

# Afforestation Projects - Alberta Protocol

## Overview:

### Carbon Offsets from Afforestation Projects in Alberta

This bulletin provides the background and summarizes details of the Quantification Protocol for Afforestation Projects in Alberta. An overview of Alberta's Regulatory Framework and offset requirements are given in the overview document in this series.

The Afforestation Project protocol considers reduction of greenhouse gas (GHG) emissions through carbon sequestration by increasing the carbon stock (planting trees) on traditionally non forested lands such as cropped or forage land, urban land, agro-forestry operations and possibly industrial lands that have been reclaimed.

Under the Alberta Offset System rules, Projects can claim credit back to 2002 onwards, if the requirements of the system and protocols are met. There is no deadline for which to access these past tonnes so long as verification can be done. If a project developer/agriculture producer, wanted to wait to see how things evolve in the market, they could get involved later and still gain credit back to 2002 if all requirements are met.

### Emission Reductions – What Counts?

The baseline condition for this protocol is considered to be the conversion of agricultural land to a treed area, of urban land to plantations, agro forestry, or the rehabilitation of degraded industrial lands, such as mine site. This protocol only applies to those lands, which have not had trees on them before. Lands that were previously forested (even if it was cleared) are not eligible.

The project must demonstrate:

- The area of the afforestation project had no trees prior to December 31, 1989 (confirmed by land-use records, air photos, etc).
- That there was no peat bog covering the project area after December 31, 1989 (confirmed by land-use records, area photos, etc);
- That actual measurements and monitoring is used as a base for quantifying the reductions achieved by the project.

### Coefficients of GHG gain:

There is some flexibility allowed in how the project developer/agriculture producer applies the protocol. The project developer/agriculture producer may choose to measure, monitor and account for soil organic matter as long as it is done at the onset of the project to account for any decreases in soil organic carbon in the establishment phase for the allowed credit periods. Generic emission factors can be substituted for site specific emission factors as long as they are accurate. Flexibility in field sampling design and survey techniques and equipment is permitted, provided that the estimates are based on statistical samples that are within the bounds of accuracy from methods outlined in the protocol.

Whether the protocol flexibility is applied or not, the minimum standard for data quality, frequency, and accuracy must still be met.



**Climate Change Central**

Edmonton  
1560, 10303 Jasper Avenue  
Edmonton, AB T5J 3X6  
Office: (780) 408-4580  
Toll Free: 1 (866) 609-2700  
[www.climatechangecentral.com](http://www.climatechangecentral.com)

Calgary  
100,999-8th St SW  
Calgary, AB T2R 1J5  
Office: (403) 517-2700



Alberta Environment  
Main Floor Petroleum Plaza South Tower  
9915-108 Street Edmonton, AB T5K 2G8  
Office: (780) 427-2700  
Toll Free: 1 (800) 222-6514  
[www.environment.alberta.ca](http://www.environment.alberta.ca)

Alberta Agriculture and Rural Development  
J.G. O'Donoghue Building  
7000-113 Street Edmonton, AB T6H 5T6  
Office: (780) 310-FARM (3276)  
Toll Free: 1 (866) 882-7677  
[www.agric.gov.ab.ca](http://www.agric.gov.ab.ca)

## Definitions:

### Afforestation

The creation of a new treed area by planting and/or seeding. Allowing trees to establish by self population would be called re-forestation and the land would have previously been in trees.

### Allometric Equation

Allometry is the study and measurement of relative growth of a part of an organism in comparison with the whole. Allometric equations can relate tree diameter at 1.3 m to other attributes such as biomass and standing carbon stock.

### Assurance Factor

The assurance factor accounts for the risk and magnitude of carbon sequestration reversal due to fire, drought, pest and other disturbances. This factor accounts for the average number of reversal events anticipated over a 20-year period. The assurance factor accounts for the reversal event across all of the years that the forest is eligible to receive credits for carbon sequestration. This prevents any liability accruing with credits for afforestation projects due to the risk of reversal.

### Crediting period

The period for which this protocol and its coefficients can be applied to a project.

### Carbon Stock

The absolute quantity of carbon held within a reservoir at a specified time, expressed in units of mass.

### Functional Equivalences

The project and the Baseline should provide the same function and quality of products or services. This type of comparison requires a common metric or unit of measure for comparison between the Project and Baseline activity.

### Reversal

A reduction in the amount of carbon previously stored in a reservoir, resulting in CO<sub>2</sub> emissions.

### Sequestration

The process of increasing the carbon stock in a reservoir other than the atmosphere.

## References:

Alberta Quantification Protocol for Afforestation projects: [www.carbonoffsetsolutions.ca](http://www.carbonoffsetsolutions.ca).



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