

Reducing Manure Methane Emissions



Project type description

In many livestock operations, liquid manure is stored in structures such as manure pits, lagoons, or under-barn storage. In the absence of oxygen, naturally-occurring bacteria convert the organic matter in manure into methane, a powerful greenhouse gas (GHG). Treating manure before or during storage with specific systems can either prevent the methane from forming or convert it into biogenic carbon dioxide. Doing so results in a lower warming impact on the climate. This project type can also generate GHG emission reductions by using eligible biogas from anaerobic digestion to replace fossil fuels.

Eligibility

A project implemented following the protocol must meet the following conditions to register in Canada's GHG Offset Credit System:

- ▶ **Location:** The project takes place in any province or territory in Canada
- ▶ **Additionality:**
 - GHG emission reductions generated by the project are not legally required, including for odour or pollutant control
 - The project activities reduce GHG emissions beyond what would have occurred without the project (baseline scenario)
- ▶ **Baseline conditions:** Within the project site:
 - Any livestock operation raising any type of livestock was established at least three years before the project start date and has continuously managed liquid manure in anaerobic storage for at least three years before the project start date; or
 - Any dairy cattle or swine livestock operation established less than three years before the project start date has managed liquid manure in anaerobic storage before the project start date
- ▶ **Eligible project activities:**
 - Eligible manure is treated using one or more of the following treatment systems:
 - **Chemical systems** that acidify manure
 - **Mechanical systems** that separate the solid and liquid fractions of manure
 - **Anaerobic digestion (AD) systems** that capture manure methane and destroy it in an eligible destruction device, such as a flare, boiler, turbine, internal combustion engine or station to inject the upgraded biogas into a natural gas network
 - An AD system may treat manure from a single livestock operation or from multiple operations; the latter type of AD is also known as a centralized digester or a hub-and-spoke
 - The eligible biogas produced by the AD system may be used to replace fossil fuels
- ▶ **Project start date:**
 - The first day eligible manure enters the treatment system to be treated is the project start date
 - The project start date is on or after January 1, 2017



Quantification

GHG emission reductions generated by a project are based on the difference between the GHG emissions that would have occurred without the project (baseline scenario) and the GHG emissions that occur when eligible project activities are carried out (project scenario). Baseline scenario GHG emissions include methane from the anaerobic storage of eligible manure and, if applicable, emissions from the combustion of fossil fuels replaced by eligible biogas produced by the project. Project scenario GHG emissions include those from energy use, eligible manure treatment, and treated manure storage.

Two quantification pathways are available:

- ▶ **Standard pathway** based on volatile solids sampling and accessible to all projects
- ▶ **Simplified pathway** based on livestock head count and designed to reduce costs for projects meeting specific conditions

Measurement and data

The proponent must collect data to support the quantification using measuring devices. For example, these devices can be flowmeters or scales for eligible manure and treated manure, flowmeters and methane analyzers for biogas from AD systems, and permanent pH meters for chemical systems.

Reporting and verification

To be issued federal offset credits, the proponent must:

- ▶ Prepare a project report for each reporting period to demonstrate project compliance with requirements
 - The first reporting period is one year, and subsequent reporting periods can be up to three years
- ▶ Have the project report verified by an accredited verification body, who must prepare a verification report confirming the project meets all requirements

Other key requirements

- ▶ GHG emission reductions must be unique
 - The same reductions cannot earn credits under another offset system, program or other GHG reduction mechanism, including the Government of Canada's *Clean Fuel Regulations*
- ▶ The proponent must have exclusive entitlement to claim the offset credits issued for the GHG emission reductions generated by the project
- ▶ Projects can be aggregated, but they must be located in the same province or territory
- ▶ 3% of credits issued for a project are deposited into the environmental integrity account
- ▶ A project can generate credits for ten years and there is a potential to renew the crediting period twice

Disclaimer

The information in this document is intended for communication purposes only. It reflects the requirements contained in the latest version of the [Reducing Manure Methane Emissions](#) federal offset protocol. It does not replace the requirements set out in the protocol or the [Canadian Greenhouse Gas Offset Credit System Regulations](#). Please refer to these documents for a complete list of rules and requirements. In the event of any conflict or difference between this protocol overview and any legal requirements, the latter prevail.

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