American Carbon Registry
AT WINROCK INTERNATIONAL

THE AMERICAN CARBON REGISTRY STANDARD

REQUIREMENTS AND SPECIFICATIONS FOR THE QUANTIFICATION, MONITORING, REPORTING, VERIFICATION, AND REGISTRATION OF PROJECT-BASED GHG EMISSIONS REDUCTIONS AND REMOVALS

VERSION 7.0

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American Carbon Registry®

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ABOUT AMERICAN CARBON REGISTRY® (ACR)

A leading greenhouse gas (GHG) emission reduction and removal crediting program founded in 1996 as the first private voluntary GHG registry in the world, ACR operates in the voluntary and regulated carbon markets. ACR has unparalleled experience in the development of environmentally rigorous, science-based offset methodologies as well as operational experience in the oversight of offset project verification, registration, offset issuance, and retirement reporting through its online registry system.

ACRONYMS

ACR	American Carbon Registry®
AEZ	agroecological zone
AFOLU	Agriculture, Forestry, and Other Land Use
CCBA	Climate, Community and Biodiversity Alliance
CER	certified emission reduction
CO_2e	carbon dioxide-equivalent
CORSIA	Carbon Offset Reduction Scheme for International Aviation
DNA	Designated National Authority
ERT	Emission Reduction Ton
GIS	Geographic Information System
GHG	greenhouse gas
GWP	global warming potential
HFC	Hydrofluorocarbon
ICAO	International Civil Aviation Organization
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
NDC	nationally determined contributions
ODS	ozone-depleting substance
OPR	Offset Project Registry
PDA	Programmatic Development Approach
QA/QC	quality assurance/quality control
REC	Renewable Energy Credit or Renewable Energy Certificate
RPS	Renewable Portfolio Standard

SOC	soil organic carbon
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation/Verification Body

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INTRODUCTION

The American Carbon Registry® (ACR) is a leading carbon emission reduction and removal crediting program with over two decades of unparalleled carbon market experience in the development of rigorous, science-based offset standards and methodologies as well as operational experience in the oversight of offset project verification, registration, offset issuance, and retirement reporting through ACR's online registry system. ACR is a nonprofit enterprise of Winrock International. Winrock works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources. Key to this mission is building capacity for climate change mitigation and adaptation and leveraging the power of environmental markets.

ACR was founded in 1996 as the GHG Registry by the Environmental Resources Trust and joined Winrock in 2007. As the first private GHG registry in the world, ACR has set the bar for offset quality that is the market standard today and continues to lead carbon market innovation.

In 2012, ACR was approved by the California Air Resources Board to serve as an Offset Project Registry (OPR) and Early Action Offset Program for the California cap-and-trade market. ACR's work as a California OPR is governed by the California cap-and-trade regulation and compliance offset protocols approved by the Air Resources Board.[1] In 2020, ACR was approved by the International Civil Aviation Organization (ICAO) to supply units to the Carbon Offsetting Scheme for International Aviation (CORSIA)[2]. The ACR Standard governs only the registration of projects under ACR-approved methodologies

ACR GOVERNANCE

The ACR program is built on principles of accountability, transparency, responsiveness, and participatory processes. As an enterprise of Winrock, ACR benefits from the support and guidance of an established, reputable, global nonprofit organization. Winrock's management, executive team, and board of directors provide direct oversight of all ACR operations.

THE ACR STANDARD

The ACR Standard details ACR's requirements and specifications for the quantification, monitoring, and reporting of project based GHG emissions reductions and removals, verification, project registration, and issuance of carbon credits. The Standard establishes the quality level that

[1] The California cap-and-trade regulation (Subchapter 10 Climate Change, Article 5, Sections 95801 to 96022, Title 17, California Code of Regulations) and currently approved compliance offset protocols are available at http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm.

[2] ICAO Eligible Emissions Units: https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx

every project must meet in order for ACR to register its GHG emissions reductions and removals as tradable environmental assets.

ACR aims to maximize flexibility and usability for Project Proponents while maintaining the environmental integrity and scientific rigor necessary to ensure that projects developed against its standards and methodologies are recognized as being of the highest quality, whether used for voluntary, pre-compliance or compliance purposes.

Adherence to the ACR Standard and associated methodologies will ensure that project-based offsets represent emissions reductions and removals that are real, measurable, permanent, in excess of regulatory requirements and common practice, additional to business-as-usual, net of leakage, verified by a competent independent third party, and used only once.

APPLICABILITY

Project Proponents wishing to develop a project for registration on ACR shall follow this Standard and must apply an ACR-approved methodology (as defined below).

The ACR Standard v7.0 supersedes the ACR Standard v6.0 (July 2019). Any project listed subsequent to January 1, 2021, must follow all requirements of and be validated against the ACR Standard v7.0. New projects listed prior to January 1, 2019, may be validated according to a previous version of the ACR Standard, as applicable at the time of listing.

Project Proponents and other interested parties should refer to www.americancarbonregistry.org for the latest version of the ACR Standard, methodologies, tools, document templates, and other guidance.

CHAPTER GUIDE

Chapter 9 ACR requirements for validation and verification of all projects by a competent independent third-party verifier, which are addressed in greater detail in the ACR Validation and Verification Standard for GHG Projects

Chapter 10 ACR linkages to other GHG programs and registries, emission trading systems, and national or sectoral GHG emissions reduction targets

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Appendix A ACR Requirements for Agriculture, Forestry, and Other Land Use (AFOLU)-based carbon projects

Appendix B ACR Requirements for Avoiding Double Counting in the CORSIA

Appendix C Normative references on which the ACR Standard is based

Appendix D References on which the ACR Standard is based

The ACR Standard does not detail legal responsibilities of ACR and ACR members with regard to the use of the registry, which are provided for in the legally binding ACR Member Terms of Use Agreement and referenced operative documents such as the ACR Operating Procedures. A project-specific legal contract between ACR and Project Proponents governs use of ACR-approved risk mitigation mechanisms, including the ACR Buffer Pool, to mitigate the risk of reversals in certain types of projects.

CITATION

The appropriate citation for this document is American Carbon Registry (2020). The American Carbon Registry Standard, version 7.0., Winrock International, Little Rock, Arkansas.

CHAPTER 1: ACR BASICS

1.A DESCRIPTION OF THE ACR

The American Carbon Registry®, a nonprofit enterprise of Winrock International, is a leading carbon emission reduction and removal crediting program that operates in both the voluntary and the regulated carbon markets. Founded in 1996 as the first private voluntary GHG registry in the world, ACR has over two decades of unparalleled carbon market experience in the development of rigorous, science-based offset standards and methodologies as well as operational experience in the oversight of offset project verification, registration, offset issuance, and retirement reporting.

ACR operates a transparent online registry system for members to register projects and record the issuance, transfer, and retirement of serialized, project-based, and independently verified offsets. ACR's registry system records transactions directly negotiated between buyers and sellers; it is not an exchange. Offset transactions take place outside of ACR, over-the-counter or on exchanges, and are tracked on ACR through the unique serial numbers assigned to every offset.

1.B OBJECTIVES

ACR's objectives are to:

- Encourage action to manage GHG emissions;
- Provide guidance, transparent infrastructure, and science-based standards to foster high-quality reductions in GHG emissions;
- Support best practices in project-level GHG accounting;
- Commercialize innovative new methodologies;
- Encourage broad adoption of practices that mitigate climate change with significant community, economic, and environmental benefits;
- Enhance public confidence in market-based action for GHG reduction; and
- Support convergence of international and U.S. carbon markets.

1.C GEOGRAPHIC SCOPE

ACR accepts projects from worldwide locations, provided they conform to an ACR-approved methodology. Certain sectors and methodologies prescribe a narrower geographic scope (e.g., United States only).

1.D SCOPE: GREENHOUSE GASES AND PARTICULATE MATTER

ACR registers emission reductions and/or removal enhancements of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons, sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), and black carbon. ACR's scope also includes destruction of Ozone-Depleting Substances (ODS) listed in Annexes A, B, C, and E of the Montreal Protocol.[3]

1.E SCOPE: PROJECT TYPES

ACR accepts all projects validated and verified against an ACR-approved methodology, provided they comply with the current version of the ACR Standard. ACR-approved methodologies include:

- Methodologies developed by ACR and approved through the public consultation and scientific peer review process;
- Modifications of existing ACR methodologies, provided such modifications have been approved by ACR per requirements found in Chapter 7; and
- New methodologies developed by external authors and approved by ACR through ACR's methodology development process described in Chapter 7.

1.E.1 Renewable Energy and Energy Efficiency Projects

ACR will register GHG reductions from renewable energy and energy efficiency projects if all of the following criteria are met:

- The project displaces direct emissions by reducing the consumption of fossil fuels at a facility that the Project Proponent owns or controls, or for which the facility owner has assigned the Project Proponent clear and uncontested offsets title. Examples are biomass co-firing with coal, biogas used to displace natural gas, and energy efficiency projects that reduce natural gas use;
- The project meets additionality and other requirements of the ACR Standard;
- The GHG reductions have not been used to meet a regulatory compliance obligation under a binding limit;
- Under jurisdictional (i.e. federal, state, provincial, etc.) regulations, the project does not take place at a regulated source; and
- The project has not been counted toward a mandatory renewable energy obligation (such as a renewable portfolio standard) obligation or claimed any other voluntary renewable energy incentive (such as renewable energy credits).

[3] See http://ozone.unep.org/Publications/MP_Handbook.

1.E.2 Scope Exclusions

The following scope exclusions apply under the ACR program:

- Projects that do not meet all ACR eligibility criteria, including projects that convert and/or clear native ecosystems to generate carbon offsets;
- Renewable energy and energy efficiency projects unless meeting all criteria above;
- International project-level REDD (Reducing Emissions from Deforestation and Degradation) and forestry projects from REDD+ countries. The growing international implementation of land-based sectoral GHG accounting and crediting and/or results-based finance (REDD+) greatly increases the risk of double claiming project-based offset credits within a sectoral crediting scheme; and
- Projects quantifying energy or life-cycle GHG accounting-based indirect emissions reductions and removals.

1.F LANGUAGE

English is the operating language of ACR. All GHG Project Plans, methodologies, tools, verification statements, and other documents required by ACR shall be in English.

1.G UNIT OF MEASURE

Project Proponents shall calculate, quantify, and report all GHG reductions and removal enhancements in metric tons, converting each metric ton to its CO_2 equivalent (CO_2e). GHG reductions and removal enhancements with a vintage year of 2021 or later shall use conversion calculations based on the 100-year Global Warming Potential factors listed in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5), Working Group 1, Chapter 8, Table 8.7 for CH_4 and N_20[4] and Table 8.SM.16 for HFCs, PFCs, SF_6, NF_3, and all ODS[5]. GHG reductions and removal enhancements with a vintage year of 2020 or earlier will maintain the original application of GWP factors from an earlier IPCC Assessment Report referenced in previous, relevant versions of the ACR Standard.

1.H UNIT OF EXCHANGE

The ACR unit of exchange is a verified emissions reduction, serialized and registered as an Emission Reduction Ton (ERT), denominated in metric tons of CO_2e. ERTs, also referred to as offsets, carbon offsets, carbon credits and carbon offset credits, include emission reductions and removal enhancements (i.e., enhanced sequestration).

[4] See https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf.

[5] See https://www.ipcc.ch/site/assets/uploads/2018/07/WGI_AR5.Chap_.8_SM.pdf.

1.I NO EX-ANTE CREDITING

A project-based credit is the result of a defined and eligible project action that yields quantifiable and verifiable GHG emissions reductions/removals. ACR will not issue ERTs for GHG emissions reductions or removals when an emission mitigation activity has not occurred or is not yet verified. ACR will not credit a projected stream of credits on an ex-ante basis.

1.J ADOPTION OF AND REVISIONS TO ACR STANDARDS

All ACR Standards will be posted for public comment for at least 60 days prior to adoption. ACR will prepare responses to all submitted comments and post the comments and responses along with the new version of the standard.

ACR will review and revise the ACR Standard, as necessary, at a minimum of every 3 years.

Such updates occur when significant changes to GHG accounting best practices or the legislative and/or regulatory context justify an update; when new provisions or requirements originating in methodologies make ACR aware of higher-level requirements or clarifications that should be made at the ACR Standard; upon an update to ACR's internal policy and/or process requirements; or for other reasons.

1.K CONFLICT OF INTEREST POLICY

As a nonprofit organization that values its reputation for integrity, ACR requires that all management and staff adhere to its Code of Professional Conduct, which includes a strict and comprehensive policy against engaging in activities that present a conflict of interest. Accordingly, each director, officer, and staff member are required to regularly affirm that they are in compliance with this policy, that they avoid all conflicts of interest and take reasonable action to avoid circumstances that create the appearance of a conflict of interest. ACR staff are required to notify management immediately if any conflict of interest situations arise or come to their attention so the conflict can be appropriately mitigated.

In addition to its internal conflict of interest policy, ACR requires that its third-party registry service provider maintain and adhere to a strict conflict of interest policy and that all ACR-approved Validation and Verification Bodies (VVBs) execute an Attestation of Validation/Verification Body, which defines the VVB role and responsibilities and ensures technical capabilities of all staff and no conflicts of interest. ACR-approved VVBs must also execute and have approved by ACR a project-specific conflict of interest form for each project validation and/or reporting period verification for which they have been selected.

CHAPTER 2: ACCOUNTING AND DATA QUALITY PRINCIPLES

The accounting and data quality principles summarized here are designed to ensure that the assumptions, values, and procedures used by Project Proponents and VVBs result in a fair and true accounting of GHG emission reductions and removals.

2.A GUIDING PRINCIPLES FOR GHG ACCOUNTING

ACR affirms a set of guiding principles, based on the International Organization for Standardization (ISO) 14064 Part 2 (2006) specifications from which all other ACR principles and eligibility criteria follow, as summarized in Table 1.

Table 1: Core GHG Accounting Principles

RELEVANCE	Select the GHG sources, GHG sinks, GHG reservoirs, data, and methodologies appropriate to the needs of the intended user.
COMPLETENESS	Include all relevant GHG emissions and removals. Include all relevant information to support criteria and procedures.
CONSISTENCY	Enable meaningful comparisons in GHG-related information. Use consistent methodologies for meaningful comparisons of emissions over time. Transparently document any changes to the data, boundary, methods, or any other relevant factors.
ACCURACY	Reduce bias and uncertainties as far as is practical.
TRANSPARENCY	Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
CONSERVATIVENESS	Use conservative assumptions, values, and procedures to ensure that GHG emission reductions or removal enhancements are not overestimated.

2.B METHODOLOGICAL SPECIFICATIONS FOR ADHERENCE TO GUIDING PRINCIPLES

2.B.1 Boundary Selection

GHG project boundaries include a project's physical boundary or implementation area, the GHG sources, sinks and reservoirs (or pools) considered, and the project duration.

Approved methodologies establish criteria for the selection of relevant GHG sources, sinks, and reservoirs for regular monitoring or estimation. The Project Proponent shall justify in the GHG Project Plan the exclusion from regular monitoring of any relevant GHG source, sink, or reservoir.

In accordance with ISO 14064-2:2006, approved methodologies establish criteria and procedures for quantifying GHG emissions and/or removals for selected GHG sources, sinks, and/or reservoirs. The Project Proponent shall quantify GHG emissions and/or removals separately for each relevant GHG for each GHG source, sink, and/or reservoir identified in the methodology as being relevant for the project and for the baseline scenario.

The Project Proponent shall provide a detailed description of the geographic boundary of Project Activities. A Project Activity may contain more than one facility or discrete area of land, but each facility or land area must have a unique geographical identification, and each land area must meet the sector-specific land eligibility requirements, if applicable. For AFOLU projects, the Project Proponent shall provide maps, Geographic Information System (GIS) shapefiles, and other relevant information to delineate the project boundary.

Sector-specific requirements found in Appendix A specify the required Minimum Project Term for particular project types.

2.B.2 Relevance and Completeness

Consistent with ISO 14064 Part 2, Project Proponents shall consider all relevant information that may affect the accounting and quantification of GHG reductions and removals, including estimating and accounting for any decreases in carbon pools and/or increases in GHG emission sources.

2.B.3 Uncertainty, Accuracy, and Precision

The Project Proponent shall reduce, as far as is practical, uncertainties related to the quantification of GHG emission reductions or removal enhancements.

Methodologies submitted for ACR approval shall include methods for estimating uncertainty relevant to the project and baseline scenario. For methodologies based on statistical sampling

(e.g., methodologies in the forestry or working land use sectors), ACR requires that the sampling error associated with the mean of the estimated emission reduction/removal not exceed ±10% of the mean at the 90% confidence interval to report the mean of the estimated emission reduction/removal. If the Project Proponent cannot meet this target, then the reportable amount shall be the mean minus the lower bound of the 90% confidence interval, applied to the final calculation of emission reductions/removal enhancements, or must be calculated as specified in the applied methodology. Project Proponents are responsible for deciding if potential additional revenues from reporting the mean without an uncertainty deduction justify the additional costs of more intensive sampling to achieve precision of ±10% of the mean at 90% confidence. If the sampling error is equal to or greater than 20%, the confidence deduction for the monitoring period must be 100%. Project-specific methodologies provide guidance on how to calculate this uncertainty deduction.

The use of biogeochemical or process models, when employed as the sole estimator of emissions and/or removals, must also include estimates of input uncertainty and structural uncertainty related to the inadequacy of the model, model bias, and model discrepancy. Structural uncertainty should be quantified using the best available science, and can include Monte Carlo analyses, uncertainty estimates from peer reviewed literature, and/or consulting model experts who have either developed or worked directly with the model in an academic setting. See section A.6 for further details.

2.B.4 Conservativeness

The methodology shall define assumptions and specify quantification methods and monitoring requirements to ensure that GHG emission reductions and removals are not overestimated, particularly in cases where estimation methods, not direct measurement, are used to populate parameters.

The following rules shall be applied when reporting emissions data to ACR for credit issuance:

- Claimed emissions reductions shall be rounded down to the nearest whole number; and
- Calculated Buffer Pool contributions shall be rounded up to the nearest whole number.

2.B.5 Emissions Factors

Where needed to estimate GHG emission reductions or removal enhancements in the project or baseline scenario, the methodology shall specify GHG emissions or removal factors that:

- Derive from a scientific peer-reviewed origin;
- Are appropriate for the GHG source or sink concerned; and
- Take account of the quantification uncertainty.

2.B.6 Managing Data Quality

The Project Proponent shall establish and apply quality assurance and quality control (QA/QC) procedures to manage data and information, including the assessment of uncertainty in the project and baseline scenarios. QA/QC procedures shall be outlined in the GHG Project Plan.

2.B.7 Participation in Other Asset Programs

In general, ACR allows carbon offset projects with multiple environmental and/or social attributes to participate in and benefit from programs that quantify achieved benefits beyond those of GHGs. However, participation in such programs is not always consistent with the ACR Standard and principles of carbon offsetting. Proposals for simultaneous reporting of non-carbon attributes will be subject to evaluation upon the ACR project listing review or, for carbon offset projects that have completed this step, upon submission of the proposal. The following requirements must be met for consideration:[6]

- Any project that seeks to register non-carbon environmental attributes alongside offsets must disclose to ACR the intent and details of the program prior to validation, if known;
- The attributes quantified for the non-carbon benefits must be distinct from the GHG benefits such that they have separately defined accounting units (e.g., pounds of nutrients in the case of water quality credits versus metric tons of CO_2e);
- The attributes quantified for the non-carbon benefits must represent a well-defined and distinct ecosystem service that can be "stacked" with offsets, such that they could be financially incentivized separately from the carbon benefit[7]
- The project action must not be required by regulation to achieve the quantified non-carbon benefit; and
- The project action must not compensate for an activity outside the project's geographic boundary that results in release of GHGs or loss of a carbon sink (e.g., wetlands mitigation banking).

[6] This section is not relevant to RECs, which are discussed in Chapter 1, Section E.

[7] Any project using an ACR-approved GHG quantification methodology for issuance of credits may choose to quantify alternate environmental and/or social benefits. However, these benefits may not always be creditable in a non-carbon environmental market at the same time as the GHG emissions reductions and removals benefits represented by credits.

CHAPTER 3: PROJECT ELIGIBILITY REQUIREMENTS

Table 2 details ACR eligibility criteria for all projects, defines each criterion, and articulates ACR requirements. Additional eligibility requirements for specific project types are summarized in the relevant ACR sector standard and/or methodology. Project Proponents shall address, in their GHG Project Plan, each of the criteria below along with the project type-specific requirements.

Table 2: Eligibility Requirements for Offset Projects

CRITERION	DEFINITION	ACR REQUIREMENT
Start Date[8,9]	ACR defines the Start Date for all projects other than AFOLU as the date on which the project began to reduce GHG emissions against its baseline. ACR defines the eligible Start Date(s) for AFOLU project types in Annex A, "ACR Requirements for AFOLU-Based Carbon Projects."	Non-AFOLU Projects must be validated within 2 years of the project Start Date. AFOLU Projects must be validated within 3 years of the project Start Date. One exception applies to these timeframes: Projects using a newly approved methodology[10] or a newly approved modification that expands the eligibility of a previously published methodology[11] may submit it for listing with ACR within 10 years of the project Start Date. However, the date of listing submittal must be within 6 months of the methodology publication date, and the project must then be validated within 2 years of the listing.
Minimum Project Term	The minimum length of time for which a Project Proponent commits to	The duration of the Minimum Project Term for specific project types is defined in the rele-

[8] The Start Date requirements do not apply to existing ACR projects that renew a Crediting Period. In these instances, the initial project Start Date, as previously validated, shall apply and shall be accepted in the Crediting Period renewal validation process on a de facto basis.

[9] All projects transferring to ACR from another GHG program must have a validated/verified Start Date of January 1, 2000, or after and will maintain their original project Start Date. Projects transferring to ACR from another GHG program and that have reached the end of a Crediting Period may apply for an initial Crediting Period at ACR per ACR Standard requirements. The project must have been successfully validated and/or verified at the previous GHG program.

[10] A methodology is considered "newly approved" if ACR has published it no more than 6 months prior to the project's listing or registration with ACR. See Chapter 6 for guidance on ACR listing and registration requirements.

[11] The project must demonstrate that it was not eligible under the previously published version of the relevant methodology, without the newly approved modification.

	project continuance, monitoring, and verification.	vant ACR sector requirements and/or methodology. Project types with no risk of reversal after crediting have no required Minimum Project Term. Project Proponents of AFOLU projects with a risk of reversal shall commit to a Minimum Project Term of 40 years. The Minimum Term begins on the Start Date, not the first or last year of crediting. The Minimum Project Term is a requirement of the Project Proponent, not necessarily of the landowner (unless the landowner is the Project Proponent). ACR enters into legal agreements only with the Project Proponent. Project Proponents and landowners may continue AFOLU carbon activities beyond the Minimum Project Term, but ACR does not require monitoring or verification unless the Crediting Period is renewed.
Crediting Period	Crediting Period is the finite length of time for which a GHG Project Plan is valid, and during which a project can generate offsets against its baseline scenario. Crediting Periods are limited in order to require Project Proponents to reconfirm, at intervals appropriate to the project type, that the baseline scenario remains realistic and credible, the Project Activity remains additional, and GHG accounting best practice is being used.	The Crediting Period for non-AFOLU projects shall be 10 years. AFOLU projects may have different Crediting Periods, as specified in the relevant ACR sector requirements or methodology. The Start Date and the start of the first Crediting Period are generally the same, unless otherwise allowable in the relevant methodology. A Project Proponent may apply to renew the Crediting Period by complying with all then-current ACR requirements (including the latest versions of the ACR Standard and applicable methodology), re-evaluating the baseline scenario, reconfirming additionality, and using emission factors, tools, and methodologies in effect at the time of renewal. Except where specified in a methodology, ACR does not limit the number of renewals. Projects that are deemed to meet all ACR additionality criteria upon validation are considered additional for the duration of their Crediting Period with the exception of regulatory changes that effectively mandate the project

		activity after a Crediting Period has begun[12]. If a regulatory requirement (or similar requirement such as a permit condition) comes into force during the crediting period and such requirement effectively mandates the project activity, the project will no longer be eligible for crediting from the date the regulation takes effect, unless otherwise specified in the applicable methodology.
Real	A real offset is the result of a project action that yields quantifiable and verifiable GHG emissions reductions and/or removals.	GHG reductions and/or removals shall result from an emission mitigation activity that has been conducted in accordance with an approved ACR Methodology and is verifiable. ACR will not credit a projected stream of offsets on an ex-ante basis.
Emission or Removal Origin	An emission or removal is direct if it originates from sources or sinks over which the Project Proponent has control. An emission or removal is indirect if it originates at sources or sinks over which the Project Proponent does not have control.	For projects reducing or removing direct emissions, the following requirement applies: The Project Proponent shall own, have control over, or document that effective control exists over the GHG sources and/or sinks from which the emissions reductions or removals originate. For projects reducing or removing non-energy indirect emissions,[13] the following requirement applies: The Project Proponent shall document that no other entity may claim GHG emission reductions or removals from the Project Activity (i.e., that no other entity may make an ownership claim to the emission reductions or removals for which credits are sought).
Offset Title	Offset title is a legal term representing rights and interests in an offset, a future stream of offsets,	The Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration. Title to offsets shall be clear, unique, and uncontested.

[12] If the basis for additionality changes during the Crediting Period (other than regulations that require project implementation), the project may be ineligible for Crediting Period renewal.
[13] ACR will not consider projects or methodologies for indirect emissions reductions/removals based on life-cycle GHG accounting methods.

	or a project delivering offsets.	ACR will issue offsets into the account of a Project Proponent only if there is clear, unencumbered, and uncontested offset title.
Additional	GHG emission reductions and removal enhancements are additional if they exceed those that would have occurred in the absence of the Project Activity and under a business-as-usual scenario.	Every project shall use either an ACR-approved performance standard and pass a regulatory surplus test, as detailed in the applicable methodology, or pass a three-pronged test of additionality in which the project must: 1. Exceed regulatory/legal requirements; 2. Go beyond common practice; and 3. Overcome at least one of three implementation barriers: institutional, financial, or technical.
Regulatory Compliance	Adherence to all laws, regulations, and other legally binding mandates directly related to Project Activities.	Projects must maintain material regulatory compliance. To do this, a regulatory body/bodies must deem that a project is not out of compliance at any point during a reporting period. Projects deemed to be out of compliance with regulatory requirements are not eligible to earn ERTs during the period of non-compliance. Regulatory compliance violations related to administrative processes (e.g., missed application or reporting deadlines) or for issues unrelated to integrity of the GHG emissions reductions shall be treated on a case-by-case basis and may not disqualify a project from ERT issuance.
Permanent	Permanence refers to the longevity of removal enhancements and the risk of reversal (i.e., the risk that atmospheric benefit will not be permanent). Reversals may be unintentional or intentional.	For projects with a risk of reversal of GHG removal enhancements or avoided conversion projects, Project Proponents shall assess and mitigate risk, and monitor, report, and compensate for reversals. AFOLU Project Proponents shall assess reversal risk using ACR's Tool for Risk Analysis and Buffer Determination and shall enter into a legally binding Reversal Risk Mitigation Agreement with ACR/Winrock that details the

		risk mitigation option selected and the requirements for reporting and compensating reversals. Proponents of terrestrial sequestration or avoided conversion projects shall mitigate reversal risk by contributing ERTs to the ACR Buffer Pool or using another ACR-approved insurance or risk mitigation mechanism. Proponents of geologic sequestration projects shall mitigate reversal risk during the project term by contributing ERTs to the ACR Reserve Account and post-project term by filing a Risk Mitigation Covenant, which prohibits any intentional reversal unless there is advance compensation to ACR, or by using another ACR-approved insurance or risk mitigation mechanism.
Net of Leakage	Leakage is an increase in GHG emissions or decrease in sequestration outside the project boundaries that occurs because of the project action.	ACR requires Project Proponents to address, account for, and mitigate certain types of leakage, according to the relevant sector requirements and methodology conditions. Project Proponents must deduct leakage that reduces the GHG emissions reduction and/or removal benefit of a project in excess of any applicable threshold specified in the methodology.
Independently Validated	Validation is the systematic, independent, and documented process for the evaluation of a GHG Project Plan against applicable requirements of the ACR Standard and approved methodology.	ACR requires third-party validation of the GHG Project Plan by an accredited, ACR-approved VVB once during each Crediting Period and prior to issuance of ERTs. Validation can be conducted at the same time and by the same VVB as a full verification; however, the deadline for validation is determined by the methodology being implemented and the project Start Date (see above). Governing documents for validation are the ACR Standard, including sector-specific requirements, the relevant methodology, and the ACR Validation and Verification Standard.

Independently Verified	Verification is the systematic, independent, and documented assessment by a qualified and impartial third party of the GHG assertion for a specific reporting period.	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals. ACR requires verifiers to provide a reasonable, not limited, level of assurance that the GHG assertion is without material discrepancy. ACR's materiality threshold is ±5%.
Environmental and Community Assessments	Projects have the potential to generate positive and negative community and environmental impacts. Appropriate safeguard procedures can identify, evaluate, and manage potential negative impacts. Positive impacts can contribute to sustainable development objectives.	ACR requires that all projects develop and disclose an impact assessment to ensure compliance with environmental and community safeguards best practices. Environmental and community impacts should be net positive, and projects must "do no harm" in terms of violating local, national, or international laws or regulations. Project Proponents must identify in the GHG Project Plan community and environmental impacts of their project(s). Projects shall also disclose and describe positive contributions as aligned with applicable sustainable development goals. Projects must describe the safeguard measures in place to avoid, mitigate, or compensate for potential negative impacts, and how such measures will be monitored, managed, and enforced. ACR does not require that a particular process or tool be used for the impact assessment as long as basic requirements defined by ACR are addressed (See Chapter 8). ACR projects can follow internationally recognized approaches such as The World Bank Safeguard Policies, or can be combined with the Climate Community and Biodiversity Alliance (CCBA) Standard or the Social Carbon Standard for the assessment, monitoring, and reporting of environmental and community impacts.

CHAPTER 4: ADDITIONALITY

ACR's additionality requirements are intended to ensure that credited offsets exceed the GHG reductions and removals that would have occurred under current laws and regulations, current industry practices, and without carbon market incentives. Project Proponents must demonstrate that the GHG emission reductions and removals from an offset project are above and beyond the "business as usual" scenario. To qualify as additional, ACR requires every project:

- Either to exceed an approved performance standard, as defined in the applicable methodology, and a regulatory additionality test; or
- To pass a three-prong test of additionality.

4.A THREE-PRONG ADDITIONALITY TEST

This approach combines three tests that help determine whether GHG emission reductions and removals from an offset project are above and beyond the "business as usual" scenario. This does not mean the Project Activity delivers no financial or other benefits other than GHG reduction; it simply attempts to ascertain whether GHG reduction was a significant factor.

The three-prong test requires projects to demonstrate that they exceed currently effective and enforced laws and regulations; exceed common practice in the relevant industry sector and geographic region; and face at least one of three implementation barriers (financial, technological, or institutional). The three-prong test is described in Table 3. The GHG Project Plan must present a credible demonstration, acceptable to ACR and the VVB, that the project passes these tests.

Some ACR-approved methodologies require application of an additionality tool to assist Project Proponents in demonstrating additionality. ACR does not require all methodologies to mandate application of an additionality tool; however, if the relevant methodology requires one, its use is mandatory, unless otherwise indicated by the ACR-approved conditions for use of the methodology.

Table 3: Three-Prong Additionality Test

REGULATORY SURPLUS	Is there an existing law, regulation, statute, legal ruling, or other regulatory framework in effect as of the project Start Date that mandates the Project Activity or effectively requires the GHG emissions reductions? **YES = FAIL NO = PASS**
COMMON PRACTICE	In the field or industry/sector, is there widespread deployment of this project, technology, or practice within the relevant geographic area? **YES = FAIL NO = PASS**
IMPLEMENTATION BARRIERS	**CHOOSE ONE OF THE FOLLOWING THREE**
Financial	Does the project face capital constraints that carbon revenues could address; or is carbon funding reasonably expected to incentivize the project's implementation; or are carbon revenues a key element to maintaining the project action's ongoing economic viability after its implementation? **YES = PASS NO = FAIL**
Technological	Does the project face significant technological barriers such as R&D deployment risk, uncorrected market failures, lack of trained personnel and supporting infrastructure for technology implementation, or lack of knowledge on practice/activity, and are carbon market incentives a key element in overcoming these barriers? **YES = PASS NO = FAIL**
Institutional	Does the project face significant organizational, cultural, or social barriers to implementation, and are carbon market incentives a key element in overcoming these barriers? **YES = PASS NO = FAIL**
If the project passes the Regulatory Surplus and Common Practice tests and at least one Implementation Barrier test, ACR considers the project additional.	

4.A.1 Regulatory Surplus Test

The regulatory surplus test requires the Project Proponent to evaluate existing laws, regulations, statutes, legal rulings, or other regulatory frameworks that directly mandate the project action,

and which require specific technical, performance, or management actions. These legal requirements may require the use of a specific technology, meeting a certain standard of performance (e.g., new source performance standards), or managing operations according to a certain set of criteria or practices (e.g., forest practice rules). In determining whether an action is surplus to regulations, the Project Proponent does not need to consider voluntary agreements without an enforcement mechanism, proposed laws or regulations, optional guidelines, or general government policies.

If a regulatory requirement (or similar requirement such as a permit condition) comes into force during the crediting period and effectively mandates the project activity, the project will no longer be eligible for crediting from the date the regulatory requirement takes effect, unless otherwise specified in the applicable methodology.

AFOLU projects with easements need to consider the legally binding requirements of the easement if the recordation date is prior to 1 year before the project Start Date. (The constraints outlined in the easement would also need to be included in the baseline scenario within this time frame.)

4.A.2 Common Practice Test

The common practice test requires the Project Proponent to evaluate the predominant technologies or practices in use in a particular industry, sector, and/or geographic region, as determined by the degree to which those technologies or practices have penetrated the market, and demonstrate that the proposed Project Activity is not common practice and will reduce GHG emissions below levels produced by common technologies or practices within a comparable environment (e.g., geographic area, regulatory framework, investment climate, access to technology/financing).

The level of penetration that represents common practice may differ between sectors and geographic areas, depending on the diversity of baseline candidates. The common practice penetration rate or market share for a technology or practice may be quite low if there are many alternative technologies and practices. Conversely, the common practice penetration rate or market share may be quite high if there are few alternative technologies or practices. Projects that are “first of its kind” are not common practice.

Projects that are deemed to go beyond common practice are considered as such for the duration of their Crediting Period. If common practice adoption rates of a particular technology or practice change during the Crediting Period, this may make the project non-additional and thus ineligible for renewal; however, this does not affect its additionality during the current Crediting Period.

Note that the common practice test, a component of the three-prong test, is distinct from a performance standard. For some activities, the data used to define common practice in a particular industry, sector, or region may be functionally equivalent to the data required to establish an acceptable practice-based performance standard. In such cases, Project Proponents may elect the option to demonstrate additionality by defining a practice-based performance standard and demonstrating that the Project Activity both exceeds this standard and is surplus to regulations.

4.A.3 Implementation Barriers Test

An implementation barrier represents any factor that would prevent the adoption of the Project Activity the Project Proponent proposes. Under the implementation barriers test, Project Proponents shall choose at least one of three barrier assessments (financial, technological, or institutional). Project Proponents may demonstrate that the Project Activity faces more than one implementation barrier, but are not required to address more than one barrier.

- **FINANCIAL BARRIERS** include high costs, limited access to capital, or an internal rate of return in the absence of carbon revenues that is lower than the Project Proponent's established and documentable minimum acceptable rate. Financial barriers can also include high risks such as unproven technologies or business models, poor credit rating of project partners, and project failure risk. If electing the financial implementation barrier test, Project Proponents shall include solid quantitative evidence such as net present value and internal rate of return calculations.
- **TECHNOLOGICAL BARRIERS** include R&D deployment risk, uncorrected market failures, lack of trained personnel and supporting infrastructure for technology implementation, and lack of knowledge on practice/activity.
- **INSTITUTIONAL BARRIERS** include institutional opposition to technology implementation, limited capacity for technology implementation, lack of management consensus, aversion to upfront costs, and lack of awareness of benefits.

4.B PERFORMANCE STANDARD APPROACHES

In lieu of the three-prong test, ACR also recognizes the "performance standard" approach, in which additionality is demonstrated by showing that a proposed Project Activity is (1) surplus to regulations, and (2) exceeds a performance standard as defined in an approved methodology.

Project Proponents must first establish regulatory additionality per the requirements in section A.1 of this chapter.

Second, under the performance standard approach, projects are required to achieve a level of performance that, with respect to emission reductions or removals, or technologies or practices, is significantly better than average compared with similar recently undertaken practices or activities in a relevant geographic area.[14] The performance threshold may be:

- **PRACTICE-BASED,** developed by evaluating the adoption rates or penetration levels of a particular practice in a relevant industry, sector, or sub-sector. If these levels are sufficiently low that it is determined the Project Activity is not common practice, then the activity is considered additional. Specific thresholds may vary by industry, sector, geography, and practice, and are specified in the relevant methodology.

[14] Adapted from the U.S. Environmental Protection Agency Climate Leaders offset methodologies at http://www.epa.gov/stateply/resources/optional-module.html.

- **TECHNOLOGY STANDARD:** Installation of a particular GHG-reducing technology may be determined to be sufficiently uncommon that simply installing the technology is considered additional.
- **EMISSIONS RATE OR BENCHMARK** (e.g., tons of CO_2e emission per unit of output) with examination of sufficient data to assign an emission rate that characterizes the industry, sector, subsector, or typical land management regime, the net GHG emissions/removals associated with the Project Activity, in excess of this benchmark, may be considered additional and credited.

Performance standard baselines specific to particular project types, activities, and regions will be detailed in the relevant ACR-approved methodologies.

CHAPTER 5: PERMANENCE

In GHG accounting, permanence refers to the perpetual nature of GHG removal enhancements (or avoided emissions from conversion) and the risk that a project's atmospheric benefit will not be permanent. GHG emissions reductions from terrestrial sources and sinks may not be permanent if a project has exposure to risk factors such as intentional or unintentional events that result in emissions into the atmosphere of stored or sequestered CO_2e for which offset credits were issued (termed a Reversal). Impermanence is not an issue for some project types for which the GHG reductions or avoidance are not reversible once they occur. However, terrestrial and geologic sequestration and avoided conversion projects have the potential for GHG reductions and removals to be reversed upon exposure to risk factors, including unintentional reversals (e.g., fire, flood, and insect infestation for terrestrial projects, and unanticipated releases of CO_2 for geologic projects) and intentional reversals (e.g., landowners or Project Proponents choosing to discontinue AFOLU Project Activities and/or participate in an activity that reverses the sequestration previously achieved by a carbon sink, and for geologic sequestration, the release of stored CO_2 that is intentional or that is a collateral effect of any planned activities affecting the storage volume).

ACR AFOLU projects must commit to maintain, monitor, and verify Project Activity for a Minimum Project Term of 40 years. The Minimum Project Term is not equated with the assurance of permanence, because no length of time, short of perpetual, is truly permanent, nor is there a sound scientific basis or accepted international standard around any number of years that equates to an emission reduction/removal being permanent. This AFOLU minimum project term is aligned with scientific reports[15] that have assessed the critical role of the AFOLU sector in all 1.5°C-consistent pathways to achieve Paris Agreement targets and reach net zero emissions by mid-century to avoid the catastrophic effects of climate change.

Only well-designed, legally-binding reversal risk mitigation mechanisms can make sequestration-based offset credits effectively permanent and fungible with permanent offsets. Assessment and mitigation of reversal risk ensures that any losses of sequestration (i.e., increases in atmospheric GHG concentrations), whether occurring from an unforeseen natural disturbance or from

[15] Bronson W. Griscom et. al, Proceedings of the National Academy of Sciences Oct 2017, 114 (44) 11645-11650

IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)].

IPCC, 2019: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.- O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)].

an intentional discontinuation of sequestration activities, are effectively compensated and the atmosphere “made whole.”

ACR requires that projects with a risk of reversals shall assess and mitigate risk, and monitor, report, and compensate for reversals.

5.A ASSESSMENT OF RISK

Project Proponents of terrestrial sequestration and avoided conversion projects with a risk of reversal must conduct a reversal risk assessment using an ACR-approved tool that addresses both general and project-specific risk factors. General risk factors include financial failure, technical failure, management failure, rising land opportunity costs, regulatory and social instability, and natural disturbances. Project-specific risk factors vary by project type.

AFOLU Project Proponents shall conduct their risk assessment using the ACR Tool for Risk Analysis and Buffer Determination. The output of the tool is an overall risk-rating percentage for the project, translating into a number of offsets that must be deposited in the ACR Buffer Pool Account to mitigate the risk of reversal, the Minimum Buffer Percentage.

The risk assessment, overall risk category, Minimum Buffer Percentage, and calculated Buffer Contribution amount shall be included in the GHG Project Plan and Monitoring Report. ACR evaluates the proposed overall risk category and corresponding buffer contribution, and the VVB evaluates whether the risk assessment has been conducted correctly. Concurrent with each issuance of offsets to the project, the Project Proponent shall contribute offsets to the Buffer Account equal to the sum of the Minimum Buffer Percentage multiplied by each of the annual volumes of offsets being issued.

If no reversals occur, the project’s risk category and Minimum Buffer Percentage may remain unchanged for 5 years. The risk analysis must be re-evaluated at least every 5 years, or coincident with site visit verification. An exception is in the event of a reversal, in which case the risk category and Minimum Buffer Contribution shall be immediately re-assessed and re-verified.

5.B REVERSAL MITIGATION, REPORTING, AND COMPENSATION

Project Proponents of AFOLU projects with risk of reversal shall enter into a legally binding Reversal Risk Mitigation Agreement that allows them to select a reversal risk mitigation mechanism and details the requirements for reporting and compensating reversals. Should reversals occur the requirements and liabilities associated with replacing lost ERTs rest with the Project Proponent, and not necessarily with the individual landowner(s) per the Risk Mitigation Agreement.

5.B.1 Primary AFOLU Risk Mitigation Mechanism: The ACR Buffer Pool

Project Proponents choosing the ACR Buffer Pool as the risk mitigation mechanism agree to the latest published version of the ACR Buffer Pool Terms and Conditions, which detail the operation of the Buffer Pool and requirements of the Project Proponent. Generally, the project contributes to the Buffer Pool account the number of offsets as determined by the project-specific risk assessment in order to replace unforeseen losses. ACR has sole management and operational control over the offsets in the Buffer Pool.

5.B.2 Geologic Sequestration Risk Mitigation Mechanisms

For geologic sequestration projects, Project Proponents must contribute 10% of the project's offset credits to a Reserve Account, managed by ACR, from which credits will be retired in the event of a reversal during the Project Term. The reversed quantity shall be measured and reported, verified, and compensated by retiring an equivalent volume of offset credits from the Reserve Account. Reversals post-Project Term are compensated as outlined in the legally binding Risk Mitigation Covenant, filed in the real property records of each county, parish, and other governmental subdivision that maintains real property records, which prohibits any intentional reversal unless there is advance compensation to ACR.

5.B.3 Alternate Risk Mitigation Mechanisms

In lieu of making a Buffer Pool Contribution or Reserve Account Contribution, Project Proponents may propose an insurance product for ACR approval as a risk mitigation mechanism. Insurance may be a financial product based on an actuarial analysis of project risk that considers circumstances such as the region, threats, and mitigating factors. This is similar to the assessment done for property insurance.

The Project Proponent may provide insurance, bonds, letters of credit, or other financial assurances to ACR in amounts, and in form and substance, satisfactory to ACR in its sole and absolute discretion. Such financial products must assure provision of sufficient funds to ACR, in the event a project suffers an unintentional or intentional reversal of sequestered carbon, to purchase and retire a number of ERTs sufficient to offset such reversal. There may be no hidden costs, exclusions, or unanticipated liabilities. ACR must approve the proposed alternative after it conducts due diligence, which will be at the Project Proponent's or insurance provider's expense.

5.C MONITORING FOR REVERSALS

All projects must adhere to ongoing monitoring requirements as detailed in relevant methodologies, including ongoing verification during the Minimum Project Term.

For Geologic Sequestration, Project Proponents are required to demonstrate that the CO_2 captured and stored is permanently sequestered underground through detailed post-injection monitoring, required until it can be verified that no migration of injected CO_2 is detected across the boundaries of the storage volume and the modeled failure scenarios indicate that the CO_2 will remain contained within the storage volume. The Risk Mitigation Agreement details ongoing monitoring requirements.

5.D REVERSAL REPORTING AND COMPENSATION

AFOLU reversals must be reported and compensated following requirements detailed in the ACR AFOLU Carbon Project Reversal Risk Mitigation Agreement and the Buffer Pool Terms and Conditions. Geologic sequestration reversals must be reported and compensated following requirements as detailed in applicable methodology. In the event of reversals during the project term, the quantity shall be measured and reported, verified, and compensated by retiring offset credits from the Reserve Account. Reversals post-Project Term are compensated as outlined in the Risk Mitigation Covenant, which prohibits any intentional reversal unless there is advance compensation to ACR.

At the end of the Minimum Project Term, if the Project Proponent does not renew for another Crediting Period and agrees to continue monitoring and verification, ACR conservatively assumes that the activities have ceased and will retire the remaining project-related buffer pool contribution. If the project renews for another Crediting Period, ACR will continue to hold the project's buffer contributions in the buffer pool.

CHAPTER 6: PROJECT DEVELOPMENT TRAJECTORY

Every project submitted for listing must use an active, ACR-approved methodology. This chapter focuses on the project development steps that occur after the methodology has been approved: Project listing, validation and verification, and issuance of ERTs.

6.A PROJECT DEVELOPMENT PROCESS

A Project Proponent using an ACR-approved methodology shall proceed per the following sequence of steps:

1. Project Proponent submits a GHG Project Listing Form using the template found at www.americancarbonregistry.org.
2. ACR reviews the GHG Project Listing Form for completeness, and a compatibility check with the ACR Standard, at fees per the currently published ACR fee schedule.[16] This screening results in (a) Project Listing with approval to proceed to Validation/Verification Body (VVB) selection, (b) requests for clarifications or corrections, or (c) rejection because the project is ineligible or does not meet requirements of the ACR Standard. If the ACR screening includes requests for clarifications or corrections, the Project Proponent may re-submit the GHG Project Listing Form for further review. ACR reserves the right to accept or reject a GHG Project Listing at any time and for any reason during the review. A project is considered to be listed once the GHG Project Listing Form is approved. The project listing information and form will then be made public on ACR.
3. Having received listing approval to proceed to VVB selection, the Project Proponent selects an ACR-approved independent third-party VVB to validate the GHG Project Plan and verify the Project's GHG assertions for the first reporting period as presented in the monitoring report. The VVB shall submit to ACR a Conflict of Interest self-evaluation form for review. ACR must approve the VVB selection prior to the start of validation and verification services based on proper accreditation, conflict of interest review, and VVB rotation requirements[17].
4. Validation and the first verification may occur simultaneously and must occur prior to issuance of ERTs. Fees for validation and verification are as agreed between the Pro-

[16] The ACR fee schedule is posted at www.americancarbonregistry.org.

[17] If the VVB changes during a validation and/or verification, the VVB selection and approval process must be repeated with the new VVB.

ject Proponent and verifier. This results in submission to ACR of a validated GHG Project Plan, verified monitoring report, validation report, verification report, and verification statement.

5. ACR reviews the project, validation and verification documents. This results in (a) acceptance, (b) acceptance contingent on requested corrections or clarifications, or (c) rejection. See the ACR Validation and Verification Standard for further details.
6. Upon acceptance of the submitted documents, ACR registers the project and makes the final validated GHG Project Plan, validation report, and verification report and statement public on its registry.
7. ACR issues to the Project Proponent's account serialized ERTs for the relevant reporting period, in the amount listed in the verification statement. The vintage year of the ERTs correspond to the year the emissions reductions or removals occurred. In the case of a terrestrial or geologic sequestration project, ACR simultaneously deposits the appropriate number of ERTs into the ACR Buffer Pool, if this is the risk management option the Project Proponent has chosen.
8. Next steps are at the Project Proponent's discretion—offset transfer, retirement, etc.—with activation, transaction, cancellation, and retirement fees per the currently published ACR fee schedule.
9. Subsequent reporting periods qualifying within the originally validated crediting period can be verified per ACR's Validation and Verification Standard, and be tied to the same GHG Project Plan.

6.B INFORMATION IN A GHG PROJECT PLAN

A GHG Project Plan is a document that describes the Project Activity; addresses ACR eligibility requirements; identifies sources and sinks of GHG emissions; establishes project boundaries; describes the baseline scenario; defines how GHG quantification will be done and what methodologies, assumptions, and data will be used; and provides details on the project's monitoring, reporting, and verification procedures. The GHG Project Plan shall use the ACR template and include the following information:

- Project title, purpose(s), and objective(s);
- Type of GHG project;
- Project location, including geographic and physical information allowing for the unique identification and delineation of the specific extent of the project. Projects implementing a Programmatic Design Approach shall include location information for all sites known at the time of the GHG Project Plan validation;
- Physical conditions prior to project initiation;
- Description of how the project will achieve GHG emission reductions and/or removal enhancements;
- Project technologies, products, services, and expected level of activity;
- Ex ante projection of estimated GHG emission reductions and removal enhancements, stated in metric tons of CO_2e;

- Identification of risks that may substantially affect the project's GHG emission reductions or removal enhancements;
- Roles and responsibilities, including contact information of the Project Proponent, other project participants, relevant regulator(s) and/or administrators of any GHG program(s) in which the GHG project is already enrolled, and the entities holding offset title and land title;
- Information relevant to the eligibility of a GHG project and quantification of GHG emission reductions or removal enhancements, including legislative, technical, economic, sectoral, socio-cultural, environmental, geographic, site-specific, and temporal information;
- Relevant outcomes from any stakeholder consultations and mechanisms for ongoing communication, as applicable;
- Chronological plan for initiating Project Activities, project term, frequency of monitoring, reporting, and verification, including relevant Project Activities in each step of the GHG project cycle;
- Notification of relevant local laws and regulations related to the project and a demonstration of compliance with them;
- Statement whether the project has applied for and been listed, registered, and/or been issued GHG emission reduction or removal credits through any other GHG emissions program, including detailed information on any credit issuance (volume, vintage, status), and information on any rejections of the project application, as applicable (see 6.C below);
- An environmental and community impact assessment, following ACR requirements, to ensure compliance with best practices and that safeguard measures are in place to avoid, mitigate, or compensate potential negative impacts, and how such measures will be monitored, managed, and enforced; and
- Identification and description of the Sustainable Development Goals to which the project impacts are aligned and positively contribute.

Project Proponents shall use the GHG Project Plan template available at https://americancarbonregistry.org/carbon-accounting/guidance-tools-templates.

6.C PREVIOUS REJECTION BY A GHG SYSTEM

ACR may consider a project rejected by other voluntary or compliance GHG programs, due to procedural or eligibility requirements, if the project complies with all aspects of the ACR Standard and any relevant sector standard. The Project Proponent for such a project shall:

1. Include a statement in the GHG Project Plan that lists all other programs to which the Project Proponent has applied for registration, was rejected, and the reason(s) for the rejection. Such information shall not be considered Commercially Sensitive Information.
2. Provide the actual rejection document(s), including any additional explanation, to ACR and its verifier.

6.D PROJECT DEVIATIONS

ACR will permit project-specific deviations to an existing approved methodology where they do not negatively affect the conservativeness of an approved methodology's approach to the quantification of GHG emissions reductions and removal enhancements. For instance, where alternate monitoring or measurement regimes are proposed, ACR may permit these changes provided they are conservative. ACR will not permit, on a project-specific basis, changes to requirements related to additionality assessment or baseline establishment.

Project Proponents shall submit any proposed project-specific methodology deviation to ACR for review and approval. Deviations apply for that specific project but are not published as modifications to the methodology. Project Proponents must provide evidence that the proposed deviation, such as a substitute calculation method for missing data, is conservative (i.e., likely to underestimate net GHG reductions or removal enhancements).

Project Proponents shall request a project-specific deviation by using the Methodology Deviation template[18].

6.E PROJECT MONITORING REPORTS

Project monitoring reports shall be completed for each verified reporting period using the template for Project Monitoring Report[19]. The monitoring report shall be submitted to the approved VVB during verification and submitted to ACR upon completion of the verification, including any corrections/revisions identified by the VVB. The report shall describe the current status of project operation, and include the data monitored and monitoring plan, and the calculated emission reductions for the reporting period. Additionally, project monitoring reports shall describe any project-specific deviations that may have occurred during the reporting period, as described below, and include Attestations by the Project Proponent regarding the continuance, regulatory compliance, ownership, and community and environmental/social impacts of the project. The regulatory compliance attestation must disclose all violations or other instances of non-compliance with laws, regulations, or other legally binding mandates directly related to Project Activities.

Changes to validated GHG Project Plans are not permitted. Instead, project-specific deviations from methodology requirements or other changes from the validated GHG Project Plan (e.g., new GHG sources, sinks, or reservoirs) must be described in a Project Monitoring Report—as well as all subsequent Project Monitoring Reports—and submitted during the project's subsequent verification. As described in Section 6.D above, ACR must pre-approve any project-specific deviation from methodology requirements. Where changes to GHG Project Plans require

[18] Available at https://americancarbonregistry.org/carbon-accounting/guidance-tools-templates/tools-templates
[19] Available at https://americancarbonregistry.org/carbon-accounting/guidance-tools-templates/tools-templates

revisions to baseline or additionality assessments, these changes must be validated at the time of the subsequent verification.

6.F AGGREGATION AND PROGRAMMATIC DEVELOPMENT APPROACH

ACR has established procedures for projects to include multiple facilities, fields, or parcels (hereafter referred to collectively as "sites") as an Aggregated Project or as a Programmatic Development Approach (PDA) so that they may achieve efficiencies of-scale and other potential project administrative benefits while preserving the accounting principles of the ACR Standard and its approved methodologies, and the integrity of the monitoring, reporting and verification processes. Streamlined processes associated with documentation, registration and verification of multiple project sites may be available to projects applying these approaches.

6.F.1 Aggregation

A Project Proponent proposing an Aggregated Project shall submit a GHG Project Plan encompassing all project sites, and applying project boundaries, baseline definition, additionality demonstration, and all other requirements at the level of the Aggregate. No new sites can be added after the initial validation. An Aggregated Project shall:

- Be under the management of a single Project Proponent and listed under a single ACR account.
- Implement a single ACR-approved methodology (or pair of ACR-approved methodologies when relevant[20]).
- Adhere to a single overarching project Start Date, which corresponds to the earliest Implementation Date among the sites.
- If an environmental impact analysis is required by the methodology, provide confirmation of compliance with any applicable analysis requirements, unless the analysis was undertaken for the whole Aggregated Project and applies equally to each site.
- If public consultation from stakeholders is required by the methodology, provide information on how comments by local stakeholders were invited, a summary of any comments received and how due account was taken of any comments received, unless the comments were sought for the whole Aggregated Project and apply equally to each site.
- Where relevant, the Project Proponent should pursue the ACR Standard requirements for precision (±10% of the mean at a 90% confidence level) at the Aggregated Project level for the purposes of monitoring and verification.
- Assess general and project-specific risk factors for an Aggregated Project as for any other project. The risk rating is applied at the overall Aggregate;

[20] Some ACR-approved methodologies may be paired to be used simultaneously on the same project area. This allowance will be specified in the methodologies themselves.

- Adhere to the Crediting Period requirements of the chosen methodology with each site able to report and verify GHG emissions reductions for the duration of its individual Crediting Period. However; upon any request for a renewed Crediting Period all sites must be included in an updated GHG Project Plan and be re-validated at the same time.

If the Project Proponent anticipates adding more project sites after the initial validation, they should instead register using the Programmatic Development Approach (PDA), described on the next page.

6.F.2 Programmatic Development Approach

The PDA provides for organization of project participants around basic similarity criteria and a common project Start Date but with flexibility for sites to enter the project at different times. The PDA is intended for projects where the participation of all project participants or sites is impractical at the time of initial validation. Although this approach allows for new project participants and sites to enter over time, it requires more complex project management and verification considerations than an Aggregated Project approach, in which all project participants and sites are included in the project's initial validation.

6.F.2.1 GENERAL PDA REQUIREMENTS:

- A PDA project will be under the management of a single Project Proponent and listed under a single ACR account.
- A PDA project will implement a single ACR-approved methodology (or pair of ACR-approved methodologies, when relevant[21]).
- The Project Proponent shall assess general and project-specific risk factors for a PDA project as for any other project. The risk rating is applied at the overall PDA level.
- A PDA project will adhere to a single overarching project Start Date, which corresponds to the earliest Implementation Date among the sites included in the first validation. All sites participating in the PDA project must have a site-specific Implementation Date that is the same or after the established project Start Date.
- A site or group of sites will be considered "participating" in the PDA project upon its successful validation by an ACR-approved VVB;
- A group of sites undergoing validation and entering the project at the same time is considered a "cohort." Multiple cohorts may enter the project during the same validation, and may be organized along various site characteristics (e.g., location, quantification approach) to facilitate verification efficiencies.
- Sites within a cohort must be on the same validation and verification schedule.

[21] Some ACR-approved methodologies may be paired to be used simultaneously on the same project area. This allowance will be specified in the methodologies themselves.

- A PDA project shall apply Crediting Period requirements of the applicable methodology at the PDA level, where each Cohort may report and verify GHG emissions reductions for the duration of the existing Crediting Period. Upon request for a renewed Crediting Period at any site, an updated GHG Project Plan must be submitted and the project re-validated for all sites enrolling in a subsequent Crediting Period. All sites renewing a subsequent Creding Period shall be consolidated into a single Cohort.
- If the chosen methodology is no longer approved for use by ACR, new sites cannot be added to the PDA project. Existing sites can continue report and verify for the duration of their own Crediting Periods.
- The GHG Project Plan shall specify the programmatic boundaries (geographic, temporal, and GHG assessment boundary), a baseline scenario, and a monitoring/verification plan for the entire PDA (i.e., for the initial and anticipated future participating sites), to include a proposed recruitment schedule for future sites to be enrolled in the project. It must also include the site-specific details for at least one enrolled project site upon listing.
- The Project Proponent must describe in the GHG Project Plan a management system that includes the following:
  - The reason why all expected project participants and sites cannot be included upon initial validation;
  - A clear definition of the roles and responsibilities of personnel involved in the process of inclusion of new sites;
  - A description of the criteria that will be applied to recruit new sites to the program;
  - Procedures to avoid double counting that no site or group of sites has been or will be registered on ACR as part of another project; and
  - A records and documentation control process for each site and cohort, made available to the VVB at the time of validation.
- An individual site may begin credit generation at its site-specific enrollment date. However, a site must undergo Validation by an ACR-approved VVB before ERTs can be issued against its associated project activities. This may be conducted at the same time as a full Verification for the PDA or as a separate Validation event. In addition to desk-based review of Sites within newly enrolling Cohorts, a Validation must include site visits to a selection of the new Sites (to the extent required by the chosen methodology) as determined by the VVB's sampling plan.

6.F.2.2 EACH SITE PARTICIPATING IN A PDA PROJECT MUST:

- Meet all project eligibility criteria as determined by the ACR Standard and chosen methodology.
- Be enrolled by the Project Proponent no later than 5 years after the project Start Date. The enrollment date is the date upon which the project participant and Project Proponent agree to enter the site into the PDA project. Dated documentation of the agreement must be provided to the VVB for validation.
- Be available for a site visit during the validation and any subsequent verification where site visits are required. VVBs may use equal probabilities among sites to select which will receive

validation and verification site visits, or a risk- or sensitivity-based analysis to identify those sites with the strongest influence over a project's overall carbon reduction estimates. (Not all sites must undergo a site visit at each required interval.) VVBs must use their own discretion to determine if a cohort lends itself to sub-sampling. All project sites are subject to desk-based review at minimum.

- Be described in a single, consolidated PDA Project Design Document, which shall be considered an addendum to the GHG Project Plan. The PDA Project Design Document shall outline the unique attributes of the site(s) enrolled at project listing, and be updated as new sites are added, to include the following:
  - A clearly defined geographic boundary to uniquely identify the site and associated cohort, including maps and spatial files as required by the chosen methodology;
  - A description of the Project Activities carried out on the site;
  - Name/contact details of the entity/individual responsible for the operation of each site;
  - The site-specific Implementation Date and confirmation that the Implementation Date of any site is not, or will not be, prior to the project's Start Date;
  - Information on how the site fulfills the eligibility criteria of the ACR Standard and chosen methodology, is within the project boundaries, and demonstration of additionality as specified in the GHG Project Plan;
  - Calculations of baseline emissions and estimated net emission reductions or removal enhancements; and
  - Confirmation of the date of enrollment as demonstrated by agreement between the project participant and the Project Proponent, where applicable.
- Provide the information required in the monitoring report during each verification. This information can be consolidated into a single summary report to facilitate easier review across all participating sites.
- If the methodology requires an environmental impact analysis, provide confirmation of compliance with any applicable analysis requirements, unless the analysis was undertaken for the whole PDA project and applies equally to each site.
- If the methodology requires public consultation from stakeholders, provide information on how local stakeholders' comments were invited, a summary of any comments received, and how due account was taken of any comments received, unless the comments were sought for the whole PDA project and apply equally to each site; and
- If defined by the chosen methodology, meet the required inventory statistical precision (±10% at 90% confidence interval) for the CO_2e estimate reported in the monitoring report.

6.F.3 Design Considerations for Aggregates and PDA Cohorts

Project Proponents may increase efficiencies in reporting and verification by strategically designing the groups of sites participating in an Aggregated Project or PDA. To maximize potential efficiencies, it is suggested to group sites so their defining characteristics are as homogeneous

as possible. VVBs may use equal probabilities among sites to select which will receive verification site visits where applicable, or a risk- or sensitivity-based analysis to identify sites with the strongest influence over a project's overall carbon reduction estimates. VVBs must use their own discretion to determine if a cohort or Aggregate lends itself to sub-sampling. All project sites are subject to desk-based review at minimum. Below are examples of how variation in site characteristics may be minimized in an aggregate or cohort.

- Homogenous project practices or technologies are implemented, to the extent there are multiple options within the chosen methodology.
- Use of a single quantification approach for the baseline and project conditions (models, equations, measurements, default factors) as outlined in the methodology. These methods shall be documented in the GHG Project Plan. Any subsequent changes to these methods following the initial validation of the GHG Project Plan must be applied across all sites in the cohort to maintain any achieved efficiencies, tracked, and made available for review at succeeding third-party verification events to ensure the quality and conservativeness of carbon accounting principles originally validated for the project are maintained.
- Sites share a similar baseline scenario in which there are similar legal constraints (i.e., the without-project scenario is comparable).
- For methodologies that require direct measurements, stratification and organizing projects along the characteristics above will help make the precision target (±10% of the mean at a 90% confidence level), which shall be applied at the Aggregate or cohort level for the purposes of monitoring and verification, achievable at reasonable sampling costs.

6.G COMMERCIALLY SENSITIVE INFORMATION

Project Proponents may designate certain parts of the GHG Project Plan or other project documentation as Commercially Sensitive Information. This information must be available for review by ACR and the VVB (with non-disclosure agreements, as necessary), but will be excised from the project documentation posted publicly on the ACR registry.

For the sake of transparency, ACR shall presume project information to be available for public scrutiny, and demonstration to the contrary shall be incumbent on the Project Proponent. The VVB shall check that any information requested as "commercially sensitive" meets the ACR definition of Commercially Sensitive Information.

6.H ADDITIONAL PROJECT DOCUMENTATION FOR REGISTRATION

ACR may require the following documentation as part of the project review prior to registration:

- Title documents or sample landowner agreements;
- Chain of custody documentation, if applicable; and
- ACR-Proponent agreement governing Buffer Pool obligations, if applicable.

To support the GHG Project Plan's declaration of title, ACR may require one or more of the following: a legislative right; a right under local common law; ownership of the plant, land, equipment and/or process generating the reductions/removals; or a contractual arrangement with the owner of the plant, land, equipment, or process that grants offset title to the Project Proponent.

6.I CREDITING PERIOD RENEWAL

All projects have a limited Crediting Period (i.e., the finite length of time for which a GHG Project Plan is valid, and during which a project can generate offsets against its baseline scenario).

In general, the Crediting Period for non-AFOLU projects is 10 years, unless otherwise specified in the relevant ACR sector requirements or approved methodology. Crediting periods for AFOLU projects vary and are specified in the relevant sector requirements and/or methodology.

A Project Proponent may apply to renew the Crediting Period by:

- Re-submitting the GHG Project Plan in compliance with then-current ACR standards and criteria;
- Re-evaluating the project baseline, as required by the methodology;
- Demonstrating additionality against then-current regulations, common practice, and implementation barriers (or against an approved performance standard and then-current regulations), as required by the methodology;
- Using ACR-approved baseline methods, emission factors, tools, and methodologies in effect at the time of Crediting Period renewal; and,
- Completing validation of the new GHG Project Plan within one year from the end of the previous crediting period.[22]

ACR does not limit the allowed number of renewals, since at each Crediting Period renewal the Project Proponent must demonstrate that the project is additional and meets all ACR requirements. An acceptable validation report is necessary for ACR to renew the Crediting Period and continue issuing credits generated by the project. Upon acceptance by ACR of the validation and verification documents, ACR will issue new ERTs each year (or more or less frequently, at the Project Proponent's request) for the duration of the new Crediting Period, provided the Project Proponent continues to meet the current ACR reporting and verification requirements.

On a project level, when a project seeks renewal of a Crediting Period (i.e., the previous was validated under a prior version of the ACR Standard or under a different GHG program and the project's Crediting Period has expired), the project is required to meet the requirements of the most recent version of the ACR Standard.

[22] ACR suggests that the Project Proponent conduct the validation of the re-submitted GHG Project Plan for the new Crediting Period concurrently with the last verification of the previous, expiring Crediting Period. ACR may on a case-by-case basis consider applications for crediting period renewal submitted beyond the one-year deadline for validation of the new GHG Project plan.

CHAPTER 7: METHODOLOGIES AND TOOLS

If ACR has not yet published a methodology for a particular project type, the Project Proponent may submit a new or modified methodology to ACR for approval.

7.A GHG MEASUREMENT TOOLS AND METHODOLOGIES

7.A.1 ACR-Published Methodologies

Current versions of methodologies published by ACR via the public consultation and peer review process are approved without qualification. Modifications to Existing Approved Methodologies

Methodology modifications may be submitted for review by ACR, at fees per the currently published ACR fee schedule. ACR will review the extent of the modification and determine whether the internal review, public consultation, and peer review process, as described in Section B of this chapter, must be implemented. In general, if the extent of the proposed modification(s) necessitates the process described in Section B, a new version number for the methodology will be issued (e.g., Version 3.0 to Version 4.0). Modifications to eligibility, applicability, Project Activities, and/or baseline assumptions are likely to trigger the full process stipulated in Section B; minor modifications or clarifications may not require the full public consultation and peer review processes.

7.A.2 New Methodologies

New methodologies proposed to ACR for approval always require internal screening, public consultation, and blind scientific peer review as described in section B.

7.B ACR'S INTERNAL REVIEW, PUBLIC CONSULTATION, AND SCIENTIFIC PEER REVIEW PROCESS

The following process is applied to new methodologies developed internally by Winrock/ACR, methodologies drafted by external authors, and certain methodology modifications, per Section

A.2 of this chapter. In such cases, ACR coordinates a process of internal review, public stakeholder consultation, and a blind scientific peer review. ACR administers this process, with fees charged to the methodology author.

1. The methodology developer(s) submits to ACR for review the following information: 1) Brief description of the proposed project type (including but not limited to: activity, geography, quantification approach, additionality approach, leakage description); 2) Market analysis demonstrating technical potential for emissions reductions of the proposed activity and ability and timing to scale impact given geographic, regulatory or other market considerations; 3) Sample project using the proposed methodology including an economic analysis demonstrating that the proposed activity is viable under current market conditions; and 4) Indication of intent for near-term project development. Based on review of this information, ACR will determine whether to move forward with the methodology review (Step 2).
2. The Project Proponent submits the proposed new or modified methodology to ACR. ACR has templates posted at www.americancarbonregistry.org for some proposed methodologies. Project Proponents must submit their proposed methodology using the available templates to reduce the time and cost of the approval process for both Project Proponent and ACR. ACR screens the methodology against its requirements, communicates any corrections or clarifications that are immediately needed, and informs the methodology author of its judgment as to whether the methodology is ready for public consultation and peer review. ACR conducts this internal review at currently published fees.[23] If the methodology author elects to proceed, they address any corrections and clarifications identified in the ACR review and resubmit the methodology. Based on review of draft methodology document, ACR will determine whether to move forward with the public consultation and peer review processes (Steps 4 and 5). ACR's agreement to proceed with subsequent steps in the methodology approval process does not guarantee that the methodology will be approved.
3. ACR coordinates a public consultation process. The methodology is posted publicly on the ACR website for a minimum of 30 days, and ACR sends out a public notice inviting comments. During this period, the methodology authors may also elect to conduct a webinar with ACR to present the draft methodology and solicit additional comments. At the conclusion of the public comment period, ACR compiles all comments by methodology section and forwards a compiled report to the methodology author, who then incorporates revisions and/or documents responses to each comment, which are posted on ACR's website.
4. The revised methodology is provided to a team of independent subject matter experts for a blind scientific peer review process. ACR may consult the relevant ACR Technical Committee in the selection of reviewers. The lead reviewer compiles comments and recommendations from the peer review team and prepares a summary report. ACR delivers to the methodology author a peer review report, organized by section of the methodology, to which the author must respond by incorporating revisions and/or documenting justifications for the proposed approach. Generally, several rounds of

[23] The ACR Methodology screening fee includes two rounds of ACR review. The fee will be charged again for any necessary additional reviews prior to the initiation of the public consultation process.

peer review are necessary. Timing and cost of peer review depends on the complexity, scope, and quality of the methodology and the availability of peer reviewers. The cost of peer review is borne by the methodology author.

5. Once all required corrections have been made to the satisfaction of the peer reviewers and ACR, ACR approves the new methodology and publishes it on its website. An approved methodology may be used by any Project Proponent, including the methodology author, in preparing GHG Project Plans and registering projects on ACR.
6. ACR posts process documentation—including all public comments and documented responses, and all peer review comments and documented responses—along with the public comment version of the methodology, and the final approved methodology.

Scientific peer review teams are selected from a pool of potential reviewers with applicable subject matter expertise. ACR actively identifies and qualifies candidates for inclusion in this pool, and publicly solicits applications from interested parties. Applications are reviewed for sector expertise, GHG quantification experience, and impartiality. Throughout and after the peer review process, the experts selected for each review team remain unknown to the methodology author and the public.

7.C UPDATES TO ACR-APPROVED METHODOLOGIES AND TOOLS

ACR may periodically update (or decide to retire) its approved methodologies and tools. Such updates occur when significant changes to GHG accounting best practice or the legislative and/or regulatory context justify an update; when sufficient new data is available to revise eligibility and/or additionality requirements; when ACR becomes aware of clarifications that should be made; or for other reasons.

For methodologies that employ a performance standard for additionality assessment, ACR shall review the validity and underlying assumptions of the performance standard for all non-forestry projects every 5 years, at minimum. The period for forestry projects is every 10 years, at minimum.

7.D ROLES OF THE ACR TECHNICAL COMMITTEE(S)

ACR may periodically establish Technical Committees for particular sectors (e.g., AFOLU), to provide independent advice on methodology acceptance, methodology modifications and project deviations, selection of peer reviewers, and related issues. The responsibilities of the Technical Committees include the following:

- Review proposed new methodologies and tools submitted to ACR for approval;

- Advise ACR on the selection of appropriate peer reviewers for a proposed new methodology or methodology revision;
- Make final determinations in the event consensus on a particular methodological issue is not reached by the peer review team or between the peer reviewers and the methodology author;
- Advise ACR on continuous improvements to its AFOLU standards, including issuance of new versions at appropriate intervals; and
- Advise ACR on decisions to commission new methodologies and tools using internal resources.

ACR Technical Committees are constituted via calls for applications to select the most relevant experts.

CHAPTER 8: ENVIRONMENTAL AND COMMUNITY IMPACTS

ACR supports a diverse set of offset Project Activities, each with its own potential to generate both positive and negative environmental and social impacts. Positive impacts can contribute to sustainable development objectives; negative risks and impacts can be identified, evaluated, and managed through appropriate safeguard procedures.

ACR requires that projects adhere to environmental and community safeguards best practices to:

- Ensure that projects "do no harm" by maintaining compliance with local, national, and international laws and regulations;
- Identify environmental and community risks and impacts and contributions to sustainable development;
- Detail how negative environmental and community impacts will be avoided, reduced, mitigated, or compensated, and how mechanisms will be monitored, managed, and enforced;
- Ensure that the rights of affected communities and other stakeholders are recognized, and that they have been fully and effectively engaged and consulted; and
- Ensure that ongoing communications and grievance redress mechanisms are in place, and that affected communities will share in the project benefits.

8.A ENVIRONMENTAL AND COMMUNITY IMPACT ASSESSMENT REQUIREMENTS

As part of the GHG Plan, ACR requires all projects to prepare and disclose an environmental and community impact assessment. ACR does not require that a particular process or tool be used for the impact assessments as long as basic requirements are addressed, as detailed below. ACR projects can follow internationally recognized approaches, such as The World Bank Safeguard Policies, or can be combined with the Climate Community and Biodiversity Alliance (CCBA) Standard or the Social Carbon Standard for the assessment, monitoring and reporting of environmental and community impacts. Projects' environmental and community impacts should be net positive. Project Proponents shall include in their GHG Project Plan a description of project impacts on communities and the environment in the immediate project area. This shall include changes in community well-being due to the Project Activity and an evaluation of any negative impacts on community groups. Project Proponents shall base these estimates on defined and defensible assumptions about how the Project Activity will alter social and economic well-being, including potential impacts of changes in natural resources and ecosystem services identified as important by the communities, for the project duration. In the GHG Project Plan Project Proponents shall also identify and describe the Sustainable Development Goals to which those impacts are aligned and positively contribute.

The assessment should include the following:

1. An overview of the Project Activity and geographic location.
2. Applicable laws, regulations, rules, and procedures and the associated oversight institutions.
3. A description of the process to identify community(ies)[24] and other stakeholders[25] affected by the project and, as applicable, the community consultation and communications plan.
4. An assessment of the project's environmental risks and impacts, including factors such as climate change mitigation and adaptation, biodiversity, air quality, water quality, soil quality, and ozone quality, as well as the protection, conservation, or restoration of natural habitats such as forests, grasslands, and wetlands. The assessment shall: 1) identify each risk/impact; 2) categorize the risk/impact as positive, negative, or neutral and substantiate the risk category; 3) describe how any negative impacts will be avoided, reduced, mitigated, or compensated; 4) detail how risks and impacts will be monitored, and how often and by whom; and 5) describe how positive impacts contribute to sustainable development goals.
5. For community-based projects, an assessment of the project's community risks and impacts, including factors such as land and natural resource tenure, land use and access arrangements, natural resource access (e.g., water, fuelwood), food security, land conflicts, economic development and jobs, cultural heritage, and relocation. The assessment shall: 1) briefly describe the process to identify community risks/impacts; 2) identify each risk/impact; 3) categorize the risk/impact as positive, negative, or neutral, and substantiate the risk category; 4) provide detailed information regarding the community stakeholder consultation process (e.g., meeting minutes, attendees), including documentation of stakeholder comments and concerns and how those are addressed; 5) provide evidence of Free, Prior and Informed Consent for the Project Activity, as applicable; 6) provide evidence of no relocation or resettlement (voluntary or involuntary), as applicable; 7) describe how any negative project impacts will be avoided, reduced, mitigated, or compensated; 8) detail how risks/impacts will be monitored, and how often and by whom; 9) describe the mechanism for ongoing communications with the community and grievance mechanisms, as applicable; and 10) describe how positive impacts contribute to sustainable development goals.

[24] As defined by CCBA, a community includes all groups of people, including indigenous peoples, mobile peoples, and other local communities, who live within or adjacent to the project area, as well as any groups that regularly visit the area and derive income, livelihood, or cultural values from the area. This may include one or more groups that possess characteristics of a community, such as shared history, shared culture, shared livelihood systems, shared relationships with one or more natural resources (e.g., forests, water, rangeland, wildlife), and shared customary institutions and rules governing the use of resources.

[25] Other stakeholders are defined as groups other than communities that can potentially affect or be affected by the Project Activities and who may live within or outside the Project Zone.

8.B ONGOING DISCLOSURE AND ENFORCEMENT

Project Proponents shall disclose in their Monitoring Reports any negative environmental or community impacts or claims of negative environmental and community impacts and the appropriate mitigation measure applied. They shall also attest to no undisclosed or unmitigated adverse environmental or community impacts as a result of the project.

ACR reserves the right to refuse to list or issue credits to a project based on community or environmental impacts that have not or cannot be mitigated, or that present a significant risk of future negative environmental or community impacts.

CHAPTER 9: VALIDATION AND VERIFICATION

This chapter provides a general overview of ACR requirements for validation of GHG Project Plans, and ex post verification of GHG assertions, by a competent and independent third-party VVB approved by ACR. Each Project shall be verified through the end of their Crediting Period to the relevant eligibility criteria (e.g., those listed in Tables 2 and 4, or the equivalent as presented in earlier versions of the ACR Standard or relevant ACR Sector Standard) specified in the version of the ACR Standard against which it was validated. ACR may require all projects, including those validated under a previous version of the ACR Standard, to immediately implement a specified policy or process revision (e.g., updated administrative or reporting procedures) detailed in a subsequent version of the ACR Standard. Further detail on ACR verification requirements is included in the ACR Validation and Verification Standard, available at www.americancarbonregistry.org.

9.A DEFINITIONS

ACR conducts a preliminary listing review of every project. ACR may request clarifications and corrections regarding a proposed project's listing documentation before allowing a project to commence validation.

Validation is the systematic, independent, and documented process for the evaluation of a GHG Project Plan against applicable requirements of the ACR Standard and approved methodology.

Verification is the systematic, independent, and documented assessment by a qualified and impartial third party of the GHG assertion for a specific reporting period.

Validation and verification must be conducted by an ACR-approved independent third-party VVB. Validation and verification may be conducted by the same entity and may occur simultaneously.

9.B MATERIALITY THRESHOLD

A material misstatement is an inaccurate assertion of an offset project's GHG emission reductions/removals, which may reasonably be expected to influence decisions or actions taken by the users of the GHG project information. To accept a verification statement, ACR requires that discrepancies between the emission reductions/removal enhancements claimed by the Project Proponent and estimated by the VVB be immaterial (i.e. less than ACR's materiality threshold of ±5%). Individual or aggregation of errors or omissions greater than the ACR materiality threshold require re-stating before a verification statement will be accepted.

ACR's materiality threshold also applies in the event that an overstated GHG emission reduction/removal assertion is discovered during a subsequent verification after it has been credited. If the misstatement exceeds the materiality threshold, the amount of over issuance shall be deducted from the net verified emissions reductions upon the next completed verification, cancelled from the project's ACR account, or be deducted from the project's contribution to the ACR Buffer Pool, to be replenished by the project account holder, as applicable.

The following equation is to be used to calculate the percent error in an emission reduction assertion:

Equation 1

$$\%\ \textbf{Error} = \frac{\textbf{Project Emission Reduction Assertion} - \textbf{Verifier Emission Reduction Recalculation}}{\textbf{Verifier Emission Reduction Recalculation}} \times \mathbf{100}$$

9.C VALIDATION AND VERIFICATION INTERVAL

Validation of the GHG Project Plan occurs once per Crediting Period. Renewal of the Crediting Period requires a new validation within one year from the end of the previous, expiring crediting period. Per Section 6.E, if project-specific changes that require revision to baseline or additionality assessments occur after the initial validation, these changes must be disclosed in the Project Monitoring Report and validated at the project's subsequent verification.

ACR requires verification of GHG assertions at specified intervals in order to issue new ERTs.[26] ERTs may be created and issued annually, or at the Project Proponent's request, more or less frequently. At each request for issuance of new ERTs, the Project Proponent must submit a verification statement from an approved verifier. No less than once every 5 years of reporting, and upon the first verification conducted by a new VVB (per ACR's VVB rotation requirements in Section 9.G), Project Proponents must submit a verification statement based on a full verification including a field visit to the project site.[27] This 5-year verification requirement begins on the date that the project is listed in the ACR. In the case of sequestration projects, the scope of this verification should include an updated assessment of risk of reversal and an updated buffer determination, as applicable.

[26] Verification activities may begin only after the completion of the project's reporting period being verified.

[27] Unless otherwise specified in the relevant methodology, a field visit is required for validation and the first verification for the project. PDA projects are subject to risk-based sampling by the VVB to determine the number of sites to be visited during a full verification. More information can be found in Chapter 10 of the ACR Validation and Verification Standard.

9.D VALIDATION AND VERIFICATION BODY REQUIREMENTS

Verification is a risk-based process carried out in conformance with ISO 14064-3:2006 and ISO 14065:2013.[28] VVBs shall be accredited for project validation and verification in the sector of the applicable methodology, and shall meet the competence requirements as set out in ISO 14065:2013.

All VVBs must be approved by ACR and be accredited under ISO 14065 by an accreditation body that is a member of the International Accreditation Forum (IAF) and with which ACR has a Memorandum of Understanding (MoU) in place, as detailed in the ACR Validation and Verification Standard.

A list of currently approved VVBs and the sectors for which they are approved to conduct validation and/or verification is provided at http://americancarbonregistry.org/carbon-accounting/verification.

Prior to commencing validation or verification work on ACR, all VVBs must be in good standing; have completed the application process described at http://americancarbonregistry.org/carbon-accounting/verification, including submitting an application form and Attestation of Validation/Verification Body, which details requirements for conflicts of interest and makeup of the verification teams; document technical capabilities for each of the sectoral scopes in which the verifier seeks to conduct validation or verification; established their VVB account on ACR; and have submitted a project-specific Conflict of Interest Form for ACR's approval.

9.E VERIFICATION REPORT AND STATEMENT

On completion of verification, the Project Proponent shall submit a verification report and verification statement to ACR. Verification documents shall be in English, and describe the verification process, any issues raised during the verification and their resolutions, and the conclusions reached by the VVB. The verification report shall:

- Describe the level of assurance of the verification statement;
- Describe the objectives, scope, and criteria of the verification against the ACR Standard and relevant sector standards;
- Describe whether the data and information supporting the GHG assertion were hypothetical, projected, and/or historical in nature;
- State the actual number of ERTs associated with the project-specific monitoring report that the verifier has verified;
- Include the GHG assertion, signed by the lead verifier;

[28] ISO 14065:2013 references to "GHG programme" shall mean the ACR.

- Include the verifier's conclusion on the GHG assertion, with any qualifications or limitations; and
- For projects requiring Project Proponents to assess risk of reversal and apply an ACR-approved risk reversal mitigation option, include the verifier's opinion on the risk assessment and adequate risk reversal mitigation.

More detail on contents of the verification report and statement is provided in the ACR Validation and Verification Standard.

The VVB shall keep all documents and records in a secure and retrievable manner for at least 2 years after the end of the relevant project Crediting Period, even if it does not carry out verification throughout the project Crediting Period.

9.F VERIFICATION ACCEPTANCE

ACR will review the verification report and statement and accept them, request corrections and/or clarifications, or reject them. If ACR requests corrections or clarifications, the Project Proponent and verifier shall make all necessary corrections and clarifications and resubmit the verification statement for subsequent review.

If ACR accepts a verification statement, and the project has already completed all other required steps, then ACR will post the validation and verification reports, verification statement, and other public documentation to the ACR website (if applicable), and issue ERTs to the Project Proponent's account.

Projects must be verified without reservation, with Project Proponents having addressed all clarifications and corrections required by the verifier. ACR reserves the right to accept or reject verification from an approved VVB.

9.G ROTATION OF VERIFICATION BODIES

ACR requires that Project Proponents utilize a different VVB at a minimum of every 5 years[29] of reporting or five verifications (including both full and desk reviews), whichever comes first. The first verification conducted by a new VVB must be a full verification.

9.H VALIDATION AND VERIFICATION BODY OVERSIGHT

In addition to the accreditation processes to which all ACR VVB's must adhere, ACR reserves the right to conduct oversight activities during validation and/or verification performance by the

[29] In this context, a year is defined as a 12-month period.

VVB's operating under the ACR program. Oversight activities are conducted to ensure an adequate level of quality control and are intended to supplement accreditation body oversight and audit processes. Oversight activities conducted by ACR representatives include the following:

- Review of information and supplementary documentation submitted by VVBs regarding project-specific conflict of interest determinations;
- Review of VVB documentation, such as verification and sampling plans and calculation spreadsheets;
- Review of Project Proponent documentation, such as data sources, quantification methodologies, and calculation spreadsheets or databases;Review of validation and verification reports and verification statements; and
- Project-level audits.

Should ACR select a project for a project-level audit, the VVB must include ACR on communications with the Project Proponent and in substantive meetings with the Project Proponent, and make project-level data and information subject to validation and/or verification available to ACR for review. During a project-level audit, ACR may choose to send, at its own expense, a representative to the validation and/or verification site visit to observe on-site verification activities. At the conclusion of a project-level audit, ACR will communicate its observations in a written report directly to the VVB. The report will document, as applicable, any items of concern noted during validation and/or verification performance, including areas for improvement and non-conformities with ACR validation and verification procedures.

CHAPTER 10: AVOIDING DOUBLE COUNTING WITH OTHER GHG PROGRAMS & REGISTRIES, EMISSION TRADING SYSTEMS, AND NATIONAL OR SECTORAL GHG EMISSIONS REDUCTION TARGETS

In the context of climate change mitigation, double counting refers to situations where a single GHG emission reduction, removal, avoidance, or other mitigation outcome is used more than once to demonstrate achievement of mitigation targets or pledges. Double counting can occur in different ways, including double issuance, double use, and double claiming. ACR has program rules and operational processes, tracking systems, and oversight to mitigate these double counting risks.

Appendix B, *ACR Requirements for Avoiding Double Counting in the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA),* details specific requirements for the use of units to meet CORSIA obligations. ACR will adhere to any future requirements established by both the UNFCCC and the International Civil Aviation Organization to prevent double counting and to ensure the environmental integrity of emissions reductions.

10.A POLICIES TO PREVENT DOUBLE ISSUANCE AND DOUBLE USE OF OFFSETS

Double issuance occurs when more than one unique unit is issued for the same emissions reduction or removal, within the same program/registry or involving concurrent issuance under more than one program(s)/registry(ies). ACR has rules and procedures in place to mitigate the risk of double issuance, including checks of duplicate registration under other programs and requirements for disclosure of other registrations, as well as for cancelation of the units on one registry prior to re-issuance on another.

Double use refers to either 1) an instance in which a single GHG reduction or removal is sold to more than one entity at a given time (also referred to as double selling) due to double issuance

or fraudulent sales practices, which may or may not be detectable, or 2) an instance in which an issued unit is used by the same buyer toward more than one target (e.g., under systems that are not linked, do not coordinate, or may have inconsistent rules for reporting and/or retirement). To prevent double use, ACR requires execution of ACR's legal Terms of Use (ToU) Agreement by authorized account representatives, clear proof of ownership upon registration, tracking of ownership of credits within the registry by serial number and account, and an attestation prior to each issuance of unique, uncontested ownership and legal rights to the emissions reductions as well as that no emissions reductions issued by and registered on ACR have been serialized, registered, retired or otherwise transacted on another registry and/or by another standard nor have they been transferred, retired or otherwise used or disposed of other than as duly recorded on the ACR registry.

10.A.1 Projects Registered on ACR and Other Voluntary or Compliance GHG Programs

ACR allows for offset project registration simultaneously on ACR and other voluntary or compliance GHG programs or registries in only two circumstances: 1) the simultaneous registration is disclosed and approved by both programs/registries, including explicitly through regulation, and 2) offsets issued for the same unique emissions reductions (project boundary and vintage) do not reside concurrently on more than one registry.

To prevent double issuance and double use of offsets for projects registered simultaneously on ACR and another GHG program, 1) offsets representing the same emissions reduction must be publicly canceled from one registry before they can be converted and re-issued on another registry or 2) offsets can be issued to a project by both programs as long as the registration of the project under more than one program is disclosed in writing to the GHG program and the verifier, and the offset represents unique emissions reductions in terms of location (project boundary) and vintage.

10.A.2 Transferred Projects Previously Registered on ACR and Other Voluntary or Compliance GHG Programs or Registries

For projects transferring from another GHG program to ACR, the project must be validated and verified by an ACR-approved VVB to comply with the ACR Standard and relevant methodology. To avoid double issuance and double use of the same GHG reduction or removal, any offsets that had been issued that were not transferred, sold, or retired must be canceled from the other program's registry before conversion and re-issuance by ACR.

For projects transferring from ACR to another GHG program, Project Proponents must cancel from ACR all offsets that have not been transferred, sold, or retired to allow for conversion and re-issuance of offsets by the other GHG program on its registry.

10.B POLICIES TO PREVENT DOUBLE CLAIMING OF EMISSIONS REDUCTIONS

In the global carbon market context in which all signatories to the Paris Agreement ("Parties") have emissions reduction target(s) / pledge(s) / contributions / commitments (collectively "targets") as formulated in the nationally determined contributions (NDCs), and air carriers ("non-Parties") have an offsetting obligation under the International Civil Aviation Organization (ICAO) Carbon Reduction Offsetting Scheme for International Aviation (CORSIA), double claiming occurs when two or more Parties or non-Parties claim the same emission reduction/removal (ERR) to comply with their mitigation targets/pledges/commitments/obligations.[30] Transparent reporting and accounting procedures at both the national and international level will be developed to track emissions reductions transferred to / from other Parties or non-Parties to meet targets. In these instances, as required by the UNFCCC, a corresponding adjustment may be made by the host country of the emissions reduction activity to account for the transfer of the emissions reduction for use by another Party towards its NDC or by airlines towards their CORSIA obligation. The adjustment will be applied, as determined by the UNFCCC, to the host country national GHG inventory or NDC, and will also be reported by the receiving Party.

To mitigate the risk of double claiming in these instances, ACR will require notification by the owner of the emissions reductions of the export of any emissions reductions for these purposes as well as a formal host country letter of assurance and authorization of the use of the emissions reductions by another Party, including for the CORSIA.

ACR will post publicly on the registry the national UNFCCC focal point letter of assurance and authorization of transfers / cancelations of emissions reductions towards a mitigation target / obligation. ACR will make public on the registry all retirements / cancelation of units toward a CORSIA offsetting obligation. In addition, ACR will report such information to ICAO and to host countries as required to confirm that the units are included in national emissions reporting to facilitate GHG accounting reconciliation via adjustments, as determined by the UNFCCC.

ACR requirements for avoiding double counting with the CORSIA are detailed in Appendix B.

[30] In conformance with recommendations agreed by the EDF-High Tide Foundation steering committee on "Mobilizing Voluntary Carbon Markets to Drive Climate Action" the requirements in 10.B do not currently apply to offset credits sold to meet voluntary targets, pledges, contributions or commitments. ACR will reconsider this requirement at a future date after UNFCCC negotiations related to Article 6 provisions of the Paris Agreement have clarified requirements for accounting for and reporting corresponding adjustments and once infrastructure and processes are in place for host countries to both issue letters of authorization to offset owners and registries and to make required accounting adjustments in reporting to the UNFCCC.

CHAPTER 11: COMPLAINTS AND APPEALS PROCEDURE

11.A COMPLAINTS PROCEDURE

When a Project Proponent or ACR stakeholder objects to a decision made by ACR representatives or the application of the ACR program requirements, the following confidential complaint procedure shall be followed:

1. Project Proponent or ACR stakeholder sends a written complaint via email to ACR@winrock.org. The complaint must detail the following:
   - Description of the complaint with specific reference to ACR Standard and/or ACR Methodology requirements, as applicable;
   - Supporting documentation provided for consideration by ACR in the complaint resolution process; and
   - Complainant name, contact details, and organization.
2. ACR Senior Management shall assign an ACR representative to research and further investigate the complaint. The representative assigned to handle the complaint shall not have been involved with the issue that is the subject of the formal complaint.
3. ACR Senior Management will provide a written response, via email, to the complainant detailing ACR's decision on the matter.

11.B APPEALS PROCEDURE

In the event that a complaint remains unresolved after the conclusion of the complaints procedure, an ACR Project Proponent or stakeholder may appeal any such decision or outcome reached. The following confidential appeals procedure shall be followed:

1. Project Proponent or ACR stakeholder sends a written appeal via email to ACR@winrock.org. The appeal must detail the following:
   - Description of the appeal, with specific reference to ACR Standard and/or ACR Methodology requirements, as applicable;
   - Supporting documentation provided for consideration in the appeal process, including previous communication on the complaint and all relevant details of the previously implemented complaint procedure; and
   - Appellant name, contact details, and organization.
2. ACR Senior Management shall forward the appeal to the appropriate Winrock Senior Director, who will convene a committee of representatives to review and discuss the matter. The committee will include a member of the Winrock Board of Directors, a

member of the Winrock Senior Management team, and an ACR staff member unrelated to the complaint, all of whom will have equal votes. The committee may also include a technical and/or subject matter expert or experts as necessary, who will not be able to vote. The committee members selected will depend on the subject matter and nature of the appeal.

3. The decision reached by the committee shall be communicated, via written response, to the ACR Project Proponent or stakeholder. Any decision reached by the committee shall be final.

DEFINITIONS

Additionality	ACR's additionality requirements are intended to ensure that project offsets are in addition to reductions and/or removals that would have occurred in the absence of the Project Activity and without carbon market incentives. A Project Proponent must demonstrate that the GHG emission reductions and removals associated with an offset project are above and beyond the "business as usual" scenario. ACR requires that every project either pass an approved performance standard and a regulatory additionality test, or pass a three-pronged test to demonstrate that the Project Activity is beyond regulatory requirements, beyond common practice, and faces at least one of three implementation barriers (institutional, financial, or technical).
Afforestation/ Reforestation	Activities to increase carbon stocks by establishing, increasing, and restoring vegetative cover through the planting, sowing, or human-assisted natural regeneration of woody vegetation. These activities must target the eventual establishment of "forest" per the applicable definition. In general, the term "afforestation" is applied to activities to establish forest on lands that have been in another land use for some relatively long period, and "reforestation" is applied to activities to reestablish forest on lands that were relatively recently in forest cover. ACR does not make a specific distinction between afforestation and reforestation, because both are eligible. Project Proponents shall document that afforestation/reforestation project lands were not cleared of trees during the 10 years preceding the project Start Date in order to implement an afforestation/reforestation project. This exclusion does not apply to natural disturbances or to removal of non-tree vegetation (e.g., heavy brush) to prepare the site for planting. Project lands that already meet the applicable "forest" definition due to the percentage tree cover or other factors, and on which a Project Proponent wishes to implement activities to increase carbon stocks by increasing and restoring vegetative cover through the planting, sowing, or human-assisted natural regeneration of woody vegetation, qualify under the Improved Forest Management (IFM) category.
Aggregate	The grouping of multiple project instances, fields, producers, or facilities into a single project registered on ACR. An Aggregate must be coordinated by a Project Proponent (public or private entity) serving as the aggregator. The GHG Project Plan will define the overall project boundary and baseline conditions encompassing all project instances, fields, producers, or facilities. An Aggregate will have a single Start Date and Crediting Period.
Agriculture, Forestry, and Other Land Use (AFOLU)	A broad category of ACR-eligible project activities that reduce GHG emissions and/or enhance GHG removals through changes in agriculture, forestry, and land-use practices.

Agricultural Land	Any ecosystem modified or created specifically to grow or raise biological products for human consumption or use. This includes cropland, pasture, rangeland, orchards, groves, vineyards, nurseries, ornamental horticultural areas, and confined feeding areas. It is generally synonymous with farmland.
American Carbon Registry® (ACR)	A leading carbon emission reduction and removal crediting program founded in 1996 as the first private voluntary GHG registry in the world, ACR operates in the voluntary and regulated carbon markets. ACR has over two decades of experience in the development of environmentally rigorous, science-based offset methodologies, as well as operational experience in the oversight of offset project verification, registration, offset issuance, and retirement reporting through its online registry system.
ACR-Approved Methodology	GHG quantification, monitoring, reporting, and verification methodology published by ACR after public consultation and scientific peer review.
Avoided Conversion of Forest	Activities that prevent the conversion of forests to development, agriculture or other land uses.
Avoided Conversion of Non-Forest	Activities that prevent the conversion of non-forest native lands to anthropogenically productive uses (e.g., cropland, settlement, or development). Eligible project activities include avoided conversion of grasslands and shrublands to crop production.
Baseline Scenario	A counterfactual scenario that forecasts the likely stream of emissions or removals to occur if the Project Proponent does not implement the project (i.e., the “business as usual” case). It also reflects the sum of the changes in carbon stocks (and, where significant, nitrous oxide and methane emissions) in the carbon pools within the project boundary that would occur in the absence of the Project Activity.
Buffer Contribution	The number of offsets contributed to the Buffer Pool for AFOLU projects with a risk of reversal.
Buffer Pool	An account managed by ACR as a reversal risk mitigation mechanism for AFOLU projects into which Project Proponents contribute a determined quantify of ERTs to replace unforeseen losses in carbon stocks. The Buffer Contribution is a percentage of the project’s reported offsets, the Minimum Buffer Percentage, determined through a project-specific assessment of the risk of reversal. The buffer contribution may be made in ERTs of any type and vintage.
Cancel or Cancelation	The permanent removal of an offset credit from the Registry so that it cannot be transferred, transacted, retired or applied towards any emissions reduction targets as an ACR offset credit unit. The exception to this is for airplane operators who cancel units to surrender them towards their CORSIA compliance obligations. If the offset credit has been canceled so that the

	equivalent can be reissued on another offset program, ACR no longer tracks the credit ownership and permanence (if applicable).
Carbon Dioxide-Equivalent (CO_2e)	A metric to compare GHGs based on their global warming potential (GWP) relative to CO_2 over the same timeframe. The Intergovernmental Panel on Climate Change publishes GWP values for converting all GHGs to a CO_2e basis.
Carbon Offset	A reduction, removal, or avoidance of GHG emissions that is used to compensate for GHG emissions that occur elsewhere. In a regulated market, offsets are GHG reductions from projects undertaken outside the coverage of a mandatory emissions reduction system for which the ownership of verifiable GHG emission reductions can be transferred and used by a regulated source to meet its emission reduction obligations."[31] The ACR registers both voluntary market and compliance-eligible offsets. Also referred to as a verified emission reduction (VER), a carbon credit, or offset credit.
Carbon Pool	A reservoir of carbon that has the potential to accumulate or lose carbon over time. Common forest carbon pools are aboveground biomass, belowground biomass, litter, dead wood, soil organic carbon (SOC), and wood products.
Carbon Stocks	The measured, estimated or modeled quantity of carbon held in a particular carbon pool. Quantifying GHG emissions and removals for terrestrial carbon offset projects involves estimating, for the baseline vs. project scenario, changes over time in carbon stocks in relevant pools.
Cohort	A group of sites sharing the same validation and verification schedule within a Programmatic Development Approach (PDA) project.
Commercially Sensitive Information	Trade secrets, financial, commercial, scientific, technical, or other information whose disclosure could result in a material financial loss or gain, prejudice the outcome of contractual or other negotiations, or otherwise damage or enrich the person or entity to which the information relates.
Community	All groups of people who live within or adjacent to a project area, including indigenous peoples, mobile peoples, and other local communities, as well as any groups that regularly visit the area and derive income, livelihood, or cultural values from it. This may include one or more groups that possess characteristics of a community, such as shared history, shared culture, shared livelihood systems, shared relationships with one or more natural resources (e.g., forests, water, rangeland, wildlife), and shared customary institutions and rules governing the use of resources.[32]

[31] Adapted from Pew Center on Global Climate Change. Climate Change 101: Cap and Trade. http://www.pewclimate.org/docUploads/Cap&Trade.pdf.

[32] Climate, Community, and Biodiversity Standards – Project Design Standards. Second Edition (2008). Climate, Community & Biodiversity Alliance.

Community and Environmental Impacts	The effects, positive and negative, that a Project Activity may have on the socioeconomic well-being of affected communities or environmental quality in the project area. ACR requires that the Project Activity provide net benefits to affected communities and the environment, and that negative impacts be mitigated or compensated and monitored throughout the project.
Crediting Period	The finite length of time for which a GHG Project Plan is valid, and during which a project can generate offsets against its baseline scenario. The baseline must be re-evaluated to renew the Crediting Period. ACR sector standards and methodologies specify the Crediting Period for particular project types.
Cropping Cycle	The period between the first day after harvest of the last crop in a field and the last day of harvest of the current crop. A single cropping cycle does not have to be 12 months, and multiple cropping cycles may occur within a cultivation year.
Cultivation Year	The annual cycle of activities related to the growth and harvest of crops within an approximate 12-month period. A single cultivation year may contain a single cropping cycle or several cropping cycles.
De Minimis	So minor as to merit disregard. ACR sets a de minimis threshold of 3% of the final calculation of emission reductions or removals. For the purpose of completeness, any decreases in carbon pools and/or increases in GHG emission sources that exceed the de minimis threshold must be included. Any exclusions using the de minimis principle shall be justified using fully documented ex ante calculations, and within the specifications of the chosen methodology.
Do no harm	Offset projects must be in compliance with applicable local, national, and international laws and regulations.
Double Counting	In the context of climate change mitigation, situations where a single GHG emission reduction, removal, avoidance, or other mitigation outcome is used more than once to demonstrate achievement of mitigation targets or pledges. Double counting can occur in different ways, including double issuance, double use, and double claiming.
Double Claiming	Whereby two or more parties claim the same GHG reduction, removal, or other mitigation outcome toward their national or sector-wide emissions reduction cap or target (e.g., mitigation targets/pledges under the Paris Agreement as formulated in the NDCs and/or air carriers offsetting obligation under the CORSIA). Transparent accounting and reporting procedures at both the national and international level must be in place to track emissions reductions transferred to other Parties toward meeting their targets. In these instances, a corresponding adjustment should be made by the host country,

	adding the emissions back to its national GHG inventory (or NDC), as well as by the receiving party.
Double Issuance	Whereby more than one unique unit is issued for the same emissions reduction or removal, within the same program/registry or involving concurrent issuance under more than one program(s)/registry(ies). This can lead to double use/selling and double claiming, in that more tons are being created and supplied than were actually mitigated. The risk of double issuance can be avoided by having preventative program rules and oversight processes in place, such as cancelation of units by one program prior to re-issuance by another.
Double Use	When a single GHG reduction or removal is sold to more than one entity at a given time, or when an issued unit is used by the same buyer toward more than one target (e.g., under systems that do not “talk” to each other or may have inconsistent rules for reporting and/or retirement). Double use can be avoided by having operational processes, program rules, tracking systems, and oversight processes in place. Also referred to as double selling due to, for example, double issuance (registry/program/verification issue) or fraudulent sales practices, which may or may not be detectable by registry/program/ verifier.
Emission Reduction Ton (ERT)	The ACR unit of exchange for tradable, project-based carbon offsets. ERTs refer to both emission reductions and enhancements in sequestration. ACR issues one ERT for each metric ton of CO_2e emission reductions or removals verified against an ACR Standard and methodology.
Emission Factor	A coefficient that relates an activity datum to the quantity of GHG emissions released to the atmosphere. Emission factors are often based on a sample of measured emissions data that are averaged to develop a representative rate of GHG emissions for a given activity level under a given set of operating conditions.
Farm	The entire operations, which may include multiple fields or parcels of land, and is under the management of a single owner or entity.
Field	A contiguous tract of land with a homogenous management strategy and a common owner separated by permanent boundaries such as fences, waterways, woodlands, or other similar features.
Forest	Forest projects shall use a nationally approved “forest” definition for the country where the activity occurs. For projects in the United States, Project Proponents shall use the U.S. definition in Appendix A, which is based on the U.S. Forest Service Forest Inventory & Analysis Program definition. For projects outside of the United States, Project Proponents may use the Kyoto Protocol definition in Appendix A, with the relevant Designated National Authority (DNA) selections for minimum land area, crown cover, and tree height. If the project is in a country that no longer has a designated DNA or

	whose DNA has not made these selections, the Project Proponent may propose another nationally approved forest definition. The definition of forest shall apply in each eligible forest project category. For example, afforestation/ reforestation activities must target the eventual establishment of a forest; IFM activities must be implemented in a forest remaining as forest; and Avoided Conversion activities must be implemented in a forest and prevent its conversion to non-forest or its degradation remaining forest.
Geologic Sequestration	The process of capturing carbon dioxide from a stationary source and injecting it deep underground through a well, with or without enhanced oil recovery. Also called carbon capture and storage.
Greenhouse Gas (GHG)	Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds, causing the greenhouse effect. The primary GHGs regulated under the Kyoto Protocol are carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), HFCs, perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The IPCC lists and periodically updates GHGs in its assessment reports.
GHG Emission Reductions and Removals	A GHG emission reduction is the measured decrease of GHG emissions over a specified period relative to an approved baseline. A GHG removal is the mass of GHGs removed from the atmosphere over a specified period relative to an approved baseline.
GHG Emission System/Trading Program	A voluntary or regulated program that allows for trading in project-based GHG emission reductions or removals, government-issued credits, and/or allowances.
GHG Project Plan	A document that describes the Project Activity, satisfies eligibility requirements, identifies sources and sinks of GHG emissions, establishes project boundaries, describes the baseline scenario, defines how GHG quantification will be done and what methodologies, assumptions, and data will be used, and provides details on the project's monitoring, reporting, and verification procedures. ACR requires every project to submit GHG Project Plan using an ACR-approved methodology.
Global Warming Potential (GWP)	A relative scale translating the global warming impact of any GHG into its CO_2e over the same timeframe. The IPCC periodically updates the list of GHGs and their GWP factors, based on the most recent science. ACR requires Project Proponents to calculate GHG reductions and removals based on the 100-year GWPs in the IPCC Fifth Assessment Report (AR5), Working Group 1, Chapter 8, Table 8.7 for CH_4 and N_20 and Table 8.SM.16 for HFCs, PFCs, SF_6, NF_3, and all ODS.
Grassland and Shrubland	A land-use category on which the plant cover is composed principally of grasses, grass-like plants (e.g., sedges and rushes), forbs, or shrubs.

	Savannas, some wetlands, deserts, and tundra are considered grassland; they are often suitable for grazing and browsing, and include pastures and native rangelands. Practices such as clearing, burning, chaining, and/or chemicals may be applied to maintain the grass vegetation. Woody plant communities of low forbs and shrubs (e.g., mesquite, chaparral, mountain shrub, and pinyon-juniper) are also classified as grassland and shrubland if they do not meet the criteria for forest land. Grassland includes land managed with agroforestry practices such as silvopasture and windbreaks, assuming the stand or woodlot does not meet the criteria for forest land.
Implementation Date	The site-specific date corresponding to the start of project activities (as they are defined by the relevant methodology) on a single site within a project implementing an Aggregate or Programmatic Design Approach.
Improved Forest Management (IFM)	Activities to reduce GHG emissions and/or enhance GHG removals, implemented on lands designated, sanctioned, or approved for forest management (e.g., production of sawtimber, pulpwood, and fuelwood). Eligible IFM project activities include conversion from conventional logging to reduced-impact logging; conversion of managed forests to protected forests ("stop logging"); extending rotation lengths in managed forest; conversion of low-productive forests to high-productive forests; increasing forest productivity by thinning diseased or suppressed trees; managing competing brush and short-lived forest species; increasing the stocking of trees on understocked areas (including lands not historically managed as forest but meeting the applicable "forest" definition due to percent tree cover or other factors); increasing carbon stocks in harvested wood products; improving harvest or production efficiency; and shifting from shorter- to longer-term wood products.
Indirect GHG Emissions	GHG emissions caused by a Project Proponent's activities but that are not directly released into the atmosphere from sources owned or controlled by the Project Proponent. Indirect emissions can occur upstream or downstream from activities directly controlled by the Project Proponent.
Intentional Reversal	In the context of biological sequestration, the decrease of average carbon stocks within a project area below levels associated with previously issued ERTs as a result of intentional, willful activity (e.g., harvesting, forest conversion) on the part of the Project Proponent or project owner(s). When carbon stocks decline in this way (i.e., negative stocks, relative to previous reporting), it is assumed that the carbon is released back into the atmosphere. Willful withdrawal of a parcel or parcels from a PDA or aggregated project such that monitoring and verification will no longer be conducted for the minimum project term is automatically considered an intentional reversal and must be compensated per the provisions in the Project Proponent's Risk Mitigation Agreement with ACR.

	In the context of geologic sequestration, atmospheric leakage of injected CO2 from the storage volume that is not remediated and is the collateral effect of any planned activity affecting the storage volume.
Intergovernmental Panel on Climate Change (IPCC)	The IPCC is "the leading body for the assessment of climate change, established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of climate change and its potential environmental and socioeconomic consequences."[33]
Leakage	A decrease in sequestration or increase in emissions outside project boundaries resulting from project implementation. Leakage may be caused by shifting of the activities of people present in the project area or by market effects whereby emission reductions are countered by emissions created by shifts in supply of and demand for the products and services affected by the project.
Listing	The process by which a Project Proponent submits a draft GHG Project Plan to ACR for review, the successful outcome of which results in the project being approved for listing as a project on the ACR platform. ACR's review and subsequent approval of a project listing is not a project certification, nor does it take the place of a successful validation and verification.
Methodology	A systematic approach that establishes requirements for a Project Proponent to develop the project baseline scenario(s) and to quantify, monitor, report, and verify emissions reductions or removals by following scientific good practice. Good practice entails that a methodology be conservative, transparent, and thorough.
Methodology Deviations and Revisions	A project-specific change to an existing approved methodology due to a change in the conditions, circumstances, or nature of a project. A deviation may be accepted for a specific project but does not result in an approved modification to the methodology. A methodology revision is a fundamental change in an existing approved methodology due to a change in conditions, circumstances, or general developments in knowledge. ACR approval of methodology deviations and modifications is determined by the relevant ACR Technical Committee. Approval of revisions requires public consultation and peer review.

[33] http://www.ipcc.ch/organization/organization.htm.

Methodological Tools	An approved component of a methodology (e.g., a stand-alone methodological module to perform a specific task) or a calculation tool (e.g., spreadsheets or software that perform calculation tasks) that a Project Proponent uses to quantify net GHG reductions/removals or meet other ACR requirements.
Minimum Buffer Percentage	An overall reversal risk rating for an AFOLU project based on the ACR Tool for Risk Analysis and Buffer Determination, which translates into the number of offsets that will be deposited in the ACR Buffer Pool at each issuance to mitigate the risk of reversals.
Minimum Project Term	The minimum period for which an AFOLU Project Proponent commits to project continuance, monitoring, and verification.
Monitoring	Continuous or periodic direct measurements and/or indirect assessment of GHG emissions, reductions, or other GHG data that is typically specified in the ACR-approved methodology.
Monitoring Report	The report detailing a Project's activity, GHG calculations, and monitored eligibility criteria and parameters for each reporting period. A Project Proponent is required to submit a new Monitoring Report to the VVB during to each verification, and a finalized version to ACR upon completion of each verification. Project Proponent must also submit attestations regarding the continuance, regulatory compliance, ownership, and community and environmental/social impacts of a project in each Monitoring Report.
Native vs. Non-native Vegetation	Native vegetation is a part of the balance of nature that has developed over hundreds or thousands of years in a particular region or ecosystem. Non-native vegetation does not need human help to reproduce and maintain itself over time in an area where it is not native.
Naturalized Plants	Refers to non-native vegetation that does not need human help to reproduce and maintain itself over time in an area where it is not native. Even though their offspring reproduce and spread naturally (i.e., without human help), naturalized plants do not become native members of the local plant community.
Net Emissions Reductions	GHG emission reductions or removals created by a Project Activity, minus the baseline scenario and any deductions for uncertainty and leakage.
Ozone-Depleting Substances (ODS)	Controlled substances under Annexes A, B, C, and E of the Montreal Protocol,[34] many of which are also potent GHGs. The Montreal Protocol controls the consumption, production, and international trade of ODS, but not emissions; therefore, the destruction of ODS in existing facilities and equipment worldwide has the potential to prevent significant GHG emissions.

[34] See http://ozone.unep.org/Publications/MP_Handbook.

Pasture	Grassland that has been seeded, usually to introduced species, and intensively managed for livestock using agronomy practices and control of livestock.
Permanence	In GHG accounting, a reference to the perpetual nature of GHG removal enhancements and the risk that a project's atmospheric benefit will not be permanent. GHG removals may not be permanent if a project has exposure to risk factors such as intentional or unintentional events (e.g., fire, flood, insect infestation) that results in the emissions into the atmosphere of stored or sequestered CO_2e for which offset credits were issued (i.e., a reversal).
Permanence Risk Analysis	To account for and mitigate against the risk of reversal in some AFOLU projects, ACR requires Project Proponents to conduct a risk analysis to determine the number of offsets that must be deposited in the ACR Buffer Pool. The risk analysis evaluates several types of risk—project, economic, regulatory, and social and environmental/natural disturbance—and must be conducted using the ACR-approved tool.
Programmatic Development Approach (PDA)	A project in which successive cohorts of sites are added incrementally to a project over time. A PDA must be coordinated by a Project Proponent (public or private entity) that must use an approved baseline and monitoring methodology that defines the appropriate boundary, avoids double counting, accounts for leakage, and ensures that the emission reductions are real, measurable, verifiable, and additional to any that would occur in the absence of the project.[35]
Project Boundaries	A GHG project's physical boundary or implementation area, the GHG sources, sinks and reservoirs (or pools) considered, and the project duration.
Project Proponent	An individual or entity that undertakes, develops, and/or owns a project. This may include the project investor, designer, and/or owner of the lands/facilities on which project activities are conducted. The Project Proponent and landowner/facility owner may be different entities. The Project Proponent is the ACR account holder.
Rangeland	A land use category generally synonymous with grazed grassland. Rangelands support native vegetation and include areas that have been seeded to introduced species but are managed as native range.
Registration	Projects are considered registered and eligible for ERT issuance into a Project Proponent's account upon acceptance of the validation report and a positive verification opinion.
Reporting	The period of time covering a GHG assertion that is submitted for a single verification and subsequent request for ERT issuance. Unless otherwise noted

[35] Adapted from Clean Development Mechanism Rulebook at http://cdmrulebook.org/452.

Period	in a methodology, there is no minimum length and the maximum length is 5 years.
Retire or Retirement	The permanent removal of an offset credit from circulation as a transactable unit so that it represents a permanent reduction or removal of CO_2e from the atmosphere. A retired credit may be applied toward the emissions reduction target of the ACR account holder that retired the credit, or on behalf of a third party.
Reversal	An intentional or unintentional event that results in the emissions into the atmosphere of stored or sequestered CO_2e for which carbon offsets (ERTs) were issued to AFOLU or geologic sequestration projects.
Site	A physical location at which GHG emissions are generated and/or GHG emissions reductions are achieved. Project sites may consist of forest, fields, parcels of land, or industrial facilities located within the project boundary.
Standard	A standard is an established norm or requirement in a formal document that establishes uniform engineering or technical criteria, methods, processes, and practices. Standards may provide general guidance across all project types, such as this document, or be sector-specific. ACR registers only projects that meet the ACR Standard.
Start Date	For non-AFOLU projects, the date on which the project began to reduce GHG emissions against its baseline. For AFOLU projects, the date on which the Project Proponent began the activity on project lands, with more specific guidance in the relevant ACR sector-specific requirements.
Sustainable Biomass	Biomass which meets one of the following conditions: a) The biomass is a biomass residue directly sourced from the land areas on which it originates and the use of that biomass residue in an ACR project activity does not involve a decrease of long-lived carbon pools, in particular dead wood, litter or soil organic carbon, on the land areas from which the biomass residues originate; (b) The biomass is the non-fossil fraction of industrial or municipal waste, which can include agricultural residues, animal wastes, forestry residues, wood wastes, industrial wastes such as black liquor and food processing.
Terrestrial Sequestration	The process of increasing the carbon stock of terrestrial carbon pools by changing the management of forests, rangelands, agricultural lands, and wetlands, resulting in increased removals of CO_2 from the atmosphere and sequestration of carbon through biological processes.
Unintentional Reversal	In the context of biological sequestration, the decrease of average carbon stocks within a project area below levels associated with previously issued ERTs as a result of natural disturbances. Examples include fire, disease, and insect infestations.

	In the context of geologic sequestration, the unplanned release of CO_2 from the storage volume.
Validation	The systematic, independent, and documented process for the evaluation of a GHG Project Plan against applicable requirements of the ACR Standard, sector standard, and approved methodology.
Validation/ Verification Body (VVB)	A competent and independent person, persons, or firm responsible for performing the validation and/or verification process. A VVB must be ACR-approved to conduct verification.
Verification	The systematic, independent, and documented assessment by a qualified and impartial third party of the GHG assertion for a specific reporting period. The verification process is intended to assess the degree to which a project complies with ACR-approved methodologies, tools, eligibility criteria, requirements, and specifications, and has correctly quantified net GHG reductions or removals. Verification must be conducted by an independent third-party verifier.
Verification Statement	A statement issued by a verification body that provides assurance, through examination of objective evidence by a competent and independent third party, that a GHG assertion is in conformity with applicable requirements.
Wetlands	Areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and that under normal circumstances do support) a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

APPENDIX A: ACR REQUIREMENTS FOR AGRICULTURE, FOREST, AND OTHER LAND USE-BASED CARBON PROJECTS

PURPOSE

This annex details ACR's overarching requirements for the quantification, monitoring, and reporting, verification, registration, and issuance of carbon emissions reductions and removals from AFOLU project activities. All AFOLU projects must also meet all relevant requirements of the main body of this ACR Standard.

The ACR Requirements for AFOLU-Based Carbon Projects supersedes the ACR Forest Carbon Project Standard version 2.1 and includes updates, clarifications for consistency, and removal of redundancies with the ACR Standard and approved methodologies. Details around non-forest project types have also been added to include agriculture and other land use-specific requirements. All essential requirements remain unchanged.

APPLICABILITY

The ACR Requirements for AFOLU-Based Carbon Projects cover the project types specified in Section A.1 below. Other eligible AFOLU carbon project types may be added in the future.

A.1 ELIGIBLE PROJECT TYPES

A.1.1 Eligible Project Types

The following broad categories of AFOLU project types are eligible for registration on ACR. Within each category, the GHG Project Plan will outline specific activities undertaken to reduce GHG emissions and/or enhance removals.

- **IMPROVED FOREST MANAGEMENT (IFM)** Activities to reduce GHG emissions and/or enhance GHG removals, implemented on lands designated, sanctioned, or approved for

forest management (e.g., production of sawtimber, pulpwood, and fuelwood). Eligible IFM project activities include conversion from conventional logging to reduced impact logging; conversion of managed forests to protected forests ("stop logging"); extending rotation lengths in managed forest; conversion of low-productive forests to high-productive forests; increasing forest productivity by thinning diseased or suppressed trees; managing competing brush and short-lived forest species; increasing the stocking of trees on understocked areas (including lands not historically managed as forest but meeting the applicable "forest" definition due to percent tree cover or other factors); increasing carbon stocks in harvested wood products; improving harvest or production efficiency; and shifting from shorter- to longer-term wood products and activities to avoid emissions from wildfire by improving fuels and fire management.

- **AFFORESTATION/REFORESTATION (AR)** Activities to increase carbon stocks by establishing, increasing, and restoring vegetative cover through the planting, sowing, or human-assisted natural regeneration of woody vegetation. AR activities must target the eventual establishment of "forest" per the applicable definition. In general, the term "afforestation" is applied to activities to establish forest on lands that have been in another land use for some relatively long period, and "reforestation" is applied to activities to reestablish forest on lands that were in forest cover relatively recently. ACR does not make a specific distinction between afforestation and reforestation, because both are eligible.

  Project Proponents shall document that afforestation/reforestation project lands were not cleared of trees during the 10 years preceding the project Start Date in order to implement an afforestation/reforestation project. This exclusion does not apply to natural disturbances or to removal of non-tree vegetation (e.g., heavy brush) to prepare the site for planting. Project lands that already meet the applicable "forest" definition due to the percentage tree cover or other factors, and on which a Project Proponent wishes to implement activities to increase carbon stocks by increasing and restoring vegetative cover through the planting, sowing, or human-assisted natural regeneration of woody vegetation, qualify under the Improved Forest Management (IFM) category.
- **AVOIDED CONVERSION OF FOREST (AC-F)** The reduction in GHG emissions from the avoided conversion of forest to non-forest use (e.g., to cropland, grassland, settlement, or development) or avoided degradation of forests remaining as forests.
- **AGRICULTURE-SOIL CARBON ENHANCEMENT** Activities that increase soil carbon sequestration on agricultural land through the application of soil amendments, the improvement of primary productivity, and/or less disruptive management practices. Eligible project activities include compost addition to grasslands and changes in tillage practices.
- **AGRICULTURE-AVOIDED EMISSIONS** Activities that reduce emissions of GHGs by improving efficiency of inputs or the application of a lower GHG practice practice/technology. Eligible project activities include changes to fertilizer rate and application, and changes in rice management systems.
- **WETLAND RESTORATION OR REVEGETATION** Activities that increase carbon sequestration and/or prevent soil oxidation on degraded wetlands. Eligible project activities include tidal wetland creation, deltaic wetland creation, and rewetting previously drained wetlands, including pocosins. Quantification frameworks and baseline definitions need to be developed for each location where this project type is applied due to unique, location-specific wetland dynamics, pressures, and restoration techniques.

- **AVOIDED CONVERSION OF NON-FOREST** The reduction in GHG emissions from the avoided conversion of lands with non-forest, native vegetation to anthropogenically productive uses (e.g., to cropland, settlement, or development). Eligible project activities include avoided conversion of grasslands and shrublands to crop production.

Project Proponents uncertain about eligibility of a planned activity may consult with ACR.

A.1.2 AFOLU Projects with a Biomass Energy Component

AFOLU carbon activities may include a biomass energy component if they provide biomass fuel for Scope One, direct electricity generation, heating, or transportation fuels. Such projects occupy a unique GHG accounting niche with potential impacts on GHG emissions and removals in terrestrial ecosystems, as well as the ability to displace GHG emissions from fossil fuels. Projects that combine an eligible forest carbon Project Activity with biomass production shall account for changes in GHG reductions and removals in forest carbon pools using the requirements outlined in this document and appropriate AFOLU methodologies. Displacement of fossil fuel GHG emissions, if eligible, shall be accounted for by using appropriate energy sector methodologies and tools. Please refer to Chapter 1, Section E, of the ACR Standard for requirements related to renewable energy.

A.2 ACCOUNTING PRINCIPLES

A.2.1 Exclusion of Pools in Accounting

Project Proponents should refer to Chapter 2 of the ACR Standard for general accounting and data quality principles. Additional guidance is provided here for forest AFOLU projects. In general, the basis for ACR's accounting principles is ISO 14064 Part 2:2006, Specification, with guidance at the project level for quantification, monitoring, and reporting of GHG emission reductions or removal enhancements.

Project Proponents shall apply the guidance in ISO 14064-2:2006 and consider all relevant information that may affect the accounting and quantification of GHG reductions/removals, including estimating and accounting for any decreases in carbon pools, avoided emissions, and/or increases in GHG emission sources.

ACR methodologies dictate which GHG sources, sinks and pools must be accounted for in the GHG boundary for each project. However, the Project Proponent may elect to exclude from accounting a GHG source, sink, or pool if any of the following is demonstrated:

- The source, sink, or pool is a priori optional per the guidance below or has been explicitly excluded from the project boundary in the applied methodology.
- The source, sink, or pool is demonstrated to be de minimis per the ACR definition. A pool or source not initially considered de minimis in ex ante calculations, but found to be de minimis

in monitoring, may be omitted from subsequent monitoring and verification if the Project Proponent presents evidence that the pool or source is likely to remain indefinitely below the de minimis threshold (i.e., that the monitoring activities in which an individual pool or source was de minimis was not merely a temporary condition).

- All combined sources, sinks, and pools thus excluded must represent less than 3% of the ex-ante calculation of emission reductions/removal enhancements.

Sources, sinks, and pools that could be excluded may still be accounted; but any source, sink, or pool selected for accounting in the baseline scenario must also be accounted in the project scenario.

The following pools and sources are considered insignificant a priori for AFOLU carbon projects.

Emissions sources:

- Fertilizer application in forest projects.
- Removal of herbaceous vegetation in forest projects.
- Transportation emissions from vehicles used in project visits, monitoring, verification, etc. This does not include emissions of harvest, processing, or transport equipment, which may be insignificant but are not insignificant a priori; the Project Proponent shall justify exclusion of such emissions.
- Collection of wood from non-renewable sources to be used for fencing of the project area.
- Nitrous oxide (N_2O) emissions from decomposition of litter and fine roots from nitrogen-fixing trees.

Carbon pools:

- Litter

A.3 ELIGIBILITY REQUIREMENTS

A.3.1 AFOLU Land Classification

1. Forest projects shall use a nationally approved “forest” definition for the country where the activity occurs. For projects in the United States, Project Proponents shall use the U.S. definition below, which is based on the U.S. Forest Service Forest Inventory & Analysis Program definition. For projects outside of the United States, Project Proponents may use the Kyoto Protocol definition below, with the relevant Designated National Authority (DNA) selections for minimum land area, crown cover, and tree height. If the project is in a country that no longer has a designated DNA or whose DNA has not made these selections, the Project Proponent may propose another nationally approved forest definition.

Forest (for projects in U.S.; based on U.S. Forest Service Forest Inventory & Analysis Program definition)[36]

Land with at least 10% cover (or equivalent stocking) by live trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. To qualify, the area must be at least 1 acre in size. Forest land includes transition zones, such as areas between forest and non-forest lands that have at least 10% cover (or equivalent stocking) with live trees and forest areas adjacent to urban and built-up lands. Projects in eligible countries outside of the US must apply the national definition of forest, consistent with what is used to report under its NDC and in UN reporting.

The definition of forest shall apply in each eligible forest project category. For example, afforestation/ reforestation activities must target the eventual establishment of a forest; IFM activities must be implemented in a forest remaining as forest; and Avoided Conversion activities must be implemented in a forest and prevent its conversion to non-forest or its degradation remaining forest.

2. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and that under normal circumstances do support) a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Methodologies specific to different types of wetlands must define the specific regional geographic applicability.
3. Agricultural Land is defined as any ecosystem modified or created specifically to grow or raise biological products for human consumption or use. This includes cropland, pasture, rangeland, orchards, groves, vineyards, nurseries, ornamental horticultural areas, and confined feeding areas. It is generally synonymous with farmland.
4. Grassland and shrubland is a land-use category on which the plant cover is composed principally of grasses, grass-like plants (e.g., sedges and rushes), forbs, or shrubs. Savannas, some wetlands, deserts, and tundra are considered grassland. They are often suitable for grazing and browsing, and include both pastures and native rangelands. Practices such as clearing, burning, chaining, and/or chemicals may be applied to maintain the grass vegetation. Woody plant communities of low forbs and shrubs (e.g., mesquite, chaparral, mountain shrub, and pinyon-juniper) are also classified as grassland and shrubland if they do not meet the criteria for forest land. Grassland includes land managed with agroforestry practices such as silvopasture and windbreaks, assuming the stand or woodlot does not meet the criteria for forest land.[37]

[36] See http://fia.fs.fed.us/library/database-documentation/current/ver4/draft%20FIADB_user%20manual_v4-0_p2_12_22_2009.pdf at page 51. ACR does not exclude urban forestry activities, or forested areas less than 120 feet wide, from potentially meeting the definition of forest.

[37] http://www.epa.gov/climatechange/Downloads/ghgemissions/US---GHG---Inventory---2011---Chapter---7---LULUCF.pdf.

A.3.2 Eligible Land Ownership Types

ACR accepts projects on all land ownership types—private, public (municipal, county, state, federal, or other), and tribal—provided the Project Proponent demonstrates that the land is eligible, documents clear land title and offsets title, the offsets contract is enforceable, and the Project Activity is additional and meets all other requirements of the ACR Standard. Projects on public lands, like any other project, shall demonstrate that the activity is not required by regulations and meets other additionality criteria. Agriculture and land use projects that generate ERTs with no risk of reversal need not demonstrate land title.

A.3.3 Eligibility Criteria

Table 4 details unique eligibility criteria for AFOLU carbon projects, provides a definition of each criterion, and articulates ACR requirements specific to AFOLU project types. Project Proponents must also refer to Chapter 3 of the ACR Standard for additional requirements that apply to all project types. GHG Project Plans shall address each of these criteria.[38]

Table 4: Eligibility Criteria for AFOLU-Based Carbon Offset Projects

CRITERION	DEFINITION	REQUIREMENT
Start Date	For AR or Wetland restoration/revegetation projects, the Start Date is when the Project Proponent began planting or site preparation. For IFM, the Start Date may be denoted by one of the following: 1. The date that the Project Proponent began to apply the land management regime to increase carbon stocks and/or reduce emissions relative to the baseline. 2. The date that the Project Proponent initiated a forest carbon inventory. 3. The date that the Project Proponent entered into a contractual relationship to implement a carbon project.	AFOLU Projects must be validated within 3 years of the project Start Date. One exception applies to these timeframes: Projects using a newly approved methodology[9] or a newly approved modification that expands the eligibility of a previously published methodology[10] may submit it for listing with ACR within 10 years of the project Start Date. However, the date of listing submittal must be within 6 months of the methodology publication date, and the project must then be validated within 2 years of the listing.

[38] A template for GHG Project Plans is available at http://www.americancarbonregistry.org/carbon-accounting/tools-templates.

	4. The date the project was submitted to ACR for listing review. Other dates may be approved by ACR on a case by case basis. For Avoided Conversion of non-forest, the Start Date is when the Project Proponent implemented the project action physically and/or legally, such as securing a concession or placing a land conservation agreement on the project land. For other Agricultural Land-based projects, the Start Date is the date by which the Project Proponent began the Project Activity on project lands, or the start of the cultivation year during which the Project Activity began.	
Minimum Project Term	The minimum period for which a Project Proponent commits to project monitoring and verification. This requirement applies only to AFOLU projects that have had ERTs issued that are associated with GHG removals (sequestration). AFOLU projects that have claimed only permanently avoided emissions (e.g. N_2O and CH_4) are not subject to this requirement.	Project Proponents of AFOLU projects with a risk of reversal shall commit to a Minimum Project Term of 40 years. The minimum term begins on the Start Date, not the first or last year of crediting. The Minimum Project Term is a requirement of the Project Proponent, not necessarily of the landowner (unless the landowner is the Project Proponent). ACR enters into legal agreements only with the Project Proponent. Project Proponents and landowners may continue AFOLU carbon activities beyond the Minimum Project Term, but ACR does not require monitoring or verification unless the Crediting Period is renewed.
Crediting Period	Crediting Period is the finite length of time for which a GHG Project Plan is valid, and during which a	All AR projects shall have a Crediting Period of 40 years.

	project can generate offsets against its baseline scenario. Crediting Periods are limited in order to require Project Proponents to reconfirm, at intervals appropriate to the project type, that the baseline scenario remains realistic and credible, the Project Activity remains additional, and GHG accounting best practice is being used.	All IFM projects shall have a Crediting Period of 20 years. Avoided Conversion projects on both forest and non-forest land with land conservation agreements in place[39] shall have a Crediting Period of 40 years, unless otherwise specified in chosen methodologies. Wetland Restoration/Revegetation projects shall have a Crediting Period of 40 years. The Crediting Periods for agriculture projects that avoid emissions by changing to lower GHG practices and those that include a soil sequestration component will be specified in the applicable methodology. Unless otherwise specified in the methodology, a Project Proponent may apply to renew the Crediting Period by complying with all then-current ACR requirements (including the latest versions of the ACR Standard and applicable methodology), re-evaluating the baseline scenario, reconfirming additionality, and using emission factors, tools, and methodologies in effect at the time of Crediting Period renewal. ACR does not limit the allowed number of renewals. Projects that are deemed to meet all ACR additionality criteria upon validation are considered additional for the duration of their Crediting Period with the exception of regulatory changes that effectively require project implementation after a

[39] All land conservation agreements must be employed with a specified duration longer than a project's minimum project term.

		Crediting Period has begun[40]. If a regulatory requirement (or similar requirement such as a permit condition) comes into force during the crediting period and such requirement effectively mandates project implementation, the project will no longer be eligible for crediting from the date the regulation takes effect, unless otherwise specified in the applicable methodology. If a project chooses not to renew its Crediting Period, it must continue monitoring and verification activities for the duration of the Minimum Project Term. The Start Date and the start of the first Crediting Period are generally the same, unless otherwise allowable in the relevant methodology.
Land Eligibility	Land eligibility restrictions may apply to certain types of offset projects.	For AR projects, Project Proponents shall provide documented evidence in the GHG Project Plan that no project areas have been cleared of trees within the 10 years prior to the project Start Date in order to establish an AR project; or if project lands have experienced loss of forest cover within the last 10 years, this loss was caused by fire or natural disturbance. Loss of forest cover due to fire or natural disturbance does not disqualify an AR project. Some reforestation projects require removal of non-tree vegetation to prepare the site and establish trees. An example is the removal of brush from areas where it has invaded after fire and prevented or

[40] If the basis for additionality changes during the Crediting Period (other than regulations that require project implementation), the project may be ineligible for Crediting Period renewal.

		significantly slowed the return of trees due to factors such as competition, water limitations, and lack of a nearby seed source. Brush removal for site preparation does not disqualify a reforestation project. Emissions from brush removal must be accounted for in the GHG Project Plan if they exceed the de minimis threshold.
Land Title	Land title is a legal term representing rights and interests in project lands.	For U.S. projects with GHG emissions reductions resulting from terrestrial sequestration, Project Proponents (and/or associated landowners for aggregated or PDA projects) shall provide documentation of clear, unique, and uncontested land title. For international projects, Project Proponents shall provide documentation and/or attestation of land title; ACR may require a legal review by an expert in local law. Land title may be held by a person or entity other than the Project Proponent, provided the Project Proponent can show clear, unique, and uncontested offsets title. AFOLU projects that result only in the crediting of avoided emissions with no risk of reversal may not require demonstration of land title.
Natural Management Requirements	New plantations of forests and revegetation of wetlands will be carbon sinks regardless of the species planted. However, natural management requirements are critical for facilitating regrowth of species that contribute to an ecosystem with broad environmental benefits and avoid potential negative impacts.	For AR and Wetland Restoration/Revegetation projects, Project Proponents shall ensure that planting/regeneration of vegetation comprises at least 95% native species. Agricultural tree plantations shall be limited to small-scale agroforestry (under 1,000 ha, with demonstrable livelihood benefits).

		Exceptions to the native species requirement may be granted if the following can be demonstrated: • The non-native species can be considered naturalized or; • The non-native species does not negatively affect the local ecosystem (in terms of input use (including water, fertilizer, pesticides), invasiveness, competition, etc.
Permanent	Permanence refers to the longevity of removal enhancements and the risk of reversal (i.e., the risk that atmospheric benefit will not be permanent). Reversals may be unintentional or intentional. All AFOLU projects with emissions reductions derived from sequestration have a risk of reversal.	AFOLU Project Proponents shall assess reversal risk using ACR's Tool for Risk Analysis and Buffer Determination, and shall enter into a legally binding Reversal Risk Mitigation Agreement with ACR/Winrock that details the risk mitigation option selected and the requirements for reporting and compensating reversals. Proponents of terrestrial sequestration projects shall mitigate reversal risk by contributing ERTs to the ACR Buffer Pool or using another ACR-approved insurance or risk mitigation mechanism.

A.4 BASELINES AND LEAKAGE

This chapter provides requirements on baselines and leakage for the broad categories of eligible AFOLU carbon project activities. Exceptions to these requirements may occur in specific methodologies.

A.4.1 Baselines: AR

The AR baseline scenario is the carbon stock present immediately prior to site preparation, or the most likely carbon stock in the absence of project implementation. If trees are present within the project boundary at the project start, Project Proponents may only count sequestration in pre-existing trees as offsets if growth of the trees is also projected in the baseline. If the Project

Proponent does not intend to project growth of pre-existing trees in the baseline scenario, they should be excluded from the project boundary.

If natural forest regeneration is occurring or is likely to occur absent the project action, but the project action (planting, seeding, and/or the human-induced promotion of natural regeneration) accelerates the return to forest, then Project Proponents shall include the estimated natural regeneration in the without-project scenario in the baseline scenario.

Removals of any standing biomass as part of site preparation should be included in project accounting if these exceed the de minimis threshold.

A.4.2 Baselines: IFM

The IFM baseline scenario shall quantify and justify harvest and forest growth in the absence of a carbon project. Wood products must be accounted for in an IFM baseline scenario. Each methodology shall specify the approach to calculating carbon in long-lived and landfilled wood products.

For project-specific baselines, Project Proponents shall determine the baseline scenario by identifying credible alternative forest management scenarios to the proposed Project Activity, including historical and common practice forest management in the region, using the approach in an approved methodology. All forest management practices that are modeled in the baseline must be demonstrably legally and financially feasible. IFM baseline modeling must include all relevant legal constraints, including Safe Harbor Agreements, legally binding Best Management Practices, restrictions related to endangered or threatened species, and any conservation easements (in place more than 1 year prior to the Start Date).

Performance standard baseline approaches are allowed for IFM projects, and shall be approved on a case-by-case basis.

A.4.3 Baselines: AC-F

The baseline for AC-F projects is the conversion of forest to non-forest over time. Baseline scenarios for planned deforestation and U.S. AC-F to non-forest can be directly calculated. Unplanned deforestation must be modeled.

Avoiding deforestation displaces some use of the forest, often clearing of land for agriculture, or for developed uses such as buildings and roads. Therefore, activity-shifting leakage must always be considered for AC-F projects. Calculation of leakage must be specified in each methodology.

For unplanned deforestation, to determine the appropriate scale for setting a baseline, Project Proponents shall consider the cause of deforestation that the project will address, then consider the geographic range over which that activity is occurring. The goal is to determine potential leakage emissions from deforestation that have occurred across the entire area in which the project might have an effect.

For planned deforestation and AC-F to non-forest, Project Proponents shall consider the probability of conversion as well as the carbon stock of the post-deforestation/conversion land use. The baseline agent of deforestation/conversion (or at a minimum a class of agent) must be identified, and the methodology must address activity-shifting leakage emissions.

A.4.4 Baselines: Agriculture-Soil Carbon Enhancement

The baseline scenario for agriculture-soil carbon enhancement projects is quantified by estimating soil carbon stocks within the project area in the absence of project activities. The specific requirements for determining the baseline scenario will be specified in the chosen methodology. Selecting baseline stock changes can be based on common practice, historical trends, and scientific literature. Models may be used provided they are approved for use by the chosen methodology and/or ACR.

A.4.5 Baselines: Agriculture-Avoided Emissions

The baseline for Agriculture-Avoided Emissions projects is quantified by estimating the avoided emissions that result in a change from a high GHG practice to a low GHG practice. The baseline scenario shall represent the quantified emissions associated with higher GHG emitting practices. Baseline estimates shall be based on common practice, and emissions can be quantified using models, regional datasets, scientific literature, or other ACR-approved approaches. Each methodology will specify requirements for establishing baselines.

A.4.6 Baselines: Wetland Restoration and Revegetation

The baseline for Wetland Restoration and Revegetation projects is quantified by estimating the emissions from a degrading or subsiding wetland or salinization. Baseline could also be agricultural practices, open water, or seasonal wetlands. In each methodology, baseline and project activities shall be summarized per currently eligible geographies.

A.4.7 Baselines: Avoided Conversion of Non-Forest

The full project area must currently be under a single land use classification and have qualified as that classification for at least 10 years prior to the Start Date (or Implementation Date in the case of aggregated/PDA projects). It will remain as that classification throughout the Project Term, and is legally able to be converted and would be converted to alternate use in the absence of the Project Activity.

A.4.8 Leakage

If an AFOLU project displaces activities, the Project Proponent shall account for the activity shifting, either by quantifying actual emissions that result for leakage or by applying a verifiable default. The geographic scope of activity-shifting leakage assessments should be constrained to the area in which the Project Activity can reasonably be expected to have resulted in activity shifting.

Similarly, if an AFOLU project causes market effects leakage, it must be accounted. If AFOLU Project Activities cause a quantifiable, statistically significant decrease in supply of goods, then the methodology must provide an approach for addressing this (via peer-reviewed studies on market leakage rates or similar).

If AR Project Activities cause an increase in supply of emitting goods, ACR does not require Project Proponents to assess market leakage.

Projects that involve changes in hydrologic management practices (e.g., wetland restoration) must address the potential for ecological leakage (impacts outside the project boundary) caused by changes to the hydrologic regime as a result of project development.

More detailed leakage specifications in approved AR methodologies must be followed.

A.5 AGGREGATED AND PROGRAMMATIC DEVELOPMENT APPROACH PROJECTS

A.5.1 Project Design Requirements and Considerations

Please reference Section 6.F for all requirements around Aggregation and PDA project design. In addition to the list in section 6.F.3 AFOLU projects can include the following additional design considerations:

- Sites are located within a pre-defined geographic region, such that all fall within a maximum of three adjacent ecoregions, defined by the World Wildlife Foundation as "A large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions.[41]
  - To determine the ecoregion of each participating site located in the United States, please refer to U.S. Forest Service maps at http://www.fs.fed.us/land/ecosysmgmt/index.html. The ecoregion will be defined at the province-level, differentiated based on vegetation and natural land cover.
  - To determine the ecoregion of each international participating site outside the United States, please refer to the World Wildlife Federation delineation of ecoregions at http://www.worldwildlife.org/biomes.
- Sites encompass relatively similar forest land or soil types.

A.5.2 Risk Assessment

The Project Proponent shall assess general and project-specific risk factors for an aggregated or PDA project as for any other project. The risk rating is applied at the overall aggregate or PDA level. The risk of unintentional reversals may be lower for aggregated or PDA projects, because risk is diversified across a group of geographically dispersed project participants. The risk of intentional reversals could also be lower; in a large Aggregated Project, the probability is great that at least one project participant will choose to discontinue participation, but this probability is spread across multiple project participants and many acres so that the probability of intentional reversals significantly affecting the project as a whole is lower.

A.5.3 Carbon Stock Inventory and Monitoring of Sequestration-Based AFOLU projects

[41] http://www.worldwildlife.org/biomes. Note: The geographic boundaries may be further constrained for projects where the chosen methodology requires regional-specific factors in the establishment of the baseline.

AFOLU projects with direct measurement of emissions removals resulting from sequestration in an aggregated or PDA project must meet the same accuracy and precision targets as non-grouped projects to avoid a confidence deduction.

As noted in Chapter 2, ACR requires a 90% statistical confidence interval of sampling of no more than ±10% of the mean. If the Project Proponent cannot meet this target, then the reportable amount shall be the mean minus the lower bound of the 90% confidence interval, applied to the final calculation of emission reductions/removal enhancements, or must be calculated as specified in the applied methodology.

For aggregated or PDA projects, the ±10% at 90% confidence precision target is applied at the level of the project overall. Project Proponents may use stratification to reduce inventory sampling intensity and cost to achieve this target. ACR advises Project Proponents to design projects within a single geographic region and relatively similar forest, land types, or crops, which combined with careful stratification as an initial inventory design step will help make the target achievable at reasonable costs spread across the overall project.

ACR does not require any minimum number of inventory plots per participating landholding (unless otherwise specified in the methodology) as long as the target is achieved for the project overall. ACR does not require individual landowner baseline inventories, as long as the Project Proponent has a stratified inventory meeting ACR requirements for the (aggregated) project overall. Arrangements with individual project participants regarding inventories, entry and exit, crediting, buffer contributions, and other factors are left to the discretion of the Project Proponent.

As with initial carbon stock inventories and soil sampling, standards for monitoring and verification are applied at the level of the overall project, whether it is a single large landholding or an aggregated or PDA project.

A.6 USE OF MODELS

Process-based biogeochemical models and empirical models may be approved for use under ACR-approved AFOLU methodologies to quantify emissions. The correct application of any such models shall be specified in the approved methodology. To be applicable, any model shall:

- Have the potential to model emissions from the relevant practice change(s) with consideration of relevent factors;
- Have been accepted in a peer reviewed scientific publication and/or been published by a government agency[43]; and
- Allow for the calculation of uncertainty in predicted emissions (as the root mean squared error (RMSE) for empirical models), meeting the relevant requirements for uncertainty assessments as stated in Section 2.B.3.

[43] ACR may also approve other models on a case-by-case basis via an ACR-lead peer review process.

A.6.1 Requirements for Process-Based Biogeochemical Models

Process-based biogeochemical models must consider the following factors, where relevant:

- Atmospheric factors (e.g., atmospheric background concentrations of ammonia and CO_2, and nitrogen concentration in rainfall);
- Daily meteorology;
- Edaphic factors (e.g., clay content; bulk density; soil pH; SOC at surface soil[44]; soil texture; slope; depth of water retention layer; field capacity; wilting point);
- Cropping factors (e.g. crop type; planting date; harvest date; carbon-to-nitrogen ratio of the grain, leaf + stem tissue and root tissue; fraction of leaves and stem left in field after harvest; maximum yield);
- Tillage factors (e.g., number of tillage events, date and depth of tillage events);
- Fertilizer application factors (e.g., number of fertilizer applications; date of each fertilizer application; application method; type of fertilizer; fertilizer application rate; number of organic applications per year; date, type, carbon-to-nitrogen ratio and rate of organic amendment application); and
- Irrigation factors (e.g., number of irrigation events; date, type, and rate of irrigation event).

For application of the selected model to the project area, the following criteria must be met: There must be a study or studies (e.g., scientific journals, university theses, local research studies, or work carried out by the Project Proponent) that demonstrate that the use of the selected model is appropriate for the IPCC climatic regions of 2006 IPCC AFOLU Guidelines[45] or the agroecological zone (AEZ) in which the project is situated using one of the following options:[46]

Option 1 The studies used in support of the project should meet the guidance on model applicability as outlined in IPCC AFOLU 2006 guidelines in order to show that the model is applicable for the relevant IPCC climatic region. The guidance notes that an appropriate model should be capable of representing the relevant management practices and that the model inputs (i.e., driving variables) are validated from country- or region-specific locations that are representative of the variability of climate, soil, and management systems in the country.

Option 2 Where available, the use of national-, regional-, or global-level AEZ classification is appropriate to show that the model has been validated for similar AEZs. It is

[44] Depth as required by the process model.

[45] http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_03_Ch3_Representation.pdf.

[46] IPCC. 2006, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry, and Other Land Use. Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan. http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html.

recognized that national-level AEZ classifications are not readily available; therefore, this methodology allows the use of the global and regional classification.

Where a project area consists of multiple sites, it is recognized that studies demonstrating model validity using either Option 1 or Option 2 may not be available for each of the sites in the project area. In such cases, the study used should be capable of demonstrating that the following two conditions are met:

1. The model is validated for at least 50% of the total project area relevant to the practice change where the project area covers up to 50,000 ha; or at least 75% of the total project area where the project area relevant to the practice change covers more than 50,000 ha; and
2. The area for which the model is validated generates at least two-thirds of the total project emission reductions.

A.7 VALIDATION AND VERIFICATION

A.7.1 Validation and Verification Requirements

ACR definitions and requirements for independent validation and verification are provided in Chapter 9 and in the separate ACR Validation and Verification Standard.

A.7.2 Desk-based Verification on Request for New Issuance

At each interval that the Project Proponent requests issuance of ERTs (usually annually, but may be more or less frequent), the Project Proponent shall submit a verification statement that is the product of a desk-based audit by an ACR-approved verifier. If applicable, this audit may use satellite or other aerial imagery, or other means acceptable to the verifier and ACR, to verify project continuance and boundaries.

A.7.3 Full Verification Every 5 Years

ACR requires a full verification for all projects, including a field visit to the project site, no less frequently than every 5 years, unless otherwise stated in the relevant ACR Methodology. In AR and wetlands restoration projects, several years may elapse between the project Start Date and significant carbon accrual in vegetation. These project types may defer their first verification up to 10 years after project validation. The scope of this verification should include such carbon stock measurements as the verifier requires to provide a reasonable level of assurance that the GHG assertion is without material discrepancy (per ACR's materiality threshold of ±5%). It should also include an updated assessment of the risk of reversal and an updated buffer contribution (if applicable).

Contingent upon Monitoring Report Attestations and desk-based audits, projects continue to be credited until the end of the fifth calendar year following the latest reporting year upon which the full verification was performed. For example, if there is a measurement event in June 2010, a calculation of carbon stocks in August 2010, and an initial verification in September 2010, ACR will continue crediting through the end of December 2015, provided the Project Proponent supplies its Monitoring Reports and desk-based verification statements at the required intervals. The full verification with updated risk assessment also offers Project Proponents the opportunity to demonstrate that the risk of reversal has decreased, and thus decrease its contribution to the ACR Buffer Pool, as described in Chapter 5.

APPENDIX B: ACR REQUIREMENTS FOR AVOIDING DOUBLE COUNTING IN THE ICAO'S CORSIA

B.1 PURPOSE

Greenhouse gas (GHG) emissions from international civil aviation are typically not included in countries' climate change mitigation targets under the United Nations Framework Convention on Climate Change (UNFCCC), its Kyoto Protocol and its Paris Agreement. Article 2.2 of the Kyoto Protocol mandated countries to work through the International Civil Aviation Organization (ICAO) to address these emissions.

In 2010, ICAO adopted an aspirational goal of carbon-neutral growth, meaning that global net carbon dioxide (CO_2) emissions from international aviation should be frozen at their 2020 levels. ICAO pursues a basket of measures to achieve this goal, including improved aircraft technologies, operational improvements, and sustainable aviation fuels. To address any remaining emissions above 2020 levels, in 2016 ICAO adopted an offsetting scheme – the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

CORSIA requires aeroplane operators to offset any increase of CO_2 emissions from international flights between participating countries above a 2020 baseline, through the purchase and cancellation of eligible emissions units.

For emissions units to be eligible under CORSIA, they must comply with eligibility criteria, referred to as the CORSIA Emissions Unit Eligibility Criteria (EUC), and, accordingly, carbon offset-crediting programs that wish to provide offset credits under CORSIA must demonstrate that the offset credits meet the CORSIA Emissions Unit Eligibility Criteria. Carbon offset-crediting programs that are approved by ICAO as eligible under CORSIA will be included on a published list of CORSIA Eligible Emissions Unit Programs. Likewise, emissions units approved by ICAO as eligible under CORSIA will be included on a published list of CORSIA Eligible Emissions Units.

A key requirement under the CORSIA Emissions Unit Eligibility Criteria is that carbon offset-crediting programs have in place rules and procedures to avoid the double counting of emission reductions. The Paris Agreement likewise requires countries to avoid double counting. Avoiding double counting is essential for environmental integrity, because if double counting occurs, actual global GHG emissions will be higher than the sum of what individual countries or entities report their emissions to be.

This Appendix B to the ACR Standard details requirements to avoid double counting in the CORSIA.

B.2 CORSIA REQUIREMENTS FOR AVOIDING DOUBLE COUNTING

The CORSIA Emissions Unit Eligibility Criteria, as adopted by the ICAO Council in March 2019, requires programs to put measures in place to avoid all three forms of double counting: double issuance, double use, and double claiming.

Avoidance of Double Counting, Issuance and Claiming

Carbon offset credit integrity assessment criteria

Eligibility Criterion: Programs should deliver credits that represent emissions reductions, avoidance, or sequestration that are only counted once towards a mitigation obligation. Measures must be in place to avoid:

a) Double issuance (which occurs if more than one unit is issued for the same emissions or emissions reduction).

b) Double use (which occurs when the same issued unit is used twice, for example, if a unit is duplicated in registries).

c) Double claiming (which occurs if the same emissions reduction is counted twice by both the buyer and the seller (i.e., counted towards the climate change mitigation effort of both an airline and the host country of the emissions reduction activity). In order to prevent double claiming, eligible programs should require and demonstrate that host countries of emissions reduction activities agree to account for any offset units issued as a result of those activities such that double claiming does not occur between the airline and the host country of the emissions reduction activity.

B.3 FUNCTIONALITY OF THE ACR REGISTRY

A key element to avoid double counting in all of its forms is a robust and transparent registry platform, including a project database, that is publicly accessible, transparent and easily searchable, and provides relevant information needed to avoid double counting under CORSIA.
The robust registry and database platform must support project registration including providing a unique identifier for each project that can be cross-referenced with offset credits issued in a program's offset credit registry, so that project information can be identified for every offset credit issued within the registry. ACR's registry platform is operational with all functionality and transparency needed to avoid double counting for CORSIA including:

1. Securely and transparently effectuating the issuance, transfer, retirement and cancellation of offset credits;

2. Serialization and tagging of issuances so that each offset credit is clearly associated with a specific project, country, issuance block and vintage and so that information for avoiding double counting can be assigned to each offset credit. Project information includes:

    a. A description of the project, including information on the mitigation technologies;
    b. The emission sources, sinks, and greenhouse gases included in the calculation of the project's emission reductions or removals;
    c. The Host Country and geographical location where the project is implemented;
    d. The Project Proponent;
    e. The year(s) in which the emission reduction occurred (vintage);
    f. Any other information needed for the project to be unambiguously identified, and distinguished from other projects that may occur in the same location;
    g. An indication whether the project's mitigation activities, emission reductions, and/or removals are covered by the Host Country NDC targets (sector and target years);
    h. A Letter of Assurance and Authorization from the Host Country, which will be posted on the registry once obtained;
    i. Designation of the credits as Qualified for CORSIA once the Host Country Letter of Assurance and Authorization has been obtained; and
    j. Notice that the Host Country has applied an adjustment, once evidence obtained.

3. Public, downloadable, sortable reports on all offset credits including projects, issuances, retirements and cancelations; and

4. Retirement and cancelation procedures that ensure the removal of the unit is clearly indicated, irreversible, and unambiguously designated for an intended purpose. For cancellations of units for the CORSIA, the cancellation information will specify the aeroplane operator for which the offset credits were cancelled and the calendar year for which an offsetting requirement is fulfilled through the cancellation.

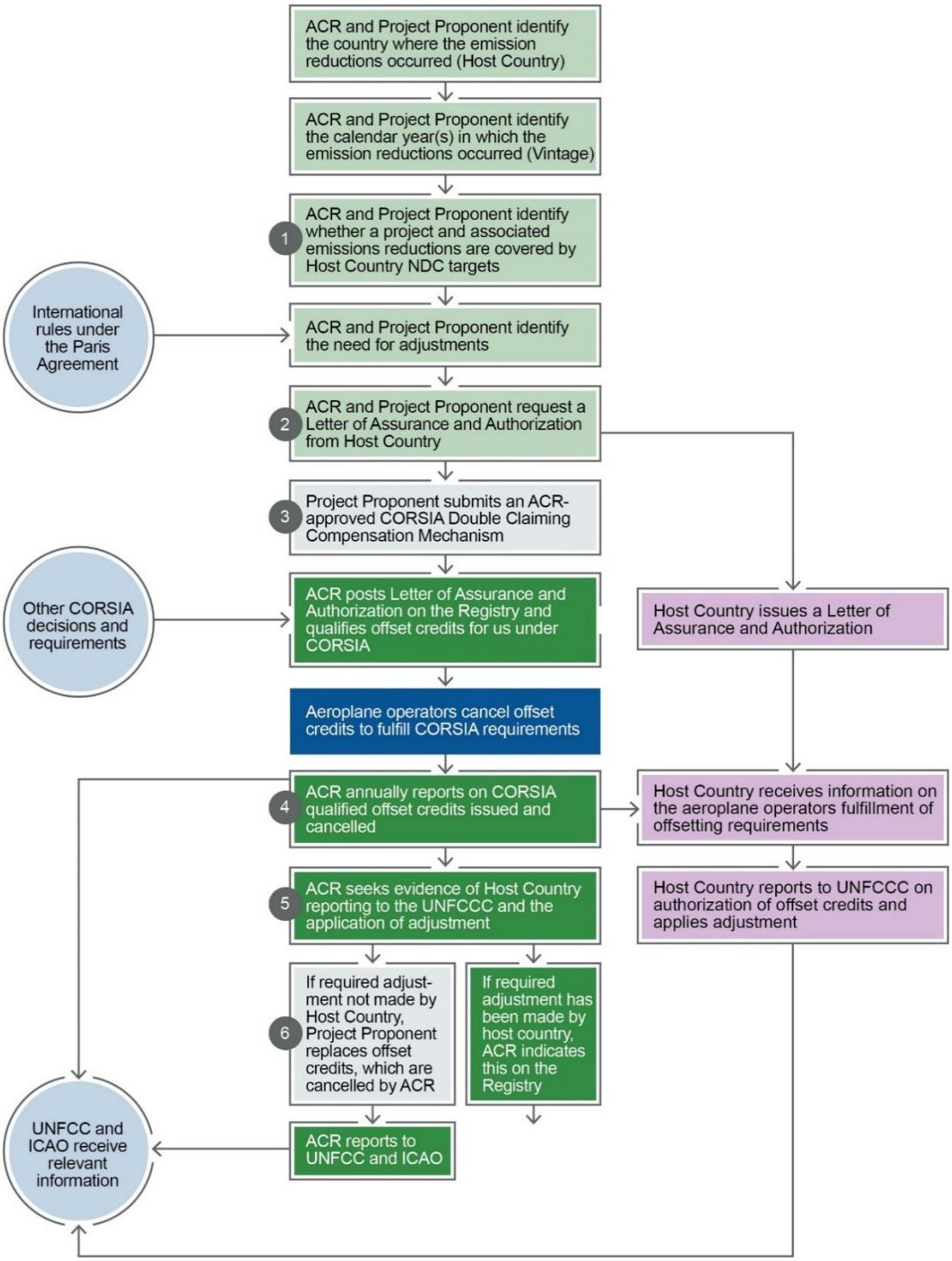
B.4 ACR REQUIREMENTS

ACR requirements for avoiding double counting in all of its forms are detailed in Chapter 10 of the ACR Standard. Procedures are in place and operable to avoid double issuance, double use and double claims of emission reductions including with the post-2020 Paris Agreement targets. Procedures currently in place to avoid double issuance and double use will remain the same for the CORSIA. ACR herein provides more precision and detail for its requirements to avoid double claiming in the CORSIA.

To avoid double claiming with progress towards mitigation targets pledged by countries in their Paris Agreement Nationally Determined Contributions (NDCs), countries must authorize the use of offset credits by aeroplane operators under the CORSIA and provide assurance that they will report the use to the UNFCCC and make corresponding accounting adjustments. Countries then shall report to the UNFCCC and make adjustments as required under the Paris Agreement, and ACR will seek evidence that pledged adjustments were made.

For ACR emissions units determined by ICAO to be CORSIA-eligible (project type, start date, vintage etc.), the steps detailed in workflow Figure 1 below will be necessary in order for the units to be qualified for use under CORSIA.

FIGURE 1: STEPS FOR UNITS TO BE QUALIFIED BY ACR FOR USE IN CORSIA



ACR plans to delegate some steps, as indicated, to Project Proponents, noting that ACR will review and approve all determinations and associated documentation. The information and documentation will also be reviewed and confirmed by validation and verification bodies (VVBs) as part of the validation and verification process. Below are details for the numbered steps in Figure 1.

1. If the nature, scope or applicable period of an NDC target is not clear, the Project Proponent and ACR may further evaluate information communicated by the Host Country to the UNFCCC and/or seek clarification from the Host Country government UNFCCC Focal Point.

2. The Host Country Letter of Assurance and Authorization will be obtained from the country's UNFCCC Focal Point to qualify units for CORSIA post 2020.

   ACR will make all Letters of Assurance and Authorization publicly available by posting on the registry. For post 2020 units, ACR will only qualify offset credits for CORSIA once such a letter is received, only to any limit established in the letter and as long as all other ACR and CORSIA requirements are met including contributing to the ACR CORSIA Buffer Pool and executing the CORSIA Double Claiming Risk Mitigation Agreement as further described below.

   A sample Letter of Assurance and Authorization is included as Exhibit 1 to this Appendix B.

   The letter should explicitly:

   - Identify the specific project and activity or group of project activities and acknowledge that the project may reduce emissions or enhance removals in the country;
   - Acknowledge that ACR has issued, or intends to issue, offset credits for [a stated volume in CO_2-e] emission reductions or removals that occur within the country[47];
   - Authorize the use of the project's emission reductions or removals, issued as offset credits, by aeroplane operators in order to meet offsetting requirements under CORSIA;
   - Declare that the country will not use the project's associated emission reductions or removals to track progress towards, or for demonstrating achievement of, its NDC and will account for their use by aeroplane operators under CORSIA by applying relevant adjustments in the structured summary of the country's biennial transparency reports, as referred to in paragraph 77, sub-paragraph (d), of the Annex to decision 18/CMA.1, and consistent with relevant future decisions by the CMA; and
   - Declare that the country will report on the authorization and use of the project's emission reductions for the CORSIA [or by other countries] in a transparent manner in the country's biennial transparency report submitted under Article 13 of the Paris Agreement.

[47]To ensure consistency in UNFCCC reporting and assurance of adjustments for CORSIA units issued, if the GWP value used by a country in its NDC reporting (in particular in its first NDC report) is different than the value used by ACR to calculate the volume of offset credits issued, ACR will convert the offset credit volume to the volume that should be adjusted using the same GWP values the country uses in its NDC reporting and provide that number to the country.

The letter may also:

- Authorize the use of the project's emission reductions or removals, issued as offset credits, by other countries towards achieving their NDCs;
- Provide a limit for the maximum number of the project's emission reductions or removals, issued as offset credits, that the country authorizes for use, including any limits on the time period over which the country provides such authorization; and
- Include a request to ACR to provide information to the country on the use of the offset credits.

3. ACR requires Project Proponent to compensate for, replace or otherwise reconcile instances of units used under the CORSIA and also claimed by the Host Country towards meetings its NDC ("compensation mechanism"). Project Proponents must present, in a form acceptable to ACR, a mechanism to compensate for double claims of emission reductions units between aeroplane operators for the CORSIA and host countries towards NDC achievement. Compensation is required in the event that the adjustment has not been made or credible evidence cannot be obtained by ACR within a year after the adjustment was due to be reported to the UNFCCC by the Host Country.

Options include:

i. Evidence of the application of the adjustment, as detailed in the Host Country Letter of Assurance and Authorization, in country reports to the UNFCCC or, if in between UNFCCC reporting periods, by other means (e.g. an irrevocable electronic certificate, such as from a distributed ledger registry system, from the Host Country indicating that the required adjustments have been applied within the relevant accounting system and an attestation that such adjustments will be reported to the UNFCCC in the next reporting period), before the unit could be cancelled for use by an aeroplane operator for CORSIA.

ii. A guarantee, in a form acceptable to ACR, that any double-claimed units (those for which an adjustment has not been made) will be replaced with a volume of ICAO-eligible credits corresponding to the number of units that were double claimed by the Host Country ("Replacement Contribution"). These units must be ACR units, or comparable CORSIA-qualified units as approved by ACR, that have not been sold or otherwise committed. ACR will cancel the associated Replacement Contribution to mitigate the Host Country's double claim of emission reductions. This guarantee could be from a reputable third-party, an entity such as the Multilateral Investment Guarantee Agency (MIGA) or an ACR-approved insurance mechanism.

iii. A guarantee, in a form acceptable to ACR, that the guarantor will fully financially compensate ACR for the procurement of a Replacement Contribution for the double-claimed units. The Replacement units must be ACR units, or comparable CORSIA-qualified units as approved by ACR, that have not been sold or otherwise committed. ACR will cancel the associated Replacement Contribution to mitigate the Host Country's double claim of emission reductions. This guarantee could be from a reputable third-party, an entity such as the Multilateral Investment Guarantee Agency (MIGA) or an ACR-approved insurance mechanism.

iv. Contribution to the ACR CORSIA Double Claiming Buffer Pool and execution of the CORSIA Double Claiming Risk Mitigation Agreement which details the requirement of the Project Proponent to replace the double-claimed credits with a volume of replacement CORSIA-qualified credits corresponding to the number of units that were double claimed by the Host Country. These units must be ACR units that have not been sold or otherwise committed or other CORSIA-qualified credits as approved by ACR. ACR will cancel the associated Replacement Contribution to mitigate the Host Country's double claim of emission reductions.

The CORSIA Double Claiming Buffer Pool ("CORSIA Buffer Pool") contribution volume will be a percentage of the project's credits as determined by the published Organization for Economic Co-Operation (OECD) Prevailing Country Risk Classification of the Host Country at the time of requesting CORSIA qualification for the units, whereby a rating of 1-2 = 5% contribution, 3-4 = 20% contribution, 5-6 = 30% contribution and 7 = 40% contribution. Buffer pool contributions will be refunded once the corresponding adjustment has been applied.

4. ACR Annual Reporting on the qualification and use of Units for CORSIA. ACR will publish annual reports that provide aggregated information related to the issuance, CORSIA qualification and cancellation of offset credits. ACR will publish these reports within six months after the end of a calendar year and will transmit the reports to ICAO and to all countries in which the emission reductions or removals associated with issued and CORSIA qualified offset credits occurred. Reported information will include:

   (i) Quantity of CORSIA qualified offset credits issued by country, calendar year, cancelled for CORSIA and cancelled for other purposes.

   (ii) Quantity of CORSIA qualified offset credits cancelled by aeroplane operator for each CORSIA compliance period

   (iii) The maximum number of emission reductions or removals from ACR projects authorized by countries for use by other countries or entities, by country and calendar year.

5. Obtaining evidence of the application of adjustments. ACR will take action to obtain evidence of the appropriate application of adjustments from the Host Country of emission reductions or removals in the country's biennial transparency reports to the UNFCCC. The reports should clearly reference the offset credits (e.g., using unique identifiers or serial numbers or a specific reference to the authorization letter) for which the country has applied the adjustments. Once evidence has been obtained, ACR will post such evidence on the registry and indicate that the adjustment has been made.

6. Remedy for CORSIA Double Claim. In the event that the adjustment has not been made or credible evidence cannot be obtained within a year after the adjustment was due to be reported to the UNFCCC by the Host Country, Project Proponent shall compensate for the double claimed volume following its selected compensation mechanism.

   ACR will inform the UNFCCC and ICAO accordingly and will evaluate whether to cease qualifying offset credits from the respective country for CORSIA.

EXHIBIT 1 TO APPENDIX B: EXAMPLE HOST COUNTRY LETTER OF ASSURANCE AND AUTHORIZATION

DATE:

TO: American Carbon Registry (ACR), an enterprise of Winrock International

FROM: UNFCCC Focal Point, Government of Country X

RE: Letter of assurance and authorization related to GHG emission reduction project Y

With regard to project Y, as described in the project documentation attached to this letter, we hereby acknowledge that the project may reduce greenhouse gas emissions in country X by [*describe activity*] and that American Carbon Registry (ACR) has issued, or intends to issue, offset credits for these emission reductions.

We hereby authorize that the project's emission reductions, issued as offset credits by ACR, may be used by aeroplane operators to meet offsetting requirements under CORSIA [optional: *or by other countries towards achieving their NDC,*] subject to the following restrictions:

- We authorize only the use of the project's emission reductions, for which ACR has issued or will issue offset credits, that occur in the period from [DATE] to [DATE]; and
- We authorize only the use of a maximum of [#] tCO_2e of the project's emission reductions, issued as offset credits by ACR, for each calendar year.

We hereby request ACR to submit annual reports to us, no later than by 31 March of each year, on the actual issuance of offset credits, as well as the use of the offset credit's associated emission reductions by other countries or entities, including volumes canceled for use by each country and entity.

We hereby declare that country X will not use the project's emission reductions to track progress towards, or for demonstrating achievement of, its NDC and that country X will account for the use of the project's GHG emission reductions by aeroplane operators under CORSIA or by other countries through adjustments in the structured summary of country X's biennial transparency reports, as referred to in paragraph 77, sub-paragraph (d), of the Annex to decision 18/CMA.1, and consistent with relevant future decisions by the CMA.

We hereby also declare that country X will report on the authorization and use of the project's emission reductions by other countries or entities in a transparent manner in the country's biennial transparency report submitted under Article 13 of the Paris Agreement.

APPENDIX C: NORMATIVE REFERENCES

The ACR Standard is based on the foundation laid by the normative reference standards and documents listed in Table 5 below. These documents assisted ACR to articulate its own requirements and specifications for the quantification, monitoring, and reporting of GHG project-based emissions reductions and removals, verification, project registration, and issuance of project-based offsets.

In particular, the ACR Standard builds on the ISO technical specifications for GHG accounting, GHG assertions and verification, and verifier accreditation as set forth in the ISO 14064 Parts 1-3:2006 and ISO 14065:2013, Specifications. To the ISO specifications, ACR adds its own mandatory requirements as detailed in the ACR eligibility criteria, additionality determination process, sector standards, and approved methodologies and tools. In the event of conflicts between the ACR Standard and the ISO technical specifications or other normative references, the ACR Standard shall take precedence.

Table 5: Normative References for the ACR Standard

AUTHORING BODY	DOCUMENT OR STANDARD	RELATIONSHIP TO ACR
International Standardization Organization (ISO)	• ISO 14064:2006 Parts 1-3: A set of international standards that address the quantification, reporting, and verification of GHG emissions and project reductions • ISO 14065:2013: Verifier accreditation requirements	ISO 14064:2006 provides a foundation for the ACR Standard with technical specifications for GHG accounting and reporting for projects and verification assertions. ISO 14065: 2007 specifies requirements for verifier accreditation.
Intergovernmental Panel on Climate Change (IPCC)	• Guidelines for National GHG Inventories • Good Practice Guidance • Fifth Assessment Report	Identification of best practices and options for GHG emission inventory development; methodological guidance and primary seed document for more specific guidance materials and standards

Clean Development Mechanism (CDM)	• Project-level baseline and monitoring tools and methodologies • Tool for the Demonstration and Assessment of Additionality • GHG sources and sinks significance test	The CDM additionality tool informs ACR additionality tests and may assist Project Proponents in formulating additionality arguments.

APPENDIX D. REFERENCES

Clean Development Mechanism (CDM). List of Accepted Baseline and Monitoring Tools and Methodologies. http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html.

Clean Development Mechanism (CDM). Tool for the demonstration and assessment of additionality. http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v5.2.pdf.

Climate, Community & Biodiversity Alliance (CCBA). Climate, Community and Biodiversity Standards, Project Design Standards, Second Edition (2008). http://www.climate-standards.org/standards/pdf/ccb_standards_second_edition_december_2008.pdf.

Good Practice Guidance for Land Use, Land-Use Change, and Forestry (especially Chapter 4.3 on LULUCF projects). IPCC. http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_contents.htm.

International Organization for Standardization (ISO) 14064-1:2006(E) - Greenhouse gases. Part 1: Specification with guidance at the organization level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal.

International Organization for Standardization (ISO) 14064-2:2006(E) - Greenhouse gases. Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.

International Organization for Standardization (ISO) 14064-3:2006(E) - Greenhouse gases. Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.

International Organization for Standardization (ISO) 14065:2013(E) - Greenhouse gases. Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition.

Intergovernmental Panel on Climate Change (IPCC), 2006. Guidelines for National Greenhouse Gas Inventories Volume 4 Agriculture, Forestry and Other Land Use. http://www.ipccnggip.iges.or.jp/public/2006gl/vol4.html.

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Pearson, T., S. Walker and S. Brown. 2006. Afforestation and Reforestation under the Clean Development Mechanism: Project Formulation Manual. ITTO and Winrock International. http://www.winrock.org/ecosystems/tools.asp?BU=9086.

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World Resources Institute and World Business Council for Sustainable Development. The Land Use, Land-Use Change, and Forestry (LULUCF) Guidance for GHG Project Accounting (LU-LUCF Guidance). http://www.ghgprotocol.org/files/lulucf-final.pdf.