

Possibilities and Challenges of Emission Reduction Credit Trading in the Hog Industry

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■ Kyoto Protocol Basics

The Kyoto Protocol is a global, legally binding agreement covering 6 key greenhouse gases. Canada's target: 6% below 1990 during 2008-12.

Climate Change Plan for Canada (November 2002) – measures affecting the hog industry:

- Model Farms: research to improve emissions quantification and evaluate emissions reduction potential
- GHG Mitigation Program: identify best practice, raise awareness (demonstrations etc.)

“...proposes to establish a framework that will enable agricultural and forestry sinks and emissions reductions to be sold as offsets into a domestic emissions trading system”

■ Domestic Emissions Trading

Targets (“covenants”) for large industrial emitters (~50% of Canada's emissions)

targets = allocation of emissions permits

Over-achieve targets – sell surplus permits

Under-achieve targets – buy:

- surplus permits
- emission reduction credits (offsets) created in Canada from the other 50% of emissions
- permits or credits from outside Canada, through “Kyoto mechanisms”

The targets drive emissions reductions; trading simply ensures the reductions that occur are the lowest-cost ones

■ Creditable Activities

Agricultural and Forestry Sinks and Emissions Reductions

Will all kinds of agricultural emissions reductions be eligible? Seems quite likely

Only profitable if cost/tonne < market permit/credit price

- International permit/credit price likely to determine domestic price
- Current international price for credits valid for Kyoto compliance ~\$CAN 8 / tonne CO₂e
- International price in 2010 probably not much more than \$CAN 10 and could be less

Offsets would have to be measurable and go beyond business-as-usual practices

Agricultural GHG sources/sinks (2000 except *)

- 8.3% of Canada’s total emissions; 1.7% increase (absolute terms) since 1990
- Soils, including manure applied as fertilizer (N₂O): +30 Mt CO₂e
- Enteric fermentation (CH₄): +18 Mt CO₂e
- Manure management (CH₄): +5.1 Mt CO₂e
- Manure management (N₂O): +4.3 Mt CO₂e
- Soils (CO₂): – 0.2 Mt, ~ –10 Mt (*2010)

■ Key Issues

Additionality

Granting credits for activities that would have happened anyway undermines Canada's overall effort, as each credit granted allows someone else to emit more

Determining what is beyond "business as usual" is difficult: case-by-case assessments or standardized rules?

Need to establish a baseline = level of emissions without the project; emission reductions are measured relative to baseline

Measurement

Large uncertainty for agricultural emissions sources

Research underway to reduce it (e.g. Model Farms)

How much uncertainty will be tolerated?

Timing

Domestic emissions trading system to be "implemented as soon as possible" after details developed (2003-04)

But unknown whether targets would apply before 2008

Activities that begin now are unlikely to meet the additionality requirement...

...but "early action should not be disadvantaged"

There are buyers for emission reductions (not credits) from activities beginning now but the price is low...

...but acting now proves you can deliver

A project cannot generate credits forever: crediting period likely to be several years but not 3 decades

Displacement of fossil-fired electricity by biogas energy unlikely to be credited, as reductions occur at large emitter (who implicitly takes credit)

Necessary to avoid double counting of reductions

Aggregation

Transaction costs and risks of non-performance are generally high for small amounts of reductions

Need to aggregate agricultural producers undertaking emissions reductions for purpose of credit creation

Talk to emissions brokers (CO₂e, Natsource)

Contracts

Emissions trades need robust contracts; a lot of work currently underway on this

Some legal firms specializing in emissions trading

■ **Examples of Trades**

GEMCo - IGF Insurance (Iowa farmers) (Oct. 99)

Soil carbon sequestration, afforestation, biomass energy production, manure management etc.

Up to 2.8 Mt CO₂ in total

TransAlta - Global Livestock Group (mid 90s, 2001)

Cattle feed supplements, India and Uganda

Methane reductions up to 70% per unit product

Increased milk/meat production and quality

India: 117 kt CO₂e in 2000, increasing

Uganda: 4 Mt CO₂e per year during 2008-12

■ Examples of Reductions For Sale

Hog manure digesters / biogas combustion (Chile)

World's eighth largest pork producer (92,000 sows in production; five digesters)

Major water/odour pollution reduction co-benefits

400 kt CO₂e per year

Centralized dairy manure processing / production of natural gas (US)

CO₂ removed and marketed separately

2.1 Mt CO₂e per year by 2010

Power generation from chicken litter (India)

1m birds, generating 1.2 MW plus 30 t/day manure

40 kt CO₂e per year

■ About the Pembina Institute

The Pembina Institute has approximately 35 staff across Canada , providing non-profit policy research/analysis, advocacy, public education, advisory services. (webstie at www.pembina.org)

Climate change program:

- holding governments accountable
- promoting domestic emissions trading

Eco-Solutions Group:

- strategic advice e.g. climate change action plans
- life-cycle value assessment