GENERAL PROTOCOL:

Version 1.4 December 21st, 2017

Foundational Project Accounting

The Oberlin Project

Tomorrow's Climate Solutions
Climate Positive Projects, Strategies & Marketing

TABLE OF CONTENTS

PROTOCOL PURPOSE:

This protocol is a tool for Colleges and Universities committed to carbon neutrality through the Climate Leadership Commitment's (CLC) Carbon Commitment, to address campus

carbon footprints and provide educational opportunities through these efforts. Envisioned as an approachable protocol for higher education sustainability professionals, professors and advanced students, this protocol makes every effort to be accessible, yet given the technicality of the subject, requires a foundational understanding of carbon accounting. This document strives to expand curricular opportunities for relevant classes, and engage professors, staff and student researchers in the real-world application of sustainability principles through carbon offsetting projects local to College or University campuses.

This protocol provides guidance towards the creation of the foundational documentation for **local carbon offset projects** pursued by Colleges and Universities to fulfill climate change mitigation goals. For the purposes of the Carbon Commitment a project is local if it satisfies any of these three definitions:

1) The project is accessible by students from the College or University from which Project funds originated without requiring greater than **one** day of roundtrip travel to visit the project site; or
2) The project is within the same state; or
3) The project is within 100 miles of the College or University campus.

Protocol guidance will inform criteria to meet professional review and ensure carbon offsets are: Permanent, Additional, Verifiable, Enforceable, and Real i.e. 'PAVER'. As a generic, one size fits all methodology, the General Protocol provides the structure, including examples and general guidance, for the project accounting documents that must be created. The Project Description Document Template (PDD Template) is a companion document to the General Protocol that is intended as a working document while progressing through the General Protocol. The General Protocol will provide instructions for the fulfillment of the PDD Template, section by section. Project Managers must further inform accounting and fulfillment of the PDD Template with **project-type specific protocols** depending on the project type (tree planting, fertilizer management, improved agricultural soil management…etc), which provide additional guidance to fill in non-generalizable accounting requirements within the PDD Template.

The General Protocol and PDD Template have been created for Colleges and Universities to use in fulfilling the requirements of the CLC Carbon Commitment affiliated Peer Review Network, but may also be useful tools to fulfill documentation requirements for other GHG Programs like the Verified Carbon Standard (VCS), the Climate Action Reserve (CAR) and others.

RECOMMENDED PRIOR KNOWLEDGE:

It is recommended that the Project Manager and Project Team have at least a basic understanding of carbon offsetting concepts and accounting methodologies. Training courses are available online for a reasonable price and offer the essential information in an accessible format. In-person trainings may be expected to increase in accessibility as carbon offset markets and activities continue to grow. The Greenhouse Gas Management Institute's: Course 202, Basics of Project-Level GHG Accounting is an example of a course that provides the basic information needed to fulfill the accounting requirements of this protocol and only requires about 20 hours to complete.

PROTOCOL DEVELOPMENT:

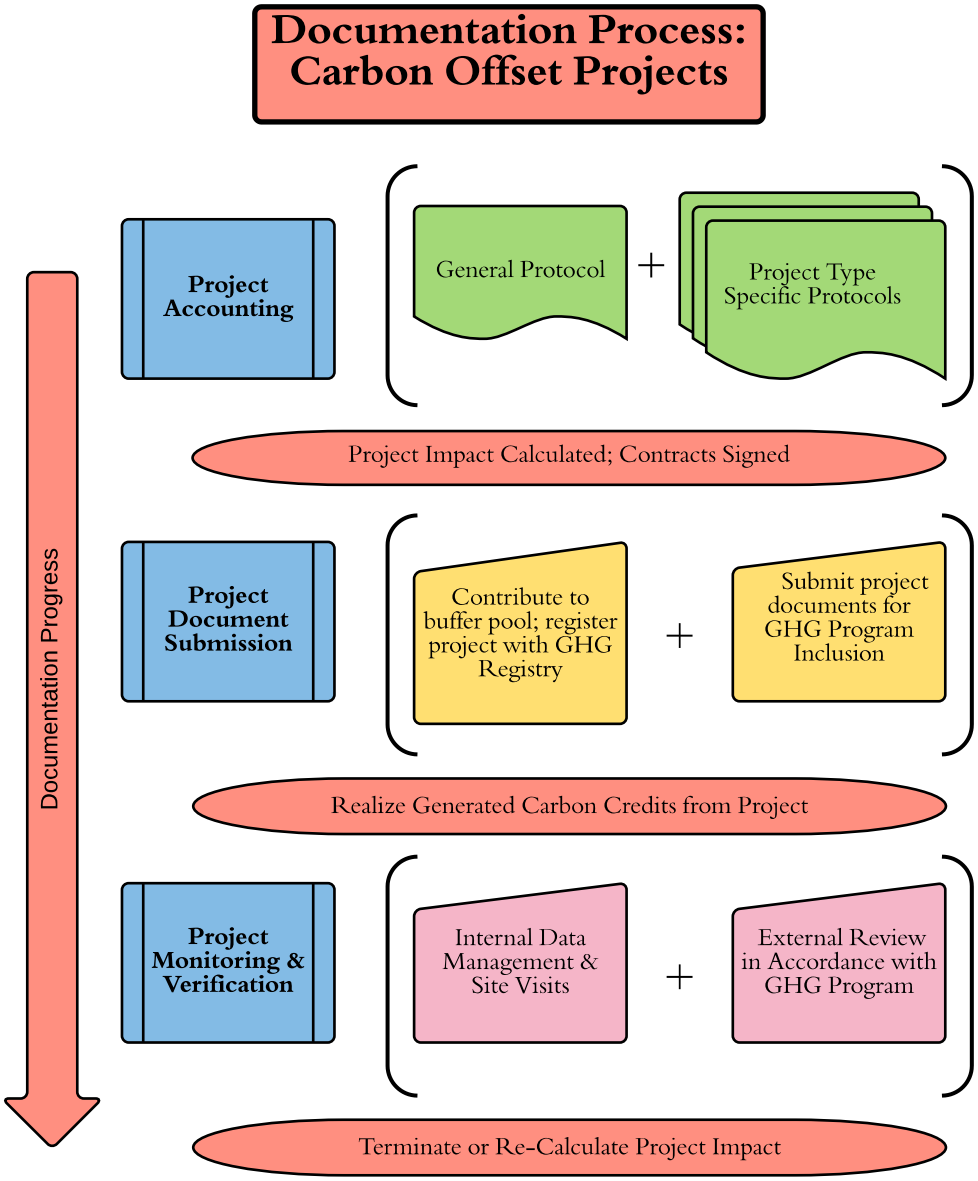
In line with Second Nature's Carbon Commitment guidance for 'Peer-Reviewed' carbon offset projects, protocols are developed by the academic community that allow for greater accessibility to carbon accounting language and concepts. Protocols developed by individual institutions or through collaborative efforts, are then work-shopped and reviewed by the Peer Review Network before being circulated for local and global stakeholder comment. An online web resource platform, www.offsetnetwork.org will track the progress of protocols under development, allow for stakeholder comments to be received, and, once finalized, allow for access to these protocols to aid in local carbon offset project implementation. Protocol development, stakeholder review, and incorporation of the changes through the review process will ensure the robustness of protocols created by and for the academic community. As guidance documents and protocols are updated, notice will be published at www.offsetnetwork.org.

PROTOCOL CREATOR:

Tomorrow's Climate Solutions has been contracted to build this General Protocol for Oberlin College's usage and ownership. The Green EDGE Fund initiated this request and supplied project funding to further develop capacity for an arm of its organization, the Carbon Management Fund whose mission is to establish local carbon offset projects to provide locally beneficial projects towards carbon neutrality for Oberlin College by 2025. This protocol also benefitted greatly from the input, support and collaboration of the Duke Carbon Offset Initiative.

USE OF ALTERNATIVE PROTOCOLS:

As an alternative to the General Protocol and other academic community-built and reviewed carbon offset protocols, any project may opt to follow the guidance and protocol of an existing accredited GHG Program relevant to the project type, provided approval by the Peer Review Offset Network. Often these protocols will place additional requirements above and beyond the requirements of the protocols built by the academic community, which have designed to ease project implementation. If you opt to select the protocol of an accredited GHG Program this guidance document for the creation of the Project Description Document, and additional accounting requirements, may still be a useful tool to fulfill accounting requirements.



1.0 INTRODUCTION

Colleges and universities across the United States have committed themselves to carbon neutrality in accordance with CLC guidance. Bringing an extensive network of America's higher education community together to foster innovative solutions to carbon neutrality, within a space that encourages creative thinking to address societal dilemma. Second Nature (the creators of CLC) explain their approach to carbon offsets, which informs the creation of this general protocol:

"As carbon offset markets continue to evolve … the principles and details of the [carbon offset] Protocol and accompanying guidelines will likely evolve as well. …The unique considerations for the higher education context, including the educational opportunities that offsetting activities represent; and the contribution that Colleges and Universities can and should make to improve these mechanisms to accelerate progress towards stabilizing GHG concentrations."[1]

Carbon offset projects accessible from College and University campuses provide the unique opportunity to educate and engage students in climate action, impact surrounding communities, and offset campus' carbon footprints. This general protocol and protocols created by schools around the nation for specific project types will provide the tools to unlock local offsets as a viable option to achieve carbon neutrality while maximizing local benefit.

1.1 SCOPE

The General Protocol guides the foundational documentation required for local carbon offset Project Documentation. For the purposes of this protocol, local may be defined by whichever of the following definitions applies:

1. Accessible by students from the College or University from which Afforestation Project funds originated without requiring greater than **one** day of travel roundtrip to visit the project site;
2. Within the same State as the College or University; or
3. Within 100 miles of the College or University Campus.

This protocol is written to be accessible to non-professional and semi-professional carbon accounting practitioners and academics, while providing step by step accounting guidelines in preparation for professional review.

Additional project-specific protocols allow for complete project accounting building from this foundation, and forthcoming procedures to satisfy verification through the relevant CLC Offset Guidelines. While currently under development, it is anticipated that peer review by Colleges and Universities will fulfill substantial requirements for project level validation and verification.

[1] Second Nature, 2008. Investing in Carbon Offsets: Guidance for ACUPCC Institutions. https://webbrain.com/attach?brain=C00CB79D-B952-3F63-E801-80048C72FBC2&attach=7587&type=1

1.2 SOURCES

This protocol draws extensively from industry good practice guidance for project level accounting:

- International Organization for Standardization – ISO-14064-2
- World Resources Institute-World Business Council for Sustainable Development (WRI-WBCSD) – The GHG Protocol for Project Accounting
- Climate Action Reserve (CAR) – Program Manual
- American Carbon Registry (ACR) – Validation and Verification Guideline

1.3 TERMS & ACRONYMS

For the purposes of this document, the following terms and definitions apply[2]:

1.3.1 afforestation project is a planned set of activities designed to reduce atmospheric GHGs through removals, reductions or the prevention of CO_2 emissions, through increasing and conserving forest carbon stocks. Carbon offsets from afforestation activities occur when the net CO_2e (CO_2e stored minus CO_2e emitted) associated with forest growth exceeds the pre-project baseline scenario (CAR).

1.3.2 buffer pool is an "insurance mechanism whereby the Project Proponent is required to contribute an adequate number and type of offsets, as determined by the Registry, to a buffer pool held by the Registry in order to replace unforeseen losses in carbon stocks. The buffer contribution is a percentage of the project's reported offsets; the percentage is determined through an assessment of project risk (ACR).

1.3.3 carbon dioxide equivalent (CO_2e) emissions is a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potentials (GWP) over a 100-year timeframe. Carbon dioxide equivalents are commonly expressed as metric tonnes of carbon dioxide equivalents (tCO_2e). The carbon dioxide equivalent for a gas is derived by multiplying the tonnes of the gas by the associated GWP (US EPA). Follow this link to EPA's most up to date guidance on GWP.

1.3.4 carbon offset or carbon credit is equal to one metric ton (tonne) of carbon dioxide equivalent (tCO_2e) and can be used to reduce the emissions of an entity by one tCO_2e or sold to another entity for an agreed upon price.

1.3.5 carbon offset reversal is "a decrease in the stored carbon stocks associated with the GHG reductions and removals that occurs before the end of the project life" (CAR).

[2] Terminology definitions courtesy of: ISO 2006 –ISO 14064-2:2006(E) All rights reserved; and the CAR (2012), Forest Project Protocol Version 3.3. Climate Action Reserve. Climateactionreserve.org. Accessible via: http://www.climateactionreserve.org/how/protocols/forest/dev/version-3-3/

1.3.5.1 Avoidable reversal: "is any reversal that is due to the Project Proponent's negligence, gross negligence, or willful intent, including harvesting, development, and harm to the Project Area" (CAR). Should avoidable reversals occur or be identified through verification, Project Proponents must provide written explanation for the reversals occurrence and retire a quantity of carbon offsets equivalent to the reversal impact. NOTE: Retiring offsets credits to compensate for an avoidable reversal requires a contribution that does not originate from the buffer pool.
1.3.5.2 Unavoidable reversal: "is any Reversal…including, but not limited to, wildfires or disease that are not the result of the Project Proponent's negligence, gross negligence or willful intent." The impact from these types of events should be quantified and subsequently calculated to retire the carbon loss caused by the reversal from the available risk management buffer pool (CAR).

1.3.6 conservation easement "is a restriction placed on a piece of property to protect its associated resources…In a conservation easement, a landowner voluntarily agrees to sell or donate certain rights associated with [their] property…and a private organization or public agency agrees to hold the right to enforce the landowner's promise not to exercise those rights."[3]

1.3.7 crown cover or canopy cover, is defined as the vertical projection of the outermost perimeter of the natural spread of the foliage (IPCC).

1.3.8 greenhouse gas (GHG) gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds.

NOTE GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6).

1.3.9 greenhouse gas sources, sinks and reservoirs (SSRs):

1.3.9.1 greenhouse gas source physical unit or process that releases a GHG into the atmosphere.

1.3.9.2 greenhouse gas sink physical unit or process that removes a GHG from the atmosphere.

1.3.9.3 greenhouse gas reservoir physical unit or component of the biosphere, geosphere or hydrosphere with the capability to store or accumulate a GHG removed from the atmosphere by a **greenhouse gas sink** (1.3.9.2) or a GHG captured from a **greenhouse gas source** (1.3.9.1).

NOTE 1 The total mass of carbon contained in a GHG reservoir at a specified point in time could be referred to as the carbon stock of the reservoir.

NOTE 2 A GHG reservoir can transfer greenhouse gases to another GHG reservoir.

[3] The Nature Conservancy (2016). Conservation Easements: What are Conservation Easements? www.nature.org. Accessed: 10/14/16. http://www.nature.org/about-us/private-lands-conservation/conservation-easements/what-are-conservation-easements.xml

NOTE 3 The collection of a GHG from a GHG source before it enters the atmosphere and storage of the collected GHG in a GHG reservoir could be referred to as GHG capture and storage.

1.3.10 greenhouse gas emission total mass of a GHG released to the atmosphere over a specified period of time.

1.3.11 greenhouse gas removal total mass of a GHG removed from the atmosphere over a specified period of time.

1.3.12 greenhouse gas emission reduction calculated decrease of GHG emissions between a **baseline scenario** (1.3.24) and the project.

1.3.13 greenhouse gas removal enhancement calculated increase in GHG removals between a **baseline scenario** (1.3.24) and the project.

1.3.14 greenhouse gas emission or removal factor factor relating activity data to GHG emissions or removals.

NOTE A greenhouse gas emission or removal factor could include an oxidation component.

1.3.15 greenhouse gas assertion declaration or factual and objective statement made by the responsible party [regarding project impact related to greenhouse gases.]

NOTE 1 The GHG assertion…[includes information within the project documentation that supports the declaration of project impact].

NOTE 2 The GHG assertion provided by the responsible party should be clearly identifiable, capable of consistent evaluation or measurement against suitable criteria by a **validator** (1.3.35) or **verifier** (1.3.37).

NOTE 3 The GHG assertion could be provided in the form of a **greenhouse gas report** (1.3.20) or GHG project plan.

1.3.16 greenhouse gas information management system policies, processes and procedures to establish, manage and maintain GHG information

1.3.17 greenhouse gas project activity or activities that alter the conditions identified in the **baseline scenario** (1.3.24) which cause **greenhouse gas emission reductions** (1.3.12) or **greenhouse gas removal enhancements** (1.3.13)

1.3.18 greenhouse gas project proponent or Proponent individual or organization that has overall control and responsibility for a **greenhouse gas project** (1.3.17)

1.3.19 greenhouse gas programme voluntary or mandatory international, national or sub-national system or scheme that registers, accounts or manages GHG emissions, removals, **greenhouse gas emission reductions** (1.3.12) or **greenhouse gas removal enhancements** (1.3.13) outside the organization or **greenhouse gas project** (1.3.17)

1.3.20 greenhouse gas report stand-alone document intended to communicate an

organization's or project's GHG-related information to its **intended users** (1.3.27)

NOTE A GHG report can include a **greenhouse gas assertion** (1.3.15).

1.3.21 effected greenhouse gas source, sink or reservoir GHG source, sink or reservoir influenced by a project activity, through changes in market demand or supply for associated products or services, or through physical displacement

NOTE 1 While related GHG sources, sinks or reservoirs are physically linked to a GHG project, affected GHG sources, sinks or reservoirs are only linked to a GHG project by changes due to market demand and supply.

NOTE 2 An affected GHG source, sink or reservoir is generally off the project site.

NOTE 3 GHG emission reductions or removal enhancements offset by affected GHG sources, sinks or reservoirs are often referred to as leakage.

1.3.22 controlled greenhouse gas source, sink or reservoir GHG source, sink or reservoir whose operation is under the direction and influence of the **greenhouse gas project proponent or Proponent** (1.3.18) through financial, policy, management or other instruments.

NOTE A controlled GHG source, sink or reservoir is generally on the project site.

1.3.23 related greenhouse gas source, sink or reservoir GHG source, sink or reservoir that has material or energy flows into, out of, or within the project.

NOTE 1 A related GHG source, sink or reservoir is generally upstream or downstream from the project, and can be either on or off the project site.

NOTE 2 A related GHG source, sink or reservoir also may include activities related to design, construction and decommissioning of a project.

1.3.24 baseline scenario hypothetical reference case that best represents the conditions most likely to occur in the absence of a proposed **greenhouse gas project** (1.3.17).

NOTE The baseline scenario concurs with the GHG project timeline.

1.3.25 global warming potential (GWP) factor describing the radiative forcing impact of one mass-based unit of a given GHG relative to an equivalent unit of carbon dioxide over a given period of time.

NOTE Annex B contains global warming potentials produced by the Intergovernmental Panel on Climate Change.

1.3.26 carbon dioxide equivalent (CO_2e) unit for comparing the radiative forcing of a GHG to carbon dioxide.

NOTE 1 The carbon dioxide equivalent is calculated using the mass of a given GHG multiplied by its **global warming potential** (1.3.25).

NOTE 2 Annex B contains global warming potentials produced by the Intergovernmental

Panel on Climate Change.

1.3.27 intended user individual or organization identified by those reporting GHG-related information as being the one who relies on that information to make decisions.

NOTE The intended user can be the client, the responsible party, GHG programme administrators, regulators, the financial community or other affected **stakeholders** (1.3.29), such as local communities, government departments or non- governmental organizations.

1.3.28 small-scale project (for purposes of the CLC Peer Review Network) or micro-project (ACR terminology) is any project with **greenhouse gas assertion** (1.3.15) <5,000tCO_2e.

1.3.29 stakeholder individual or organization that is affected by the development or implementation of a **greenhouse gas project** (1.3.17).

1.3.30 level of assurance degree of assurance the **intended user** (1.3.27) requires in a **validation** (1.3.34) or **verification** (1.3.36).

NOTE 1 The level of assurance is used to determine the depth of detail that a validator or verifier designs into their validation or verification plan to determine if there are any material errors, omissions or misrepresentations.

NOTE 2 There are two levels of assurance (reasonable or limited) that result in differently worded validation or verification statements. Refer to ISO 14064-3:2006, A.2.3.2, for examples of validation and verification statements.

1.3.31 monitoring continuous or periodic assessment of GHG emissions and removals or other GHG-related data.

1.3.32 significant disturbance is a disturbance events which "has removed at least 20 percent of the Project Area's live biomass". The term is used for the purpose of assessing the initial site eligibility determination as well as for categorizing events discovered through annual monitoring (CAR).

1.3.33 soil disturbance "refers to any activity that results in a decrease in soil organic carbon (SOC), for example ploughing, ripping, scarification, digging of pits and trenches, stump removal, etc" (CDM).

1.3.34 validation systematic, independent and documented process for the evaluation of a **greenhouse gas assertion** (1.3.15) in a GHG project plan against agreed validation criteria

NOTE 1 In some cases, such as in first-party validations, independence can be demonstrated by the freedom from responsibility for the development of GHG data and information.

1.3.35 validator competent and independent person or persons with responsibility for performing and reporting on the results of a validation.

NOTE This term can be used to refer to a validation body.

1.3.36 verification is "the process of reviewing and assessing all of a project's reported data and information to confirm that the project Proponent has adhered to the requirements of this protocol," (CAR).

NOTE In some cases, such as in first-party verifications, independence can be demonstrated by the freedom from responsibility for the development of GHG data and information.

1.3.37 verifier competent and independent person, or persons, with responsibility for performing and reporting on the verification process.

NOTE This term can be used to refer to a verification body.

1.3.38 uncertainty parameter associated with the result of quantification which characterizes the dispersion of the values that could be reasonably attributed to the quantified amount.

NOTE Uncertainty information typically specifies quantitative estimates of the likely dispersion of values and a qualitative description of the likely causes of the dispersion.

Acronyms

ACR	American Carbon Registry
AFOLU	Afforestation and Other Land Use
BMP	Best Management Practices
C	Carbon
CAR	Climate Action Reserve
CDM	Climate Development Mechanism
CH_4	Methane
CLC	Climate Leadership Commitment
CMF	Carbon Management Fund
CNRC	Corn Nitrogen Rate Calculator (by Iowa State)
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DBH	Diameter at Breast Height (1.37m from ground)
DCOI	Duke Carbon Offset Initiative
DNDC	Denitrification – Decomposition
GHG	Greenhouse Gas
IPCC	International Panel on Climate Change
KML	Keyhole Markup Language
MRTN	Marginal Return to Nitrogen
MSU-EPRI	Michigan State University-Electric Power Research Institute
N_2O	Nitrous Oxide
PDD	Project Description Document
SOC	Soil Organic Content
SOM	Soil Organic Matter
SSR	Sources, Sinks and Reservoirs of greenhouse gases
tCO_2e	Tonne (metric ton) of Carbon Dioxide Equivalent Greenhouse Gases
TCS	Tomorrow's Climate Solutions
TDM	Tonne Dry Matter

US EPA	United States Environmental Protection Agency
VCS	Verified Carbon Standard

1.4 GUIDANCE PRINCIPLES

Project level GHG accounting requires intelligent decision making when calculating a project's GHG Assertion. The process of calculation and documentation requires many decisions that would impact the project's GHG Assertion and the certainty around this assertion. This protocol details the structure to be applied and general methods to be used, but allows for flexibility and the use of discretion throughout documentation. Discretionary decisions, especially when ambiguity exists, must be informed by the guidance principles of GHG project accounting. Justification of discretionary decisions is often required in writing, as a component of project documentation. This protocol provides the principles, aggregated from WRI-WBCSD, ISO 14064-2 and CAR protocol creation guidance, to follow throughout the process of project accounting to inform decision-making:

- ***Relevance***: *Use data, methods, criteria, assumptions, and accounting boundaries that fit the intended use of reported information.*
  In practice – Non-relevant information, that which does not conform to Project Protocol requirements or is misleading in any way, should be excluded based on the relevance principle.
- ***Completeness****: All relevant information should be considered and included throughout the process of project accounting.*
  In practice – All GHG sources, sinks and reservoirs (SSRs) impacted by project activities must be included in the calculations, and where multiple baseline scenarios exist documentation must reveal all scenarios were considered. Monitoring plans should specify how all relevant data will be collected.
- ***Consistency:*** *Use data, methods, criteria, and assumptions that allow meaningful and valid comparisons of the GHG reductions achieved by projects.*
  In practice – Ensure all projects of the same types will be measured, calculated, and reported in accordance with standardized conservative accounting methods.
- ***Transparency:*** *Provide sufficient information to allow reviewers and stakeholders to assess the credibility and reliability of GHG reduction claims.*
  In practice – Data and analysis must be maintained in an organized fashion to facilitate openness. While proprietary information presents exceptions, as a general rule accounting methodologies should be made available for review.
- ***Accuracy:*** *Bias and uncertainty should be reduced as far as is practical.*

In practice – Uncertainty will exist for the majority of projects, and must therefore be managed as a source of project risk with cost limiting what level of accuracy is practical.

- ***Conservativeness:*** *Use conservative assumptions, values, and procedures to ensure GHG Assertions are not over-estimated.*
  In practice – When uncertainty is high, and increased accuracy infeasible due to cost, conservative methods must ensure underestimation of a project's impact.

1.5 PROJECT ACCOUNTING

Carbon Offset accounting requires a detailed and scientifically based approach, which measures a given project's impact on atmospheric GHG levels. This process involves a combination of measurement and estimation to produce the GHG Assertion, from a project's GHG impact. The following protocol outlines the decisions that must be made throughout this process, and guidance on how to fulfill a rigorous level of project accounting (i.e. certainty for the GHG Assertion), while not unduly burdening project owners or proponents by requiring professional services which can add greatly to small-scale projects' costs.

The calculation of GHG emissions requires the application of project-type specific methodologies for different project types. The companion template document and below instructions provide protocol for project level accounting consistent across all project types, from urban tree planting or afforestation, to improved farm soil management practices or anaerobic digestion projects. The below accounting procedure for all project types must be further supplemented by project type specific protocols that will:

1. Supplement this General Protocol and PDD Template with additional documentation requirements,
2. Outline the process to calculate a given project's relevant SSRs, and
3. Provide relevant information to inform the fulfillment of this general protocol for specific project types.

The below walk-through, demonstrates a hypothetical use of the General Protocol and PDD Template in coordination with a project-type specific protocol:

Task: Build documentation for the project seeking carbon offset eligibility titled, 'North Fields Afforestation Project'.

As the project is an Afforestation Project the Project Proponent must locate the supplemental Project Protocol: Afforestation and use this protocol in coordination with the General Protocol

and PDD Template to complete project documentation requirements and generate carbon credits from the project.

As the Project Proponent works their way through the 'General Protocol' they will be guided to fulfill the elements required to produce a professionally robust carbon accounting and properly document the project as a carbon offset project. The coordination of the General Protocol and the Project Protocol: Afforestation will lead the Project Proponent through the process of: establishing the project boundaries, identifying the parties or individuals responsible for ensuring project activities, data collection and internal monitoring, and the creation of project accounting documents to reveal your findings and provide your methods for review purposes. The General Protocol will prompt the Project Proponent to refer to the Project Protocol: Afforestation when it recommends consulting the "Project Type Specific Protocol". The Project Proponent would input that information and formulate an appropriate response within the PDD Template. Therefore, as they move through the General Protocol they are simultaneously working through the Project Type Specific Protocol and building the PDD Template.

In this way, the supplemental protocol will aid in applying standard convention for project impact calculation of afforestation projects towards complete project accounting and building a robust and professionally sound Project Description Document utilizing the PDD Template.

2.0 OUTLINE INSTRUCTIONS

The following sections of this document provide instructions for the use of the Project Description Document Template, which is a companion document to this General Protocol. The Project Description Document (PDD) is the document which encapsulates the entirety of the project, from project impact and risk calculation, to responsibilities and management, as well as monitoring and verification. The PDD will act as the foundational documentation for each carbon offset project pursued by Colleges and Universities towards Carbon Commitment goals. The PDD will be made available for academic peer-review through the Offset Network to accomplish verification requirements in line with the transparency principle of high quality offsets.

This companion template document (Project Description Document Template-v1.1) contains sample responses, providing an example of response length and content, but should be replaced with your project's responses to complete the PDD. The remainder of the General Protocol provides explanation to complete corresponding sections within the PDD Template, while supplemental protocols will place additional requirements for documentation for certain sections of the PDD Template.

3.0 PROJECT DESCRIPTION DOCUMENT

A Project Description Document (PDD) must be created which will summarize the findings of the supplemental project type specific protocol and includes contextual information on the project. As a project summary document, the PDD will be the final document completed throughout the process of project accounting, but it is advised that the following guidance be used to organize project information over the course of project creation and documentation.

Input project information into the Project Description Document Template as you build the documentation for a given project. Bracketed within the template are instructions and sample answers, given for the North Fields Afforestation Project completed by Oberlin College. While meant to give an idea of length and content for each category and heading, these answers are the same that can be found in the project's publicly available Project Description Document.

Project Title

Title the project, keep it simple and straightforward.

Purpose & Objectives

Within the template document, provide context for the project, how it seeks to achieve atmospheric reductions of greenhouse gases (GHGs), explanation of project stakeholders, other motivations for the project to occur, and a project timeline.

Type of GHG Project

Describe the project type and the way in which the project will reduce atmospheric levels of GHGs in the space provided by the template document.

Site Details

Project Location:

Include geographic and physical location information fully defining the extent of the project and framing it within its surrounding landscape, including a KLM file, aerial photograph or map. Describe common uses for the area and how people access the project site. Also detail the condition prior to project initiation, explaining previous state.

Condition Prior to Project Commencement:

Describe the condition prior to project initiation and relevant dates.

GHG Impact

Description of Project Impact on GHG Emissions:

Within the template document, describe the ways in which the project will impact GHG emissions. Include only those Sources, Sinks and Reservoirs (SSRs) that are included in GHG Assertion calculation later in this document.

Project Technologies, Products, and Services:

Detail project related technologies, products, and services. Include expected levels in tonnes CO_2e of the activities described.

GHG Assertion (stated in tCO_2e):

Identification of Risks to GHG Impact of Project:

Describe the risks to project success, and the approach to managing and accounting for these risks.

Program Inclusion

Fill in the "Program Name", and "Protocol or Methodology Applied" as they relate to your project. Provide justification of the selected program, methodology and protocols applied explaining why they were selected and how they will result in a project that generates high-quality offset credits.
Within Program Inclusion categories (Legal, Regulatory, Technical, Economic…etc) input information relevant for project eligibility within the program to which you are seeking inclusion (CLC-Peer Review Network, VCS, CAR etc). Explain the program's requirements and your project's eligibility regarding each category of requirement. Outline the project approval process including who will perform validation and verification for the project.

If using a Peer Review Network created protocol, explain the process of protocol creation and approval. Also, mention any threshold limitations that restrict Innovative Projects to a maximum of 10% and Peer Reviewed projects to a maximum of 30% of an institution's GHG emissions footprint exclusively within Scope 3; with a maximum reduction from both project types combined not to exceed 30% of an institution's total GHG emissions. Project type specific protocols offer further explanation of individual eligibility requirements within the sections title: Program Inclusion.

Some categories may not be stated within your respective program or project type, simply skip these categories if they are not required as you fill in the template sections:

Legal, Regulatory:

Describe any relevant regulations, laws or contracts governing the project site or program inclusion.

Technical:

Detail technical information related to project activities or program inclusion.

Economic, Sectoral:

Describe any market factors impacting the project or program inclusion.

Social:

Describe social factors impacting the project or program inclusion.

Geographic, Site Specific:

Detail any site specific considerations for the project or for the project's program inclusion.

Temporal:

Describe temporal factors influencing the project or program inclusion. Include the start date of the project – i.e. the date the project contract was signed.

Roles & Responsibilities

Internal Structure:

Within the template document, if needed, provide general information regarding the structure of management relating to project responsibilities.

Participant(s) contact info:

Identify the Project Proponent, Project Owner and Project Maintainer providing contact information for these parties.

Project Stakeholders:

List any Project Stakeholders, including the Credit Owner and any other parties with stake in the project in the space provided by the template document.

Relevant regulators & administrators of GHG Program:

List relevant regulators and administrators of the GHG Program.

Relevant Stakeholder Outcomes & On-going Communication

Within the template document, detail the anticipated outcomes of the project for each stakeholder. Inform the reader how these various parties will remain in contact with each other regarding project updates and other project related tasks.

Environmental Impact Assessment

Include findings of the Environmental Impact Assessment, if required by law, based on project type and locality.

Chronological Project Plan

Include the following within your project's chronological timeline within the template document:

- Project activities start date – defined as the date of project activities contract signature.
- Project termination date
- Frequency of monitoring and reporting
- Project crediting period (i.e. how long the project will generate credits), which will vary based on project type but generally adheres to the below rules:
    - Afforestation/reforestation projects allow a crediting period not to exceed 40 years.
    - Non-forest projects may not exceed a 10-year crediting period.
    - Most projects may renew the crediting period, once or twice depending on the project type, after updating project materials and re-evaluating the baseline scenario.
- Relevant project activities of GHG project cycle (validation, verification, expiration of credits etc)

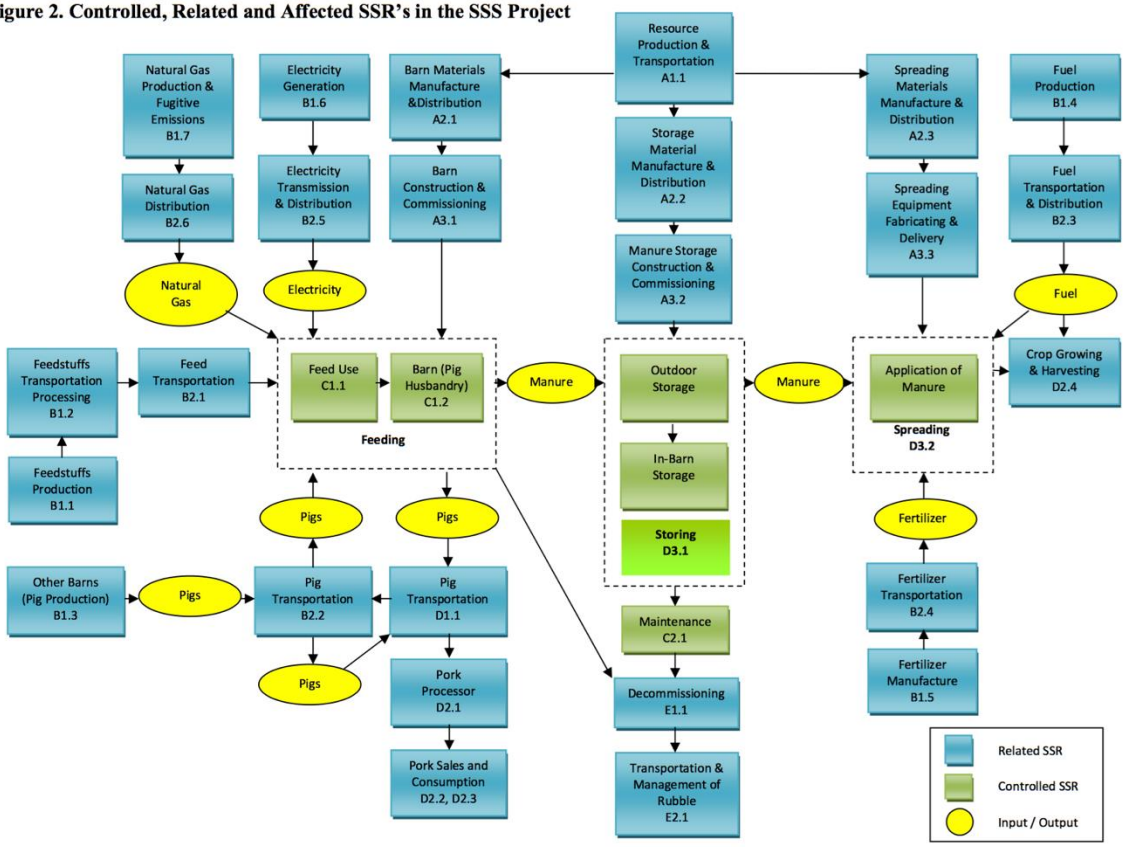
3.1 ESTABLISHING PROJECT BOUNDARIES

A key component of project accounting is the creation of a project boundaries map. This map is used to identify existing Sources, Sinks and Reservoirs of GHG emissions (SSRs) that are relevant to the GHG assertion. First, sketch out the full project:

1) *Identifying project activities that comprise the GHG project*
2) *Identifying primary and secondary effects associated with each project activity (extend supply lines only to a reasonable extent)*

[Example of project boundaries map, courtesy of GHGMI Case Study: The Summerland Swine Syndicate, 2009. Course 202: Basics of Project Level GHG Accounting. www.ghgmi.org/courses]

Figure 2. Controlled, Related and Affected SSR's in the SSS Project



Classify each activity, physical entity, and SSR based on ownership: either controlled, related or effected (see 1.3 Terms & Acronyms). Ownership of a given SSR will help determine whether to estimate or measure a given SSR towards calculating the GHG Assertion.

Color coded by ownership (controlled, related, or effected), draw or use software to create a project map which outlines the project's boundaries and provides a visualization of the

project's impact. Note, that project type will have a large impact on the size and complexity required for the project boundary map.

From this map, populate a list of SSRs using the below table as a guide:

Identified SSR	Controlled/ Related/Effected	Different from Baseline?	Rationale for Inclusion or Exclusion	Project Impact (tCO_2e)

1. *Place all SSRs as a separate row within the "Identified SSR" column of the corresponding table in the PDD Template.*
2. *For each SSR determine whether the project is Controlled/Related/Effected by the Project Proponent (refer to 1.3.14-1.3.16 for definitions of Controlled/Related/Effected).*
3. *For now, leave "Different from Baseline" blank, you will fill this out in the following section and come back to this table later-on.*
4. *The next column can similarly be skipped for now. Later in this protocol you will determine which of these SSRs are below the 3% de minimis threshold, i.e. those SSRs which can reliably be eliminated from the project impact calculation as their chance of causing material discrepancy is minimal.*
5. *Once project impact for each SSR has been calculated, return to this table and fill in this column using tCO_2e as the units.*

Additionally, check the Project-Type Specific Protocol for any sources that can be eliminated from calculating project impact from the start, such as optional sources of emissions not selected by the Project Proponent, before spending the time to estimate these SSRs.

3.2 DETERMINATION OF BASELINE SCENARIO

Determining the baseline scenario is critical to producing an accurate and reliable GHG Assertion of project related impact. The baseline scenario is the scenario which was most likely to occur in the absence of the carbon offset project. Often the baseline scenario is referred to as the Business as Usual (BAU) Scenario. The determination of a baseline scenario builds the case for project **additionality** (i.e. the project must not have occurred without the support of the carbon offset program).

For purposes of calculating the project's impact, the difference between project and baseline scenarios, results in the project's impact (or GHG Assertion). In some instances, the site owner might be deciding between the project scenario and any number of other changes to the function or physical space of the project site. In this instance, the most likely of these other projects (which must be rationalized) would be selected as the baseline scenario and compared to the project scenario. In this way, the project scenario accurately reflects **real** and **additional** impacts on atmospheric GHG levels, excluding those offset projects that would have occurred in the absence of the offset program and GHG program related funding.

In order to determine the baseline scenario, follow the detailed procedure below, keep records of your calculations and report your findings within project documentation.

[Please note that project specific protocols may provide additional criteria to consider when establishing the baseline scenario given sector specific regulations and other considerations].

Product or Service Granted by Project Activity:

Within the template document, define the product or service granted/produced by project activity. Describe the primary or critical criteria a given change to the project site must fulfill. (This can be a product such as, widgets from a widget factory, or services such as, land maintenance of property or sanitary manure holding for livestock).

Geographic Area and Temporal Range:

Within the template document, describe any geographic or temporal information that will be used to assess baseline candidates.

Additional Criteria:

Within the template document, define and justify additional criteria used to assess appropriate baseline candidates regarding the present or future site conditions, such as: legal, technical, sociocultural, economic, environmental, site specific, etc.

Baseline Candidates:

Identify all realistic baseline candidates filling in the template's numbered and bulleted formatting as needed. For each project site candidate provide as much detail as is required to understand the project candidate and describe the ways in which baseline candidates:

a. Fulfill geographic, temporal constraints of the project;

b. Fulfill other criteria for the selection of baseline candidates;
c. Are proven to be functionally equivalent concerning the project activity.

NOTE: Include the project scenario as a candidate.

Barrier's Test Results:

Next, we will identify the baseline scenario candidate that is most likely to occur in the BAU circumstance by performing a Barrier's Test to identify the barriers to implementing each of the proposed project candidates. The baseline scenario is the candidate with the least substantial barriers (measured financially or rationalized if non-monetary barriers exist). If multiple Baseline Candidates return a financially profitable outcome the more profitable Candidate is the scenario with least barriers. If inconclusive, the project is not decisively additional and does not qualify within the GHG program.

Fill in the Barrier's Test chart (in the template doc) for each baseline candidate selected. Fill in the appropriate response for each candidate with a brief description and assess the overall level of aggregated barriers.

NOTE: As this is a subjective test, rationalization of the barrier's and the decision to select the Business as Usual Scenario must be conclusive beyond a reasonable margin of error, or deemed inconclusive.

Explanation of example from PDD Template:

In the example 'Maintain Area as Meadow' is the baseline scenario, as it has the fewest barriers to implementation. Therefore, the project scenario, "Afforestation Project" is **additional** beyond the baseline scenario. When calculating the project's impact, the difference between Maintain Area as Meadow and Afforestation Project dictate CO_2e reductions, removals and sequestrations.

Baseline Scenario Selection

Based on the results of the barrier's tests, establish the most likely candidate as the baseline scenario and highlight this scenario within the template document.

Project Scenario Additionality

Provided the project scenario is not selected as the baseline scenario (in which case project **additionality** would not be satisfied) articulate the barriers the carbon offset program and funding overcome, thereby enabling the project's implementation.

Baseline Scenario SSR List

To calculate the project's GHG impact, the baseline scenario must be evaluated similar to the project scenario. Follow the same procedure outlined in 3.2 "Establishing Project Boundaries", to populate a list of SSRs for the baseline scenario. denote whether they are Controlled, Related or Effected by the Baseline Scenario activities. Drawing out the project boundaries may be useful again to visualize the Baseline Scenario and this map may be included in this section of the template document as well.

Unchanged Project-Baseline Scenario SSRs

Many SSRs will remain the same between project and baseline scenarios – identify those sources which will remain unchanged between project and baseline scenarios in the table provided in the template document titled "Unchanged Project-Baseline Scenario SSRs". If no SSRs remain the same between project and baseline scenario note this before moving on to the next section. All SSRs that are unchanged between the baseline and project scenarios may be eliminated from project impact calculation as they have no impact. Document which of these SSRs is being eliminated from the impact calculation within the table provided in the PDD Template: "Unchanged Project-Baseline Scenario SSRs".

Project Scenario Updated SSRs to Monitor or Estimate

Fill in the PDD Template table "Project Scenario Updated SSRs to Monitor or Estimate" with all Project Scenario SSRs, except for those documented within the "Unchanged Project-Baseline Scenario SSRs" table.

Fill in the "GHG Impact" column once you have calculated those values. If project impact will vary year to year, as with afforestation and other land use (AFOLU) projects, the value for "GHG Impact" input in the table will be averages and ex-ante estimations. Provide brief rationale for inclusion or exclusion, based upon the size of the GHG impact and that SSR's status within the project type protocol you are utilizing, example: "optional SSR". The decision to monitor or estimate the SSR on an ongoing basis comes down to the availability of the data and the difficulty involved with monitoring the activity level.

3.3 DETERMINE SSRs TO MONITOR & ESTIMATE

With your updated lists of project and baseline scenario SSRs populated, it is time to begin calculating the impact of individual SSRs. From your populated list of project SSRs, evaluate their relative magnitude by systematically estimating their respective values.

The total GHG impact of the project, is the difference between baseline scenario emissions and project scenario emissions. Those project SSRs which constitute below 3% of the project's total estimated GHG impact (the de minimis threshold), may be excluded from calculations in line with good practice guidance.[4] All sources must be rationalized as either substantially impacting the project GHG assertion or being excluded as they fall below the 3% de minimis threshold. Present the percentage contribution to the GHG Assertion for each SSR listed.

Next, the decision of how to measure the project's GHG impact must be rationalized methodically. If data is readily available that monitors an SSR, this data should be prioritized, and will increase overall project certainty. The alternative is to estimate SSRs inline with industry standard methodologies (refer to specific project type protocols for additional details), emissions factors, and accurate activity level data (i.e. amount of nitrogen fertilizer applied to a field or an invoice from utilities – kWh's electricity, gallons water etc).

Monitoring SSRs may be cost-prohibitive and a cost-benefit analysis should be applied to inform decisions. While monitoring will provide greater accuracy, and therefore greater project impact this must be weighed against the added cost of the project. Generally, for small-scale projects (<5,000 tonnes CO_2e) if the monitoring structures are not already in place, it will be cost prohibitive to monitor emissions directly. Provide brief rationalization of decisions to monitor or estimate emissions from SSRs within the table title "Project Scenario Updated SSRs to Monitor or Estimate".

Baseline Scenario SSRs to Monitor or Estimate

Fill in the template table. The baseline scenario SSRs must also be tracked to ensure your calculation of the project impact remains accurate and includes possible changes in the baseline emissions.

Additional Clarification & Rationalization of SSR Selection

If necessary, provide additional clarification regarding SSR selection.

3.4 RISK ASSESSMENT & FUTURE CONSIDERATION

The risk of project reversal must be accounted for by project documents to prevent intentional or unintentional reductions in project impact from occurring. The risks to be aware of include: **double counting**, **leakage**, and **permanence** while specific risk factors,

[4] In line with the American Carbon Registry Validation and Verification Guidelines: version 1.1, June 2012, which serves as good practice guidance for carbon accounting.

such as wild fire or pests for forestry projects, fit within the **permanence** category and are outlined within respective project-type specific protocols.

The risk of **double counting**, counting the impact of a project more than once or selling the same offsets multiple times, is accounted for through coordination with an existing GHG registry program. Often **double counting** may result from an entity that has implemented a project within its emissions inventory boundaries, for example: an energy efficiency project for an entity owned building, that both counts this improvement in its emissions inventory as well as selling carbon credits from that same project.

The risk of **leakage**, an unintended increase in emissions that results from project activities, must be explored and accounted for within the PDD for each project. A common example of project **leakage** comes from prevention of deforestation projects. If poorly implemented these projects may only deter deforestation from a specific forest site and results in logging activities shifting to non-protected forest areas. **Leakage** can take the form of shifts in markets, usually only an issue for large-scale projects that have potential for market impact, as well as onsite additional emissions due to changes in operating procedures. Project-type specific protocols provide guidance for the forms **leakage** may reveal itself for a given project, but it is ultimately the responsibility of the Project Proponent to ensure potential sources of **leakage** are identified and monitoring procedures are established to track these sources.

The main risk for projects that sequester and store atmospheric GHGs, is the **permanence** of the reductions or removals asserted by project documents. Risks to **permanence** include changes to the project site, changes in project site ownership, weather, climate, disease, fire etc etc. Other risks that threaten the continuation of the project activity, must be sufficiently addressed within project documentation. Identify the risks facing a project and explain how these risks are being managed by Project Owners.

To certify project **permanence**, a buffer-pool will be established amongst all projects with separate designations based on project type and the risk level associated with that project type and location. For example, a nitrous oxide gas prevention project will not be required to contribute to the buffer-pool because the prevented emissions are permanent as they occur, whereas a project involving the sequestration of atmospheric GHGs will require a substantial buffer-pool based upon the likelihood of project reversal. Although project impact will be reduced for projects that quantify sequestration, the GHG Assertion gains substantial certainty ensuring the project accomplishes claimed reductions despite unpredictable events. [See specific project type protocols for required buffer pool designations].

Double Counting

In the PDD Template, detail the project's approach to managing the risk posed by **double counting**. Has membership with an existing registry been sought? Input the reference/serial numbers for credits generated by the offset project and explain how these credits are applied. Provide explanation to ensure the Project Owner is not claiming the project's impact as a reduction against its own emissions.

Leakage

Within the PDD Template, describe possible opportunities for **leakage** to occur and how these possible sources will be monitoring and managed over the project lifespan.

Project Permanence

Within the template document, detail the possible risks facing the project, and how these risk factors will be mitigated and accounted for within the project's documentation.

Additional Risks

Within the template document, provide information regarding any additional risks that may impact the project, covering project leakage, double counting, and other common risks if relevant to the project.

Buffer Pool Designation & Total Project Risk Factor (as percentage)

Insert Total Project Risk Factor, calculate and present project annual buffer pool contribution based upon estimated project impact. Provide timeline of contributions to the buffer pool if project impact varies by project year.

NOTE: Section "3.8 Verification" should be completed before making the final determination of the Buffer Pool contribution as the selection of Verification will impact project uncertainty values.

3.5 CALCULATE GHG IMPACT

Perform the calculations to separately quantify all project and baseline scenario related SSRs – either from directly monitored data, or using industry standard good practice guidance for estimation. Calculation reliability is ensured through application of the accounting principles: conservativeness and transparency.

NOTE: Specific Project Type Protocols will guide the calculation of emissions and should be utilized to fulfill this section of the reporting requirements.

Compile your calculations and maintain your records in an organized and accessible format. When required to make subjective decisions choose the conservative option, and always make conservative assumptions. GHG calculations will be reviewed according to the [guidance on validation & verification], and all calculations will be uploaded for public and academic review.

Established emissions factors from recognized origin must be used in making calculations. Emissions factors over a 100-year time horizon should be used to combine project GHG emissions into a single value of CO_2e and be presented in the industry standard units: tCO_2e. The EPA's guidance on Global Warming Potentials should be used or alternative sources must be legitimized and presented.

Clearly report, the calculated and combined GHGs associated with the project and the baseline scenario, and report the difference between the two. This difference is what will be reported as the GHG Assertion, once risk factors are taken into account.

Project Impact Calculation

Within the template document, include description of the methodologies applied and the findings of your calculations here. Include your calculations within appropriately marked appendices as well as additional methodological explanation if diverging from the basic procedure as laid out in the project type Protocol. If calculating the impact of multiple SSRs divide your responses into sections by SSR.

Global Warming Potentials Used:

Insert source of GWPs used and values.

Baseline Scenario Total Atmospheric GHG Impact**:**

Combine baseline SSRs.

Project Scenario Total Atmospheric GHG Impact:

Combine project SSRs.

GHG Assertion:

(Project Scenario – Baseline Scenario) * (1 – Total Project Risk Factor) = GHG Assertion

Calculation Procedure:

Provide Sample Calculation

Reference appendix #_ for full list of calculations

3.6 MANAGE DATA QUALITY (INTERNAL REVIEW)

The primary goal of data quality management is to eliminate error in data collection, and secondarily to eliminate error through the process of analysis and storage of data.

The manner in which data is collected, whether from monitored or estimated sources must be detailed and responsible parties must be selected to be accountable for data collection. Schedules establishing data collection should be included, and the frequency of site visits should be reported. All monitored sources of emissions require routine calibration tests and the results of these tests should be presented to confirm monitored emissions as well as the schedule for calibration.

Information Management System

Within the template document, detail how project information is stored and backed-up. As mentioned many times throughout this document, the importance of maintaining organized records of your calculations cannot be overstated. Allowing accessible review and facilitating transparency must be balanced against the need to maintain confidential project related information. Centralized and secure data storage, with back-ups must be a common practice for all carbon offset projects. Data must be archived until at least five years after the last crediting period.

It is good practice to have someone within your own organization review accounting calculations before submitting for external review. Within the documentation, explain measures taken to ensure analysis accuracy & high quality.

3.7 PROJECT MONITORING PLAN

The creation of a project monitoring plan is an essential element to fulfill project documentation. Additional monitoring of the baseline scenario provides complete project accounting. Over the course of a given project, the baseline must be reassessed to ensure continued project **additionality**, given that common practices are constantly evolving in

industries such as power generation, agriculture and others. The baseline scenario must be reevaluated at specified intervals depending on the specific project type (details can be found in respective Project Type protocols).

Data for Collection

Specify SSRs that require data collection, denoting whether data will be measured or estimated, providing the source of the data, identifying the collection method utilized and assigning responsible parties.

Ensure that data included allows for:

- Verification of eligibility conditions
- Verification of changes in carbon stocks in selected pools
- Verification of project leakage emissions (unless it is definitively shown that leakage is not expected to occur)
- [Additional requirements as required by project type specific protocols]

Schedule of Calibration for Direct Monitoring:

Insert equipment calibration schedule, if applicable.

Conditions for Data Monitoring:

Describe the conditions that must be met to ensure accurate data is collected through monitoring events.

Data Collection & Monitoring Methods (include technical information needed to collect and monitor):

Provide methodology description, or reference to the methodology, applied to accomplish data collection and monitoring.

Project & Baseline Monitoring Schedule

Fill in template document "Project Monitoring Schedule", extending from project initiation date to project end date. The baseline must be reevaluated, following the guidance provided by this document in section 3.2 to reconstruct the baseline scenario. The baseline must be recalculated before the renewal of the project crediting period may be granted, and for sequestration projects must occur at a minimum of every 20 years.

3.8 Project Verification

Verification supports the project by confirming the legitimacy of carbon offsets generated by project activities. This section will identify the four different levels of verification that are accepted under this protocol, the requirements of each verification, and the required verification timeline.

Four verification methods exist for projects using this protocol, providing flexibility to Project Proponents. Depending on the selected verification method, project uncertainty may increase. To conservatively address project uncertainty, the GHG impact of the project is reduced by the project uncertainty level. This occurs separately and before the determination of buffer pool contribution. Below is a description of each method allowed:

1. 3rd Party Verification - **0% added project uncertainty**
    a. An organization external to Project Proponent, Afforestation Site Owner, and Afforestation Maintainer that is accredited to ISO standards 14065 and 14064-3 and has working knowledge of this protocol.
    b. Provides highest level of assurance, typical carbon offset market practice.
2. Peer Institution Verification with ISO-certified supervisor (educational institutions only) - **2% added project uncertainty**
    a. A peer education institution with an individual or department that is accredited to ISO standards 14065 and 14064-3 and has working knowledge of this protocol.
    b. High level of assurance, oversight by ISO-certified supervisor is required therefore there is a slight reduction in the assurance level.
3. Peer Institution Verification without ISO-certified supervisor (educational institutions only) - **5% added project uncertainty**
    a. A peer education institution with an individual or department with working knowledge of this protocol, and experience with GHG accounting.
    b. Medium level of assurance, peer-review process mitigates errors through process and analysis while external groups perform the accounting.
4. Internal Verification - **10% added project uncertainty**
    a. Internally verified offset projects must be performed by an individual or department distinct from the Project Proponent or Afforestation Site Owner.
    b. Low level of assurance, transparent presentation of verification conducted, results and calculations must be made available for public review. (May not be possible when proprietary information is involved)

Using the template document, describe the intended verification category within the Peer Review Network guidelines. Identify the percentage uncertainty that this adds to the project impact. Apply this project uncertainty value to earlier instances of calculated project impact, multiplying project impact by (1 - the uncertainty factor).

Provide any additional considerations concerning project verification.