

Comments on the Proposed Federal Offset System, Canada's Offset System for Greenhouse Gases

*Prepared by P.J. Partington
August 12, 2009*

The Pembina Institute welcomes this opportunity to provide comments on the following draft documents concerning the federal government's proposed offset system for greenhouse gases (GHGs): *Overview* (dated June 2009) and *Program Rules and Guidance for Project Proponents* (dated June 13, 2009), with additional reference to the *Guide for Protocol Developers* (dated August 9, 2008).¹ We hope the comments and recommendations below will be addressed by Environment Canada as the system is finalized in the coming months.

General comments

The principal rationale for including offsets in a cap and trade system is to limit the cost of compliance for covered emission sources. An offset system does not result in extra emission reductions; instead, it replaces emission reductions from covered sources with reductions from non-covered sources.

The Pembina Institute encourages voluntary purchases of high-quality offsets by individuals or organizations to enable them to further address their environmental footprint once they have taken all reasonable steps to minimize their own emissions.² However, for purposes of compliance with a cap and trade system, offsets present several formidable disadvantages:

- It is very difficult to be confident that offsets represent genuine, "additional" or "incremental" emission reductions. If offsets are granted for "non-additional" or "non-incremental" emission reductions that would have happened anyway (i.e., that would have happened even in the absence of the offset system), then Canada's total emissions will be higher with the offset system than without it, as emitters will use these non-incremental offsets to replace real reductions they would have otherwise been required to make by the cap and trade system. This will weaken the environmental performance of the system.

¹ This submission does not comment on the draft *Program Rules for Verification and Guidance for Verification Bodies* (dated June 13, 2009).

² Deborah Carlson, Paul Lingl and Rich Wong, *Purchasing Carbon Offsets: A Guide for Canadian Consumers, Businesses and Organizations* (Drayton Valley, AB: David Suzuki Foundation & Pembina Institute, 2009). Available online at <http://corporate.pembina.org/pub/1866>.

- To try to prevent this occurring, it is necessary to adopt elaborate rules and procedures to enforce them. This results in a high level of administrative complexity and cost. The world's largest GHG offset system to date, the Kyoto Protocol's Clean Development Mechanism (CDM), uses a complex set of rules to ensure that only additional emission reductions receive credits. Despite this, some researchers have concluded that "only a fraction" of CDM credits represent additional emission reductions.³
- A broad-as-practical cap and trade system — like that proposed in the "Waxman-Markey" bill recently passed by the U.S. House of Representatives —⁴ offers limited scope for producing incremental reductions from offset projects outside the cap. Even if Canada's future federal regulatory system does not cover sectors like transportation, buildings and waste, the scope for generating incremental offset credits will be limited. This is because governments are implementing targeted GHG reduction policies in those sectors, and it will be very difficult to disentangle the incremental reductions from those reductions caused by government policies.
- If a large volume of offsets can be created cheaply, then they risk reducing the market price of allowances in the cap and trade system to the point where there is no longer an adequate incentive for covered firms to invest in clean technologies for their own operations.

Given these major problems, we believe that **Canada's regulatory system for GHGs should not include offsets (domestic or international).**

We do, however, recognize the case for providing covered firms with some insurance against excessive compliance costs caused by unforeseeably high allowance prices. The government could do this by adopting a provision to sell additional allowances if the allowance price reached a "ceiling" level. To maintain the system's overall environmental performance, these additional allowances would be withdrawn from the subsequent compliance period. Because this provision would delay emission reductions, it should only be triggered in exceptional circumstances. The ceiling level should therefore be set much higher than the expected allowance price. This means that the ceiling should be no lower than \$50/tonne CO₂e initially, and no lower than \$200/tonne by 2020.

In sectors like agriculture and forestry, a more appropriate alternative to offsets is the implementation of strong GHG reduction policies targeting those sectors. Governments could also purchase offsets from those sectors separate from the cap and trade system.

If the government nonetheless chooses to include offsets in its regulatory system for GHGs, we believe that to limit the problems described above, offsets should be limited to a small proportion of emission reductions.⁵ The 2007 and 2008 iterations of the federal government's regulatory framework proposal would have allowed emitters unlimited access to domestic offsets as a compliance option (i.e., emitters could theoretically opt to use offsets to meet 100 per cent of their

³ David Victor, *Global Warming Policy After Kyoto: Rethinking Engagement with Developing Countries* (Stanford, CA: Stanford University Program on Energy and Sustainable Development, 2009), 13. Also available online at http://iis-db.stanford.edu/pubs/22383/CAD_Working_Paper_82.pdf.

⁴ HR 2454 PCS, also known as the *American Clean Energy and Security Act*. Available online at <http://thomas.loc.gov/cgi-bin/query/z?c111:H.R.2454>.

⁵ If the system includes offsets, there should be no ceiling price mechanism such as the one described above.

targets.) The Pembina Institute strongly recommends that the use of offset credits — whether domestic or international — be capped at a small proportion of emission reductions in the updated version of the federal emissions trading approach (expected in the fall of 2009).

It is our view that, unless they are addressed, the serious accounting loopholes identified below would likely leave Canada's actual emissions millions of tonnes higher than the level to be set by the upcoming industrial emissions regulations. As currently proposed, the system would generate a large volume of credits from both "business as usual" (BAU) activities and from reductions already accounted for in the government's climate change plan. International experience with regulatory systems has shown that where such loopholes exist, they will inevitably be exploited.

Closing these loopholes as the system is finalized in the coming months is necessary to preventing a massive overstatement of emissions reductions that would compromise the Government of Canada's attempts to achieve its national emission targets.

Section 1 of this submission details the areas of serious concern we have found. Section 2 lists further "areas of concern" that require clarification. Finally, Section 3 lists important elements to retain in the current proposal.

1. Serious concerns

The following elements would seriously undermine the integrity of the offset system if they proceed as currently proposed.

1.1 Project start date

Projects that started as early as 2006 would be eligible for offset credits. Most or all of these projects will be either part of BAU, or the result of a program that has already been accounted for in the government's climate plan.

Section 2.3.4(a) of the draft *Program Rules and Guidance for Project Proponents* proposes January 1, 2006 as the date after which most projects may be considered incremental.⁶ The choice of this start date significantly weakens the incrementality criterion, making it all-but-certain that non-incremental projects will be allowed to generate credits.⁷

An emission reduction project is demonstrably viable in the absence of the proposed federal offset system if it is constructed without any of the following conditions being met:

- The finalization of federal greenhouse gas regulations in Canada that include access to offsets as a compliance mechanism (to create a market value for offset credits)

⁶ Environment Canada, *Canada's Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents* (Ottawa, ON: Environment Canada, 2009), 12. Available online at

http://www.ec.gc.ca/creditscompensatoires-offsets/44B33F4A-34E2-49CE-9D3E-0775600A2AE6/Offsets_Projects%20June%2011_%20pdf.pdf. The exemption from a project start date requirement for

those projects subject to easy reversal is addressed in Section 1.2 of this submission.

⁷ While this is an improvement over the project start date of January 1, 2000 proposed in the March 2008 draft *Overview* document (p.13), for the reasons outlined here neither date properly supports the incrementality criterion.

- A return on investment for the project is guaranteed through some other means, such as a federal price guarantee for offset credits
- The project is registered under another offset system.

Projects that proceed without meeting the above conditions cannot be considered incremental, as they have been planned, constructed and operated before their owners had any clarity about the offset system's design and rules or the future value of credits. Under these uncertain circumstances, it is highly unlikely that the amount of financial risk involved (particularly for large projects) could be justified simply on the basis of potential future crediting under an offset system. Therefore, projects that have already begun reducing emissions should be considered part of BAU, which renders them ineligible for the receipt of offset credits under any effective incrementality criterion.

Crediting these non-incremental projects would erode the environmental integrity of the system. Non-incremental offsets allow a net increase in emissions under the cap, as emitters will replace GHG reductions in their own operations with offsets that do not represent real reductions. The net effect for Canada would be higher overall emissions.

To help protect the environmental integrity of the federal offset system, Part A of the incrementality criterion should be amended as follows: “the project must have begun construction on or after the date Canada’s industrial greenhouse gas regulations are published in Canada Gazette II or the value of offsets are otherwise guaranteed to be non-zero (by means of a federal price guarantee, purchase guarantee or other mechanism).”

1.2 Treatment of low-till agriculture

Low-till agriculture projects, which store extra carbon in soils, would receive credits even if they started before 2006. Low-till agriculture is now a dominant practice in Canada, which means that a large proportion of these projects are part of BAU. The total volume of low-till credits could be in the millions of tonnes per year.

Section 2.3.4(a) of the draft *Program Rules and Guidance for Project Proponents* proposes that for “projects that are susceptible to easy reversal (such as reduced and no-till projects in agriculture)...the Minister may specify a normalized baseline in the Offset System Quantification Protocol that all projects can utilize regardless of start date.”⁸ According to Environment Canada officials, this is justified as a means to reduce the perverse incentives to stop and then re-start low-till projects that began prior to January 1, 2006.⁹

While validating project start dates can be difficult with tillage projects, removing the project start date criterion is not an appropriate solution to the problem, as the “solution” creates a new problem: that of granting offset credits to a large number of non-additional projects. The use of normalized baselines to gauge incrementality for tillage offsets is virtually certain to result in the crediting of non-incremental reductions.

⁸ Environment Canada, *Canada’s Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents*, 12.

⁹ Environment Canada, personal communication.

According to Environment Canada officials, the baseline for tillage projects would reflect a weighted average of BAU practices on Canadian farms, based on the most recent census data.¹⁰ Statistics Canada indicates that the large majority of Canadian farmers were already practicing no-till (46%) or conservation tillage (26%) in 2006.¹¹ Environment Canada has not yet published a tillage baseline; however, under its proposed approach, roughly half of Canadian farms would already fall below a “normalized” baseline. In this event, a large number of projects would receive offset credits for what are longstanding BAU practices.

Given the relative dominance of reduced tillage approaches even in 2006, it is evident that such projects are already viable for commercial reasons and have been widely undertaken in the absence of the offset system. Statistics Canada notes that no-till agriculture presents “significant savings in fuel and labour. Nationally, total fuel expenditures and repair costs on farms using no-till systems were approximately one third that of those in typical conventional tillage in 2006.”¹² A study by Alberta Reduced Tillage Linkages estimates the total value of zero-tillage practices to Alberta farmers was \$204,347,554 in 2008, of which only \$6,489,355 (approximately three per cent) can be attributed to the carbon market.¹³ These savings demonstrate an economic rationale for no-till agriculture that significantly exceeds any incentives (i.e. incrementality) provided by the offset market. The financial gains producers derive from these projects under BAU mean that they should not be considered incremental, even relative to a normalized baseline.

Additionally, a 2007 study has raised concerns about the effectiveness of reduced tillage methods in sequestering soil organic carbon, concluding that the evidence supporting enhanced sequestration with conservation tillage is “not compelling.”¹⁴ Analysis of this nature must be used to guide Environment Canada’s work in setting baselines for soil sequestration projects, so that they represent the best possible estimate of the environmental benefit that low- or no-till agriculture may provide.

Rigorous assessment of incrementality is warranted for tillage offsets, as the volume of offset credits that could be generated by tillage projects in Canada is very large. In Alberta’s offset system alone, 1,370,021 offset credits have already been awarded to 11 registered tillage projects. Those same projects estimate a total potential — i.e. the total number of offset credits granted over the period for which they will be eligible to produce credits — of 8,258,130 tonnes of GHG emissions sequestered.¹⁵ In its 2008 Turning the Corner plan, the federal government estimated that emission

¹⁰ Ibid.

¹¹ Statistics Canada, “Conventional tillage: How conventional is it?” *EnviroStats* 2(3) (Fall 2008), <http://www.statcan.gc.ca/pub/16-002-x/16-002-x2008003-eng.pdf> (accessed August 10, 2009), 13–20. Conservation tillage is defined as “tillage that retains most of the crop residue on the surface and involves minimal tillage.”

¹² Ibid, 14.

¹³ Peter Gamache, *Impact of Direct Seeding in Alberta*, Alberta Reduced Tillage Linkages, May 8, 2008, <http://www.reducedtillage.ca/article403.aspx> (accessed August 10, 2009).

¹⁴ John M. Baker et al, “Tillage and soil carbon sequestration—What do we really know?,” *Agriculture, Ecosystems and Environment* 118 (2007), 1.

¹⁵ Project Search in *Carbon Offset Solutions* (Alberta Offset Registry); <http://www.carbonoffsetsolutions.ca/aeor/> (accessed August 5, 2008).

reductions of at least 25Mt CO₂e could be achieved from the agricultural sector in 2012.¹⁶ It is critical to ensure that these reductions are not counted twice as a result of non-incremental offset credits.

Uncertainties regarding project start dates and the incrementality of projects to BAU mean that many tillage projects cannot demonstrate incrementality to a degree that supports their inclusion in the federal offset system. **Unless these issues can be sufficiently addressed, tillage-based project activities should be excluded from the offset system and supported, where necessary, through other means.** Using appropriate mechanisms outside the offset system will prevent these non-incremental credits from being used for compliance under future federal regulations. Emission reductions from agricultural sector could instead be supported through government programs, including the purchase of tillage credits exclusively by government. This program, and others targeting emission reductions from non-capped sectors, could be funded through auction revenue from a national cap and trade system.

1.3 Government incentives

Projects that have already been implemented as a result of government incentives would also receive offset credits. This means that nearly seven million tonnes of emission reductions from renewable power projects, plus 1.6 million tonnes of reductions from home and small business retrofits, would be eligible for offset credits each year — despite already being counted under federal incentive programs.

The project eligibility criterion related to incentives proposed in Section 3.2.3.v of the draft *Program Rules and Guidance for Project Proponents* document states that “climate change incentives will not affect eligibility if an agreement to receive funding from the funding program is entered into prior to January 1, 2011, or a tax incentive is claimed under terms that are in effect as of June 15, 2009, unless otherwise specified.”¹⁷ The exemption of all incentives contracted before the first crediting period would result in the double-counting of emission reductions.

Registering projects that are initiated using incentives signed into contract before January 1, 2011, would allow projects receiving the following federal incentives, among others, to remain eligible to receive offset credits:

- Renewable energy production supported by the ecoENERGY for Renewable Power program since January 1, 2006. This program provides renewable power producers with 1¢/kwh for up to 10 years.
- Renewable heat generation supported under the ecoENERGY for Renewable Heat program
- Home and commercial building retrofits supported under the ecoENERGY Retrofit Initiative

¹⁶ Environment Canada, *Turning The Corner — Detailed Emissions and Economic Modelling* (Ottawa, ON: Environment Canada, 2008), 11. Available online at http://www.ec.gc.ca/doc/virage-corner/2008-03/571/tdm_toc_eng.htm.

¹⁷ Environment Canada, *Canada's Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents*, 22.

- Cost-shared purchase and installation of emission reducing technologies through the Freight Technology Incentives Program of ecoFREIGHT.

The federal government's May 2009 *Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act* estimates the reductions these incentives are projected to achieve through 2008–2012.¹⁸ The government expects these incentive programs to jointly reduce annual emissions relative to BAU by 8.6Mt in 2011 (see Appendix 1 for details). The incentive programs listed above were each implemented after January 1, 2006.

The 2009 *Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act* accounts for the emission reductions resulting from these incentives separately from the government's regulatory system for industrial emissions; the regulatory system incorporates the federal offset system into its net emissions reduction estimate. Therefore, issuing offset credits to projects whose emission reductions have already been accounted for as the result of incentive programs results in double counting: the same reductions are added to the bottom line of both the regulatory system and the incentive programs.

As Appendix 1 illustrates, this overlap could apply to over eight million tonnes of reductions per year from the first crediting period, based on federal incentives alone. This does not include estimated reductions from provincial and territorial climate change incentives that began before 2011, which are also likely to be significant.¹⁹

This very serious overlap in emissions accounting would have the net result of producing fewer emission reductions in Canada, undermining the government's attempts to meet its national emission reduction targets. It must be addressed by removing the exemption for projects contracting government incentives before January 1, 2011.

We recommend that the following text be removed: "Climate change incentives will not affect eligibility if an agreement to receive funding from the funding program is entered into prior to January 1, 2011, or a tax incentive is claimed under terms that are in effect as of June 15, 2009, unless otherwise specified."²⁰

Further, it should be noted that the offset system proposal currently omits any consideration of financial disincentives and their effect on incrementality. As the offset system design is finalized, Environment Canada must also ensure that credits are not awarded to offset projects undertaken as a result of any future federal or provincial/territorial disincentive program.

¹⁸ Environment Canada, *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act* (Ottawa, ON: Environment Canada, 2009). Available online at http://www.ec.gc.ca/doc/ed-es/KPIA2009/tdm-toc_eng.htm.

¹⁹ Pembina Institute, *Highlights of Provincial Greenhouse Gas Reduction Plans* (Drayton Valley, AB: Pembina Institute, 2009). Available online at <http://climate.pembina.org/pub/1864>.

²⁰ Environment Canada, *Canada's Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents*, 13.

1.4 Intersection of federal regulations and renewable power offsets

Renewable power projects would be eligible to receive offset credits. Offsets from renewable power represent reductions in emissions from fossil fuel power plants. However, future federal regulations are expected to cap these emissions, which means that the reductions will already be accounted for under the regulations. If the same reductions are also counted as offset credits, they will be counted twice. The government's proposal is silent on the need to prevent what would likely amount to several millions more tonnes of emission reductions being double-counted annually.

Under future federal regulations, utilities or generating facilities will automatically receive credit for reduced emissions resulting from renewable electricity projects that feed into the grid. Depending on the design of the system, this will occur either as a contribution to a utility's corporate target or a reduction in output from polluting facilities. Including on-grid renewable energy projects as an eligible offset activity thus leads to double counting, wherein the reductions are credited both to the utility or facility and to the offset project proponent, resulting in a net increase in emissions.

The proposed federal offset system does not address the need to prevent what would likely amount to several million tonnes of emission reductions being double-counted annually (see Section 1.3). It is essential that this issue be resolved as these documents are finalized, well before any protocols are approved for renewable energy project activities.

We recommend adding the following requirement to the "Unique" criterion,²¹ where applicable:

"For those project activities such as renewable power where projects are likely to result in emission reductions being doubly counted, Protocol Developers must demonstrate that all emission reductions generated by the project activity will only be counted once in compliance with the regulatory system for greenhouse gases, prior to the approval of any Offset System Quantification Protocol for the relevant project activity."

One mechanism to satisfy this requirement would be cancellation of an allowance under a cap and trade system for each renewable power offset credit created.

1.5 Normalized baselines where regulation differs across provinces

Landfill gas capture projects that are required by regulations in provinces such as Ontario and Québec would be eligible to receive federal offset credits. However, the federal government has said that it will account for emission reductions resulting from provincial actions elsewhere in its climate plan. If these reductions are also counted as offset credits, they will be counted twice.

The approach proposed in 2.3.4(d)ii of the draft *Program Rules and Guidance for Project Proponents* would allow a national baseline to be set for project activities that are regulated in some provinces/territories but not in others. The draft document states that: "The Minister may require the use of a normalized baseline to ensure that the Offset System does not significantly disadvantage Project Proponents in jurisdictions that have been more proactive in regulating greenhouse gas

²¹ Environment Canada, *Canada's Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents*, 24.

reductions. If the Minister decides that a normalized baseline is appropriate, this will be reflected in the Offset System Quantification Protocol for the project type, and the greenhouse gas reductions will have to be surplus to the normalized baseline.”²²

According to Environment Canada officials, this normalized baseline would reflect the national average degree of compliance with the regulations in effect in some provinces.²³ As a result, the level set by the normalized baseline would fall below the regulatory minimum in leading provinces/territories, allowing projects in those jurisdictions to generate credits simply for complying with existing regulations. There is no guarantee that proponents will decide to proceed with projects in unregulated jurisdictions; this weights the balance of credits likely to be generated under a normalized baseline towards those jurisdictions where the projects are clearly not incremental, undermining the environmental integrity of the offset system.

Furthermore, the federal government’s 2009 *Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act* makes clear that “reductions from provincial plans and actions are expected to lower Canada’s emission levels over the period of 2008 to 2012” *in addition* to the federal measures outlined in the plan.²⁴ Under the 2008 “Turning the Corner” proposal, emission reductions from provincial/territorial actions were expected to close the gap between federal measures and Canada’s national emission target, contributing over 100Mt of reductions below BAU by 2020.²⁵ Crediting reductions from provincial/territorial regulatory action as offsets would mean that the same reductions will be counted twice.

Landfill gas regulations provide an example. As of July 2009, several provinces, including Ontario²⁶ and Québec,²⁷ have regulations in place that require landfill operators to capture, destroy, or otherwise use emissions from major sites before 2011. If the federal government adopts a normalized baseline approach, operators in these provinces would be eligible to register emissions reductions above the normalized baseline that result from regulatory compliance as offsets. In the provinces cited above, the regulations were either introduced or amended after Jan 1, 2006, which means that nearly all compliance-driven projects would be eligible to register and receive credits under the current project start date criterion.

The Pembina Institute agrees in principle that projects in more proactive jurisdictions should not be disadvantaged. However, instead of adopting an approach that would effectively “level down,” we recommend a leveling-up approach. Section 2.3.4(d)ii of the draft *Program Rules and Guidance for*

²² Ibid, 22.

²³ Environment Canada, personal communication.

²⁴ Environment Canada, *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act*, 29. This does not include the Clean Air and Climate Change Trust Fund, which is listed separately as a “Federal Collaborative Measure,” 27–28.

²⁵ Environment Canada, *Turning The Corner — Detailed Emissions and Economic Modelling*, iii and 12.

²⁶ O. Reg. 216/08: http://www.e-laws.gov.on.ca/html/source/regs/english/2008/elaws_src_regs_r08216_e.htm and O. Reg. 217/08: http://www.e-laws.gov.on.ca/html/source/regs/english/2008/elaws_src_regs_r08217_e.htm.

²⁷ *Règlement sur l’enfouissement et l’incinération de matières résiduelles (REIMR)*:

http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R6_02.htm.

Project Proponents document should be removed and the following words added following 2.3.4(d)iv:

“Where legal requirements vary across provinces/territories, projects must use a baseline that would be compliant with the most ambitious level of regulation in effect in a province or territory.”

1.6 Insufficient guidance for baseline selection

The government’s proposal makes no attempt to determine if individual projects would have happened in the absence of the offset system. This means that the only way to ensure BAU projects do not receive credits is to set stringent “baselines,” which are the reference point from which the government plans to measure emission reductions. However, there is currently no assurance that the government will set stringent baselines. Insufficiently stringent baselines could result in a future cap and trade system delivering millions of tonnes fewer emission reductions in reality than on paper.

The guidance provided for baseline quantification and selection in the development of protocols needs to be strengthened²⁸ by implementing guidelines clearly indicating that **the purpose of a baseline is to show what would most likely have happened in the absence of the offset system.** Only reductions from this level should be recognized as legitimate offsets. Baseline approaches should be chosen and justified on this premise, with those able to present the most accurate and realistic projection of BAU given preference. This is essential to implement the “conservativeness” principle of ISO 14064–2, as quoted in the draft *Guide for Protocol Developers*,²⁹ and is vital to ensuring that only incremental reductions are credited.

Despite the decision to use the ISO 14064-2 standard in developing baselines and other aspects of the federal offset system’s quantification protocols, ensuring that the methods and requirements used for the selection and quantification of baselines are sufficiently stringent remain the responsibility of the government. As the Stockholm Environment Institute notes, “ISO 14064-2 provides general guidance and does not prescribe specific requirements. For example, it suggests that additionality be taken into account but does not require a specific tool or additionality test to be used. These requirements are left to be defined by the GHG program or regulation that uses ISO 14064-2.”³⁰

We recommend that the following note be added regarding baseline selection in the *Guide for Protocol Developers* and in 2.3.4.c of the *Program Rules and Guidance for Project Proponents*: “In order to ensure that only incremental reductions are credited, project baselines must be chosen to

²⁸ At present, the guidelines in the *Guide for Protocol Developers* (36–37) indicate that baselines must be justified on their application, data availability, good practice guidance and why approaches not chosen are scientifically/technologically inappropriate. In developing protocols, “the proposed quantification approach must include an explanation of how it is consistent with the ISO quantification principles of ‘accuracy’ and ‘conservativeness’.” (41).

²⁹ Environment Canada, *Canada’s Offset System for Greenhouse Gases: Guide for Protocol Developers* (Ottawa, ON: Environment Canada, 2008), 2. Available online at <http://ec.gc.ca/creditscompensatoires-offsets/default.asp?lang=En&n=7CAD67C6-1>.

³⁰ Kollmuss et al., *A Review of Offset Programs: Trading Systems, Funds, Protocols, Standards and Retailers — Version 1.1* (Stockholm, Sweden: Stockholm Environment Institute, 2008), 136.

provide the most accurate and realistic projection of what would have happened in the absence of the offset system.”

Our concern with the limited assessment of baseline approaches during the Fast Track process for protocol adaption is discussed in Section 2.1, below.

2. Areas for caution

The following proposed elements require clarification to help to protect the environmental integrity of the offset system.

2.1 Oversight of offset system quantification protocols

We support the commitment to fast track the review of protocols developed for other systems for “possible adaptation” to the federal offset system.³¹ The review and adaptation of protocols is a critical step in the process of developing a workable offset system. However, to help to protect the environmental integrity of the federal offset system, existing protocols must be thoroughly scrutinized and strengthened during their adaptation, particularly as they relate to incrementality.

Our preliminary analysis of the Alberta offset system (see Appendix 2) indicates that a number of non-incremental projects will receive credits. These serious problems must be addressed in considering whether to adapt Alberta’s protocols for the federal offset system. With this in mind, we believe that the exemption from examining baseline approaches excluded from external protocols during the Fast Track process, where “the Protocol Developer is required to evaluate only the baseline approach(es) provided in the external protocol,”³² should be removed. Baseline approaches are a critical factor in determining incrementality and should be considered in full.

2.2 Application of normalized baseline / national grid intensity factor

The application of a normalized baseline or national grid intensity factor in the context of variations in the carbon intensity of electric grids across jurisdictions is not discussed in the draft documents. However, to ensure reductions are credited accurately, a note should be added specifically excluding their use in protocols for renewable energy projects, should these protocols be developed.

As the carbon intensity of provincial and territorial grids varies significantly, and as (for the most part) provinces are neither well interconnected with each other’s power grids nor coordinated regionally, renewable power projects in more carbon-intensive jurisdictions would generate greater reductions than those feeding into lower-emitting grids. Using a normalized baseline or national grid intensity factor to level these variations would result in credits being generated for projects that do not produce real reductions.

Baselines must reflect the true circumstances of the BAU scenario for each project, including variations in the carbon intensity of the grid over time. Therefore, in order to accurately reflect the

³¹ Environment Canada, *Canada’s Offset System for Greenhouse Gases: Overview* (Ottawa, ON: Environment Canada, 2009), 5. Available online at <http://ec.gc.ca/creditscompensatoires-offsets/default.asp?lang=En&n=92CA76F4-1>.

³² Environment Canada, *Canada’s Offset System for Greenhouse Gases: Guide for Protocol Developers*, 37.

baselines of renewable power projects, regionally accurate baseline approaches must be required in the offset system quantification protocols for all renewable power project activities.

3. Important elements to retain

The Pembina Institute supports the following elements of the proposed offset system and believes their retention is important to the environmental integrity of the system.

3.1 Crediting period start date

January 1, 2011 should be retained in all cases as the beginning of the first crediting period. Crediting reductions that occur after January 1, 2011, but not before, plays an important role in supporting the incrementality of offset credits.

Reductions credited retroactively are non-incremental “by definition,” particularly if they have occurred prior to the finalization of the federal regulatory system for GHGs (see Section 1.1). The use of a set future crediting start date prevents the crediting of non-incremental past reductions and increases the likelihood that issued credits will represent incremental reductions.

3.2 Public comments (on protocols and projects)

The requirement for a 30-day public comment period and subsequent Public Comment Report for all projects prior to their registration³³ is an important measure to enhance the transparency and credibility of the federal offset system. We welcome the requirement for the Public Comment Report to address all issues raised related to the “incremental” and “unique” criteria of the offset system and for the amended Project Application Form to demonstrate these issues have been appropriately addressed.

Similar requirements for draft Offset System Quantification Protocols³⁴ are equally important and should be retained.

3.3 Incorporation of “continuous improvement” in baselines

The draft *Program Rules and Guidance for Project Proponents* notes “when baselines are re-established in later registration periods, it is intended that they will incorporate the continuous improvement that has taken place since the earlier registration periods.”³⁵ Applying the principle of continuous improvement when defining baselines over successive registration periods is important to ensure that only incremental reductions are credited. This commitment should be retained and more fully defined to ensure that updated baselines accurately reflect changes in BAU.

³³ Environment Canada, *Canada’s Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents*, 10.

³⁴ Environment Canada, *Canada’s Offset System for Greenhouse Gases: Guide for Protocol Developers*, 56.

³⁵ Environment Canada, *Canada’s Offset System for Greenhouse Gases: Program Rules and Guidance for Project Proponents*, 21.

3.4 Power to audit offset projects

Section 2.7.2 of the draft *Program Rules and Guidance for Project Proponents* states that “The Minister may audit an offset project at any time within eight years after the end of the registration period.” This is an important accountability measure. However, its positive impact on the credibility of the offset system could be strengthened by adopting the audit approach proposed in the “Waxman-Markey” bill (HR 2454 PCS or the *American Clean Energy and Security Act*), which was recently passed by the U.S. House of Representatives. Section 738 states: “The Administrator shall, on an ongoing basis, conduct random audits of offset projects, offset credits, and practices of third-party verifiers. In each year, the Administrator shall conduct audits, at minimum, for a representative sample of project types and geographic areas.” This approach would provide greater assurance that the offsets from all regions and project activities being credited under the federal offset system are supporting the environmental integrity of the system rather than undermining it.

3.5 Discount factor for biological sink projects

We support the application of a discount factor in the crediting of biological sink projects, as proposed in the draft *Program Rules and Guidance for Project Proponents* at Section 2.5.7.b: “The discount factor will be specified in the Offset System Quantification Protocol and will reflect the risk of defaulting on a replacement obligation for different project types.”³⁶ Applying a discount factor is necessary to provide a level of insurance against project proponents who default on their obligation to replace reversed credits during the 25-year liability period. We are opposed to any shortening of the liability period from the proposed 25 years.

Conclusion

And they can do so with the assurance that the credits they purchase represent real and verified emission reductions - the gold standard of offset credits. This is not about creating an abstract world where “paper credits” are bought and sold like some complex financial product. Every offset credit will represent a real and verified emission reduction, equal to the equivalent of one tonne of carbon dioxide.

The offset system, like all elements of our Climate Change Plan, is aimed first and foremost at reducing emissions in Canada. And we will be rigorous in ensuring that credits will only be issued for projects that actually reduce the amount of greenhouse gas emissions in this country.

—Hon. Jim Prentice, Minister of the Environment³⁷

³⁶ Ibid, 27.

³⁷ Environment Canada, “Notes for an Address by The Honourable Jim Prentice, PC, QC, MP Minister of The Environment on Canada’s Offset System for Greenhouse Gases”, Economic Club of Canada, June 10, 2009. Available online at <http://www.ec.gc.ca/default.asp?lang=En&n=6F2DE1CA-1&news=B06CF8C3-A168-46FC-B456-7496E8E42A6E> (accessed August 11, 2009).

In the speech cited above, the federal government has announced its clear intention to design a highly credible offset system. The Pembina Institute is convinced that the current proposal will fall far short of delivering such a system unless significant changes are made.

Minister Prentice also stated that “[projects] that could qualify for offsets span the economy, from farmers using reduced or no-till techniques to store more carbon dioxide in their fields, to wind turbines producing clean electricity using only the wind, to landfill sites that are able to turn captured methane into usable fuel.”³⁸ The submission above outlines significant concerns with each of these project types; these loopholes must be closed if the offset system is to have a chance of meeting the Minister’s promise of delivering rigorous, high quality offset credits. On the other hand, if these issues — and the others outlined above — are not resolved, the federal offset system will not be sufficiently rigorous to prevent the double-counting millions of tonnes of emission reductions, or the issuing of similarly large volumes of non-incremental credits. The net result would be a federal regulatory system that delivers far fewer real emission reductions than will be claimed. Ultimately, the federal government will be liable for this outcome, as it is the government that will be required to make good any shortfall in emission reductions with additional measures in order to meet Canada’s emission target.

We hope that the improvements suggested in this document will assist in the strengthening of the federal offset system as it is finalized.

³⁸ Ibid

Appendix 1: Emission reductions estimates from federal climate change incentives

Incentive Program	Estimated reductions in annual emissions by 2011 (Mt CO ₂ e) ³⁹	Wording from the May 2009 <i>Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act</i> ⁴⁰
EcoENERGY for Renewable Power	6.67	“The program will provide an incentive of 1 cent/kWh for up to 10 years to qualifying projects. The program came into effect on April 1, 2007 as projected, and as of March 31, 2009, 52 contribution agreements had been signed with proponents, representing about \$900 million in federal funding over 10 years and 2700 MW of renewable power capacity.” (p.15–16)
EcoENERGY for Renewable Heat	0.02	“The ecoENERGY for Renewable Heat initiative is investing approximately \$36 million over four years in incentives and industry development to support the adoption of clean renewable thermal technologies such as solar air and solar hot water for water and space heating in buildings.” (p.16)
EcoENERGY Retrofit Initiative ⁴¹	1.58 ⁴²	“The ecoENERGY Retrofit Initiative provides incentives for energy efficiency improvements in homes and in small and medium-sized organizations in the institutional, commercial and industrial sectors.” (p.18)
Freight Technology Incentives Program of ecoFREIGHT	0.37 ⁴³	“Providing cost-shared funding to companies and nonprofit organizations in freight transportation to help them to purchase and install proven emission reducing technologies.” (p.23–24)
Total	8.64	

³⁹ Environment Canada, *A Climate Change Plan for the Purposes of the Kyoto Protocol Implementation Act*. All estimates used are the “expected” reductions for 2011, relative to BAU, unless specified. All programs except the Freight Technology Incentives Program (FTIP) reach their maximum reductions by the end of 2010, indicating they have been fully implemented before Jan. 1, 2011. The reductions from the FTIP were estimated using the projections for ecoFREIGHT as a whole; the government’s plan does not indicate when the FTIP program specifically will end. We have applied the 2010 estimates in this case.

⁴⁰ Ibid.

⁴¹ Excluding the “Existing Buildings” program, which provides \$20m in one year for education/training programs for existing buildings.

⁴² The “Low” estimate was applied instead of “Expected” reductions estimate of 1.66Mt in order to account for exclusion of Existing Buildings program.

⁴³ As the Freight Technology Incentives Program is only one aspect of the total ecoFREIGHT program, the figure applied represents one third of the total 1.12Mt estimate.

Appendix 2: Review of Alberta Offset System and Projects

Prepared by Ngaio Hotte & Matt McCulloch, Pembina Corporate Consulting
July 15, 2009

Please note that additional information about the Alberta offset system is included in a previous Pembina report: <http://pubs.pembina.org/reports/Comments-Alb-offset.pdf>.

This review is based off information in provided in Alberta's *Offset Credit Project Guidance* document, released in October 2007, and associated relevant quantification protocols.⁴⁴ Information on registered projects can be found at <http://www.carbonoffsetsolutions.ca/>.

1.0 Additionality

The Guidance document makes mention of ensuring that the projects are “additional”. Unfortunately, the main criteria for additionality is that projects must have become operational after January 1, 2002. This is the year that the *Taking Action* climate change plan⁴⁵ was first released, indicating Alberta's interest in establishing an offset system. This is a poor test of additionality because:

- A project which became operational on January 1, 2002 was likely designed and constructed before *Taking Action* was released publicly.
- A project that became operational on or after January 1, 2002 was not necessarily planned or constructed before the *Taking Action* document was released in 2002.
- There is no test to determine whether a project that became operational on or after January 1, 2002 was planned or constructed as a result of the *Taking Action* document and/or the Alberta greenhouse gas (GHG) system.

1.1 Tillage Projects

Statistics Canada calculated rates of practice in Alberta of conventional tillage (25%), conservation tillage (28%) and no-till (48%) in 2006.⁴⁶ Thus, the majority of Albertan farmers were already practicing no till over 3 years ago. Alberta Reduced Tillage Linkages (ARTL) estimate that in 2006 alone, 8,950,836 acres of land in Alberta were cultivated using reduced or conservation tillage.⁴⁷ In

⁴⁴ Alberta Environment, *Specified Gas Emitters Regulation — Offset Credit Project Guidance* 1.1 (Edmonton, AB: Alberta Environment, 2007). Available online at <http://environment.gov.ab.ca/info/library/7915.pdf>

⁴⁵ Alberta Environment, *Albertans & Climate Change: Taking Action* (Edmonton, AB: Alberta Environment, 2002). Available online at <http://environment.gov.ab.ca/info/library/6123.pdf>

⁴⁶ Statistics Canada, 2007, Selected Historical Data from the Census of Agriculture: Table 5.1, <http://www.statcan.gc.ca/pub/95-632-x/2007000/t/4129758-eng.htm#48> (accessed July 3, 2008). No-till / zero-till practices are defined by Statistics Canada as “direct seeding into crop residue/soil.” Conservation tillage is defined as “tillage that retains most of the crop residue on the surface and involves minimal tillage.”

⁴⁷ Alberta Reduced Tillage Linkages, Impact of Direct Seeding in Alberta, <http://www.reducedtillage.ca/article403.aspx> (accessed July 10, 2009).

2007, three tillage projects were approved under the Alberta Offset System.⁴⁸ While information on total land area associated with these projects is unavailable, it is unlikely that these three tillage projects contributed significantly to the 8,950,836 acres of land that were cultivated using reduced or conservation tillage in 2006.

ARTL estimated that 10.83 million acres were cultivated using zero tillage in Alberta in 2009.⁴⁹ This represents about 58% of the total annually seeded acres in Alberta.⁵⁰ Since reduced and conservation tillage are already experiencing such a high rate of adoption, it is unlikely that tillage projects are additional.

ARTL also notes financial benefits from fuel savings, labour savings, yield value and offset sales from using reduced or conservation tillage based on 2006 land area and 2008 commodity and labour prices. Fuel savings, labour savings and yield value clearly dwarf the potential revenue generated by carbon offsets sold.⁵¹ In 2008, total fuel and labour savings from no-till practices would have amounted to \$90M, where revenue from associated carbon offsets at \$8.50/tonne would only amount to \$6.5M.

1.2 Wind Projects

The following observations are based on information collected from the Canadian Wind Energy Association (CanWEA):⁵²

- There are currently 22 wind projects in Alberta
- Only eight of these wind farms are registered under the Alberta offset system
- 13 of these wind farms are not registered with the Alberta offset system and did not require funding for offsets in order to be economically viable
- Five of these 13 projects were launched after January 1, 2002 (under the same economic and policy conditions as the offset-approved projects) and were still economically viable
- Eight wind farms were clearly planned and became operational before 2002

For the reasons cited above, the approved projects cannot be considered additional.

2.0 Permanence

The Alberta Offset System claims to address permanence issues associated with tillage projects through use of an “Assurance Factor”. Assurance factors are used to discount tillage offsets based on frequency of reversal of tillage practices and subsequent soil carbon release for the baseline only.⁵³

⁴⁸ Tom Goddard, Karen Haugen-Kozyra and Andy Ridge, “Carbon Offsets: an economic opportunity in the Alberta compliance system” (presented at the Prairie Provinces Bioenergy Conference, April 2009).

⁴⁹ This estimate was based on 2006 data collected by Statistics Canada during the Census.

⁵⁰ Alberta Reduced Tillage Linkages, Impact of Direct Seeding in Alberta, <http://www.reducedtillage.ca/article403.aspx> (accessed July 10, 2009).

⁵¹ Ibid.

⁵² CANWEA, Map of Installations (2008), http://www.canwea.ca/farms/wind-farms_e.php (accessed July 14, 2009).

⁵³ Karen Haugen-Kozyra, Climate Change Policy and the Offset System (Presentation on behalf of Climate Change Central) <http://www.landtrusts-alberta.ca/documents/KarenHaugen-Kozyra.pdf?PHPSESSID=bubn2igup31aiou7j278bykkq4> (accessed July 10, 2009).

This is intended to reduce risk to offset buyers. Assurance factors discount offsets according to reversal risk by region.⁵⁴

In a recent paper, Blair McClinton (P.Ag., Executive Manager, Saskatchewan Soil Conservation Association) argues that farmers only generate revenue from soil sequestration (tillage) projects when storage is occurring. Eventually, the system reaches equilibrium and the farmer retains the responsibility of maintaining soil carbon without the initial incentive.⁵⁵ If the farmer resumes his/her former practice, either a) the offset is lost, or b) the farmer is forced to buy back his/her offsets because they are no longer valid.⁵⁶ This argument does not take into account the additional incentive of fuel and labour savings.

Mr. McClinton also notes that the risk of reversal lasts indefinitely, so the use of insurance against reversal in the project case is not appropriate. Use of long-term (e.g. >30 years) liability periods or temporary crediting are proposed as options for addressing this issue. This issue would also need to be addressed in verification activities. The Government of Canada is considering long-term liability in its proposed offset program.

3.0 Leakage

The Guidance document must encourage consideration of an equal increase in emissions resulting from the development of a similar business activity at another site as a result of the offset project. The Alberta offset system does not currently account for this type of leakage outside of project boundaries.

4.0 Uncertainty - Tillage

In Alberta, baselines for tillage projects are calculated as a sum of the emissions from energy use and emissions from nitrogen plus emissions from carbon sequestration (“soil and crop dynamics”) multiplied by the appropriate assurance factor to account for reversals due to tillage events. They are then adjusted using coefficients based on ecoregions applied to a 1990 baseline, updated using data from Statistics Canada. Coefficients are provided for CO₂, N₂O and energy reductions for each tillage condition (e.g. conventional tillage to no-till, conventional tillage to reduced-tillage) by ecoregion. The sum of project emissions is assumed to be zero given no tilling will occur.⁵⁷

⁵⁴ Alberta Government, *Specified Gas Emitters Regulation – Quantification Protocol for Tillage System Management* (2007), <http://environment.gov.ab.ca/info/library/7918.pdf> (accessed July 10, 2009).

⁵⁵ Blair McClinton, “Canadian Producer Perspectives on Agricultural Soil Offsets: Issues, Opportunities and Risks” (paper presented at the FAO Conservation Agriculture Carbon Offset Consultation, Beck Agricultural Center, October 30, 2008). Available online at <http://www.fao.org/ag/ca/Carbon%20Offset%20Consultation/CARBONMEETING/3FULLPAPERSBYCONSULTATIONSPEAKERS/PAPERMCCLINTON.pdf>.

⁵⁶ Ibid.

⁵⁷ Emissions from energy use only include Pesticide Production, Seed Distribution (On-Site), Fertilizer and Lime Distribution (On-Site) and Pesticide Distribution (On-Site). Emissions from carbon sequestration include those from Crop and Soil Dynamics. Nitrogen emissions are those from Crop and Soil Dynamics.

Baselines are *not* site-specific and actual field data examining sequestration rates is not used in the development of baselines. There is also no formal discount factor to account for this uncertainty; however, such a discount factor may be included in the coefficients provided in the Guidance document. There is also no mention of environmental sources of uncertainty such as pests, weather, fire or natural variations in carbon sequestration over time or between sites. Note that Kim & McCarl (2009) recommend use of a proxy variable, such as crop yield, as a measure for direct sampling and estimation of soil carbon storage.⁵⁸

As indicated under Section 2, there is further uncertainty in the project case that sequestration reversals (i.e. emissions) would occur at some point. Similar to forestry-based offsets, this uncertainty should be addressed.

5.0 Validation and Verification

The Alberta Government has decided to increase the risk associated with offsets as a trade-off for lowering their administrative costs. Specifically, by *not requiring* validation of the project at the outset and relying on *ex poste* verification, the risk of calculation errors increases. In Alberta's offset system, initial estimates of offsets can be completed by anyone, including people within the project development company who may either not be experts or may be biased.

There is an unfortunate lack of detail in the description of the Alberta verification process. For example, there is no set or recommended timeline for verification.⁵⁹ Verification varies widely, with some project developers commissioning verification annually and others commissioning verification only once, at the end of the project. In addition, there is no fixed requirement for validation; it is unclear under what conditions validation should or must be completed. Verification and validation standards should be developed, particularly for complex projects.

Accreditation of verifiers would also increase the quality, accuracy and assurance of verification. There are currently few minimum standards for verifiers.

⁵⁸ Man-Keun Kim and Bruce A. McCarl, "Uncertainty Discounting for Land-Based Carbon Sequestration", *Journal of Agricultural and Applied Economics*, 41,1 (April 2009):1-11.

⁵⁹ Instead, the system requires only that offset providers complete it before selling credits, and that they must use three years' worth of baseline data.

6.0 Registered Offset Projects in Alberta

The following is a list of all Alberta offset projects registered in the Alberta system, current as of July 10, 2009, with comments on those that have questionable environmental integrity. Tillage and wind projects do not have any further commentary beyond what is included in the memo above.

Project	Verified? (Y/N)	Duration	Project Type	Comments
2007 Tillage Auction Project	Y	2002-2007	Tillage	Issues associated with tillage projects are described in this memo.
Aggregation of Carbon Credits from No-till or Reduced Till Agricultural Practice	Y	2002-2007	Tillage	Issues associated with tillage projects are described in this memo.
Aggregation of Carbon Credits from No-till or Reduced Till Agricultural Practice (Pool 2)	Y	2002-2007	Tillage	Issues associated with tillage projects are described in this memo.
AltaGas Princess Acid Gas Injection Offset	N	2007-2008	Acid Gas Injection	

Project				
Aurora Project	N	2009-2015	Renewable Energy Generation and GHG Sequestration	No project plan available for review.
Blue Ridge Lumber TFH Biomass Burner Project	Y	2007-2008 (verification) Continues to 2015	Biomass	<p>The project documents did not adhere to the Alberta Guidance document for the following reasons:</p> <ul style="list-style-type: none"> ● The project baseline was not updated to include changes in electricity use and related emissions resulting from project activities ● No Conflict of Interest Checklist included ● No Statement of Qualification included ● Required information such as reference to applicable standards, statement of offset criteria and level of assurance was not included. <p>This demonstrates the need for project validation to identify errors and omissions and accreditation of verifiers to ensure that verifiers are adequately trained with respect to requirements under the Alberta Offset System.</p>
Carbon Credit Solutions Inc. Tillage Project 1	Y	2002-2008	Tillage	<p>The project documents did not adhere to the Guidance document for the following reasons:</p> <ul style="list-style-type: none"> ● No signature of the project developer on the Project Plan ● No Conflict of Interest Checklist included ● No Statement of Qualification included <p>This demonstrates the need for project validation to identify errors and omissions and accreditation of verifiers to ensure that verifiers are adequately trained with respect to requirements under the Alberta Offset System.</p>
Carbon Reduction Offset Project	Y	2002-2007	Tillage	Issues associated with tillage projects are described in this memo.
Carbon	Y	2002-2007	Tillage	Issues associated with tillage projects are described in this memo.

Reduction Offset Project - Series 2				
Carbon Reduction Offset Project - Series 3	Y	2002-2008	Tillage	Issues associated with tillage projects are described in this memo.
Cargill High River Methane Capture Project	Y	2004-2008 (verified) Continues to 2011	Methane Capture (from wastewater) and Use	Project became operational in Oct. 2003; it is likely that this project was planned before Jan. 1, 2002.
Chin Chute Wind Power Project	Y	2007-2008 (verified) Continues to 2015	Renewable Energy	Issues associated with wind farm projects are described in this memo.
Cleanit Greenit Aerobic Composting Project	Y	2003-2008 (verified) Continues to 2011	Biogas	
Clover Bar Landfill Gas Generating Station		2005-2007 (verified) Continues to 2013	Biogas	This system operated from 1996 to 2002 with little or no generation of power. Collected gas was disposed of off-site. Power generation began in 2005. These facts indicate that the project would have been economically viable in the absence of the Alberta Offset System.
CO2 Capture from Prentiss1 for	Y	2007-2014	EOR	

EOR				
CO2 Capture from Prentiss2 for EOR	Y	2006-2007 (verified) Continues to 2013	EOR	
Edmonton Composting Facility	Y	2007-2008	Biogas	
Emission Credits Corporation Tillage Program	Y	2002-2006	Tillage	**Project on Hold Pending Further Alberta Environment Audit Results** Issues associated with tillage projects are described in this memo.
Kettles Hill Offset Project	Y	2007-2008	Renewable Energy	Issues associated with wind farm projects are described in this memo.
Magrath Wind Power Project	Y	2005-2008 Continues to 2034	Renewable Energy	Issues associated with wind farm projects are described in this memo.
McBride Lake Offset Project Phase 1	Y	2003-2007 (verified) Continues to 2008	Renewable Energy (wind power)	This project was approved under the Alberta Offset System as starting January 1, 2002. CANWEA has the project listed as starting December 2001. This project was clearly planned before Taking Action document was released and is NOT additional.
Natural Gas Reduction Project	Y	2008 (verified) Continues to 2016	Waste heat recovery	
Oldman River Hydroelectric Power Plant	Y	2003-2008 (verified) Continues to 2011	Renewable energy (ROR hydro)	The Government of Alberta issued approval for this project in 2001. Therefore, the project was planned before January 1, 2002, and would have occurred in the absence of the Alberta Offset System.

Preferred Carbon Land Management Solutions Pilot Tillage Project	N	2002-2009	Tillage	Issues associated with tillage projects are described in this memo.
Reduced and Zero Tillage Management	Y	2002-2008 Continues to 2015	Tillage	Issues associated with tillage projects are described in this memo.
Soderglen Windfarm Project	Y	2006-2007	Renewable Energy (wind)	Issues associated with wind farm projects are described in this memo.
Sundance Biomass Energy Generation Project	Y	2005-2008 Continues to 2013	Biomass (wood waste)	
Sundre Forest Product TFH Biomass Burner Project	Y	2008 Continues to 2016	Biomass (wood waste)	
Taylor Turin Acid Gas Injection Project	Y	2005-2008 (verified) Continues to 2012	Acid gas injection	
Terra Verde Aggregation Contract I	Y	2002-2007 (verified) Continues	Tillage	Issues associated with tillage projects are described in this memo.

and II		to 2008		
Terra Verde Aggregation Contract II and III	Y	2002-2008 (verified) Continues to 2009	Tillage	Issues associated with tillage projects are described in this memo.
Tillage 08 # 3	Y	2002-2008	Tillage	Issues associated with tillage projects are described in this memo.
Tillage 09 #1	Y	2002-2008	Tillage	Issues associated with tillage projects are described in this memo.
Tillage Management Offset Project	Y	2002-2008 (verified) Continues to 2015	Tillage	Issues associated with tillage projects are described in this memo.
Tillage Management Offset Project - Series 2	N	2002-2009	Tillage	Issues associated with tillage projects are described in this memo.
TransAlta McBride Lake Wind Farms Offset Project	Y	2002-2003 (verified) Continues to 2015	Renewable Energy (wind)	Issues associated with wind farm projects are described in this memo.
TransAlta Summerview and Waterton Wind Farms Offset Project	Y	2002-2007 (verified) Continues to 2031	Renewable Energy (wind)	<p>This project was approved under the Alberta Offset System as starting January 1, 2002. CANWEA has it listed as starting November 1998. This project was clearly planned before Taking Action document was released and is NOT additional.</p> <p>The project documents did not adhere to the Guidance document for the following reasons:</p> <ul style="list-style-type: none"> ● No Conflict of Interest Checklist included ● No Statement of Qualification included ● Required information regarding level of assurance was not included.

				This demonstrates the need for project validation to identify errors and omissions and accreditation of verifiers to ensure that verifiers are adequately trained with respect to requirements under the Alberta Offset System.
Verdant Energy Limited - Dapp Power Electric Generation Facility	Y	2006-2008 (verified) Continues to 2031	Biomass	