

Diversion of Biomass to Energy from Biomass Combustion Facilities - Alberta Protocol

Overview:

Carbon Offsets from diversion of Biomass to energy in Alberta

This bulletin provides the background and summarizes details of the Quantification Protocol for Diversion of Biomass to Energy from Biomass Combustion Facilities in Alberta. An overview of Alberta's Regulatory Framework and offset Requirements are given in the overview document in this series.

This protocol creates an opportunity to generate carbon offsets from the direct and indirect reductions of greenhouse gas (GHG) emissions by offsetting fossil-fuel derived energy through the generation of heat, power and/or electricity. Energy is created from biomass combustion of materials that have normally been left to undergo anaerobic decomposition in a stockpile, storage or landfill. The combustion of biomass materials is used as an alternative energy in place of (or to supplement) fossil-fuel derived energy. Biomass includes forest and mill residues, agricultural crops and wastes, wood and wood wastes, animal wastes, livestock operation residues, and organic municipal and industrial wastes. This may include materials recovered from existing long-term storage or landfill disposal sites.

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 to access credits for these past tonnes as 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 from Anaerobic Decomposition – What Counts?

The biomass in the project may be used as part or all of the feedstock in the renewable energy portion of the facility. The baseline condition, before the project, is the existing use of the biomass material and the production of energy from fossil fuel sources. The existing use of the biomass may include disposal of the material in a landfill where it would decompose anaerobically resulting in the release of methane emissions to the atmosphere.

To demonstrate that a project can meet the requirements under this protocol the project developer/agriculture producer must supply sufficient evidence to demonstrate:

- Energy created from the biomass is offsetting fossil fuel generated energy;
- Baseline condition of either stockpiling, storing or landfilling the biomass as the most probable alternative to combustion must be provided by the developer, if claiming further emissions reductions from avoided anaerobic decomposition;
- If claiming further emissions reductions from avoided anaerobic decomposition the developer must provide evidence that the biomass that has been claimed to be diverted from a stockpile, storage or landfill would have undergone anaerobic decomposition either in long-term storage or in a landfill as confirmed or affirmed from the biomass supplier;



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

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

**Government
of Alberta** ■

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

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

- Quantification of reductions achieved by the project is based upon actual measurement and monitoring (except where indicated in the protocol);
- Project must meet the requirements of offset eligibility as specified in the applicable regulation and guidance documents for the Alberta Offset System.

To calculate the offset of emissions based on energy generated from the biomass, the baseline condition must also consider thermal and electrical energy generation that is functionally equivalent to energy generated under the project condition.

Definitions:

Biomass

For the purposes of this protocol document, biomass is defined to include forest and mill residues, agricultural crops and wastes, wood and wood wastes, animal wastes, livestock operation residues, and organic municipal and industrial wastes. This may include materials recovered from existing long-term storage or landfill disposal sites.

Combustion

For the purposes of this protocol document, combustion is limited to the aerobic combustion of the biomass in the presence of air, such as in a typical fluidized bed boiler system. No synthetic gas products are produced.

Disposal Site

Disposal sites are defined as the locations where the biomass would undergo anaerobic decomposition as part of a long-term storage, or uncontrolled or controlled landfill.

Landfill

A landfill is a site at which materials are stored where they can undergo anaerobic decomposition. This may include the materials being buried, piled, mixed with other waste materials, or otherwise. Landfills classified as either controlled or uncontrolled are included in this definition. The designation of controlled or uncontrolled refers to the level of permitting and technical controls in place at the disposal site. Uncontrolled landfills may exist where although there is no expressly stated goal to leave the materials in place, there is a track record of material residing in that place for extended periods (greater than 10 years) and there are no plans or regulatory requirements for the material to be transferred to another disposal site.

References:

Quantification Protocol for Diversion of Biomass to Energy from Biomass Combustion Facilities:
www.carbonoffsetsolutions.ca



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

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

Government of Alberta

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

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