Technical Guidance for Offset Project Developers

Version 2.0 **January 2011**

Specified Gas Emitters Regulation

Government of Alberta

Alberta

Disclaimer:
The information provided in this document is intended as guidance only. This document is not a substitute for the law. Please consult the *Specified Gas Emitters Regulation* and the legislation for all purposes of interpreting and applying the law. In the event that there is a difference between this document and the *Specified Gas Emitters Regulation* or legislation, the *Specified Gas Emitters Regulation* or the legislation prevail.

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ISBN: 978-0-7785-8807-8 (Printed)
ISBN: 978-0-7785-8808-5 (On-line)

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1.0 Purpose of Document

The purpose of this document is to assist offset market participants (project developers) in implementing offset projects for use in the Alberta offset system where the intended final purchaser is a facility regulated under the *Specified Gas Emitters Regulation* (the *Regulation*).

Alberta's offset market was initiated as a market instrument to support compliance under the *Specified Gas Emitters Regulation*. The *Regulation* requires all large, industrial facilities in Alberta emitting over 100,000 tonnes of carbon dioxide equivalent (CO_2e) per year to reduce their emissions intensity by 12 per cent per year from their government approved baseline emission intensity.

Facilities and sectors not subject to the *Regulation* that are able to reduce their greenhouse gas emissions according to a government approved protocol and that meet the requirements of section 7 of the *Regulation* are eligible to generate offset credits where one tonne of CO_2e reduced is equal to one offset credit. These credits, once registered and serialized on the Alberta Emissions Offset Registry, become a tradable unit that can be bought and sold in the Alberta offset market. Credits remain active until such time as they are submitted to Alberta Environment for compliance by a regulated facility, or sold outside the Alberta market place.

Offset credits are one of three compliance options available to regulated facilities. Facilities may also purchase Climate Change and Emissions Management Fund Credits (fund credits), or use Emission Performance Credits (EPC)–emission reductions generated at regulated facilities that have reduced their emissions below their baseline emissions intensity limit.

This document provides guidance on the requirements and criteria for developing offset projects for use in the Alberta offset system.

1.1 Overview of Changes

The following is a summary of key changes included in this guidance document relative to the 2009 Draft Technical Guidance Document for Offset Project Developers.

- Alberta Environment has provided additional clarification on valid designations for chartered accountants wishing to perform third party verifications under the *Specified Gas Emitters Regulation.*
- Alberta Environment has committed to shifting to reasonable (audit) level assurance starting January 1, 2012. This will apply to all new offset credits generated and serialized after January 1, 2012, and to regulated facility compliance reports starting with the 2012 compliance submission due March 31, 2013. Offset credits generated in 2011 and verified in early 2012 will continue to be verified to a limited (review) level of assurance.

- Alberta Environment continues to explore accreditation options for third party verifiers and will provide further guidance on this shift as it becomes available.
- As of January 1, 2012, all new credits serialized on the Alberta Emissions Offset registry must be done on a go-forward basis. Go-forward credit means offset projects must first be created, including a project plan and monitoring plan. The credits are then generated forward in time for a specified period of time. Verification continues to be *ex post* and is required before the credits can be serialized on the registry. Go-forward crediting is discussed in more detail in section 3.2.5.
- As of January 1, 2012, Alberta Environment will not accept new historic credits (credits generated from 2002). Historic credits being claimed with the 2011 emissions reductions and undergoing verification in early 2012 will be accepted. All historic credits already serialized on the registry will be honoured.
- All new protocols being approved for use in Alberta are being written to enable go-forward crediting only and no historic credits will be accepted under protocols released after January 1, 2012. All credits generated under existing protocols will be required to meet go-forward crediting rules when these come in to effect.
- Guidance on ownership requirements for aggregated projects is provided in section 3.7. Please note, for the purposes of the Alberta offset system, Alberta requires ownership of offset credits to be assessed per vintage year in which the credits are being generated. Where ownership has changed during the crediting period, sign-off from the historic owner is required in order to include those credits in the project condition.
- Section 3.7.2 below provides general contracting expectations and best practices. This information is intended for information purposes only and does not replace legal advice.
- Error correction procedures for offset project errors has been provided in section 7.4. Error corrections procedures for facility true-up where offset credits were used as a compliance option are provided in section.
- Clarification of conservativeness, accuracy, materiality and negligible emissions has been provide in section.
- General guidance for the treatment of offset project expansions is provided in section 4.9. The approaches presented in this document align with expansion treatment being applied to regulated facilities.

2.0 Regulatory Context for the Alberta Offset System

In 2002, Alberta passed the *Climate Change and Emissions Management Act* signaling its commitment to manage greenhouse gas emissions in the province. In 2003, Alberta passed the *Specified Gas Reporting Regulation* requiring all facilities emitting over 100,000 tonnes of carbon dioxide equivalent (CO_2e) annually to report their emissions and in 2007, Alberta passed the *Specified Gas Emitters Regulation* (the *Regulation*) reinforcing its commitment to regulate greenhouse gas emissions from large industrial emitters. This *Regulation* requires all facilities in Alberta emitting over 100,000 tonnes of CO_2e per year to reduce their emissions intensity by 12 per cent below their 2003-2005 baseline emissions intensity. New facilities, or those facilities that began operation on or after January 1, 2000 and that have completed less than 8 years of commercial operation, have been given a graduated reduction obligation increasing 2 per cent per year starting in their fourth year of commercial operations to the12 per cent reduction obligation starting in the 9th year of commercial operation.

The Alberta offset system was established as a market-based compliance option for facilities regulated under the *Regulation*. Facilities unable to meet their emission reduction obligation through direct facility improvements may choose to purchase offset credits (greenhouse gas emission reduction credits) generated at facilities and sectors not subject to the *Specified Gas Emitters Regulation*.

The use of market-based compliance tools offers emitters flexibility in meeting their reduction obligation by allowing markets to determine the most cost-effective emissions reduction opportunities. Alberta's offset system is based on pilot studies including the Greenhouse Gas Emissions Reduction (GERT) and Pilot Emission Reduction Trading (PERT), and the Pilot Emissions Removals, Reductions and Learnings (PERRL) programs, as well as sales of emission reductions to companies that have set voluntary emission targets. Similar market-based approaches have been used as an alternative to traditional command and control measures to reduce pollution and have been used to effectively implement other environmental programs such as the sulphur reduction framework in the U.S. and mercury reductions in Canada.

The Alberta offset system also supports Alberta's commitment to reducing provincial greenhouse gas emissions. In its 2008 Climate Change Strategy, Alberta committed to a 50 megatonne reduction in provincial greenhouse gas emissions by 2020, and a 200 megatonne reduction by 2050. Voluntary and regulatory emissions reductions, along with other actions such as the implementation of consumer rebate programs for energy efficiency and support for public transit, changes in technology use, and implementation of carbon capture and storage will be part of a suite of actions required to meet the provincial emission reduction objectives.

2.1 Scope of the Offset System

The Alberta offset system compliments the *Specified Gas Emitters Regulation* by providing a market-based compliance option for regulated facilities. Eligible offset projects must be able to demonstrate real, quantifiable and verifiable emissions

reductions that would not otherwise have occurred had the offset project not been implemented. That is, offset credits must be generated from activities that go beyond business as usual practices (sector common practice) to create incremental change not otherwise required by law.

Note*: Offset projects must be additional to business as usual activities, sector common practice, and regulatory and other emission reduction requirements. Offsets cannot be generated by activities that would otherwise have occurred.*

2.2 Offset System Design Principles

The Alberta offset system has been designed to encourage cost-effective reductions and removals of greenhouse gas emissions in sectors that are not otherwise required by law to do so. The following key principles guided the development and implementation of the system:

- **Reduce Provincial Emissions**: offset projects must result in real, quantifiable, and verifiable reductions and/or removals in greenhouse gas emissions in Alberta;
- **Net Benefits**: project conditions must result in a net benefit in greenhouse gas emission reductions and removals, and improved environmental practices that would not have otherwise occurred had the project not been implemented;
- **Incremental Change**: protocols must support incremental change technologies and practices;
- **Balance Conservativeness and Accuracy**: Emissions and reductions and removals need to be quantified accurately based on best available methodologies and must result in conservative estimates for reductions and removals achieved;
- **Ability to Implement**: protocols must be developed to credit actions that can be implemented in Alberta;
- **Verifiable**: reduction and removal activities must be supported by regulatory quality data that supports a high level of assurance that the reductions have occurred;
- **Transparency and Accountability**: Alberta supports full transparency of quantification protocol development, and offset projects and supporting information for projects registered on the Alberta Emissions Offset Registry;
- **No Leakage**: offset projects must result in real emissions reductions incremental to any shifts in emissions that may occur as a result of the project condition;
- **Maximum Scope**: the Alberta Offset System should, over time and to the extent practical, promote and enable projects across all sectors of the economy;
- **Building and Linking**: Alberta will continue to build on offset work undertaken in other jurisdictions to adapt emission reduction opportunities to suit Alberta's unique circumstances and will seek alignment between systems as deemed appropriate;
- **Reasonable Program Administration**: Alberta Environment, will, to the extent practicable, seek to balance administrative costs against program implementation.

The system has been designed to balance environmental integrity with the ability to commercialize market opportunities. Specific principles must be considered individually and as an integrated package of ideas and concepts that ensures a balanced and effective offset system.

2.3 ISO 14064-2: Project Quantification, Monitoring and Reporting

The Alberta offset system uses the ISO 14064-2 platform for establishing and quantifying greenhouse gas reduction projects. Protocols and offset projects must be developed and implemented according to this standard. ISO 14064-2 requires protocols to be developed through a detailed and transparent peer review process. Specific quantification methodology, emissions factors, and other parameters must be tailored to Alberta conditions.

These protocols serve as a consistent framework and approach for the development and verification of offset projects. Where practical, Alberta also draws on related protocols from other jurisdictions to inform its protocol development process. These include, but are not limited to:

- Clean Development Mechanisms (CDM);
- the Climate Action Reserve (CAR);
- The World Resources Institute (WRI);
- World Business Council on Sustainable Development (WBCSD);
- The Intergovernmental Panel on Climate Change (IPCC); and
- The National Inventory Report: Greenhouse Gas Sources and Sinks in Canada (Environment Canada, Annually since 1990)

Project developers and persons interested in developing protocols for the Alberta offset system should, at a minimum, familiarize themselves with the ISO 14064-2 standard, and should review relevant materials from other systems as preparatory work for advancing protocols in Alberta.

Note: *Emission reduction quantification methodology must be tailored to reflect Alberta-specific conditions, and may not, in all cases mirror quantification methodologies and approaches used in other jurisdictions.*

2.4 Overview of the Offset Project Cycle

Offset projects are occur when company or individual (the project developer) that undertakes a greenhouse gas emissions reduction project, but that is not otherwise required by law to do so. Figure 1 below outlines the general flow of an offset project from inception to final submission of offset credits to Alberta Environment as a compliance option under the *Specified Gas Emitters Regulation*.

The project developer must assess the proposed reduction opportunity to ensure the project meets the eligibility criteria for Alberta offset system, can be implemented

according to a government approved protocol, and will result in real, quantifiable emission reductions and/or removals. If a protocol does not exist for the activity in question, the project developer may wish to develop a quantification protocol. Offset credits cannot be generated for an activity that does not have a government approved quantification protocol. Information on the protocol development process is available in the Technical Guidance to Protocol Developers available on Alberta Environment's website.

Once the project developer determines their project meets the program requirements for an offset project, they must develop a detailed offset project plan explaining how the project will meet the requirements of both the *Regulation* and the relevant quantification protocol(s). This project plan must include a monitoring plan for the project. Projects must be implemented according to the conditions outlined in the offset project plan and associated monitoring plan. Any changes in operations must be documented in the offset project report discussed below.

Note: *The offset project plan is developed before the project is implemented. The third party verifier will compare the project operations against the offset project plan and appropriate quantification protocol to assess project performance.*

The offset project report is compiled annually or prior to third party verification. It explains how the project was implemented relative to the offset project plan including any changes in operating conditions that occurred during project implementation. The offset project plan and report will be reviewed by the third party verifier and are part of the required documentation needed to register a project on the Alberta Emissions Offset registry (the registry).

All projects registered on the registry must be third party verified by a chartered accountant or professional engineer with relevant expertise in the project area. The third party verifier will issue a verification report including a signed statement of verification, statement of qualifications and conflict of interest checklist, which must be submitted to the registry as part of the supporting documentation for the offset project. The registry will perform a completeness check on all documents submitted, and may request clarification or corrections if errors are detected. Once all supporting documents and payment are received, the registry will issue unique serial numbers for the verified emission reductions and/or removals.

Offset credit transactions occur outside the registry and are done through contractual agreement between the buyer and seller. Transfer of ownership of serialized credits is tracked by the registry and will be submitted to Alberta Environment upon request to support offset credit reviews as part of the regulated facility compliance reviews. Alberta Environment may request additional information on offset projects as part of this compliance assessment.

Alberta Environment reserves the right to review offset credits submitted for compliance and may request a supplemental government audit on one or more offset projects where credits have been used as a compliance option. These audits are undertaken to support facility compliance with the *Specified Gas Emitters Regulation*. Errors identified through this backend government audit will be corrected according to Alberta Environment's error correction policy described in Section 7.4.

It is an offence under the *Climate Change and Emissions Management Act* to knowingly provide false or misleading information. Where it is determined that this has occurred, Alberta Environment will take appropriate action including, but not limited to revoking all offset credits associated with the affected offset project. Companies that have submitted revoked credits will be required to seek alternate compliance through payment into the Climate Change and Emissions Management Fund.

Note: *All offset credits submitted for compliance under the Specified Gas Emitters Regulation are deemed part of the facility compliance submission, and may be subject to a supplemental government audit.*

Offset credits are a revocable license. Unsupported offset credits will be revoked and facilities that submitted these credits for compliance will be required to seek alternate compliance through payment into the Climate Change and Emissions Management Fund.

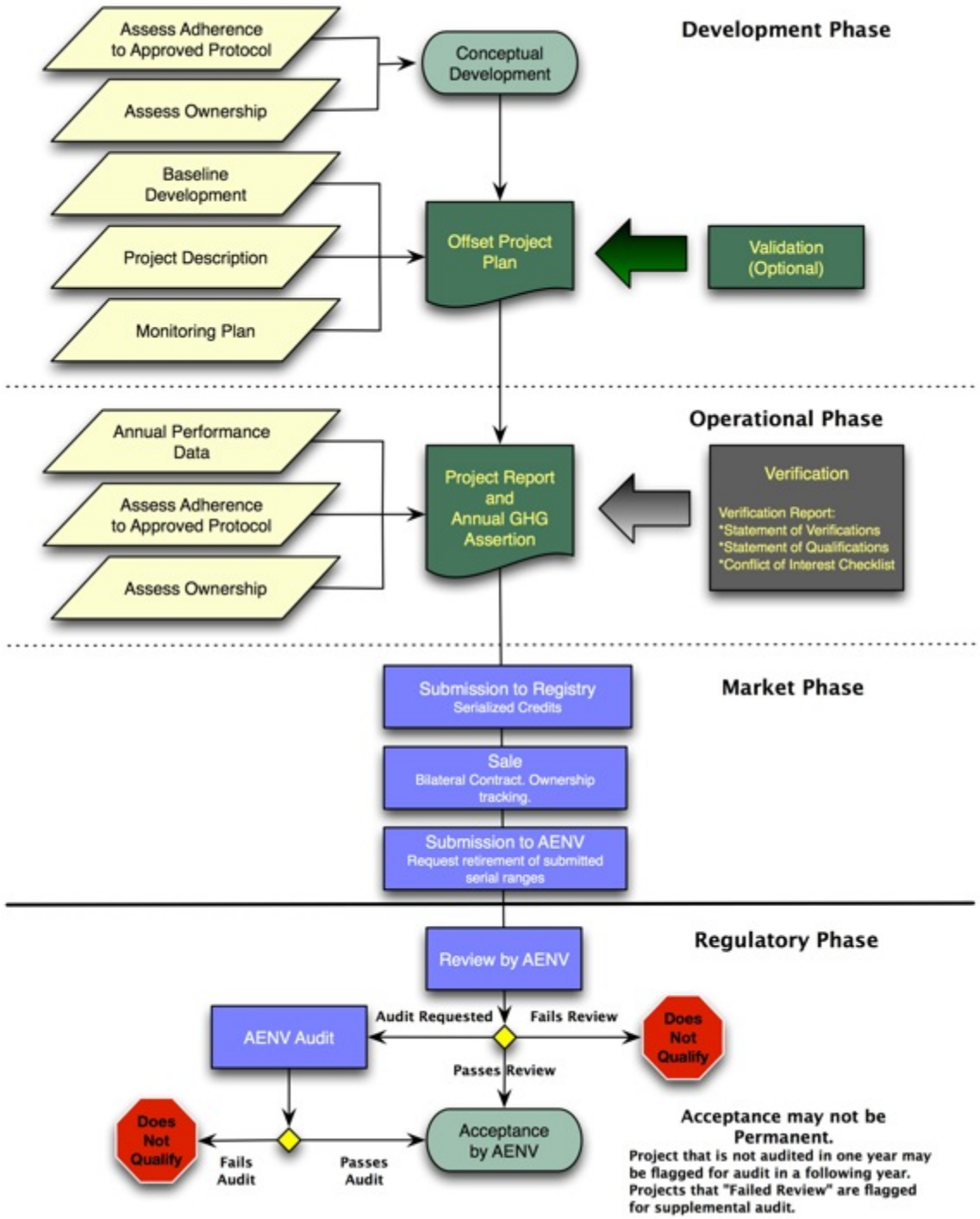


Figure 1 Offset project cycle for the Alberta offset system.

2.5 Offset System Participants

Below is a list of key participants in the Alberta offset system specific to developing offset projects and transacting offset credits. Not all offset projects will involve all parties listed below, and may include parties not mentioned here.

2.5.1 Aggregator

An aggregator is a person or company that, through contractual arrangement, works with suppliers of small volumes of offset credits established under the same protocol to pool these smaller projects into a sufficiently large volume to manage verification and transaction costs. The aggregator is considered to be the project developer for an aggregated project and is responsible for developing project documentation, engaging a third party verifier, liaising with the Alberta Emission Offset Registry, negotiating credit transactions, and is the project contact person for government audits.

2.5.2 Auditor

For the purposes of the Alberta offset system, an auditor is defined as a person or company hired by the Government of Alberta to conduct a government review of an offset project where offset credits have been submitted to Alberta Environment as a compliance option under the *Specified Gas Emitters Regulation.*. Auditors must meet the requirements for a third party auditor stated in section 18 of the *Regulation*.

2.5.3 Alberta Emissions Offset Registry

The Alberta Emissions Offset registry is a publicly accessible website that serializes, tracks and provides transparency to offset credits registered in the Alberta offset system.

2.5.4 Broker

A broker is an intermediate person that may buy and sell offset credits, or bring together buyers and sellers within the offset market. Offset credits may be traded between one or more brokers before being sold to the regulated facility submitting the credits for compliance.

2.5.5 Government of Alberta

Alberta Environment, on behalf of the Government of Alberta, is the regulatory body that establishes the program rules and oversees the implementation of the *Specified Gas Emitters Regulation* and the Alberta offset system. Alberta Environment reviews all offset credits submitted for compliance and retains final right to accept, request more clarification, or revoke offset credits. Alberta Environment will also review and up-date guidance documents, regulations, quantification protocols and related materials from time to time as needed and at a maximum of every 5 years.

2.5.6 Credit producer

Is the individual or company the undertakes a greenhouse gas reduction/removal project where the credits are then pooled into a larger aggregated project. The credit producer can be, for example, an agricultural producer or building owner and may be the land/building/other owner or tenant.

2.5.7 Project Developer

The project developer is responsible for initiating and implementing the offset project. The project developer must determine how the project will be implemented against an approved quantification protocol. The project developer is responsible for developing project documentation, engaging a third party verifier, liaising with the Alberta Emission Offset Registry, negotiating credit transactions, and is the project contact person for government audits.

Note: *The project developer (or aggregator) must provide appropriate documentation to support third party verification, including access to relevant files and personnel as requested by the third party verifier and/or a government auditor.*

2.5.8 Regulated Facility

Regulated facility refers to a facility that is regulated under the *Specified Gas Emitters Regulation*. Regulated facilities are the end user for offset credits generated in the Alberta offset system.

2.5.9 Third party verifier

The third party verifier is an independent third party that meets the requirements of a third party auditor outlined in section 18 of the *Specified Gas Emitters Regulation*. The person(s) making up the verification team must have sufficient qualifications to undertake a review of the offset project and associated greenhouse gas assertion.

Figure 2 below shows the roles and relationships between the different participants of the Alberta offset system.

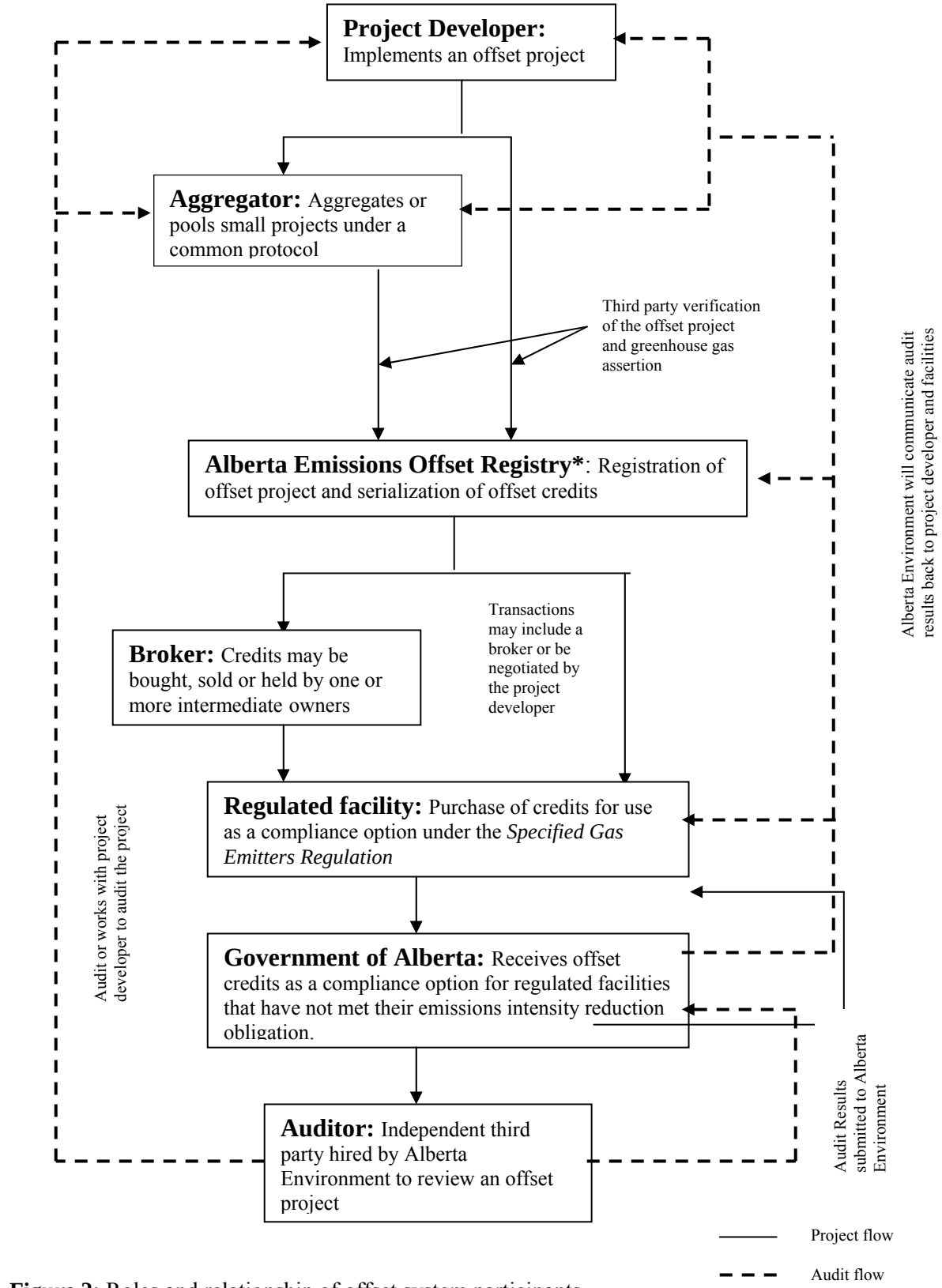


Figure 2: Roles and relationship of offset system participants

3.0 Offset Program Rules

3.1 Offset Eligibility Criterion

Section 7 of the *Specified Gas Emitters Regulation* defines the minimum eligibility criteria that must be met for an offset project to be eligible to generate offset credits for use as a compliance option in Alberta. In order to qualify, project-based emission reductions/removals must:

- Occur in Alberta;
- Result from actions not otherwise required by law and be beyond business as usual and sector common practices;
- Result from actions taken on or after January 1, 2002;
- Occur on or after January 1, 2002;
- Be real, demonstrable, quantifiable, and verifiable;
- Have clearly established ownership; and
- Be counted once for compliance purposes;

In addition to the requirements stated above, Alberta also requires that offset projects:

- Be implemented according to a Government of Alberta-approved quantification protocol;
- Be third party verified by a qualified person(s) meeting the requirements for a third party auditor under section 18 of the *Regulation*; and
- Be registered on the Alberta Emissions Offset Registry.

3.2 Program Constraints

3.2.1 Geographic Boundary

To be eligible under the Alberta offset system, offset projects must be located in Alberta and result in reductions of provincial greenhouse gas emissions regulated under the *Climate Change and Emissions Management Act*.

3.2.2 Additionality

Greenhouse gas emissions reductions/removals must be generated from actions that are beyond regulatory requirements and business as usual activities/sector common practice. Additionality for a reduction/removal activity is typically assessed during protocol development and is reassessed periodically during the protocol review. Activities that are already covered under the *Specified Gas Emitters Regulation*, or that have any other federal and/or provincial regulatory obligations are **NOT** eligible to generate offset credits under the Alberta offset system. Municipal bylaws that affect an activity will also be considered to ensure the activity being crediteds is additional and results in emissions reductions that would not otherwise have occurred.

3.2.3 Program Start Date

The start date for the Alberta offset program is January 1, 2002. This date coincides with the release of *Albertan's and Climate Change: Taking Action* (2002), which signaled Alberta's commitment to regulate greenhouse gas emissions in the province.

3.2.4 Project Start Date

The start date for a project is defined as the first day of operation of the offset project or activity that is not for pilot or testing purposes. Table 1 below provides examples of project start dates for different protocol types.

Protocol	Project Start Date
Energy Efficiency	Date equipment installation, operating parameter changes or process reconfiguration are initiated or have effect.
Enhanced Oil Recovery	Date of initiation for commercial injection that is subsequent to any testing phases that may be needed.
Beef Feeding	Date the new feeding regime is implemented.
Tillage Management	Uses an adjusted baseline to account for sector-wide adoption levels as of January 2000 applied to all projects. Early adopters and projects implemented after January 1, 2002 are eligible to generate credits at a discounted rate.

Table 1: Example of effective start dates for select offset projects.

Effective January 1, 2012, historic (retroactive) offset credits will no longer be accepted in the Alberta offset system. Historic credits generated up to December 31, 2011 and undergoing third party verification in early 2012 will be accepted under existing program rules. Historic credits already serialized on the Alberta Emissions Offset registry will be honoured.

New projects/offset credits being registered on the registry will be required to demonstrate a project start date that is on or after January 1, 2002, and will be eligible to generate credits on a go-forward basis from project registration on the registry.

3.2.5 Credit Start Date

The credit start date is the point when a project is eligible to start generating offset credits. Projects must be able to demonstrate a project start date on or after January 1, 2002 and are eligible to start generating credits when the project plan and monitoring plan are developed and registered with the registry. This is known as project creation on the registry.

The offset project plan will specify how the project is to be compiled including the frequency of verification (this could be annual or at longer intervals up to the maximum credit duration period set as 8-years for most project types). Greenhouse gas reductions are tracked according to the project and monitoring plans and undergo *ex post* third party verification according to the schedule identified in the offset project plan.

As of January 1, 2012, offset projects will no longer be able to claim credits for greenhouse gas reductions that occurred historically (prior to project creation on the registry).

Note: the credit start date and the project start date for an offset project are not necessarily going to be the same date depending on when the project is initiated.

3.2.6 Credit Duration Period

The credit duration period is the amount of time an offset project can generate offset credits under the Alberta offset system. The credit duration period for Alberta is 8 years with a possible 5-year extension for most project types, excepting soil sequestration projects, which may have a longer credit duration period. This crediting period is intended to provide a stable period for investments and commercial planning, while limiting longer term liability. It is assumed that technology will continue to improve, and that activities will achieve greater market penetration over time. Projects are given a maximum credit duration period of 13 years at which point, the project is considered business as usual for that project.

Reduced and no-till agriculture projects have been given two, 10 year crediting periods. The extended crediting period has been implemented to recognize that biological sinks must maintain the activity (e.g. storing of carbon in soils) over a 20-year period for the sink to reach saturation—the point where the soil cannot absorb any additional carbon.

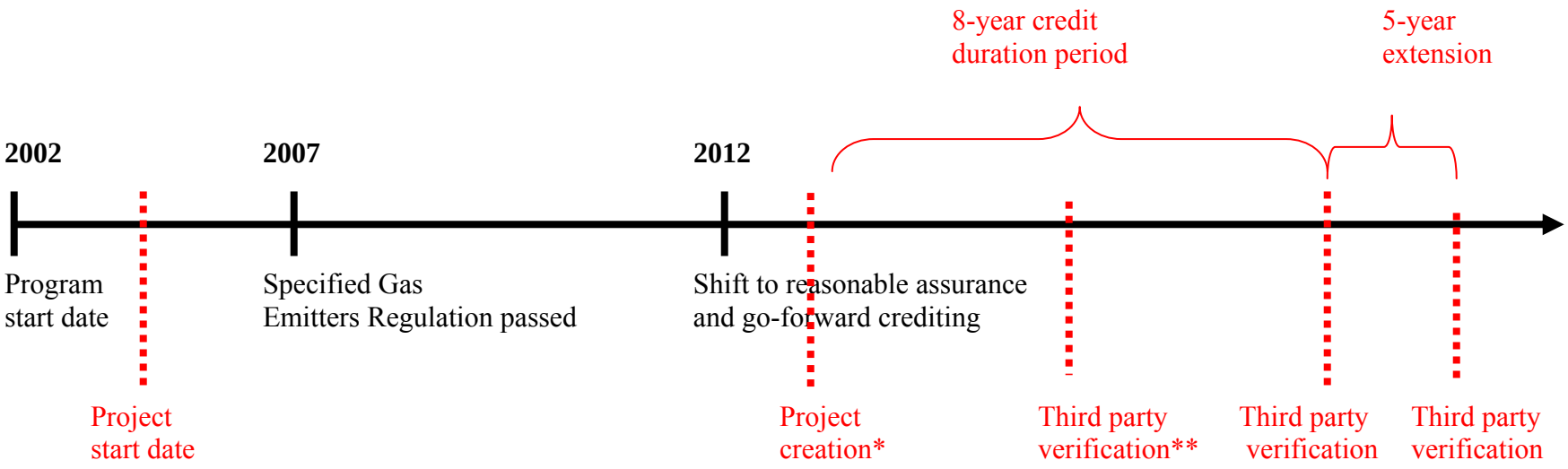
Afforestation projects will have a longer crediting period to reflect the slower rate of growth of trees. Crediting periods for this protocol have been proposed as 3, 20-year cycles after which point, the activity is considered reforestation and is no longer eligible for credits.

Note: *Credit generation must be for 8 consecutive years from the credit start date*.

Note: *Where protocols are retracted because the activity is determined to be business as usual for the sector, projects initiated under the protocol will be allowed to finish the 8-year crediting period, but will not be eligible for an extension.*

Note: *If an activity that was previously unregulated becomes regulated, credit generation from that project will cease. Credits already owned and serialized will be honoured and will remain active in the Alberta offset system until they are submitted to Alberta Environment as a compliance option or voluntarily retired.*

Figure 3: Offset credit generation based on go-forward crediting with ex post verification



*Project creation occurs when an offset project is initiated. The offset project plan, monitoring plan and required data management systems needed to support the offset project are developed and implemented. The project is created on the registry and the project plan and monitoring plan are posted. The offset project is implemented and emissions reductions are quantified according to project documentation.

**Third party verification is *ex post* and can happen annually or at pre-determined intervals as defined in the offset project plan. This example assumes two verifications during an 8-year credit duration period, and 1 verification at the end of the 5-year extension.

3.2.7 Project Extension Period

Project developers that wish to apply for a 5-year extension must submit a written request to the Director at the address provided below requesting an extension for the project. The letter must include rational for how the project continues to meet the requirements of the protocol and continues to be additional (beyond business as usual) for the project and associated operations. The Director will review the request for extension and may request additional information from the project developer. Project developers will receive notice in writing of the Director's decision within 30 days of the request. Note, more time may be required if additional information is requested. A copy of the Director's decision will be forward to the Alberta Emissions Offset registry for transparency purposes.

Offset projects that are granted a five year extension are required to up-date the project baseline and project assumptions to reflect the most current version of the quantification protocol.

Director, Climate Change Secretariat
Alberta Environment
12th Floor Baker Centre,
10025 – 106 Street
Edmonton, Alberta
T5M 2L3
Canada

Electronic requests can be forwarded to AENV.GHG@gov.ab.ca

Note: Extensions will not be given to projects for protocols that have been terminated.

3.2.8 Protocol Versioning

Protocols will be reviewed at a maximum of every 5 years, or sooner as needed to ensure protocols continue to reflect best available science and quantification methodologies. Where a protocol is amended, project developers may continue to implement, quantify, monitor and verify the project against the version of the protocol that was in place when the project was initiated. If project developers wish to switching to a new version of the protocol, they will required to reassess both the project baseline and project condition for the remainder of the credit duration period.

Projects granted a five year extension will need to be revised to meet the requirements of the most current version of the quantification protocol.

All new projects must be implemented according to the most current version of the quantification protocol. This includes new contracts added on to aggregated projects.

3.2.9 Real, Demonstrable and Quantifiable:

In order to be real, the project must demonstrate that it causes a net reduction of greenhouse gases regulated under the *Climate Change and Emissions Management Act* as applicable to the project, and that these emissions reductions and/or removals are quantified according to accepted methodologies.

3.2.10 Counted Once

Emissions reductions must be unique and can only be counted once for compliance. Offset credits serialized and registered on the Alberta Emissions Offset registry cannot be registered on any other registry where the intention is to buy, sell or trade tonnes that are already active in the Alberta market. Once the offset credits are used for compliance, they must be retired from the registry and removed from circulation.

3.2.11 Third Party Verification

All offset credits must be verified by an independent third party verifier before they can be registered on the Alberta Emissions Offset Registry. More information on third party verification is available in section 5.0.

3.2.12 Registered on the Alberta Emissions Offset Registry

All offset credits submitted to Alberta Environment as a compliance option **must** be registered and serialized on the Alberta Emissions Offset Registry.

3.3 Quantification Protocols

Government-approved quantification protocols have been developed to support the Alberta offset system. These protocols provide standardized quantification methodologies specific to a greenhouse gas reduction opportunity in Alberta. These protocols have been developed using the best available science tailored to Alberta conditions, good practice guidance from other jurisdictions, provincial/national expertise, and experience gained through similar international projects. While quantification protocols serve as a guide for setting up a project and quantifying associated emissions reductions, it remains the responsibility of the project developer to demonstrate how the project meets the requirements outlined in the protocol, and that the activity continues to comply with all applicable regulatory requirements.

More information on the protocol development process is available in the Technical Guidance for Protocol Developers.

A complete list of approved protocols is available at:
http://environment.alberta.ca/1238.html

3.4 Covered Emissions

Offset projects must result in emissions reductions of greenhouse gas emissions regulated under the *Climate Change and Emissions Management Act*. These emissions include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC),

perfluorocarbons (PFC), and sulphur hexafluoride (SF_6). Table 2 provides a list of the specified gases including their 100-year global warming potential used to calculate the carbon dioxide equivalent (CO_2e) emissions.

Specified Gas	Formula	100-year GWP
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrous Oxide	N_2O	310
Sulphur Hexafluoride	SF_6	23900
Perfluorocarbons (PFC)		
Perfluoromethane	CF_4	6500
Perfluoroethane	C_2F_6	9200
Perfluoropropane	C_3F_8	7000
Perfluorobutane	C_4F_{10}	7000
Perfluorocyclobutane	c-C_4F_8	8700
Perfluoropentane	C_5F_{12}	7500
Perfluorohexane	C_6F_{14}	7400
Hydrofluorocarbons (HFC)		
HFC-23	CHF_3	11700
HFC-32	CH_2F_2	650
HFC-41	CH_3F	150
HFC-43-10mee	$C_5H_2F_{10}$ (structure: $CF_3CHFCHFCF_2CF_3$)	1300
HFC-125	C_2HF_5	2800
HFC-134	$C_2H_2F_4$ (structure: CHF_2CHF_2)	1000
HFC-134a	$C_2H_2F_4$ (structure: CH_2FCF_3)	1300
HFC-143	$C_2H_3F_3$ (structure: CHF_2CH_2F)	300
HFC-143a	$C_2H_3F_3$ (structure: CF_3CH_3)	3800
HFC-152a	$C_2H_4F_2$ (structure: CH_3CHF_2)	140
HFC-227ea	C_3HF_7 (structure: CF_3CHFCF_3)	2900
HFC-236fa	$C_3H_2F_6$ (structure: $CF_3CH_2CF_3$)	6300
HFC-245ca	$C_3H_3F_5$ (structure: $CH_2FCF_2CHF_2$)	560

Table 2: Specified Gases and Gas Species Subject to the *Climate Change and Emissions Management Act*.

3.5 Sources and Sinks

Each quantification protocol contains a detailed list of included and excluded sources and sinks applicable to the specific reduction/removal activity.

Project developers are required to develop an offset project plan for each project (or collection of aggregated projects) that explains how the project will meet the requirements of the quantification protocol. This includes providing an explanation on applicable sources and sinks for the project and explaining how the project will track, monitor and quantify emissions associated with each source and sink. Where a source

and/or sink is identified in the protocol, but is not applicable to the project, rational for this exclusion must be provided in the project plan. Likewise, if a source and/or sink is normally excluded in the protocol, but is applicable to the particular project, it must be accounted for and explained in the project plan.

Third party verifiers will compare the project performance including the offset project report and project records to the offset project plan and quantification protocol to assess the validity of the greenhouse gas assertion, which is the emissions reductions and/or removals being claimed..

3.6 Flexibility Mechanisms

Some protocols have flexibility mechanisms that allow a broader application of the protocol. These flexibility mechanisms typically allow for closely related project activities that use related or similar quantification methodologies to be captured under one protocol. Flexibility mechanisms may also allow project developers to develop more rigorous quantification methodologies or added or remove sources and sinks to tailor the project.

If a project developer is using a flexibility mechanism in their project, the rational for this decision, including supporting quantification methodology, assumptions, etc, must be clearly stated in the project plan.

3.7 Ownership

Project developers wishing to sell offset credits in the Alberta offset system must be able to demonstrate clear, legal claim of the greenhouse gas reductions/removals achieved from an offset project. Where one or more parties may have claim to the offset credits, ownership must be clearly established through contractual agreement between affected parties before the third party verifier can sign off on the greenhouse gas assertion and the offset credits be registered on the registry.

In some cases, quantification protocols may assign ownership at a particular point. In these cases, ownership is typically assigned to the person undertaking the reduction activity. It is then the project developer's responsibility to ensure that these assumptions are valid for their project condition based on other contractual agreements that may affect ownership of the offset credits.

Offset credits that do not have appropriate proof of ownership and/or sign off on ownership will not be accepted as a compliance option and will be revoked from the Alberta Emissions Offset Registry.

3.7.1 Aggregated Projects

Aggregating a number of small projects into a larger package of emission reductions under the same protocol can lower verification and transaction costs and make small projects economically viable. As with larger-scale projects, aggregated projects must be able to demonstrate ownership of the offset credits; however, Alberta Environment

recognizes that ownership for aggregated projects may be more complex. Ownership particularly in the agricultural sector, is highly variable and it is conceivable that a "one-size-fits-all" approach will not work for aggregated, land or livestock-based projects.

For land-based projects such as tillage management system projects, ownership must be assessed for each vintage year that the field is generating credits. If the field has been sold offset credits before the new owner took possession of the fields, the aggregator (project developer) must obtain written sign-off from the previous land-owner(s) for the fields to be considered in the project condition. This requirement applies to land sales, vendor mortgages, and other land transactions.

If the land is leased or farmed by the tenant, appropriate sign-off must be obtained between the land owner and land lessee/tenant connecting the vintage year, the vintage year's land owner and the vintage year's tenant. Specific examples of records and supporting evidence needed to assess ownership are discussed in more detail in the quantification protocol.

Note: Alberta Environment will not accept offset credits from historic lands that have not had sign-off from the owner of the land at the time the reduction activity took place. In the even of duplicate claims for offset credits generated from a parcel of land, Alberta Environment will award first right to the credits to the owner of the land at the time the credit was generated (reduction activity took place)..

Note: Alberta Environment is working with the federal government to understand land ownership for First Nations lands. Credits from these lands will not be accepted in the Alberta offset system until appropriate ownership can be established.

Animal-based protocols assign ownership to the person undertaking the activity. Where other contracts exist that affect the ability to participate in the project, such as custom feeding contracts, written agreements will need to be obtained to confirm ownership and the ability to claim offset credits generated from affected animals.

It is the project developer's responsibility to ensure that they can justify their claim to the offsets to the satisfaction of a third party verifier, which includes being able to demonstrate that all required contractual arrangements are in place regarding ownership of the offset credits or portions thereof.

Ownership is further complicated by the fact that the aggregator (project developer) may purchase the credits directly from the land owner/land lessee or act as agent to market the credits on behalf of the land owner. Both models are acceptable in the Alberta offset system and should be clearly identified in the contract with the land owner/land lessee.

Scenario1 : The aggregator owns the credits

In this scenario, the aggregator purchases the offset credits from the individual project developer. The aggregator must be able to demonstrate to the satisfaction of the third party verifier, regulated facility, and Alberta Environment that ownership and title have transferred from the producer of the credits (e.g.: farmer, building owner) to the aggregator at the time of verification.

Scenario 2: The aggregator acts as an agent

The aggregator acts as an agent on behalf of the in offset credit producer. In this case, the contractual agreement between the credit producer and aggregator must clearly stipulate the right of the aggregator to act as an agent on behalf of the credit producer. Title remains with the project developer until the offset credits are sold to a buyer.

Examples of ownership scenarios for aggregated tillage management projects are presented below. It remains the responsibility of the aggregator (project developer) to determine the appropriate ownership for their specific project(s).

Note: *Alberta Environment strongly encourages aggregators to do a land title search on all properties across all years for fields being registered for an aggregated Tillage System Management project.*

4.0 Offset Project Implementation

This section provides basic information for project developers wishing to implement an offset project in Alberta.

4.1 Project Eligibility

The person or company wishing to implement a greenhouse gas emission reduction/removal project is known as a project developer. This person must first evaluate their activity against the eligibility criterion stated in section 3.1 above and against the list approved quantification protocols. Where they can clearly demonstrate that the project meets these minimum criteria, and there is an approved protocol for the activity in question, the project developer can move forward to implement the project.

If the project is a result of activity initiated before January 1, 2002, is otherwise required by law, cannot be quantified, or is generating emissions reductions for use in other systems, such as Renewable Energy Certificates (RECs), the project will not be eligible under the Alberta offset system.

If the activity in question does not have an approved quantification protocol, the project developer should review the Technical Guidance for Protocol Developers to determine whether they wish initiate development of a quantification protocol for the activity.

4.2 Protocol Selection

The project developer must select the appropriate protocol for the offset project being developed. Offset protocols are stackable. That is, an offset project may incorporate multiple activities from several different protocols into a single project. If this is being done, the offset project plan must identify all protocols being applied to the project, and clearly document how the project meets all the requirements of each of the protocols. The project plan must identify any opportunities for double counting between the various protocols and explain actions taken to eliminate double counting within the project.

Note: Alberta Environment is not required to approve any offset protocols if the protocols are found to be deficient or inconsistent with Alberta policy and/or program objectives.

It is a *prudent business practice*, not to sign people up to contracts for a specific activity until the activity has an approved protocol as the terms and conditions in the draft protocol are subject to change based on the protocol review process.

4.3 Baseline Conditions

The baseline condition for a project is a reasonable representation of conditions that would likely have occurred during the offsets credit period had the offset project not been implemented. In other words, the baseline represents "business as usual" and the project represents a change from this practice. Greenhouse gas emission reductions achieved by a project are measured by comparing the emissions generated in the project to the

emissions generated in the baseline. The difference between these two conditions yields the emissions reductions for the offset project.

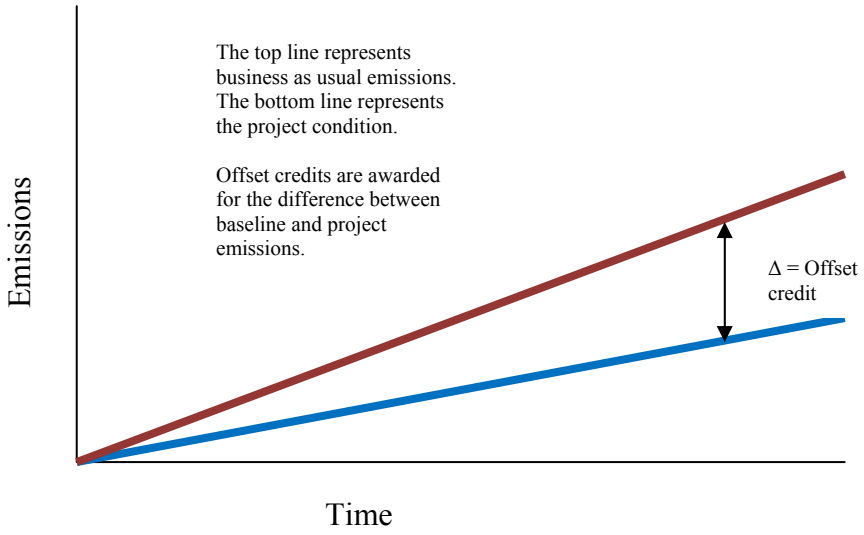


Figure 4: Offset credits as a function of change between the baseline and project condition.

Baselines can be calculated in a number of different ways depending on available information and activity type. Specific baseline scenarios acceptable for a project type are identified in the quantification protocol and must be used for all projects implemented under that protocol. Baseline assumptions and quantification must be clearly documented in the offset project plan.

Types of baseline conditions that may be encountered are:

- **Historic Benchmark**: is site-specific and constructed to reflect activities in a specified base period. For example, a project quantifying emission reductions due to changes in nitrogen fertilizer application may use the rate of nitrogen fertilizer application at the project farm averaged over the previous three years as the baseline;
- **Performance Standard**: uses an assessment of comparable activities within a given industry or sector. It assumes that the typical emissions profile for an industry or sector is a reasonable approximation of the baseline scenario. For example, the typical enteric emissions per head of cattle in a feedlot may be used as a baseline for a project that quantifies emissions reductions due to changes in cattle feeding practices;
- **Comparison Approach**: uses actual measurements of parameters from a control group to compare with the project condition. Reductions/removals from the control group are monitored throughout the project and compared with the emissions from the project site. A control group may be used as the baseline for more than one project.

- **Projection Based**: uses projections of reductions or removals in the future to estimate the baseline activity that would have occurred in the absence of the project. Projections may include straight-line growth assumptions or more complex modeling, and may be based on a set of constant parameters or be varied over time according to pre-defined procedures. The compost protocol uses a project based baseline recalculated annually based on the volume of weight received to determine what the most likely alternative disposal method for that waste stream would have been in the absence of the compost project.
- **Adjusted Baseline**: takes into account current practice levels of a particular project and specifies that the same baseline is used for all projects of a certain type, regardless of historical practices. An adjusted baseline was developed to enable carbon sequestration projects where the adoption level was relatively low based on 2001 census data and are not intended to be used for reduction type activities. More information on adjusted baselines is available in the Technical Guidance for Protocol Developers.

Baselines may be either static or dynamic over the credit duration period:

- **Static:** the emissions profile for the baseline activity does not change during the credit duration period. Both the input parameters for baseline calculations and the quantification methodology remain constant; or
- **Dynamic:** the quantification methodology does not change over the credit duration period, but the input parameters may change due to a number of factors including weather conditions, project operational parameters, etc.; thus the emissions profile may change with time under a dynamic baseline condition. For example, a composting project using a dynamic baseline need to track parameters such as mass of material processed during the project to ensure an accurate baseline condition.

Under the Alberta offset system, the baseline condition for a project will typically remain constant for the 8-year credit duration period. If a project is granted a 5-year extension, the project baseline must be up-dated to reflect the most current version of the protocol available.

Note: *Any regulatory changes that affect the offset project, including the project baseline, will need to be addressed when the regulation comes into force.*

4.4 Project Condition

The project condition is a specific action targeted at reducing, removing or storing greenhouse gas emissions at the project and may consist of one or more related activities developed according to a government approved protocol. The project condition *may* include modification of existing production, process, consumption, service, delivery or management systems, or introduction of new systems.

4.5 Risk Assurance Factors

Some sequestration based projects such as soil sequestration activities and afforestation projects are reversible. For example, if the soil is disturbed through the adoption of full till farming, or if trees are removed either through early harvest or natural disaster, the sequestered carbon would be released back to the atmosphere. Risk assurance factors apply a discount to all credits generated under the protocol. These credits are permanently removed from the offset projects and are transferred to the government to account for the likelihood of reversal over the life of the project. The remaining reductions and/or removals achieved by the project are considered permanent offsets in the Alberta offset system.

The government held credits will accumulate over time, and are used to account for natural reversals that occur that are beyond the control of the project developer. In the event of an unintentional reversal, government tonnes will be used to replace tonnes lost and the project developer will not be held responsible. These credits are not available for deliberate reversals caused by the project developer. Government owned credits cannot be used to cover errors in an offset project that result in all or part of the project's offset credits being revoked.

Risk based assurance factors are based on historical information and known risks of reversal. They provide a conservative estimate of reversals based on known information. On-going monitoring of the efficacy of the assurance factors will be completed to ensure that the risk is properly managed and environmental integrity is maintained. Assurance factors may be adjusted over time.

4.6 Functional Equivalence (Consistency)

Emission reductions are calculated by comparing greenhouse gas emissions under one scenario (the project condition) with greenhouse gas emissions under another equivalent scenario (the baseline condition). In order for this comparison to be meaningful, the project and the baseline **must** provide the same function and quality of products or services. That is, both the project and baseline must use a common metric or unit of comparison. For example, if a project is designed to reduce emissions by recovering waste heat from an industrial process, the emission reductions are compared to an equivalent level of heat generation under the baseline condition. In this example, the common unit would be the number of kilowatt hours of energy required to produce the heat.

In some cases, the project condition, by definition, cannot have the same units as the baseline. An example of this would be a biofuel project, which seeks to displace conventional fuel with biofuel. In this case, the common metric would be the energy content of each fuel reported on an emissions/energy basis.

4.7 Conservativeness and Accuracy

All offset projects must result in real, quantifiable, and verifiable reductions in greenhouse gas emissions. Accuracy, or understanding uncertainty, enables projects to meet the system criteria for real and quantifiable emission reductions.

The accuracy of the project calculations varies depending on the methodology being used. Direct measurement is usually considered more accurate than engineering estimates; however direct measurement may not be practical for every situation and in some cases, the most accurate methodology available may be cost prohibitive relative to the project. Accuracy associated with quantification methodologies is typically assessed during protocol development; however, project developers must speak to the uncertainty in the project calculations to ensure that emissions reductions being calculated are actual emissions reductions.

Conservativeness ensures that emissions reductions being claimed by a project are not overstated and must be assessed within the range of uncertainty associated with the quantification methodology. The project developer is required to document the analysis and decisions around the conservative estimate used in developing the quantification methodologies for the reduction/removal activity.

Conservative hedge factors cannot be used as a surrogate for an inability to quantify uncertainty. That is, neither the protocol nor the project can apply a conservative discount factor based on the fact that they are unable to obtain an accurate estimate of the uncertainty parameters for the project. In all cases, the uncertainty range of the parameter must be understood in order for a quantification methodology, and associated emissions reductions/removals to be accepted.

Note: *Project developers must follow the quantification methodology for each source and/or sink in the approved protocol. Conservative estimates must be applied as outlined in the approved quantification protocol.*

4.8 Additionality

In order to be eligible for credit as an emission reduction, the project developer must be able to demonstrate that the project results in a reduction in greenhouse gas emissions that are additional or incremental to what would have happened had the project not been implemented (i.e.: the baseline). Additionality then, is the ability to quantify emissions reductions that are beyond business as usual activities and regulatory requirements.

Additionality for an activity is assessed during protocol development. Projects need to demonstrate they meet the protocol conditions and that they result from actions taken on or after January 1, 2002 to meet Alberta project additionality tests.

It is conceivable that upon review, an activity that previously qualified as an offset activity under the Alberta offset system is determined to be business as usual for the

sector. This occurs when the activity becomes widely adopted as best practice for the sector. In these cases, Alberta reserves the right to discontinue the quantification protocol for the activity. Existing projects will be allowed to complete their credit duration period; however, no new projects will be allowed once a protocol has been terminated. Likewise, no project extensions will be given under terminated protocols.

Alberta Environment has adopted a 40 per cent up-take of an activity as a threshold for business as usual/sector common practice. It is assumed that if 40 per cent or more of the sector is able to implement the activity, there are minimal or no technological, financial, or social barriers preventing the activity from going ahead and the activity is no longer considered additional.

If an activity that was previously unregulated, becomes regulated, offset projects associated with that activity will not be eligible to generate credits effective when the regulation comes into force.

4.9 Project Expansion

Offset credits cannot be generated from actions before January 1, 2002. However, if there is a project that has been implemented prior to January 1, 2002 that has undergone significant expansion post 2002 it may be eligible to generate credits for the additional activity. The project developer must be able to clearly show that the expansion activity is meets all program additionality tests and would likely not have occurred as a business as usual expansion. The following are examples of eligible expansion conditions:

1. The expansion condition can be clearly separated from the original project condition. An example of this type of project would be a wind farm that has added additional turbines. Each turbine can be considered as a stand-alone project and emissions reductions achieved by the new turbine can be easily separated from the existing project.
2. The project condition is integrated with the existing project and the expansion. An example of this would be a biofuel facility where the production capacity has been increased. In order to qualify for credit generation on expansion activities, the project developer must provide a written proposal to Alberta Environment and meet the following criteria:
    - Project production has increased greater than 25 per cent;
    - Project developers must have a clear, accurate basis for separating the emissions from the expansion phase and the existing project (i.e. separation between existing and expansion portions of the project must be able to pass verification)
    - Infrastructure investment is greater than 35 per cent of the cost to build a new facility capable of same level of production as the expansion volume

Projects that meet the above criteria and that are approved by the Director will be eligible to generate offset credits for the expansion portion of the project only. Alberta

Environment will respond to the proposal within 30 days of being received and may request additional information or clarification.

4.10 Project Documentation

4.10.1 Offset Project Plan

This document is created before the project is implemented and must be submitted to the Alberta Emissions Offset registry as part of the required project documentation.
It is essentially a road map for the project. It describes how the project meets all Alberta offset system criteria and how it will meet all the conditions indentified in the quantification protocol. It must speak to any changes or variations in the project condition relative to the quantification protocol and document project assumptions, types of records used to monitor the project, and emissions calculations. The offset project plan must include a simplified process flow diagram for the project, data flow diagrams, and may include a monitoring plan and other information used to support project implementation.

The third party verifier will use this document as a basis to assess the project condition against the baseline and the emissions reductions/removals being claimed to ensure the project was implemented according to the terms described in project plan.

The document may also be used by investors and others wishing to purchase the offset credits to understand the project and veracity of the emissions reductions being claimed.

A template for an offset project plan is available on Alberta Environment's website. While the layout of the project plan may be adjusted to suit individual preferences, the content specified in the template must be included in the final project plan. If a section of the template is not applicable to a specific project, rational for the exclusion **must** be provided. In general, the plan will contain:

Project scope explains the function of the project and all of the relevant assumptions, and should clearly identify which activities are included/excluded for the purposes of quantifying of greenhouse gas reductions.

Project description describes the offset project including the baseline and project conditions.

Project boundary describes the boundaries for the offset project. The project boundary may extend beyond the physical or geographical boundaries of the project's infrastructure, or may be a smaller portion of a larger physical site boundary.

Inventory of sources and sinks is a complete list of sources and sinks relevant to the project conditions.

Project baseline describes the baseline, including all calculations used to determine the baseline. If several baseline types are allowed in the protocol, the project developer must provide a rational for the baseline type that was selected.

Quantification Plan describes the methodology being used to quantifying greenhouse gas emissions associated with the project. The Quantification Plan should include:

- A description of the key sources and sinks to be quantified;
- A full list of parameters required for quantification indicating which parameters will be measured and which will be estimated;
- A description of the measurement and estimation procedures for each parameter;
- Supporting information to justify the measurement and/or estimation procedures (i.e. references for emissions factors, measurement equipment specifications);
- Information on the data quality management procedures to be used; and,
- Any flexibility mechanisms being used.

Monitoring Plan explains how the measured parameters required for calculating the emission reduction or removals for the project will be monitored and input into the data management system. It describes exactly how measurements will be carried out and may include specifications for monitoring equipment to be used, locations of sampling points, frequency of sampling events, data collection methodology, and other details.

QA/QC Plan must describe what controls are in place to ensure the accuracy and correctness of data and associated calculations and may include file access and security, manual vs. automated data transfers, independent data reviews, and staff training.

Process flow and data flow diagrams provide a reference point for third party verifiers to understand the processes associated with the project and how data is being handled.

4.10.2 Offset Project Report

The offset project report is completed annually or prior to verification. It describes how the project was implemented and provides documentation and evidence to support the project operating conditions that gave rise to the greenhouse gas reduction and/or removals being claimed. This report must include:

- The time period covered by the report. This is known as the reporting period;
- Project details and information demonstrating how the project was implemented relative to the project plan and approved quantification protocol;
- Any changes in details and/or implementation of the project that arose during the reporting period. The third party verifiers will verify changes against the project plan to support the project review;

- Calculation methodology for greenhouse gas reductions and removals in tonnes CO_2e with clearly identified inputs, emission factors, equations and methodologies used and a sample calculations;
- Quantified emissions reductions clearly articulated as tonnes removed or reduced per vintage year; and
- Be signed by the project developer(s).

The project report template is available on Alberta Environment's website. Project developers are required to follow this template. While the layout of the project report may be adjusted to suit individual preferences, the content specified in the template **must**, in all cases, be discussed. Where the project developer feels a category is not applicable to the project, the project developer **must** provide rational explaining why the information is not necessary to the project.

4.10.3 Spatial Locator Template for Aggregated Projects

A spatial locator template must be completed for all aggregated projects. Specific information collected will vary depending on the type of aggregated project. In general, the spatial locator template requires information to identify project conditions for each individual sub-project making up the larger aggregated project. For example, an aggregated tillage system management project is required to identify the year, legal land location, crop type, and emission reductions associated with each contracted quarter section in the project.

A copy of the spatial locator template applicable to the project type can be requested from the registry and should be presented to the third party verifier as part of the supporting information for the project.

Note: *Information collected in this spreadsheet contains potentially confidential information. It is used to allow the registry to track serial ranges by sub-project and to assess double counting between aggregated projects. This information cannot be provided to interested third parties.*

4.10.4 Greenhouse Gas Assertion

The project developer must calculate the number of offset tonnes achieved during the reporting period and express a statement on the total tonnes being claimed as Offset credits. This is known as a greenhouse gas assertion. The third party verifier will verify the project condition against the greenhouse gas assertion to determine whether the assertion is correct.

The assertion should identify emission reductions/removals of the individual greenhouse gases (CO_2, CH_4, N_2O, SF_6, HFCs, and perfluorocarbons) identified in the *Climate Change and Emissions Management Act* applicable to the project. All emissions must be reported as tonnes of carbon dioxide equivalent (CO_2e) based on the conversion factors in Table 2.

4.10.5 Validation (Optional)

Validation is optional under the Alberta offset system. Validation is a business risk management tool that can support the project design and inform appropriate monitoring, data collection, and calculations for the project prior to the project being implemented. Additional information on project validation is available in ISO 14064. Validation guidance is also available from the Climate Change and Emissions Management Corporation at www.ccemc.ca.

Validation *occurs before the project begins (ex ante) and focuses on:*
- *Whether appropriate baseline and project conditions are used;*
- *Whether the calculations of potential offsets are correct;*

Validation occurs once and requires technical expertise in the project area.

Verification *occurs once reductions have been generated (ex post), and focuses on:*
- *Whether the calculations of actual offsets are correct;*
- *Data integrity and consistency with offset project plan and quantification protocol;*
- *Whether data is complete and accurate and conforms to verification criteria;*

Verification occurs at the end of each reporting period and requires technical expertise in the project area.

4.11 Offset Credit Transactions

Offset credit transactions occur through bilateral negotiations between the buyer and seller. Below is some general guidance intended to support these negotiations, but does not replace legal advice and contracting obligations.

4.11.1 Contracting Considerations

Contracting occurs within the private sector and is negotiated between affected parties. Neither Alberta Environment nor Climate Change Central review or provide advice on contracts; persons entering into contract negotiations should seek legal advice from a qualified lawyer.

Below are some general contracting best practices that should be considered during contract development and contract negotiations.

- Terms of the contract, including price being offered for the offset credits and any additional fees must be clearly disclosed during negotiations;
- Other conditions, including future contracting obligations must be disclosed;
- The contract model (direct purchase or agent model) must be clearly explained;
- Liability terms and conditions must be clearly explained; and
- Both parties must be given reasonable time to review the contract, which may include having a copy reviewed by legal council.

Notwithstanding any agreement between an aggregator (project developer) and the land owner/farmer, the aggregator shall not and can not pass on any regulatory liability for errors in design of the aggregator's data management system.

Contracts must speak to the type of agency model being used in the contract. Unless the contract explicitly states the aggregator (project developer) is purchasing offset credits from the land owner/farmer, the aggregator shall be deemed to be in an agency agreement with the land owner/farmer. Agency agreements **must** outline the following relationship between aggregator and land owner-farmer with sufficient evidence to show:

- Who the client is;
- The client's interests are being protected and promoted and should address the following:

  - Confidentiality and projection of information;
  - Full disclosure in the client-agent relationship; and
  - Full accounting and transparency pertaining to the client's interests;
- Disclosure to the client must include, but is not limited to:
  - Clear statement of expenses and costs;
  - Applicable fees, including commission that might be charged;
  - Expectations and requirements for record retention, project documentation, and access to information for the purposes of third party verification and government audit; and
  - The type of agency relationship with the client (sole agent, or transaction broker);
  - Contract term and future contracting obligations, if any, that are being applied to the contract.

Liability and Compliance
The Alberta offset system is enabled under the *Climate Change and Emissions Management Act*, and the *Specified Gas Emitters Regulation.*

Offset credits that do not meet program requirements will be revoked and the regulated facility that submitted the credits for compliance will be required to seek alternate compliance. Notwithstanding Alberta Environment's true-up mechanisms for compliance shortfalls, liability between the buyer and seller for revoked offset credits should be addressed in contractual agreements between affected parties.

4.11.2 Financial Liability and Credit Rating

Regulated facilities purchasing offset credits as a compliance option are generally large companies with minimum security requirements for business transactions. These requirements provide assurance against the uncertainty the companies face between submitting offset credits for compliance purposes and final government approval of the offset credits.

Sellers, on the other hand, tend to be small, unrated companies that are unable to offer the security buyers are seeking. In these cases, the buyer and seller are encouraged to look at alternative arrangements to address this risk. These arrangements should be clearly articulated through contractual agreement between the two parties.

All parties are required to do their own due diligence during transactions. If the rules of the system and the protocol are followed, there should be minimal risk to all parties. However, parties should ensure they have taken appropriate and sufficient care to review contracts, terms and conditions, and supporting documentation pertaining to the project. Due diligence is considered a defense under the *Climate Change and Emissions Management Act*.

4.11.3 Intangible Commodity

Offset credits are intangible commodities that are only made real once verified. As such, third party verification and registration on the Alberta Emissions Offset registry help to

establish boundaries for these commodity items. However, offset credits are only as good as the project implementation and the data and records available to support third party verification. Poor data management systems and an inability to produce appropriate records could compromise a the ability for a third party verifier to come to a conclusion on the greenhouse gas assertion or verify the project emissions reductions. Project developers are encouraged to develop robust data management systems and assess availability of records to support the project implementation.

Offset credits are revocable licenses. Where issues are identified, or errors are found, Alberta Environment will require corrections to the offset project. Unsupported credits will be revoked from the registry and companies will be required to pay alternate compliance into the Climate Change and Emissions Management Fund. Alberta Environment's error correction policy is discussed in more detail in section 7.4.

4.11.4 Pricing

Transactions occur through bilateral contracts negotiated between the buyer and seller. Pricing information is not tracked by Alberta Environment. Alberta Environment recognizes that the Climate Change and Emissions Management Fund provides a price ceiling for investment in offset credits. This price is currently $15 per tonne of CO_2e and is likely to change over time. Price varies by project. Project developers can improve the quality of their offset project and the associated value of their offset credit by having a transparent, well-organized and supported project.

5.0 Data Management and Document Retention

The *Specified Gas Emitters Regulation* requires *ex post* verification of all offset credits being registered on the Alberta Emissions Offset Registry. Data management and the availability of correct and accurate supporting data are fundamental to support the implementation and verification of an offset project. Robust data management systems can reduce the likelihood of errors in data collection and reduce verification costs. Ensuring appropriate quality control measures are in place will provide greater confidence in the overall project and associated emissions reductions.

5.1 Data Management

Data management can be manual, automated or a combination of the two and may range from internally developed tracking sheets to third party software. Systems that rely more heavily on manual data transfers and excel spread sheets are inherently less robust than more automated systems. In all cases, developing and implementing good quality control/quality assurance (QA/QC) checks can reduce the likelihood of accidental errors and improve confidence in the overall reporting. Security access also improves the overall robustness of the system and general comfort with the data.

Data flow charts are a useful tool for understanding data flow through an offset project and can improve a third party verifier or auditor's understanding of the project. Alberta Environment encourages project developers to include data flow charts and sample calculations in the QA/QC procedures for the project and to make these available to the third party verifier/government auditor as part of the supporting documentation for the offset project.

Note, Alberta Environment has committed to adopting a reasonable level of assurance starting January 1, 2012. Reasonable assurance verification will place a higher emphasis on understanding and assessing the data management system and in being able to retrace the data from the point of collection to end calculations. More robust, automated systems will be better positioned to support this higher level of assurance.

5.1.1 Data Management Considerations

Data management systems can be manual, partly manual-partly automated, or fully automated depending on the system being used. Manual procedures are inherently less robust and may be subject to a higher potential for error (e.g.: transcription errors) than automated systems. Automated systems, if correctly set up, tend to be more robust than manual systems, and therefore provide a higher level of accuracy and security around data handling.

Project developers should develop and make available data flow charts for their specific system and should include sample calculations for all calculations used in the project.

Data controls are procedures conducted to ensure that the data is complete, accurate, valid and not subject to corruption. Data controls are integral to the data management system and should serve to meet the following objectives:

- Completeness – ensuring the data is complete according to the Offset Project Plan and quantification protocol;
- Accuracy - ensuring the data has been calculated appropriately and the measurements reflect the correct values;
- Validity - making sure no erroneous information is introduced into the data;
- Restricted access - addresses the security of the data management system.

Controls should exist throughout the data management system but are essential whenever there is a transfer or exchange of data or information. Examples of data controls include passwords on computers, read access requirements on files, reasonability limits on data inputs, record length checks on file transfers, approvals and testing procedures for algorithm changes, distribution lists for reports, and management review of reports.

5.1.2 Data Management Considerations for Aggregated Projects

Aggregated projects have additional complexity related to gathering and tracking data from a large number of small sources. This complexity can be challenging from a verification perspective and may increase the costs of third party verification relative to the total volume of offset credits being claimed.

Aggregators are encouraged to implement robust and verifiable data management systems to support their project. As with other projects, automated systems with good QA/QC checks improve the overall defensibility of the project. Heavy reliance on manual data input and data tracking can increase the likelihood of errors within the project and may increase the potential for material discrepancies in the project.

Alberta Environment recognizes that much of the raw data, particularly from agricultural type aggregated projects will be provided in hard copy records. The aggregator can improve the usability and verifiability of this data by developing and maintaining electronic copies as well as hard copies, and by providing QA/QC checks on the data once it is input into a data management system.

Aggregators are liable for errors resulting from their respective data management systems and cannot pass on liability for these errors to the credit producer. See section 4.11.1 for additional guidance on contracting practices.

5.2 Data Retention

Alberta Environment requires project developers maintain supporting information for the project including all raw data for a period of 7 years **after** the end of the project credit duration period. For example, on an 8-year crediting period, documents will need to be retained for up to 15 years. On a 20-year crediting period, documents would need to be retained up to 27 years to support verification and government audits

5.3 Transparency

Alberta Environment has adopted the ISO 14064 model for the Alberta offset system. As such, Alberta requires full transparency on offset project documentation including the offset project plan, offset project report, greenhouse gas assertion, and verification report including the signed conflict of interest, statement of verification, and statement of qualifications.

If a project is required to make corrections, the original documentation and the revised documentation, including rational for the change, will be displayed on the registry. Removed and revoked serial ranges will also be displayed to maintain full transparency of the offset credits. This is consistent with the requirements for Clean Development Mechanism projects, which show the most current status of each serialized offset credit including the most current owner of that credit.

5.4 Confidentiality

Information collected by the Alberta Emissions Offset registry and additional project information requested by Alberta Environment and/or a government appointed auditor is bound by section 16 of the *Specified Gas Emitters Regulation* for the treatment of confidential information. **Information required to support the audit must be disclosed and made available to the auditor in a timely manner.** Failure to do so may result in an inability to complete a government audit. Projects that cannot be audited cannot be accepted as a compliance option under the *Specified Gas Emitters Regulation*.

The spatial locator template for aggregated projects does contain confidential information and is used to reconcile serialized credit ranges with actual projects and associated reductions. Information collected on these forms is kept confidential and will only be disclosed to Alberta Environment, and its agent(s) (government contracted auditor) upon request upon request by Alberta Environment.

6.0 Third Party Verification

The Alberta offset system relies on *ex post* verification to support the overall integrity of the program. This means that the emission reduction is first created, then verified to confirm the activity and associated emissions reductions and/or removals. All offset credits must be third party verified before they can be registered on the Alberta Emissions Offset Registry. This requirement for third party verification is consistent with international standards requiring independent, third party verification for greenhouse gas inventories.

Third party verification provides assurance on the validity of the greenhouse gas assertion. The third party verifier is required to assess the project condition, including raw data, against the offset project plan, offset project report, and approved quantification protocol to determine if the emissions reductions and/or removals being claimed in the greenhouse gas assertion is correct to a limited (review) level of assurance. The third party review must flag discrepancies in reported data, identify areas where the interpretation in the reported data differs from the guidance provided by Alberta Environment, and flag unresolved material discrepancies. **The third party verifier cannot issue a statement of verification where there are unresolved material discrepancies.** Where material discrepancies are identified, the project developer is required to make corrections to the project before the verifier can sign-off on the greenhouse gas assertion.

Starting January 1, 2012, Alberta Environment will require a reasonable (audit) level assurance statement for all offset credits registered on the Alberta Emissions Offset Registry. Historic offset credits already serialized and registered on the registry will be honoured.

Note: *The greenhouse gas assertion and supporting information, including the spatial locator template, for a project cannot be changed once the verifier has signed the statement of verification. Any changes made to these documents after the verifier has issued a statement of verification will invalidate the verification.*

6.1 Verification Fundamentals

6.1.1 Terminology

A*ssurance* is used to encompass and define a range of different levels of assurance where an assurance practitioner (verifier) is engaged to issue a written communication expressing a conclusion concerning a subject matter for which the accountable party is responsible.

Auditor is a person meeting the requirements of section 18 of the *Specified Gas Emitters Regulation* that is hired by Alberta Environment to review an offset project on behalf of the government.

Limited assurance is a moderate level of assurance, or negative assurance. Limited assurance is based on identifying anomalies rather than confirming an assertion.

M*ateriality* refers to an error, omission or misrepresentation that would affect the greenhouse gas assertion stated in the annual compliance report. Materiality is discussed in section 6.1.7.

Reasonable assurance is a high level of assurance, or positive assurance. Reasonable assurance is a direct factual statement expressing the opinion of the verifier.

Third party verifier describes the person or persons that meet the requirements of section 18 of the *Specified Gas Emitters Regulation* that conduct the independent, third party review of the offset project and associated greenhouse gas assertion.

Verification describes the process by which an objective third party examines or reviews an assertion such as the greenhouse gas assertion for an offset project and provides an opinion or conclusion on the assertion.

Validation refers to an independent third party review of the project conditions before the project is initiated. Validation is optional under the Alberta offset system.

6.1.2 Qualifications of the Third Party Verifier

The third party verifier (lead verifier and verification team) is defined as a qualified person or persons that make up a verification team that verifies and provides assurance on the greenhouse gas assertion for an offset project.

The lead verifier must be an accountant registered under the Alberta Regulated Accounting Profession Act, or a professional engineer, and must be in good standing with the professional organization to which they belong. Further, the individual must be trained in one of the three acceptable verification methodologies discussed in section 6.1.5. The verification team must have technical expertise and detailed knowledge in the following areas:

- Data audit practices and data verification standards
- Detailed knowledge of the *Specified Gas Emitters Regulation* and associated requirements
- Verification criteria and their appropriate application within the defined scope of the verification
- Technical expertise for the sector the verification team plans to operate in including:
  - The specific greenhouse gas activity and technology
  - Identification and selection of greenhouse gas sources and sinks
  - Quantification, monitoring and reporting, including relevant technical and sector issues
  - Situations that may affect the materiality of the greenhouse gas assertion, including typical and atypical operating conditions

- Be able to operate as a business including, policies, finances, and quality review of products or services

Verification teams are encouraged to bring in appropriate resources as needed to meet verification requirements and are strongly encouraged too use a team approach that blends skill sets of both accountants and professional engineers to support greenhouse gas verification. Verification teams need to have the capacity to accurately assess a spectrum of issues from the completeness of the data inventory and appropriateness of methodology/emission factors being used to the robustness of the data management system and may need to bring in additional expertise such as agrologists, foresters, or animal experts to support the verification.

6.1.3 Accreditation

Alberta Environment is working with accreditation bodies and is exploring the feasibility of requiring accreditation of third party verifiers. More information on accreditation requirements will be made available once a final decision has been made.

6.1.4 Independence

Independence is a surrogate measure for the objectivity of the verifier. It is a key qualification for a third party verifier. The third party verifier must be able to demonstrate independence including having sufficient and appropriate systems in place to document independence of all verification team members.

The following threats to independence should be assessed by both the project developer and third party verifier before the third party verification is undertaken:

1. **Self-interest threat**: This occurs when the auditor or a member of the verification team or a person in the chain of command for the verification could directly benefit from a financial interest in the verification client, or when there is any other self-interest conflict with respect to the verification client. For example:
    - Owning shares of the verification client;
    - Having a close business relationship with the client;
    - Contingent fees relating to the results of the engagement;
    - Potential employment with the verification client; or
    - Undue concern about the possibility of losing the verification or other fees from the client.

2. **Self-review threat**: This occurs when a member of the verification team could be in a position of reviewing his or her own work. For example:
    - Involvement of the verification organization in the compilation of the data contained in the greenhouse gas assertion, including project documentation.
    - A verification organization member performing non-verification services that directly impinge on the client's greenhouse gas assertion, such as implementing the greenhouse gas data management system; and

- A member of the verification engagement team having previously been a greenhouse gas data compiler of the verification client or who was employed by the verification client in a position to exert direct and significant influence over the client's greenhouse gas assertion being reviewed.

3. **Advocacy threat:** This occurs when a verifying organization or a member of the verification team, or a person in the chain of command for the verification, promotes, may be perceived to promote, a verification client's position or opinion to the point that objectivity may, or may be perceived to be, compromised. For example:
    - Dealing in, or being a promoter of, greenhouse gas credits on behalf of a verification client; and
    - Acting as an advocate on behalf of the verification client in litigation or in resolving disputes with third parties.

4. **Familiarity threat:** This occurs when, by virtue of a close relationship with a verification client, its directors, officer or employees, the firm or a member of a verification engagement team becomes too sympathetic to the client's interests. For example:
    - A person on the verification team has a close personal relationship with a person who is in a senior greenhouse gas compilation role at the verification client; and
    - Acceptance of significant gifts or hospitality from the verification client.

5. **Intimidation or economic dependence threat**: This occurs when a member of the verification team or a person in the chain of command is deterred from acting objectively and exercising professional skepticism by threats, actual or perceived, from the directors, officers or employees of the verification client. For example:
    - The threat of being replaced as third party verifier due to a disagreement with the application of an greenhouse gas quantification protocol;
    - Fees from the verification client represent a large percentage of the overall revenues of the third party auditor.
    - The application of pressure to inappropriately reduce the extent of work performed in order to reduce or limit fees; and
    - Threats arising from litigation with a verification client.

Alberta Environment recognizes that some familiarity with a facility and/or processes is helpful in understanding and reviewing an offset project against claimed emissions reductions. However, Alberta Environment also recognizes that this can compromise a third party verifier's impartiality over the long-term. Therefore, a third party verification company and lead verifier cannot provide verification services to an offset project if they have verified 5 consecutive reporting periods. This is set as five (5) consecutive calendar

years for offset projects[1]., a minimum 2 year break is required before that lead auditor/verification company can be rehired.

6.1.5 Verification Standards

Third party verifiers must use one of the following three verification standards:

- ISO 14064 Part 3 – Greenhouse Gases: Specification with guidance for the validation and verification of greenhouse gas assertions
- Standards for Assurance Engagements, Canadian Institute of Chartered Accountants (CICA) Handbook – Assurance Section 5025
- International Standard on Assurance Engagements (ISAE) 3000 - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information

These standards ensure a consistent level of rigour in the verification process such that a peer verifier or auditor would come to the same conclusion as the original verifier.

The following documents provide guidance to assist the verifier in completing the third party verification:

- Climate Change and Emissions Management Act
- Specified Gas Emitters Regulation
- Guidance for Third Party Verifiers
- Government approved Offset Quantification protocol (see http://environment.alberta.ca/1238.html for a complete list)
- Technical Guidance for Offset Project Developers

The third party verifier should also consult the appropriate verification methodology guidance documents for the standards being used to conduct the verification.

6.1.6 Signatures

The designated signing authority[2] for the third party verifier must be a chartered accountant or professional engineer and may be either the lead verifier or the peer reviewer and must have the ability to bind the corporation. The signing authority must sign and submit an original statement of qualification (SoQ), statement of verification, and conflict of interest to the project developer as part of the verification report. **Signatures on behalf of a corporation are not acceptable under the *Specified Gas Emitters Regulation***.

[1] Alberta Environment recognizes that aggregated tillage projects may compile and verify more than one project in a given year and that projects are complete at time of submission. Aggregators should use some discretion in contracting third party verifiers to ensure they maintain independence and may be required to change third party verifiers sooner than 5 calendar years if they have had a large number or projects compiled and submitted for verification.

[2] For the purposes of the third party verification for the Alberta offset system, the lead verifier and signing authority do not need to be the same person. The lead verifier can be a qualified individual with appropriate expertise that is not a chartered accountant or professional engineer. In these cases, a chartered accountant or professional engineer must provide a peer review and act as the signing authority for the verification.

The *Specified Gas Emitters Regulation* requires the third party verifier to be an individual. If a company wishes to sign on behalf of the Corporation, sign-off must be done as:

Company Name
Per [name and signature of Corporate Binding Official]

The *Electronic Transactions Act* allows for the use of electronic signatures in place of written signatures. The electronic signature must be sufficient to identify the person signing and be consistent with the purpose of the document or record being signed. Alberta Environment will accept electronic signatures for the purposes of compliance under the *Specified Gas Emitters Regulation*; however, Alberta Environment reserves the right to request signed originals where the electronic signature is ambiguous or cannot be verified.

6.1.7 Verification Criteria

Verification criteria will be established by the lead verifier prior to the site visit. Criteria must be set to test the projects adherence to the offset quantification protocol, regulatory requirements in the *Specified Gas Emitters Regulation,* consistency between project condition and baseline as defined in the offset project plan and offset project report, and the authenticity of the reductions being claimed in the greenhouse gas assertion. As such, verification criteria will vary from project to project and may be more detailed and rigorous for more technically complicated projects, including aggregated projects.

6.1.8 Materiality

Materiality refers to an error, omission or misrepresentation (discrepancies) that may affect the greenhouse gas assertion. The materiality threshold for compliance with the specified gas emitters program, including the Alberta offset system, has been set at 5 per cent consistent with generally accepted materiality thresholds for greenhouse gases, and the materiality threshold for financial audits. Errors under 5 per cent are deemed **immaterial**. A third party verifier may issue a statement of verification for a project that has unresolved immaterial discrepancies.

Material errors are errors over 5 per cent on an individual or aggregated basis. This materiality threshold may be tripped where the cumulative errors on an absolute basis are greater than 5 per cent. That is, the magnitude of the errors, both positive and negative, are summed to determine the total project error. For example, a +3 per cent error and a -3 per cent error equal a total project error of 6 per cent not a net error of 0.

A third party verifier cannot issue a statement of verification for a project that contains unresolved material discrepancies. Any material errors that are identified must be corrected before the verifier can sign off on the offset project and the offset credits can be submitted to the registry.

Due to the high degree of variability in offset project size and relative emissions reduction opportunities, Alberta Environment has not set a **negligible** emissions limit applicable to offset projects. Negligible emissions are emission sources that are extremely small (on the order of tonnes per year) that are difficult to quantify and unlikely to change over time. Negligible emissions must result in more conservative estimates of overall project emissions. Emission sources, regardless of size, that are integral to the offset project quantification cannot be excluded.

Project developers should identify negligible emissions in the offset project plan, and should reassess these emission sources periodically to make sure the assumptions made in the project plan remain valid.

Errors may be further broken down into quantitative and qualitative errors. **Quantitative materiality** refers to errors, omissions or misrepresentations of a numerical nature. Examples include inaccuracies in the input data, omission of sources, and inappropriate application of calculation methodology.

Qualitative materiality refers to errors, omissions or misrepresentations of a non-numerical nature; misleading presentation of circumstances, poor data handling and record keeping and lack of transparency are considered qualitative errors that may erode a third party verifier's ability to reach a necessary level of comfort with the overall project. Determining whether a qualitative materiality discrepancy has occurred is at the professional judgment of the third party verifier and may result in a qualified or adverse assurance statement.

6.1.9 Level of Assurance

Alberta Environment requires a **limited** (review) level assurance for all greenhouse gas emissions verifications. This requires the verifier to obtain and check information through enquiry, analytical procedures, and discussion. Greenhouse gas verification done to a limited level assurance is more stringent than financial verification done to a limited or negative level of assurance, but is not sufficient for the verifier to come to a positive conclusion. Therefore, a limited level assurance statement should be phrased:

> "*Based on our work described in this report, nothing has come to our attention that causes us to believe that the greenhouse gas assertion is not, in all material respects, in accordance with the approved quantification protocols*".

Note: *Alberta Environment has committed to moving to reasonable level of assurance starting January 1, 2012 for all offset credits generated after January 1, 2012.*

6.2 Verification Process

6.2.1 Engaging a Third Party Verifier

The project developer is responsible for engaging a third party verifier to conduct the verification of the offset credits being submitted to the Alberta Emissions Offset Registry. The project developer must ensure that the third party verifier hired to complete the verification meets the requirements for a third party verifier identified in section 6.1.2 above.

Both the project developer and the third party verifier need to confirm that there are no actual or perceived conflicts of interest that may compromise the impartiality of the third party verifier and subsequent verification. The conflict-of-interest checklist must be filled out as part of the procurement process and be submitted to the registry along with the other supporting documentation for the project. If the third party verifier is utilizing external resource persons on its verification team, the external team members must also complete and submit a signed conflict-of-interest checklist.

If it is determined that there is a real or potential conflict of interest, and both parties wish to pursue the engagement, written evidence must be provided to Alberta Environment stating what actions will be taken to manage the conflict to preserve actual and perceived independence. Alberta Environment will assess all potential conflict-of-interest cases. If a potential conflict of interest cannot be effectively managed, the project developer must select an alternate third party verifier that meets the criteria for independence discussed in section 6.1.3.

Impartiality must be monitored throughout the verification. If an actual or perceived conflict-of-interest is identified, the project developer must notify Alberta Environment and work with the third party verifier to manage the conflict.

6.2.2 Planning the Verification

The third party verifier must develop a verification plan to identify data and files required to support the verification. The verification plan should be communicated to the project developer before the site visit. The verification plan should:

- Set the objectives of the verification;
- Assess the potential risks in the data management system(s) by:
  - Assessing the inherent and control risk associated with the data and data management system to determine areas for future investigation;
  - Perform analytical testing on the project, including all supporting information, to determine areas for future investigation;
- Assess the potential magnitude of any errors, omissions and misreporting by conducting a magnitude and sensitivity analysis on the reported data to determine parameters that significantly affect the Greenhouse Gas Assertion.
- Set an initial quantitative materiality level for any errors, omissions or misreporting.
- Provide details on verification procedures that will be applied to meet the objectives of the verification.

The third party verifier and project developer should determine a reasonable timeframe and schedule for the verification up front. This will include identifying key contacts for the facility, setting dates for site visits, and estimating a completion date for the verification. This allows both parties to set up an appropriate verification schedule to complete the verification as efficiently as possible.

6.2.3 Site Visits

Third party verifiers are required to conduct a site visit as part of the verification. Site visits are used to help confirm the project condition, emissions sources and sinks, data management systems, measurement/estimation methods, and boundaries for the project condition.

In some cases, such as aggregated projects, it may not be practical to visit all sites each year. Site visits should be undertaken on a sample basis. Justification for the sample size and selection process must be provided in the verification report.

Note: *Project developers for aggregated projects such as tillage system management projects, are strongly encouraged to engage third party verifiers such that sample-based site visits can be undertaken for current year project conditions and are being advised that on-farm site visits will be required starting January 1, 2012*.

If a site visit is not being undertaken, the verifier must explain what steps will be taken to confirm the project conditions including surrogate measures being used to asses site boundary activity, etc.

6.2.4 Access to Information and Supporting Materials

The project developer must provide sufficient information to allow the third party verifier to evaluate emissions reductions being claimed in the greenhouse gas assertion. Documents and information required to complete the verification will be project specific and may include, but are not limited to:

- Supporting information for the baseline and project condition;
- A description of the site processes and project;
- A simplified process flow diagram ;
- A data flow diagram and sample calculations;
- An inventory of greenhouse gas sources and sinks;
- A description of the data management system(s) and quantification protocol used to calculate the emissions reductions;
- Key supporting documents including invoices, receipts, calibration records, lab analysis, etc.;
- QA/QC records; and
- Record of assumptions used in the project.

The project developer can assist the verification process by having documents and records collated and available for the third party verifier prior to the commencement of the verification.

6.2.5 Close out meeting

The third party verifier is encouraged to provide the draft report to the project developer before the verification is finalized and the statement of verification issued. Parties may schedule a close-out meeting to review the verification findings and attempt to resolve outstanding issues prior to issuing the statement of verification.

6.2.6 Verification Report

The verification report is issued by the third party verifier once the project review is complete and it has been determined that the project has no outstanding material errors. This report provides a summary and discussion of the third party verifier's verification procedures and results and must be submitted to the Alberta Emissions Offset registry as part of the supporting documentation for the offset project. The report should be sufficiently complete to provide the registry, prospective buyers, and Alberta Environment assurance on the quality of the third party verification.

The third party verifier's report must contain:

- The final verification plan;
- The final sampling plan;
- A complete verification schedule;
- Names and roles of the verification team members;
- Verification findings identified;
- A signed statement of qualifications;
- A signed statement of verification (limited level assurance statement); and
- A signed conflict-of-interest checklist.

Template for the verification report, statement of qualifications, and conflict of interest checklist are available on Alberta Environment's website. The third party verifier is encouraged to follow these templates. While the layout of the verification report may be adjusted to suit individual preferences, the content specified in the template must, in all cases, be included. Where the verifier feels a category is not applicable to the verification, sufficient rational must be provided to explain why the information is not necessary to the verification.

6.2.7 Statement of Verification

The statement of verification is a statement on the legitimacy of the offset credits. The statement of verification must identify the project being verified, the emissions reductions being verified (tonnes per vintage year) and reporting period being verified.

There are three possible verification statements that can be issued for a limited level of verification:

- a limited level assurance statement
- a qualified limited level assurance statement

- an adverse assurance statement

Limited Level of Assurance Statement
This statement of verification is issued by the third party verifier if the verifier is satisfied that they have undertaken sufficient procedures and there has been sufficient and appropriate evidence supplied to determine that nothing has come to their attention that causes them to believe that the greenhouse gas assertion is not fairly stated. This report may be issued despite remaining immaterial discrepancies.

An example of a Limited Level assurance opinion is:

> *Based on our work, nothing has come to our attention that causes us to believe that the offset credits of Z tonnes of CO_{2e} per year stated in the greenhouse gas assertion is not presented fairly in accordance with the relevant criteria.*

Qualified Limited Level of Assurance Statement
A qualified statement of verification is issued if the verifier is unable to form an opinion on certain aspects of the compliance report due to circumstances beyond the control of the third party verifier or the project developer. Examples include the disposal of records in compliance with regulations or the destruction of records in a natural disaster. Limitations on the scope of the assurance should be clear in the statement of verification and the reasons for the limitation should be disclosed in the third party verifier's report. Further guidance is provided in ISO 14064: Part 3, Annex A.2.9.2.

An example of a qualified opinion is:

> *Based on our work, there was insufficient and appropriate evidence to support a conclusion on the offset credits of (tonnes CO_2e per vintage year) being claimed in the greenhouse gas assertion. As referenced in the greenhouse gas assertion, records for this period were unavailable. Readers are cautioned that statements during this period may not be appropriate for their purposes. Based on our work during the period zz,zz to zz,zz, nothing has come to our attention that causes us to believe that the ZZ,ZZZ offset credits presented in the greenhouse gas assertion for this period are not presented fairly in accordance with the relevant criteria.*

Adverse Assurance Statement
Adverse assurance statements are rarely issued, but when they are, it is because there are outstanding, unresolved, and undisclosed material discrepancies. Adverse assurance statements may be issued for example, if the verification is terminated at the request of the project developer and no verification report or statement of verification was issued. The project developer may consider terminating the verification and ask the third party verifier not to produce the report if they are faced with an adverse verification statement or if they need more time to prepare for the verification.

An example of an adverse opinion is:

> *Based on our work, the greenhouse gas assertion does not contain all the disclosures required by the Alberta offset system. Readers are cautioned that these statements may not be appropriate for their purposes*.

6.2.8 Statement of Qualifications

The statement of qualifications is an attestation signed by the signing authority stating the company hired to undertake the third party review is sufficiently qualified to undertake the verification of the offset project. They are stating the company and verification team have the technical experience required to evaluate the correctness of the project.

The statement of qualifications must be signed and submitted to the registry as part of the supporting documentation for the project.

6.2.9 Conflict of Interest Checklist

The third party verifier **must** be an independent third party that is qualified to undertake the third party review for the project. The conflict of interest checklist must be completed and signed by the lead verifier prior to the verification. If any conflicts are identified, the project developer or lead verifier should contact the Alberta Environment to discuss the situation prior to undertaking the work.

6.3 Peer Review

Alberta Environment requires the verification report undergo peer review prior to being finalized. This peer review process requires that persons different from those who undertook the fieldwork perform a final evaluation of the evidence and conclusions of the verification team.

The peer reviewer must have relevant audit and technical expertise and cannot be the same person as the lead verifier. The peer reviewer may also be the signing authority for the verification report.

6.4 Subsequent Events

In certain circumstances, matters may come to the attention of the third party verifier that renders a previously issued verification report invalid or inaccurate. Third party verifiers are not required to actively monitor the validity of their reports after issuance. However, where it is brought to the attention of the third party verifier that a previous statement is no longer accurate, they must notify the project developer and Alberta Environment to discuss further follow-up actions that may be required.

7.0 Government Audit

Alberta Environment audits a percentage of facility compliance submissions annually. A percentage of offset credits submitted by facilities as compliance options are also audited as a means of assessing the facility's compliance with the *Specified Gas Emitters Regulation*. Project developers and regulated facilities that submitted the offset credits for compliance will be notified in writing if their project/offset credits have been selected for government audit.

Alberta Environment also uses information collected during the audits, including the offset project audits, to assess program performance and identify areas for improvement.

7.1 Project Selection

Alberta Environment uses the following criteria to select projects for auditing:

- Coverage across offset project types;
- A range of project sizes and complexity;
- New and existing projects;
- Regulated facility submitting the offset credits for compliance;
- A cross-section of third party verifiers;
- Anomalies or issues encountered during the desktop review;
- Continuity between previous offset project audits; and
- Random selection.

Based on the criteria above, some offset projects may be audited more than once or be audited several times in succession to better understand how the projects are tracking emissions reductions over time.

7.2 Audit Process

Alberta Environment's audit process uses a similar approach to third party verification with a few key differences.

Alberta Environment issues a Request for Proposal to solicit bids from qualified audit companies. Auditors will be hired based on whether they meet the requirements of a third party auditor under section 18 of the *Specified Gas Emitters Regulation*; their audit experience; and their sector specific expertise. Auditors hired by Alberta Environment must meet the same independence requirements as third party verifiers; an audit team will not be assigned to an offset project where there is actual or perceived conflict of interest unless sufficient action can be taken to ensure independence.

Alberta Environment will conduct an internal review to determine which projects will be audited based on the criteria stated in section 7.1. Audit teams are assigned to offset projects based on the expertise of the audit company while managing for conflict of interest.

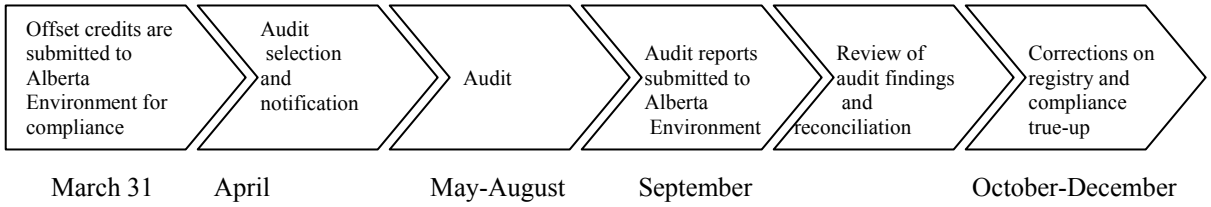
Once the auditors have been assigned, Alberta Environment will issue written notice to the project developer and regulated facility(s) that submitted the offset credits for compliance indicating they have been selected for a supplemental government audit. The auditors will work directly with the project developer to set up an appropriate audit schedule and to request supplemental information needed to complete the audit.

Auditors are required to perform a site visit. Details of the site visit and audit will be included in the verification plan, which will be shared with the project developer before the site visit.

Auditors may schedule a close out meeting with the project developer to discuss key findings; however, the audit report **must** be submitted directly to Alberta Environment. Alberta Environment will review the audit findings and coordinate a follow-up meeting with the project developer to determine what, if any, follow-up action is needed. Alberta Environment will work with the project developer to address outstanding issues. Materiality and corrective actions are discussed below.

If no follow-up is required based on the audit findings, the project developer and regulated facility(s) will receive written notice confirming the offset credits.

Figure 5: Audit Process



7.3 Materiality for Government Audits

Government audits are done to a same materiality threshold for audits as is required for third party verification (see section 6.1.6). Auditors must assess both quantitative and qualitative errors associated with a project to reach a limited level assurance on the emission reductions being claimed. Auditors are required to identify all material and immaterial errors observed during the offset project audit. These errors must be documented in the audit report. Alberta Environment will then work with the project developer to determine appropriate corrective actions.

7.4 Error Correction and Reconciliation

Immaterial errors are assessed on a case-by-case basis to understand their impact on the overall project and determine appropriate corrective actions.

Where an audit identifies material errors that result in an under-statement of emissions reductions for the project, the project developer can correct the quantification

methodology on a go-forward basis. That is, corrections will apply for the next credit generation period.

Material errors may result in the project and all associated offset credits being revoked from the registry. Where material discrepancies are identified through government audit, the following process will apply:

- Alberta Environment will work with the project developer to clarify the discrepancies.
- If corrective action is required, Alberta Environment will issue written notice to the project developer indicating outstanding issues that require follow-up.
- The Alberta Emission Offset registry will be notified and the project will be flagged as "under review" on the registry.
    - No further transactions will be allowed on affected credits until outstanding issues have been resolved. Related projects by the same project developer may also be put on hold until issues can be resolved. This would typically happen if there errors are associated with the data management system and are potentially pervasive within the project.
    - Facilities will be notified that discrepancies have been identified with the offset project and that further work has been initiated.
- The project developer will have until March 1 to resolve issues and have the project pass an audit by an auditor appointed by Alberta Environment and paid for by the project developer.
    - If the discrepancies are resolved:
        - the unsupported credits will be revoked from the registry.
        - Facilities will be required to pay alternate compliance into the Climate Change and Emissions Management Act.
        - Corrective actions between the buyer and seller will be negotiated based on contractual obligations.
    - If the discrepancies are not resolved:
        - the project and **all** associated offset credits will be revoked from the registry.
        - the regulated facility will be required to come into compliance through payment into the Climate Change and Emissions Management Fund due on or before March 31 (payment may be included with the compliance submission).
- The project developer will have 1 year (until March 1 of the following year) to make corrections and have the project pass a government audit where the auditor is assigned by Alberta Environment and paid for by the project developer.
    - If the project passes a government audit, revised offset credits can be serialized and registered on the Alberta Emissions Offset Registry.
    - If the project fails the government audit, no further credits will be accepted from that project.

Note: delays encountered during the audit may result in delays in audit results being made available to the project developer. This will result in a shorter window for

corrections relative to the March 1 deadline. Alberta Environment will not entertain project corrections for a previous compliance cycle past March 1 of the following year.

Alberta Environment uses the following process to correct offset credits that have been submitted for compliance:

- Correction will be attributed to the serial number range in which the problem occurred. That is, credits will be retracted proportionally across vintage years to which the error applies.
- Where the offset credits are held by two or more parties, corrections will be assigned proportionally to all parties owning the offset credits.

Rectifying offset project corrections with facility compliance submissions will be done as follows:

- If unpurchased offset tonnes exist, correction may first be taken from unpurchased tonnes held by the project developer. In this situation, the project developer will be required to initiate transfer of ownership to the affected facilities, and request retirement of the credits required to replace revoked credits.
- If all credits from the project have been sold, Alberta Environment will accept unretired offset credits to replace the revoked credits if it can be demonstrated that the replacement credits were verified, serialized and owned by the facility at the March 31 compliance deadline.
- If all credits have been retired and submitted for compliance, facilities will be required to make a payment into the Climate Change and Emissions Management Fund at the rate applicable at the compliance deadline.

Corrective actions between buyer and seller should be identified through contractual arrangements between the two parties and are outside the government regulatory system.

Companies that have submitted offset credits for compliance that are subsequently revoked will be required to make the difference through payment into the Climate change and Emissions Management Fund.

7.5 Audit Methodology

Auditors must use one of the following three audit methodologies consistent with verification methodology requirements:

- ISO 14064 Part 3 – Greenhouse Gases: Specification with guidance for the validation and verification of greenhouse gas assertions
- Standards for Assurance Engagements, Canadian Institute of Chartered Accountants (CICA) Handbook – Assurance Section 5025
- International Standard on Assurance Engagements (ISAE) 3000 - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information

Auditors will select the methodology appropriate to their audit. Methodology used by the auditors does not need to be the same as the methodology used by the third party verifier; however, the offset project and third party verification should be sufficiently robust such

that an independent party can come to the same conclusion as the original verification regardless of the methodology being used.

7.6 Level of Assurance

Alberta Environment requires audits be performed to a limited level of assurance, consistent with the requirements for third party verification. Alberta Environment may request some audits be performed to a reasonable level of assurance.

7.7 Audit Report

Auditors must produce an audit report which is submitted directly to Alberta Environment. Alberta Environment will share a copy of the audit report with the project developer and will schedule a meeting to review audit findings and determine any follow-up required. All audit follow-up occurs between Alberta Environment and the project developer. The auditor is not included in the follow-up discussions or the audit close out meeting.

7.8 Confidentiality Considerations

Auditors are contracted with Alberta Environment. As an agent of the government, they are bound by Government of Alberta confidentiality requirements for data and must comply with all appropriate government regulations. Information collected for audit purposes is subject to section 16 of the *Specified Gas Emitters Regulation*. Further, government contracts explicitly reference confidentiality requirements under the *Freedom of Information and Protection of Privacy Act* which mandates how information submitted to the government is to be handled for confidentiality purposes. Project developers wishing to request additional confidentiality on specific information can submit a written request to the Director identifying the materials deemed to be confidential and rational for the request. Alberta Environment will review the request and respond within 180 days.

7.9 Continuous Improvement

Additional information collected during the audit process is used to support program improvements and may be reflected in guidance changes, protocol reviews, or other as required and are part of a larger framework of on-going program reviews.

8.0 Alberta Emissions Offset Registry

Alberta has established the Alberta Emissions Offset Registry, through Climate Change Central in partnership with CSA Standards GHG CleanProjects™ Registry, for Alberta-based offset projects. The registry is a public forum (i.e. website) that provides details on carbon offset projects including project related documentation and serialized tonnes that can be accessed and reviewed by interested parties. Business transactions between buyers and sellers are negotiated outside the registry; however, the registry is required to track changes in ownership of serialized tonnes through all intermediate parties to ensure a transparent, auditable record of owners is available to Alberta Environment.

Unique serial numbers are assigned to each offset credit or tonne of carbon dioxide equivalent reduced or removed, and are used to track the tonnes as they move through the Alberta offset system from project developer through to regulated facility. Offset credits and associated serial numbers must be retired and removed from circulation when they are submitted for compliance.

Offset credits can only be counted once for compliance. If the credits are sold outside the Alberta market or if the project developer/current owner of the offset credits decides to list the credits on a different registry, the offset credits must be formally retired from the Alberta offset system and will no longer be available for use as a compliance option. Offset credits may also be voluntarily retired by entities other than regulated facilities and would need to submit a retirement request to the registry to have the credits removed from circulation.

Documentation requirements for the registry are consistent with requirements for Clean Development Mechanism (CDM) projects and meet the same requirements for document retention and transparency. While the registry performs a completeness check on all documents submitted to the registry, the registry does not certify or validate any credits posted on the site. The registry will query projects to check for issues of double counting and work with the project developer to correct identified deficiencies in documentation such as missing information or incomplete reports. Final acceptance of offset credits submitted for compliance by regulated facilities will be determined by Alberta Environment.

Due to the inherent complexity of aggregated projects, aggregators are required to complete and submit a spatial locator template with detailed information on individual contracts by legal land descriptions that make up the larger serialized credit range. Information collected through the spatial locator template is used to check for double counting between aggregated projects of the same project type on the same legal land location within a vintage year. The spatial locator template is also used to connect serialized tonnes to on-the-ground emissions reductions, which supports verification, and audit of the emissions reductions.

Note: *The registry does not provide assurance about the validity of offset credits. This is done through an independent third party verification, and may be confirmed through government audit. Buyers are encouraged to do a due diligence check of offset credits as part of the purchase process.*

Note: *Credits may only be counted once for compliance. If Alberta Environment becomes aware of double counting of credits on other registries, Alberta Environment will take appropriate action as required, and may include, but is not limited to revoking affected credits from the Alberta Emissions Offset Registry.*

8.1 Registry Credit Categories

As part of its commitment to full transparency, offset credits are tracked through various categories on the registry to ensure full disclosure of all credits serialized by a project.

Category	Description
Serialized Credits	Serialized credits are credits that have been serialized and posted on the registry. These credits are available for purchase.
Delisted (Transferred)	Delisted or transferred credits are credits that have been sold. Credits may be sold multiple times. They will remain active in this category until there is a request to retire or remove them from the registry. In all cases, credits must be transferred to the current owner.
Pending	Pending credits are credits that have been submitted to Alberta Environment for compliance and are no longer available for sale.
Retired	Retired credits have been confirmed as a compliance option by Alberta Environment and have been retired and are no longer available for sale.
Removed[3]	Removed credits are a result of errors identified by the project developer. The project developer requests the tonnes be removed from circulation and are not available for sale.
Revoked	Revoked credits result from errors identified through government audit and are no longer available for sale.

[3] Removed and Revoked credits are tracked by the registry, but are not currently visible to the public. This feature is planned for the 2011 registry up-dates.

8.2 Timing

Offset projects may be registered and serialized at any time in the project cycle and are not required to adhere to a calendar year unless required as part of the measurement process stated in the protocol. The deadline for compliance with the *Specified Gas Emitters Regulation* is March 31. Projects may be registered and requests for serialization made up to March 31; however, project developers should be aware the Alberta Emissions Offset registry has minimum time requirements for processing project registration and serialization, transfers of ownership and requests for retirement as outlined below. While the registry does its best to process all requests before the March 31 deadline, Alberta Environment and the Alberta Emissions Offset Registry cannot guarantee processing and availability of offset credits for projects registered after March 1 of the compliance year.

Note: *Alberta Environment cannot accept any tonnes for compliance that have not been registered and serialized on the Alberta Emissions Offset Registry***.**

8.3 Fees

The Alberta Emissions Offset Registry is operated in partnership between Climate Change Central and the CSA GHG CleanProjects™ registry and is operated on a cost recovery basis. Fees provided in Table 2 are current for 2009 and are subject to change periodically.

Transaction	Documents Required	Fees	Processing Time (business days)
Project Registration	GHG Project Application Form Schedule A, B, C (if necessary), D	$200	1 - 10
	GHG Project Report Spatial Locator Template if applicable Third Party Verification Report	$250	
	Validation Report (optional)	$250	
Serialization	Serialization Request and Third party verification if not submitted during project registration	$0.05 per tonne	1 - 10
Transfer of Ownership	Transfer Request form	No Fee	1 - 10
Request for Retirement	Retirement Request form	No Fee	1 - 10
Corrections to the Project	Updated Greenhouse Gas Assertion Correction Report New statement of verification and Verification Report if required	$250	1 - 10

Table 3: Transactions costs, document requirements and fees for the Alberta Emissions Offset Registry

Payment for transactions must be received within 30 days. Late payments may result in projects being temporarily suspended until payment has been received.

8.4 Registry Submission Checklist

Registration forms are available for download from the registry and must be completed in their entirety before a project will be accepted for registration on the registry.

The registry will also require the following documents to support project registration:

- Greenhouse gas assertion
- Offset project report
- Offset project plan
- Spatial locator template (for aggregated projects)
- Third party verification report and supporting documents
- Validation report (if applicable)

The registry serves as an official repository for offset project documentation. Facilities submitting offset credits for compliance should review the documents on the website and are required to submit any missing records to Alberta Environment as part of their compliance submission. Facilities must also submit the confirmation of initiaiton of retirement issued by the registry. This note confirms that the facility has initiated retirement of the offset credits.

This process of housing records on the registry does not replace a company's due diligence during offset credit transactions. Facilities should continue to due their own due diligence on all offset credits being purchased and should retain appropriate records for the projects.

8.5 Corrections to Registry Submissions

Alberta Environment recognizes that situations may occur where corrections need to be made to the serialized tonnes posted on the registry. The two primary reasons for making corrections to projects listed on the registry are:

1. The project developer and/or third party verifier become aware of an error (removed); or
2. An error is detected during the government audit (revoked).

Where errors are detected, they must be corrected and invalid tonnes **must** be retracted from the registry. For removed credits, the registry will require a notice of retraction, corrected greenhouse gas assertion, and a letter from the third party verifier stating the changes that were made, including a new statement of verification for the revised greenhouse gas assertion.

Revoked credits will be done at the request of Alberta Environment. Project developers may resubmit revoked credits as per the requirements stated in section 7.4 above.

For transparency purposes, serial numbers belonging to removed and revoked credits will be appropriately displayed in the removed or revoked sections on the registry. Serial numbers listed in these categories are **not** available for sale.

8.6 Offset Credit Error Correction

Errors detected through government audit will be corrected according to the process outlined in section 7.4 above.

Voluntarily identified errors and errors deemed by Alberta Environment to require correction must complete and submit the following documents to the registry:

- A notice of removal indicating the original and corrected credits per vintage year;
- A correction report produced by the third party verifier stating the errors detected, actions taken to correct the errors, and the correct emissions reductions;
- A new statement of verification signed by the third party verifier; and
- A new greenhouse gas assertion with the corrected offset credits

GLOSSARY OF TERMS

Additionality	An action that results in greenhouse gas emission reductions that are beyond business as usual and supplemental to all regulatory requirements.
Alberta Emissions Offset Registry (AEOR)	A web-based platform that houses and track Offset Projects and offset credit information.
Aggregated Projects	A collection of small projects using same quantification methodology that have been bundled to create a larger volume project for marketing, verification, and registration.
Aggregator	An entity acting as the Project Developer of aggregated projects.
Baseline	A reference case against which the performance of the project is measured.
Biosequestration	The process of storing carbon dioxide in biological reservoirs including trees, plants, and soil biomass.
Biomass	Non-fossilized and biodegradable organic material originating from plants, animals and micro-organisms.
Broker	An entity that functions as an intermediary between two or more parties in offset credit transactions.
Business as Usual (BAU)	Projection of normal operating conditions that would have occurred in the absence of incentives or regulatory changes.
Carbon Dioxide Equivalent (CO_2e)	Is the 100-year global warming potential average of a unit of greenhouse gas (e.g. methane) compared to an equivalent unit of carbon dioxide (reference gas).
Climate Change and Emissions Management Act	Legislation in Alberta passed in 2002 allowing Alberta Environment to manage greenhouse gas emissions in the province.
Conflict of Interest Form	A signed document identifying any real or perceived conflict of interest that may compromise the impartiality of the Third party verifier
Credit Duration Period	The duration of time that the project is eligible to receive offset credits.

Credit Producer	Is an individual or company generating offset credits which are aggregated into a larger offset project.
Eligibility Criterion	Are minimum requirements an offset project must meet to be eligible under the Alberta Offset System.
Emission Factor	Is a representative value that can be used to estimate the rate or quantity of greenhouse gas emissions released to the atmosphere or removed through sequestration processes.
Emission Reduction	Occurs when emissions released into the atmosphere by a source are decreased or eliminated.
Emission Removal	Occurs when CO_2 or CO_2e is removed from the atmosphere through sequestration.
Global Warming Potential (GWP)	Measures a greenhouse gas's relative warming effect on the Earth's atmosphere compared with carbon dioxide expressed as a 100-year average.
Greenhouse Gas Assertion	A document that identifies the greenhouse gas emissions reductions/removals and offset credits being claimed by the project over a defined period of time.
Incremental	Is an eligibility criterion referring to a change in practice that results in additional emission reductions beyond business as usual/sector common practice.
Leakage	A rise in greenhouse gas emissions outside the project boundary that is a result of the offset project.
Level of Assurance	Identifies the amount of work required to reach a stated level of comfort with an offset project.
Offset credit	Is a tradable credit issued per tonne of greenhouse gas emissions reductions/removals expressed as CO_2e.
Offset Project	An activity implemented by a Project Developer in accordance with a government approved protocol that results in greenhouse gas emissions reductions or removals.
Offset Project Plan	Is a report prepared by the Project Developer describing how the offset project will meet the criteria outlined in the quantification protocol.
Offset Project Report	Is a report prepared by the Project Developer prior to third

	party verification that describes how the project was implemented relative to the Offset Project Plan and appropriate quantification protocol.
Project Developer	A person who implements an offset project in accordance with a government-approved protocol.
Project Start Date	Is an eligibility criterion referring to the date when the greenhouse gases are initially reduced ore removed by the offset project.
QA/QC	Refers to Quality Assurance and Quality Controls associated with an offset project and data management system.
Quantifiable	Is an eligibility criterion requiring that the emissions and reductions of greenhouse gases be calculated and monitored or estimated in accordance with the requirements set out in an approved quantification protocol appropriate to the project type.
Quantification Protocol	Is a government-approved methodology that outlines appropriate baseline conditions, eligible sources and sinks, and emission reduction calculations for a specific emission reduction activity.
Real	Is an eligibility criterion requiring that the offset project be a specific and identifiable action that results in a net greenhouse gas emission reduction or removal.
Registration	The process of registering a project on the Alberta Emissions Offset Registry
Regulated Facility	Is a facility located in Alberta that emits over 100,000 tonnes CO_2e per year. The regulated facility may purchase Offset credits for compliance under the *Specified Gas Emitters Regulation*.
Reversal	Is a release of carbon sequestered or stored in a reservoir back to the atmosphere.
Sequestration	The process of storing carbon in a reservoir to prevent its release into the atmosphere.
Serial Number	Is a unique number assigned to each tonne of greenhouse gas emissions reductions generated by an offset project.

Scope	Is an eligibility criterion that refers to the Offset Project requirements stated in section 7 of the *Specified Gas Emitters Regulation.*
Sink	Any process, activity or mechanism that removes greenhouse gas from the atmosphere.
Source	Any process or activity that releases greenhouse gases into the atmosphere.

8.6.1 Stackable Protocols are written such that two or more protocols can be implemented as part of one large project.

Specified Gas Emitters Regulation	Is the regulation passed under the Climate Change and Emissions Management Act that enables the Alberta Offset System.
Validation	An optional process that is used to asses a project condition including quantification methodologies **before** the project is implemented
Verifiable	Is an eligibility criterion requiring that a Third Party Verifier be able to confirm that the reductions or removals have been achieved as claimed.
Verification	Is an independent third party review of a project to assess project operating conditions against the baseline conditions to confirm the Offset credits being claimed in the Greenhouse gas Assertion
Statement of Qualifications	Is a signed statement attesting to the qualifications of the of the Third party verifier to undertake the verification.
Statement of Verification	Is a document prepared by the Third party verifier expressing their opinion the voracity of the greenhouse gas emissions reductions being claimed by the offset project.
Third party verifier	Is a person or organization that meets the requirements of a third party auditor stated in section 18 of the *Specified Gas Emitters Regulation.*
Unique	Is an eligibility criterion that requires that a greenhouse gas reduction or removal be used only once to create an offset c credit..