenced in this section)

Organization:

Address:

Name:

Title:

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Rationale for Initiating Protocol Development: This Base Protocol is being developed by the Forestry Working Group of the Industry Provincial Offsets Group (IPOG). IPOG is a broad group of stakeholders having an interest in generating and/or trading greenhouse gas (GHG) offsets. The Forestry Working Group members have an interest in undertaking forest management and forest product projects that will help to mitigate climate change and be eligible for offset credits.

Part II: BASE PROTOCOL APPLICABILITY AND DEVELOPMENT APPROACH

2.1 Description of the Project Type:

In general terms, the types of project that are covered by this protocol are those that involve changes to the approach to the management of forests in order to retain more carbon in the forest and reduce emissions. It is anticipated that the changes that are made to forest management approaches will be complex, and involve changes to the amount of various operations that are undertaken, changes to the manner in which those operations are conducted, and changes in the locations and types of forest within which those operations will take place. The changes are expected to have impacts on the level of harvesting of forest products, the mix of wood products yielded from the forest, and on many forest characteristics, including its standing volume, age class structure, stand density, and species composition.

There is a wide range of activities that could be undertaken as part of a forest carbon management project that would be eligible under this protocol. We have provided a list of many of the most common activities, organized according to headings that reflect a broader grouping.

Silvicultural Treatments that Increase Rates of Growth

- Fertilize the forest
- Focus the harvest on mature stands and their replacement with young, fast-growing stands
- Expand the use of artificial planting techniques
- Use genetically improved growing stock
- Expand the use of competition control, including site preparation and herbicide use
- Expand the retention of existing understory trees, under-plant to pre-establish the next stand
- Apply juvenile spacing where beneficial
- Harvest off-site stands and replace them with stand types suitable to the site

Measures to Increase /Retain Growing Stock in the Forest

- Avoid harvesting low productivity sites
- Retain more live trees within harvest areas / Shift from clearcutting to variable retention cutting
- Increase the extent of leave blocks within harvest areas
- Delay harvesting in some mature stands / extend harvest rotations
- Increase snag and coarse woody debris retention
- Leave wider riparian and other buffers
- Withdraw area from the allowable harvest base

Expand or Intensify Forest Protection Programs

- Improve fire detection and suppression programs
- Expand the areas of higher protection levels
- Use integrated forest pest management strategies
- Implement wildfire hazard abatement procedures

Implement or Expand Measures to Reduce/ Prevent Emissions

- Eliminate slash pile burning
- Improve fire prevention and pest management
- Reduce the extent of site preparation
- Avoid harvesting on peat lands
- Modify harvest systems so that they have lower emissions
- Implement wildfire hazard abatement procedures
- Upgrade to equipment / vehicles that have lower emissions
- Reduce use of aircraft

Increase Reforestation

- Replant/rehabilitate areas after catastrophic disturbance where there is no legal requirement to do so
- Rehabilitate backlog areas with high brush or grass component and low stocking

Avoid Deforestation

- Reduce the amount of planned road construction
- Shift to lower classes of road, including winter roads
- Reduce the width of road right-of-ways and size of landings
- Increase the decommissioning /replanting of roads and landings
- Reduce the width or intensity of seismic exploration lines

Harvested Wood Products

- Modify production profile to include higher proportion of longer-lived wood products
- Apply stand density management techniques to increase lumber yield

The list of eligible projects is broader than the list in the California Forest Project Protocol ver. 2.1 and the draft of version 3. The draft Alberta protocol did not have a formal list of eligible measures /project components.

The list above does not include every potential approach or modification that will be eligible under this protocol, in part because the list would be very lengthy, terminology varies among the jurisdictions, and because forest managers may develop new approaches that are consistent with the intent of this protocol. Thus the project developer and verifier will need to exercise some judgment regarding activities that are not on this list.

We observe that many of the measures that retain growing stock also have the effect of reducing emissions associated with harvest and the decomposition of the harvested material. We also observe that some of the measures appear to be inconsistent – for example, increasing the harvest of mature stands is inconsistent with delaying harvesting in some mature stands. Both approaches are potentially valid ways of improving the carbon balance of a forest; the approaches that a manager selects will depend on many factors, ranging from corporate approach to the condition and potential of the forest management unit.

We anticipate that these projects will be undertaken on private land, First Nation's land or federal, provincial or municipal government's land. The project area can range from very large forest management units to small areas such as woodlots.

This protocol does not cover afforestation projects, nor does it cover the management of trees in settings other than forests (e.g. shelterbelt plantings).

2.2 Description of Project-Specific Technology

The various forest management activities incorporated in this protocol generally do not require the application/implementation of any new technologies. However, innovations may lead to greater offset potentials.

2.3 GHG(s) that will be reduced:

The projects that are eligible under this protocol are anticipated to sequester increased amounts of carbon dioxide (CO₂), reduce the level of CO₂ emissions, and also reduce the emissions of methane (CH₄) and nitrous oxide (N₂O). Hydro fluorocarbons, perfluorocarbons, and sulphur hexafluoride are not emitted by forests or during forest operations and so will not be reduced by forest carbon management projects.

2.4 Description of how real reductions will be achieved:

The projects that are eligible under this protocol are anticipated to reduce GHG's by one or more of several approaches noted below:

- (i) enhance sequestration of carbon through management for higher tree growth rates;
- (ii) retain existing carbon stored in live trees and avoid emissions by delaying or avoiding harvesting;
- (iii) generally increase the amount of biomass within the forest;
- (iv) reduce emissions by improved fire prevention and protection, and improve forest pest management;
- (v) reduce emissions through modifications to silvicultural activities or operations on peat lands and marginal sites.

- (vi) reforest areas following catastrophic disturbance and rehabilitation of degraded forest areas;
- (vii) reduce road density and coverage, including reductions in right-of-way width and landing sizes, and reducing other activities such as seismic line clearing; and
- (viii) produce a higher proportion of forest products which are generally longer in use (e.g. lumber versus paper).

2.5 Base Protocol Flexibility

The Base Protocol is intended to have applicability to a wide range of forest management projects. To facilitate this, the protocol will allow for flexibility in the following respects:

Alternate Models for Estimating Baseline and Project Impacts. It is anticipated that the project proponent will use decision support systems to quantify the emission reductions/ sequestration. The most common modeling approach is to use a forest projection and management model, such as Woodstock or Atlas, to model the management of the forest over a period of time. The results from this modeling exercise can then be translated into carbon impacts, likely using a model such as the CFS' Carbon Budget Model or UBC's FORECAST. The protocol will provide guidance regarding the capabilities that the model should have but will allow considerable flexibility regarding the choice of models. It will be up to the verifier to ensure that an appropriate model was used in an appropriate manner.

Project-specific monitoring approaches. To account for the wide variety of potential project applications, project-specific monitoring / metering approaches may be used if justified and if they conform to the general requirements stipulated in the protocol. Such project-specific approaches may also include the aggregation of multiple emission sources together where project metering treats those emission sources as one larger combined entity (e.g. multiple combustion sources consuming fuel that is tracked by a single meter).

Exclusion of SSRs. If justified based on project-specific details and in conformance with criteria specified in the Guide for Protocol Developers and the protocol, the project proponent may exclude some additional SSRs from quantification beyond those excluded by default in the protocol.

Project Specific Baseline or Performance Standard: Project proponents may choose to use the modeling approach described above to develop the baseline scenario and the project scenario. Alternately, a performance standard may be developed and use as the baseline, in which case, the proponent would only be

required to compare the net carbon emission level of the project against the level set forth in the performance standard.

2.6 Federal, Provincial/Territorial Legal Requirements & Climate Change Incentives

List of potentially relevant requirements:

We are not aware of any existing relevant legal requirements or any that are in process.

List of potentially relevant climate change initiatives:

We are not aware of any relevant climate change initiatives or any that are in process.

2.7 Building on Existing Protocols or Proprietary Information

This protocol does not incorporate or rely on any proprietary information.

This protocol builds on the following two protocols:

Protocol #1

Registered name of protocol: Forest Project Protocol version 2.1

System for which protocol was developed: California Climate Action Registry

Date protocol was completed and approved (if applicable): September 2007

Developer of the protocol (name/organization): California Climate Action Registry

Explanation of how the existing protocol will be adapted:

A considerable number of adjustments will be made to the protocol. Key adjustments will be:

- to expand the range of project types allowed;
- to enable the protocol to accommodate projects on very large landbases (potentially as many as six or seven million ha);
- to reflect that some Canadian projects will occur on provincially owned lands, perhaps undertaken by a licensee;
- to eliminate the requirement for an easement to demonstrate permanence; and
- to improve the treatment of leakage and additionality, which are only vaguely considered.

A draft of a third version of the California protocol was released in December 2008 and it has undergone an initial public review. The schedule is for a revised

draft to be ready in April 2009. The draft revised protocol contains revised treatments of risk, leakage and other aspects and the version 3 approaches will be considered and perhaps used as the base from which modifications are made, as opposed to using version 2.1 for this purpose.

Protocol #2

Registered name of protocol: Quantification Protocol for Forest Carbon Management Projects

System for which protocol was developed: Alberta Offset System

Date protocol was completed and approved (if applicable): May 6, 2008

Developer of the protocol (name/organization): Developed by ICF Consulting Canada for Alberta Environment

Explanation of how the existing protocol will be adapted:

This protocol, being developed for a Canadian context, will be helpful in providing ideas for elements of the proposed protocol that are treated from an American perspective in the California documents, where that perspective is incompatible with the institutional framework and forest conditions found in Canada.

However, the protocol we develop will:

- provide for a more comprehensive range of projects to be eligible;
- discuss ownership of the potential GHG offsets generated;
- provide enhanced guidance regarding sinks, sources and reservoirs to be included;
- provide enhanced guidance regarding the development of the baseline scenario and additionality;
- distinguish between risk and permanence; and
- address permanence and leakage.

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