

Carbon Offset Market Opportunities for Pork Producers

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■ Introduction

The world is quickly moving to a carbon-constrained economy. Governments are taking action and markets are forming fast. Alberta has established the first regulatory-based Carbon Market in North America, creating a new set of opportunities and risks. It makes good farm business sense to be aware of them so that opportunities can be captured and risks managed. This paper will discuss the emerging opportunities for the agriculture sector in Alberta.

■ Alberta's Regulatory Framework

On July 1, 2007, Alberta launched North America's first regulatory framework for managing Greenhouse Gases (GHGs). Controlling these emissions is a priority because Alberta has the highest GHG emissions of all Canada's provinces and territories. The framework requires large industrial emitters to reduce emissions by 12 per cent annually. This is over and above the 15 per cent emissions intensity reductions that Alberta has already achieved since 1990, through the 2002 Climate Change Plan.

These large industrial emitters are mainly power plants, oilsands facilities, gas plants and manufacturing facilities. (The primary agriculture sector is not included in the regulations). The framework also includes an **Alberta-based carbon credit system** which gives Albertans the opportunity to **voluntarily** develop carbon/GHG-reducing projects that can be sold as offsets in a carbon market, one of the options available to the large emitters. The regulated companies (over 101 facilities emitting over 100kt of GHG emissions/year) can meet their targets through three options:

- **Emission Performance Credits** – make improvements in their operations to reduce their emissions;
- **Fund Credits** - contribute \$15/tonne into a fund for every tonne they're short (this will be re-invested in technologies to reduce emissions); and/or
- **Offsets (carbon credits)** - offset their emissions by buying carbon credits from Alberta-based projects on the Alberta Carbon Market.

The penalties for being out of compliance are steep - \$200 for every tonne short of their target, and fines for failing to comply of up to \$50K for an individual or \$500K for a corporation.

■ Alberta's New Carbon Market – Core Elements

This framework essentially establishes the core elements for a new, environmental market to function:

- Market Demand - created through the regulations
- Market Supply – allowed by the regulation
- Market Rules – established by the Alberta government
- Market Tools – created to help facilitate supply
- Regulatory Backstop – consequences for non-compliance to firmly establish the demand.

The role of government in this market is to set the above elements of the system, and enable the private sector (buyers and sellers) to develop and trade this new environmental commodity.

In North America, voluntary Carbon markets exist, like the Chicago Climate Exchange in the US, but due to their voluntary nature, the price of carbon is much lower as companies learn about the trading process (price averages between USD \$3 and \$3.50 per tonne). In addition, the rules and requirements governing voluntary markets are typically less stringent than regulated markets. Other compliance-based carbon markets are being developed in North America, but are likely several years from implementation. A national system is in the works for Canada and the Alberta market is well positioned to be consistent with that system because Alberta's market is based on international standards of greenhouse gas quantification.

■ Market Supply – Opportunities for Agricultural Producers

Choosing to participate in the Carbon Market is a voluntary choice for pork producers. A **carbon offset**, also called a credit, is created when a reduction in GHG emissions results from undertaking a project -- changing a practice or installing a technology or control system to reduce emissions or, store carbon in soils. In a project-based system, the amount of GHG emissions on the farm are calculated before the practice/technology is implemented (this is known as the 'baseline', i.e. practice in place prior to the new project) and then emissions calculated after the practice is changed. The difference between Baseline – Project emissions equals the 'credit', measured in tonnes of emission reductions.

The regulation also states that in order to generate a carbon credit for the Alberta compliance-based market, they must be credible, that is, the carbon credits must:

- be real, demonstrable and measurable;
- be from a creditable action taken after 2002;
- be verified by a qualified third party;
- have clearly established ownership;
- be used only once to create an offset;
- occur from actions not otherwise required by law; and,
- occur from a project undertaken in Alberta¹.

To meet these criteria, a number of **Market Tools** known as GHG Quantification Protocols have been developed by the Alberta Government to 'seed' the market. These types of tools are a feature of every project-based Carbon Market in existence or being contemplated.

Quantification Protocols

Quantification protocols are standards that define the supply of credits resulting from the change in practice or technology. They help the market to function by creating certainty and confidence in the commodity being created (a tonne of gas is an intangible thing; and the science of GHGs in agriculture is a developing area). The protocols provide quality assurance, thereby reducing the risk and cost for buyers and sellers. The protocols also help to keep verification costs down.

¹ For more info visit http://www3.gov.ab.ca/env/climate/docs/Guidance_Document_Alberta_Offsets.pdf

The protocols basically define which practices/technologies count (i.e. where enough science exists to determine the reductions in methane, carbon dioxide and/or nitrous oxide – the 3 GHGs pertinent to agricultural projects), record keeping information, and calculation of the carbon credits. Formula and coefficients form the backbone of the protocols so producers don't have to go out and measure changes in GHG directly on their farms. Many of these measurement devices exist only in the research community.

To date, over 14 government-approved protocols exist for the Alberta market, and nine are relevant to agriculture:

- Reducing slaughter age of cattle
- Feeding edible oils to cattle
- Biofuels production
- Pork feeding, storing and spreading of manure
- Afforestation (planting trees)
- Anaerobic decomposition/biogas
- Tillage system management
- On Farm energy efficiency
- Biomass combustion

Additional protocols are in the works. (see www.carbonoffsetsolutions.ca). In addition, several private sector companies are investing in creating their own protocols. These are currently under review by the Alberta government.

All the protocols require that the credits result from a change in practice, technology or system occurring on or after January 1, 2002. The one exception is the tillage protocol, where producers can still participate in the market, even though they may have converted to reduced till or no till prior to 2002. A unique policy approach has been adopted for Alberta that adjusts the baseline for past actions.

Providing the Project meets the requirements set out by the regulations and the Protocols, producers can go back to 2002 onwards to package their credits for market. There is no deadline to sell these 2002 onward credits so producers can choose to undertake a Project at any time and still sell these past credits to interested buyers. However, a major challenge to selling credits from one farm is that Buyers are looking for large packages of tonnes, upwards of 50 to 100,000 tonnes. Average sized farms of 1600 acres under no-till might only have a couple hundred tonnes to sell.

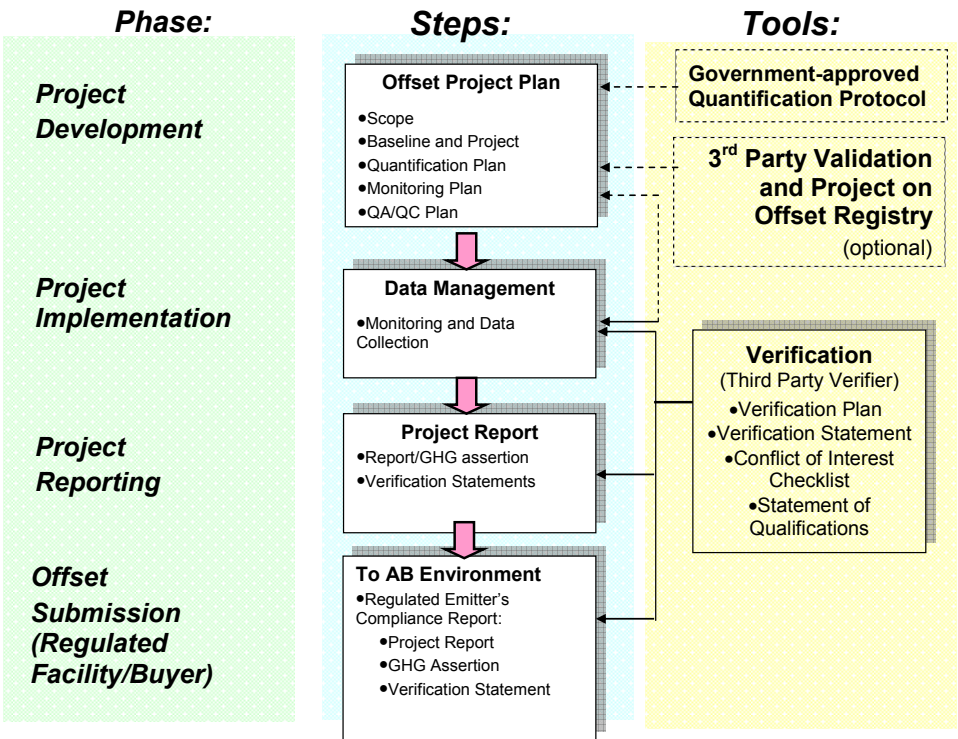
Many producers are choosing to participate in the market through contractual agreements with 'aggregators'. Aggregators are companies that bring together the carbon credits from many individual farmers so that the total quantity of

credits is large enough to interest large emitters in a purchase. The aggregators ensure that the credits are created according to the requirements and verified. Some can even arrange the selling of the credits to interested buyers. Currently there are over 12 aggregator companies active in Alberta (see 'Market Service Providers' at www.carbonoffsetsolutions.ca).

■ Getting a Credit to Market

There are 4 key steps to offset creation. Understanding these steps is key (Figure 1).

Figure 1. Key steps to carbon offset creation.



Offset Project Planning

Offset Project Planning includes a description of the baseline and project condition, as well as sub-plans for quantification, monitoring and QA/QC procedures. The quantification protocol to be used for measurement of offsets

must be included. A potential buyer will use this plan to help them make decisions on investment. A verifier will use this information to verify against.

Project Implementation

While underway, it is important for the project developer to follow proposed monitoring plans and implement a data management system. Both investors and verifiers will need this information. The better the data management system, the less costly the verification of the Project.

Project Reporting

A detailed project report should outline the activities of the project, any changes from the initial project plan, methods and calculations GHG emission reductions/removals, time period for the report, and any associated documentation and signatures. Central to reporting is the GHG assertion, where the developer makes a claim to a certain number of potential offsets. Verification will be done against this Project Report and the Project Plan, resulting in a Verification Statement.

Offset Submission

Once the Project Report and Verification Statement are complete, the GHG assertion, Project Report and Verification Statement are interlinked and cannot be separated. A Project Developer, through these documents, will be selling the right for a Buyer to claim the Offsets, when they contract with them. The Buyer then submits them together to Alberta Environment along with the regulated emitter's Compliance Report to satisfy the emitter's compliance requirements.

In Alberta, offset credits per se will not be issued by the government. Rather, regulated entities can submit verified offsets and related reports with their annual compliance report under the *Specified Gas Emitters Regulation*. These reports will be reviewed with the compliance report as a whole.

■ Early Days - -Early Market

These are early days for the Alberta Carbon Market and there is much interest in the agricultural sector as a source of carbon credits. However, Alberta's carbon market is still in its infancy and will likely develop in the short-term with all of the attendant risks of emerging commodity markets i.e., little price discovery and low liquidity.

For the next year or so, it will likely be a bilateral market, until a National Offset system is in place and the supply broadens out, exchanges move in and provide the transparency and price discovery. Within a few years, a North American-wide market is likely, and the value of carbon is expected to climb. The Alberta system will harmonize with the National system as early as the latter half of 2008 (barring a federal election). So the dynamics are very much in play.

Additional market infrastructure is coming in Alberta, such as a web-based Offset Project Registry where Project Developers can go and post their Project Information for all to see. This will provide transparency to the market as well as facilitate market trades (see www.carbonoffsetsolutions.ca).

A further consideration for producers in the Alberta market is the price of carbon - essentially capped at \$15/tonne (inclusion of a technology fund credit compliance option). Where market interest in carbon offsets exists, by all accounts, it is likely going to be at a price below \$15. A solid business case for undertaking a practice change or installing a new technology is important – revenues from the sales of carbon credits will likely help offset some of the costs, but it won't be a cash windfall.

To manage risk in Projects and contracting at this early stage, the best option for producers right now is to get informed about the requirements of this emerging market. They need to understand where the demand for offset credits will come from; current and future scenarios for market activity; what the government-approved protocols are all about. Asking a lot of questions and doing due diligence on companies and contracts you are considering partnering with, is essential². Make sure you understand and are comfortable with any contract before signing it. Like any other commodity market, to really understand it the best way is to trade a little bit and see how it works out.

■ References

Alberta Climate Change and Emissions Management Act.

http://www.qp.gov.ab.ca/documents/Acts/C16P7.cfm?frm_isbn=9780779723386

Alberta Specified Gas Emitter Regulation;

http://www.qp.gov.ab.ca/documents/Regs/2007_139.cfm?frm_isbn=9780779725403

Alberta Offset System Guidance.

<http://www.carbonoffsetsolutions.ca/policyandregulation/abOffsetSystem.html>

² See www.carbonoffsetsolutions.ca for market information and model contracts to guide decision making.