

# Where are the Dollars in Carbon Credits?

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## ■ Abstract

Agriculture has enormous potential (but no guarantee) to be the single largest source of greenhouse gas emissions reductions to help solve the Canadian (and worldwide) global warming problem. Within agriculture, the swine industry is uniquely positioned to reduce greenhouse gas emissions as well as recognize revenue for doing so.

Due to global warming, and the Kyoto Protocol large industrial emitters (also called large final emitters) will need to comply with emission reduction limits allocated to them within their industrial sector. These emitters will have the option to purchase reductions in order to offset their own emissions that exceed their allocation.

A standardized process is required to allow a swine producer to take financial advantage of the Canadian Domestic Carbon Trading System, without the liabilities associated with marketing within the system.

## ■ Introduction

“Where are the dollars in carbon credits?” It is great question, and one that is being asked in numerous industries in Canada and around the world. The purpose of this presentation is to present a brief overview of where the dollars are in carbon credits, specifically as those dollars relate to the swine industry.

The first part of the paper deals with the general issues of climate change and greenhouse gas (GHG) emissions. The second part will discuss what can be done to minimize the risk for pork producers while assuring them their piece of the carbon credit revenue pie.

## ■ Global Warming

Although many in the audience are familiar with global warming and the Kyoto Accord, it is important to review why the carbon credit market is evolving.

The following greenhouse effect is a natural process that maintains the earth's temperature at levels hospitable for life.

- Energy from the sun warms the earth
- The earth absorbs heat from the sun and radiates it back into space in the form of infrared radiation
- About 1% of the earth's atmosphere is composed of greenhouse gases (GHG), primarily water vapor, carbon dioxide, ozone, methane, and nitrous oxide.
- Together, these gases reflect enough heat back to earth to maintain the average temperature of the atmosphere at around 60° F.
- Without the greenhouse effect, the earth would be a cold, uninhabitable place.

When solar gain and re-radiation are balanced, there is no net warming. At issue is humankind's role in enhancing the greenhouse effect, contributing to overall global warming. Deforestation and burning of fossil fuels release CO<sub>2</sub> into the atmosphere. Other industrial processes create "man made" greenhouse gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>).

Agriculture is responsible for approximately 8% of the greenhouse gases in Canada. Methane is produced when bacteria decomposes organic matter. About 25% of global methane emissions from human activities come from livestock and the decomposition of animal manure.

These gases, plus water vapor, trap Infra Red (heat) energy that is released from the earth's surface. Greenhouse gases stay in the atmospheres for decades or centuries.

In order to limit the effect these gases have on trapping heat, it is important that we reduce them.

## ■ Canadian Domestic (Carbon) Trading System

By signing the Kyoto Protocol (1997), Canada has undertaken to reduce its greenhouse gas emissions. Canada's commitment under the Kyoto Protocol is to reduce GHG emissions to six percent below 1990 levels between 2008 and

2012. This is approximately a twenty-five percent drop in emissions from “business as usual” projections.

A domestic trading system allows the minimization of economic costs associated with those reductions. In the interests of increasing market liquidity and giving Canadian large final emitters every opportunity to minimize the cost of meeting their emission reduction targets, Canada will seek to link the domestic emissions trading system to those of other countries that have ratified the Kyoto Protocol and have also provided open access to their markets. (Natural Resources Canada)

In accordance with the [Climate Change Plan for Canada](#), large final emitters are to reduce their emissions by a total of 55 megatonnes of carbon dioxide equivalent. The Large Final Emitters Group will use a number of tools to meet these goals, including backstop legislation and regulations, and negotiated covenants, as well as flexible compliance mechanisms such as a domestic emissions trading system, domestic offsets, and the international carbon market.

## ■ **AgCert Canada, Inc.**

AgCert Canada (AgCert) is a leading, global greenhouse gas (GHG) emission reduction (ER) creation company. AgCert employs a proven, scientific solution capable of consistently generating a large, stable source of GHG ERs. These reductions are designed to comply with the Kyoto Accord, European Trading Scheme, Canadian Domestic Trading System and others.

AgCert’s GHG emission reductions, developed in an exclusive partnership with government, are a low cost, reliable, and consistent means to satisfy industry’s GHG reduction/offset requirements without reducing economic output or hampering operational effectiveness.

AgCert has developed a systematic, science backed process for qualifying and quantifying GHG ERs from agricultural sources. These credits: Meet all global “credibility” tests

- Are annually renewable
  - Manifest additional environmental co-benefits
  - Have no “unintended” environmental consequences
- It is important that aggregation of ERs is done in large quantities. The large final emitters in Canada are in need of 55 megatonnes of CO<sub>2</sub>e reductions. The larger the quantity they can purchase at one time, the lower their search costs, transactional costs, verification costs, and time consumption.

## ■ Emission Reductions from Agriculture

Emission reductions (ERs) are created by a difference in the amount of emissions from a defined baseline. ERs are created by improved manure handling practices such as covering a lagoon or earthen basin with a biocover or non-permeable cover, or the use of deep pit confinement buildings, or anaerobic digesters. These practices reduce the amount of methane and nitrous oxide that would normally be produced in the baseline environment. The ERs that can be marketed by this ISO standardized process are calculated by complex algorithms, unprecedented transparency of data, and rigorous quality control and verification.

Emission reduction companies aggregate ER supply not only from multiple farms, but multiple farm systems, and manage the verification, registration and liability issues. This simplifies the process for pork producers, who ultimately reduce their risk to zero, provided they verifiably adhere to the practices that result in emission reductions. The multiple farm system aggregation process also simplifies transactions for buyers, as they are able to confidently purchase large quantities of ERs from a single seller.

GHG driven production practice changes will have a profound positive impact on the environment. The practice changes mentioned above provide for cleaner air and water. Few other ER sources offer environmental co-benefits.

## ■ How are GHG Emission Reductions sold?

Metric tonnes of greenhouse gas emissions are sold in terms of carbon dioxide equivalent (CO<sub>2</sub>e). This approach is due to the fact that individual greenhouse gases have different global warming potentials. A tonne of an individual greenhouse gas is therefore adjusted so it is expressed in terms of how many tonnes of CO<sub>2</sub> would be needed to produce a corresponding global warming impact over a period of 100 years.

This means for each tonne of:

- Carbon Dioxide (CO<sub>2</sub>) avoided 1 tonne of CO<sub>2</sub>e is created
- Methane (CH<sub>4</sub>) avoided 21 tonnes of CO<sub>2</sub>e Emission Reductions are created
- Nitrous Oxide (N<sub>2</sub>O) avoided 310 tonnes of CO<sub>2</sub>e Emission Reductions are created

The methane and nitrous oxide avoided by adopting the practice changes in the previous section account for high volumes of CO<sub>2</sub>e when aggregated over multiple farm systems.

Buyers (emitters) are requiring ERs that meet global “credibility” tests and enable them to meet their compliance requirements. Their requirements for ERs include:

- Government Approval
- 3rd Party Verified
- Science based
- Audited
- Clear Title
- Data Transparency
- Permanence
- Additionality
- Long term contracts/relationships
- Sustainable Economics
- Guaranteed Delivery
- Kyoto Compliance
- Kyoto Approved Project Development Design
- Environmental Co-Benefits

Approximately 600 Canadian large final emitters need to reduce their GHG emissions. These emitters will benefit from being able to purchase ERs that were sourced in Canada, probably even in their own province – benefiting Canadian farmers. Worldwide GHG emitters can also purchase Canadian ERs under the Joint Implementation rules of the Kyoto Accord.

In summary, here is how agriculture finds “*The Dollars in Carbon Credits*”:

- Adopt environmental management practice
- Reduce GHGs (and other pollutants)
- Verify emission reduction (via data, site visit, technology)
- Creation of agricultural emission reduction
- Audit (if applicable)
- Sell within emissions trading system
- Recognize new farm revenue

It should also be noted:

- The opportunity will not be available to everyone.
- The opportunity will only be available through an accepted, transparent and 3<sup>rd</sup> party verified process.
- Some pork producers, and others in production agriculture, may become point sources as “GHG emitters”, because agriculture accounts for 8% of GHG emissions in Canada.