

Global Response R1: Carbon Offsets

This response addresses comments received on the 2019 Recirculated Portions of the Draft EIR stating that the Otay Ranch Resort Village – Village 13 (proposed Project) has not sufficiently demonstrated that the carbon offsets required by mitigation measures M-GCC-7 and M-GCC-8 would effectively reduce greenhouse gas (GHG) emissions. The referenced mitigation measures require the Project to reduce its estimated construction and operational GHG emissions to net zero (following the implementation of environmental design considerations (EDCs) and mitigation measures M-GCC-1 through M-GCC-6 for the reduction of GHG emissions through on-site strategies), so that the Project results in no net increase above the existing emissions level (which conservatively is assumed to be zero), through the purchase of carbon offsets.

In light of those comments, this response provides additional information regarding carbon offsets and the carbon registries that oversee the environmental integrity of offsets through measured substantive and procedural standards; sets forth substantial evidence regarding the additionality, availability, effectiveness and temporal duration of the mitigation obligation; and, describes how use of carbon offsets is not in violation of the County of San Diego General Plan.

Overview of Carbon Offsets

Carbon offsets are instruments that can be bought, sold, and traded. Like a stock or equity that represents a unit of ownership in a company, a carbon offset represents a unit of GHG emissions reductions. Each offset is essentially a certification that a certain quantity of GHG emissions has been avoided, prevented, or sequestered. Examples of activities that generate offsets include reforestation to increase carbon sequestration and the capture and destruction of methane emissions from livestock.

Carbon Offsets Must Meet Certain Standards

An activity can only generate carbon offsets if the project developer demonstrates the environmental integrity of the activity by meeting specific standards. Therefore, offset registries have developed a broad consensus around the standards that are necessary to ensure that offsets are environmentally sound, namely that offsets be real, permanent, quantifiable, verifiable, enforceable, and additional, defined as follows:

“Real”: offsets may only be issued for emissions reductions that are a result of complete emissions accounting.

“Permanent”: the emissions reductions must be permanent and not be reversed. For example, in the context of forestry, offset project developers must demonstrate that the carbon sequestered in the trees of the forest will not be released to the atmosphere after the fact; i.e., that the trees will not be cut down.

“Quantifiable”: the emissions reductions from an activity must be rigorously quantified, and offsets may only be issued in an amount that corresponds to emissions that have been quantified. Project developers must ensure the accuracy of their emissions accounting by adhering to standardized quantification methodologies called “protocols,” which are discussed further below.

“Verifiable”: to receive offset credits, emission reductions must be well documented and transparent enough to be capable of objective review by a neutral, third party verifier.

“Enforceable”: in order to be eligible to generate offsets from reputable programs, the implementation of the activity must represent the legally binding commitment of the offset project

developer. Once the developer undertakes the activity, the developer is under a legal obligation to carry it out.

“Additional”: the GHG emissions reductions generated by an activity must be “additional,” meaning that they are only eligible to generate offsets if they would not have occurred without the offset activity. Project developers must ensure additionality by adhering to the applicable protocol, as discussed further below.

Different offset programs have adopted slightly different versions of these standards, but the differences are non-substantive.¹ Further, these environmental integrity criteria are broadly recognized as sufficient to ensure the environmental benefit of activities that generate carbon offsets.²

Climate Registries Use Standardized Protocols and a Rigorous Review Process to Approve Offsets

Carbon offsets are issued by a climate registry that has undertaken the responsibility of certifying that the action or activity that results in emissions reductions has occurred. Climate registries are focused on achieving environmental integrity via the standards discussed in the prior subsection because – even in the arena of “voluntary” offsets – principles of accountability and transparency drive the marketability of offsets. To this end, the Climate Action Reserve began as the California Climate Action Registry, which was created by the State of California in 2001 to address climate change through voluntary calculation and public reporting of emissions. The Reserve establishes high quality standards for carbon offset projects, oversees independent third-party verification bodies, issues carbon credits generated from such projects and tracks the transaction of credits over time in a transparent, publicly accessible system. Verra and the American Carbon Registry are similarly multi-dimensional – the registries develop and administer programs for the creation, implementation and verification of offset projects.

Developers of offsets can demonstrate the environmental integrity of an offset project by complying with a climate registry’s standards-based “protocol.” A “protocol” is a method of measuring emission reductions. A standards-based protocol accomplishes that fundamental goal by establishing the baseline scenario for a given activity and then providing the project developer a specific, defined methodology to quantify and verify emissions reductions that occur over and above that baseline scenario. For example, a livestock project may not receive offset credits for the operation of a biogas system at a farm if the farm is otherwise obligated by law or other legally binding mandate to operate the biogas control system. If a farm or feedlot had to operate a biogas control system as a condition of a permit to operate issued by a local air district or other permitting authority, the farm could not receive any offset credits for the emissions captured by the system. (This is the concept of additionality, as discussed below.)

The timeline for a registry’s scoping and development of new project concepts that culminate in the adoption of protocols varies, depending on the project type and available information. Generally speaking, registry staff begins by conducting internal research regarding the viability of a project concept, which

¹ See generally American Carbon Registry, “The American Carbon Registry Standard” (July 2019) available at <https://americancarbonregistry.org/carbon-accounting/standards-methodologies/american-carbon-registry-standard>; Climate Action Reserve, “Program Manual” (Nov. 12, 2019) available at <https://www.climateactionreserve.org/how/program/program-manual/>; VCS, “VCS Program Guide” (Sept. 19, 2019) available at <https://verra.org/project/vcs-program/rules-and-requirements/>; see also Health & Safety Code Section 38562(d)(1)-(2).

² See, e.g., *Our Children’s Earth Foundation v. CARB* (2015) 234 Cal.App.4th 870; Three-Regions Offsets Working Group, “Ensuring Offset Quality: Design and Implementation Criteria for a High-Quality Offset Program” (May 2010) at pp. 3-4.

registry staff may identify on their own or which interested stakeholders may submit. The Climate Action Reserve considers the following, non-exclusive list of criteria when assessing the viability of a project concept for protocol development:³

- Whether the GHG reductions would occur outside of proposed or adopted caps on GHG emissions (e.g., the Climate Action Reserve does not consider fossil fuel combustion reduction projects in California for protocol development because the State’s Cap-and-Trade Program covers fuel refineries);
- Whether the GHG reductions are direct or indirect;
- Whether the GHG reductions are likely to be additional;
- Whether there is significant potential for reducing GHG emissions in the United States;
- Whether well-developed quantification methodologies are available;
- Whether accurate and cost-effective measurement and monitoring techniques are available; and,
- Whether the projects would have positive or negative environmental and social co-effects.

If the concept shows promise and seems suitable for the development of a standardized protocol, the Climate Action Reserve – for example – will host a formal public scoping meeting and a subsequent protocol kickoff meeting. From that point forward, the Climate Action Reserve’s process generally takes 6 to 12 months, or more, to reach protocol adoption.⁴

Carbon offset registries measure compliance with approved protocols using rigorous, standardized review processes. As a general rule, when approving a GHG reduction project, the climate registry would require that the offset project meet the following steps to receive offsets:

Listing or Registration: Apply to list or register the proposed GHG emission reduction project with the climate registry. The climate registry will review the application and accept it only if it complies with the applicable climate registry requirements.

Independent, Qualified Third-Party Confirmation of Reduction or Sequestration: Once a GHG emission reduction project has begun, the climate registry will require the offset project developer to retain an independent, qualified, third-party to verify the reduction or sequestration achieved by the project. Each climate registry has adopted stringent requirements applicable to the accreditation of third parties and only such third parties are qualified to verify and audit the activities under the applicable registry rules. This process typically takes place on an annual basis. Activities undertaken in a given 12-month period are typically verified during the following 6-12 months. Most climate registry rules and protocols require “boots on the ground” audits, although in certain instances desktop reviews may be sufficient.

Registry Approval and Issuance: The final step under most climate registry rules and protocols involve the issuance of the offsets. Registry rules and protocols require the project developer to apply for issuance and to provide the verification report prepared by the independent, qualified third-party. The registry will typically review a verification report and, to the extent that the registry finds that the report complies with the applicable registry requirements, the registry will issue the offsets to the account of the project developer.

³ See the Climate Action Reserve’s “Criteria for Protocol Development” webpage available at <https://www.climateactionreserve.org/how/future-protocol-development/criteria/>.

⁴ For more information on the Climate Action Reserve’s protocol development process, please see <https://www.climateactionreserve.org/how/future-protocol-development/>.

Carbon Offset Retirement: Each registry has adopted rules and procedures governing the retirement or cancellation of offsets. Typically, these rules or procedures involve the transfer of the offset serial numbers from a registry account and ensure that once a carbon offset credit has been retired, the retirement is permanent and the carbon offset cannot be further used in any manner.

To ensure that the offsets for the proposed Project satisfy these criteria, the County will apply provisions substantially similar to those contained in the “Newhall Ranch Greenhouse Gas Reduction Plan.” This plan is a State-approved plan that provides additional details about the protocols and standards that the proposed Project’s mitigation measures demand by requiring offsets to satisfy specific environmental integrity criteria. (See **Appendix C-27** of the EIR for a copy of the referenced plan.)

These protocols and processes ensure that offsets issued by offset registries satisfy the environmental integrity criteria described above, as multiple jurisdictions implementing such programs have recognized. Indeed, during rulemaking for the Ca-and-Trade Program, CARB stated:

“Beginning in 2005, the Climate Action Reserve … began adopting voluntary GHG accounting protocols to encourage early action to reduce GHG emissions. [C]ARB recognizes the rigor of the voluntary accounting procedures CAR adopted to establish that GHG emissions are real, additional, and permanent.”^{5,6}

Additional background materials regarding carbon offsets also are included in Attachment GR.R1.1 of these Responses to Comments. Those materials include pertinent excerpts from the Cap-and-Trade Program and Senate Bill (SB) 97 rulemaking proceedings; information regarding the Climate Action Reserve, Verra and American Carbon Registry; letters from the California Air Resources Board (CARB) regarding the Newhall Ranch Project’s mitigation framework, which includes offsets; information regarding the Climate Action Reserve’s Climate Forward Program⁷; and, information regarding forest offset protocols.

⁵ CARB, “Proposed Regulation to Implement the California Cap-and-Trade Program, Part I, Volume I: Initial Statement of Reasons” (October 28, 2010) at II-48.

The carbon offsets purchased by the proposed Project would be from the voluntary marketplace because the Project is not a regulated entity covered by and subject to CARB’s Cap-and-Trade Program. The County notes that entities regulated by the Cap-and-Trade Program have direct operational control of the long-term GHG emissions from the source profile, whereas land use developers do not have continuing control and authority over many (if not all) of the sources (e.g., homeowners decide when to turn appliances on and off; business owners decide their hours of operation). The County further notes that covered entities (e.g., fuel refineries) regulated by the Cap-and-Trade Program are not required to achieve a net zero GHG emissions level. Rather, such entities are subject to a declining GHG emissions cap that gradually and incrementally reduces emissions from the regulated emissions-generating activities (see https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf). Covered entities are permitted to emit a certain, positive quantity of GHG emissions, unlike the proposed Project, which would achieve a net zero GHG emissions level in order to avoid a cumulatively considerable contribution to global climate change. These important distinctions between the Cap-and-Trade Program’s covered entities and the proposed Project are important factors to be considered when designing the proposed Project EIR’s framework for the reduction of GHG emissions.

⁶ There is a broad consensus on the accounting principles necessary to ensure environmentally sound offsets. The standards include International Organization for Standardization (ISO) 14064 and 14065. The ISO is an independent, non-governmental international organization with a membership of 162 countries, including the United States. The ISO publishes standards for a wide variety of industrial activities, such as food safety management, medical device management, and anti-bribery management. (See ISO, “Standards” available at <http://www.iso.org/iso/home/standards.htm>.) The ISO is an independent, neutral developer of standards, including GHG emission reduction accounting standards.

⁷ The Climate Action Reserve recently launched the “Climate Forward” program, under which it will approve

Carbon Offset Protocols Have Been Upheld By Courts

In *Our Children's Earth Foundation v. CARB* (2015) 234 Cal.App.4th 870, 880, the First Appellate District recognized the validity of carbon offsets:

“[P]rotocols developed by the Climate Action Reserve (Reserve) employ a standards-based approach for ensuring additionality. The Reserve is a national nonprofit organization that (1) develops standards for evaluating, verifying and monitoring GHG emission inventories and reduction projects in North America; (2) issues offset credits for those projects; and (3) tracks offset credits over time ‘in a transparent, publicly-accessible system.’ A primary goal of the Reserve is to establish conservative GHG accounting which will ensure that GHG emission reductions are ‘real, permanent, additional, verifiable, and enforceable by contract.’ In formulating its standards-based protocols, the Reserve identifies types of emission reduction projects that are both subject to quantification and appropriate for assessment pursuant to performance-based additionality tests.”

In 2011, CARB formally adopted its own protocols, which it took almost verbatim from Climate Action Reserve’s protocols.⁸ CARB’s protocols were challenged as violating Assembly Bill (AB) 32 because they purportedly failed to accurately ensure additionality as required by the act, but the court sided with CARB, finding that CARB’s protocols based on Climate Action Reserve’s protocols are a “workable method of ensuring additionality with respect to offset credits.” (*Our Children's Earth Foundation* at p. 889.) CARB has since expanded its program to accept carbon offsets issued under American Carbon Registry and Verified Carbon Standard methodologies, in addition to those from the Climate Action Reserve.⁹

Carbon Offsets Have Been Used to Mitigate Emissions under CEQA

The appropriateness of using offsets as CEQA mitigation for GHG emissions is well established. Specifically, CEQA Guidelines Section 15126.4(c)(3) provides that “[o]ff-site measures, including offsets that are not otherwise required,” can be used to mitigate a project’s GHG emissions.¹⁰

⁸ “standardized and conservative quantification methodologies for assessing the forecasted (ex-ante) emission reductions of GHG reduction projects and issue[] credits for the mitigation measures. These forward-looking credits can then be used to mitigate the GHG emissions impact of future projects that a company or organization might undertake.” For more information on Climate Forward, please see <http://www.climateactionreserve.org/climate-forward/> and <http://www.climateactionreserve.org/climate-forward/fmus/>.

⁹ See, e.g., CARB, “Compliance Offset Protocol Livestock Projects: Capturing and Destroying Methane from Manure Management Systems” (October 20, 2011).

¹⁰ See, e.g., Cal. Code Regs., Tit. 17, Section 95990(c)(5).

It is noted that the County does not interpret mitigation measures M-GCC-7 and M-GCC-8 as permitting the use of Clean Development Mechanism (CDM)-related offsets; as such, the Project shall neither purchase offsets from the CDM registry nor purchase offsets generated under CDM protocols.

¹¹ CEQA Guidelines Section 15126.4(a)(1)(D) states: “If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed.” In this instance, and based on the type of information reasonably available at this time, the Proposed Project’s utilization of carbon offsets – via implementation of M-GCC-7 and M-GCC-8 – is not expected to result in one or more significant effects because carbon registries prioritize protocols for offset project types that can create significant co-benefits and avoid those with significant negative social and environmental impacts.

In promulgating the CEQA Guidelines for GHG mitigation, the California Natural Resources Agency (CNRA) and the Governor’s Office of Planning and Research (OPR) addressed the legitimacy of offsets as follows:¹¹

“The Initial Statement of Reasons … cites several sources discussing examples of offsets being used in a CEQA context. Further, the CARB Scoping Plan describes offsets as way to provide regulated entities a source of low-cost emission reductions, and … encourage the spread of clean, efficient technology within and outside California. The Natural Resources Agency finds that the offset concept is consistent with the existing CEQA Guidelines’ definition of ‘mitigation,’ which includes ‘[r]ectifying the impact by repairing, rehabilitating, or restoring the impacted environment’ and ‘[c]ompensating for the impact by replacing or providing substitute resources or environments.’”

Similarly, when discussing “Project-Level Greenhouse Gas Emissions Reduction Actions and Thresholds” in *California’s 2017 Climate Change Scoping Plan* (November 2017), CARB stated that, “Where further project design or regional investments are infeasible or not proven to be effective, it may be appropriate and feasible to mitigate project emissions throughout purchasing and retiring carbon credits.”¹²

The certification of projects under AB 900, the Jobs and Economic Improvement through Environmental Leadership Act, also supports the use of offsets. Under that statute, certain CEQA streamlining benefits were provided to “environmental leadership” projects. One of the key conditions was that such projects offset all emissions to be GHG neutral. (Pub. Resources Code Section 21183(c).) To date, multiple projects have been designated as AB 900 leadership projects by CARB and the Governor, and those projects have made a commitment to purchase GHG offset credits from the voluntary carbon marketplace to ensure carbon neutrality, including the Soitec Solar Energy Project, which was approved by the County of San Diego Board of Supervisors in 2015.¹³ CARB has not mandated that these AB 900 projects commit to offsets of local origin. And, CARB has determined that AB 900 projects can achieve the necessary GHG emissions reductions without imposing rigid, quantitative limits on the locational attributes of carbon offset credits. (See **Appendix C-26** of the EIR for additional details on CARB’s review of AB 900 projects.)

In support of this determination, please see Climate Action Reserve’s webpage regarding “Criteria for Protocol Development,” available at <http://www.climateactionreserve.org/how/future-protocol-development/criteria/>. See also Climate Action Reserve’s Program Manual (November 12, 2019), available at <http://www.climateactionreserve.org/how/program/program-manual/>. As provided in Section 2.4.6 of the Program Manual, the Climate Action Reserve “requires project developers to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice.” In order to ensure that such adverse effects are avoided, the Climate Action Reserve coordinates with government agencies and environmental representatives, requires project developers to demonstrate compliance with all applicable laws (including environmental regulations), and may include – within individual offset protocols – requirements specifically designed to serve as environmental and social safeguards.

¹¹ California Natural Resources Agency, *Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97* (December 2009).

¹² Appendix B of *California’s 2017 Climate Change Scoping Plan* provides that CEQA lead agencies should consider: (1) requiring projects to purchase carbon credits from credible offset registries, and (2) encouraging projects to select local and California-only carbon credits, where available.

¹³ Information on AB 900 leadership projects is found at: <http://www.opr.ca.gov/ceqa/california-jobs.html>.

Additionality of Carbon Offsets

CNRA and OPR squarely addressed the issue of additionality when revising the CEQA Guidelines in response to the passage of SB 97 as follows:

“[E]mission reductions that occur without a project would not normally qualify as mitigation ... [T]his interpretation of the CEQA statute and case law is consistent with the Legislature’s directive in AB 32 that reductions relied on as part of a market-based compliance mechanism must be ‘in addition to any [GHG] emission reduction otherwise required by law or regulation, and any other [GHG] emission reduction that otherwise would occur.’ [citation omitted] While AB 32 and CEQA are separate statutes, the additionality concept may be applied analytically in the latter as follows: [GHG] emission reductions that are otherwise required by law or regulation would be appropriately considered part of the existing baseline ... Thus, ... the Natural Resources Agency has revised section 15126.4(c)(3) to state that mitigation includes: ‘Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions.’”

(CNRA, *Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97* (December 2009), pp. 88-89.)

Mitigation measures M-GCC-7 and M-GCC-8 explicitly require all carbon offsets to satisfy additionality requirements consistent with CEQA. Specifically, both measures require carbon offsets to represent the “...reduction or sequestration of one metric ton of carbon dioxide equivalent that is ‘not otherwise required’ (CEQA Guidelines §15126.4(c)(3)).” As such, carbon offsets purchased for the Project would be additional.

Availability of Carbon Offsets

Based on the County’s research, it believes that sufficient carbon offsets are available for use within the CEQA context.¹⁴ By way of example, as of November 2017, the Climate Action Reserve has issued more than 100 million carbon offsets.¹⁵ The Climate Action Reserve found that California leads the nation in the number of offset projects registered (52) and the number of credits issued (22.5 million).¹⁶ The American Climate Registry reached the same milestone in August 2017,¹⁷ and the Verified Carbon Standard (now referred to as Verra) has certified more than 1,300 projects that have removed or reduced more than 200 million metric tons of GHGs.¹⁸

¹⁴ See, e.g., *Unlocking Potential: State of the Voluntary Carbon Markets 2017*, Ecosystem Marketplace, available at <https://www.cbd.int/financial/2017docs/carbonmarket2017.pdf>.

¹⁵ See <http://www.climateactionreserve.org/blog/2017/11/06/thank-you-for-helping-us-reach-100-million-metrictons-of-ghg-emissions-reductions/> and <http://www.climateactionreserve.org/blog/2017/11/06/north-americanclimate-action-shows-its-strength-and-impact-with-milestone-100-million-offset-credits-issued-by-a-californiacarbon-market-pioneer/>.

¹⁶ See <http://www.climateactionreserve.org/blog/2017/11/06/thank-you-for-helping-us-reach-100-million-metrictons-of-ghg-emissions-reductions/>.

¹⁷ See <https://americancarbonregistry.org/news-events/program-announcements/acr-reaches-milestone-issuanceof-100-million-tonnes-of-greenhouse-gas-emissions-reductions>.

¹⁸ See <http://verra.org/project/vcs-program/>.

Further, the development of offset projects is driven by market demand, which – at least in part – is influenced by California’s strong environmental protection policies. As such, offset project developers are expected to continue to pursue carbon reduction opportunities and technologies to meet demand.

As to speculative concerns regarding the future unavailability of carbon offsets, the Project’s mitigation triggers require that proof of a sufficient offset quantity be provided *before* issuance of grading and building permits. More specifically, the mitigation measures require carbon offsets to be secured by the Project in advance of when the projected emissions will be generated by the Project. Specifically, M-GCC-7 requires all of the construction and vegetation removal emissions associated with the Project to be offset “*prior to* the County’s issuance of the Project’s first grading permit.” (2019 Recirculated Portions of the Draft EIR, p. 2.10-31; italics added.) M-GCC-8 similarly requires the operational emissions associated with Project to be offset via one of the two options: (i) prior to the issuance of the first building permit, the Project shall offset the total operational emissions inventory, as multiplied by 30 years; or (ii) prior to the issuance of each increment of building permits for the phased development of the Project, the Project shall offset that increment of the operational emissions inventory, as multiplied by 30 years. (2019 Recirculated Portions of the Draft EIR, p. 2.10-33.) In other words, each permitted activity that occurs within the Project Site would be required to reduce or sequester 30 years of projected emissions in advance of the emissions being generated. Therefore, if offsets are not available, permits will not be issued and Project-related emissions will not occur.

Duration of Mitigation Obligation

CEQA Guidelines Section 15064.4(a) requires a lead agency to make a “good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas [GHG] emissions resulting from a project.” Section 15064.4(a)(1) further provides that a lead agency, when deciding whether to assess the significance of the project’s emissions using a quantitative or qualitative approach, has the “discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence.”

Here, mitigation measure M-GCC-8 requires the Project to purchase and retire carbon offsets in a quantity that is sufficient to reduce the Project’s operational GHG emissions to net zero for a 30-year period. The County, as lead agency, has determined that a 30-year project life is the appropriate methodology for delineating the extent of the Project’s GHG emissions inventory for purposes of mitigation measure M-GCC-8’s applicable mitigation period. And, this discussion demonstrates that the use of 30-year project life is a methodological determination that is strongly supported on at least five grounds, each of which provides an independent basis for utilizing the subject analytic framework:

1. CARB, the state agency charged with the responsibility for and expertise to administer the State’s GHG emissions policies (Health & Saf. Code Section 38510), has approved the use of a 30-year project life when mitigating operational GHG emissions associated with land use development projects in furtherance of achieving a no net increase in GHG emissions levels. Specifically, when working with the California Department of Fish and Wildlife (CDFW) to evaluate the environmental impacts of the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP), which would facilitate the development of a large-scale, master-planned community in Los Angeles County, CARB determined that utilization of a 30-year mitigation period would enable the RMDP/SCP project to achieve net zero GHG emissions.¹⁹

¹⁹ See CDFW, *Final Additional Environmental Analysis for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan* (SCH No. 2000011025) (June 2017).

A 30-year project life also has been used and approved by CARB to calculate offset requirements for qualified “leadership projects” under AB 900 (Pub. Resources Code Sections 21178 through 21189.3). To obtain certification as a “leadership project,” a project must, among other requirements, “not result in any net additional emission of [GHGs], including [GHG] emissions from employee transportation, as determined by CARB pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.” (Pub. Resources Code Section 21183(c).) As of this writing, all AB 900 projects submitted to CARB and the Governor for certification use a project life of 30 or fewer years when calculating GHG emissions reductions.²⁰

2. The Project Site is located in the San Diego Air Basin and is under the jurisdiction of the San Diego Air Pollution Control District (SDAPCD). However, the SDAPCD does not provide guidance on the subject of mitigation periods for GHG emissions. Therefore, reference was made to the guidance of the neighboring air district, the South Coast Air Quality Management District (SCAQMD), which supports using a 30-year project life to analyze a project’s GHG emissions under CEQA, as more fully explained below.²¹

SCAQMD generally authorizes the use of a 30-year project life to calculate GHG emission offsets in the CEQA mitigation context for land use development. More specifically, in conjunction with its development of GHG emissions significance thresholds for application in the CEQA context, SCAQMD identified a 30-year project life offset criterion after multiple stakeholder working group meetings. SCAQMD recommended this specific project life because: “... the 30-year life of credits is based on a standard 30-year economic life of a project (equipment, etc.) and the SCAQMD is looking at that time period as a default time period. Other shorter options, such as equipment permitted for a shorter time period, would be considered and evaluated on a project-by-project basis.”²²

SCAQMD folded this 30-year project life into its recommendation for arriving at GHG emissions reduction measures, stating: “... the lead agency would quantify GHG emissions from the project and the project proponent would implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level. In addition, the project proponent would be required to provide offsets for the life of the project, which is defined as 30 years.”²³

In December 2008, SCAQMD’s Board adopted the staff-recommended interim GHG significance threshold for stationary source/industrial projects where the air district is the CEQA lead agency;

²⁰ The cited documentation for the referenced AB 900 projects is located at <http://www.opr.ca.gov/ceqa/california-jobs.html>.

²¹ SCAQMD is principally responsible for comprehensive air pollution control in the South Coast Air Basin, which includes portions of Los Angeles, Riverside and San Bernardino counties and all of Orange County.

²² SCAQMD, Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group Meeting #6 (October 22, 2008), p. 4; see also ICF International Technical Memorandum, Appendix B, Summaries of Working Group Meetings, Figure B-3, Proposed Tiered Decision Tree Approach, at p. B-10 (Jul. 30, 2008) [“Offsets provided for 30-year project life, unless project life limited by permit, lease, or other legally binding conditions.”].

²³ SCAQMD, Draft Guidance Document – Interim CEQA GHG Significance Threshold, Attachment E, pp. 3-16 (Oct. 2008); see also id., Figure 3-1, p. 3-11 and Table 3-4, pp. 3-18. Also of note, SCAQMD recognized that a shorter project life (i.e., less than 30 years) can be appropriate for use in modeling under certain circumstances. (See id., Figure B-3, pp. B-10.)

that threshold uses a 30-year project life for modeling purposes and for determining required mitigation. SCAQMD's Board was not asked to take final action on the significance evaluation framework developed by staff for residential and commercial projects, due to the need for further work efforts related to CARB's then-pending interim GHG proposal. However, SCAQMD's documentation does not discriminate between project type (industrial vs. residential/commercial) for purposes of delineating the project life criterion. Instead, like in the industrial/stationary source context, the mitigation offsets criterion for residential/commercial projects also applies to a 30-year project life.

3. A 30-year project life is widely used in CEQA documents by expert consultants and lead agencies—including San Diego County, the local land use agency with jurisdiction over the Project site—for analyzing a project's GHG emissions under CEQA. It is industry practice to amortize construction emissions for residential and commercial projects over a 30-year period, which corresponds to the assumed operational life of such projects. This standard practice is not limited to the County of San Diego, but rather is used by lead agencies and expert consultants across California. Examples include:
 - Certified Final EIR for the Otay Ranch University Villages Project (SCH No. 2013071077; November 2014), Lead Agency: City of Chula Vista, GHG Consultant: Dudek, Global Climate Change Section at pages 5.14-21 and 5.14-24 (available at: <http://www.chulavistaca.gov/home/showdocument?id=8453>);
 - Draft EIR for the Qualcomm Stadium Reconstruction Project (SCH No. 2015061061; August 2015), Lead Agency: City of San Diego, GHG Consultant: AECOM, Greenhouse Gas Emissions Section at pages 4.5-14, 4.5-16 and 4.5-19 (available at: <https://www.sandiego.gov/sites/default/files/legacy/cip/pdf/stadiumeir/chap4.pdf>);
 - Certified Final EIR for the 333 La Cienega Boulevard Project (SCH No. 2016011061; September 2016), Lead Agency: City of Los Angeles, GHG Consultant: ESA, Initial Study at pages B-42 to B-43 (available at: <http://planning.lacity.org/eir/333LaCienaga/files/Appendix%20A-1%20-%20Part%201%20Initial%20Study.pdf>);
 - Initial Study/Mitigated Negative Declaration for the Oakland Airport Perimeter Dike FEMA and Seismic Improvements Project (SCH No. 2015092045; September 2015), Lead Agency: Port of Oakland, GHG Consultant: URS, page 3-40 (available at: http://www.portofoakland.com/files/PDF/environment/Airport_Public_Draft_IS_MND.pdf);
 - Certified Final EIR for The Landing at Walnut Creek Apartments Project (SCH No. 2013092048; May 2014), Lead Agency: City of Walnut Creek, GHG Consultant: The Planning Center I DC&E (PlaceWorks), Greenhouse Gas Emissions Section at pages 4.7-14 and 4.7-15 (available at: <http://www.walnut-creek.org/home/showdocument?id=3000>); and,
 - Certified Final Additional Environmental Analysis for the Newhall Ranch RMDP/SCP Project (SCH No. 2000011025, June 2017), Lead Agency: CDFW, GHG Consultants: Ascent Environmental, Inc. and Ramboll Environ, Global Climate Change/Greenhouse Gas Emissions Section at pages 2.1-20 through 2.1-22 (available at: <https://www.wildlife.ca.gov/regions/5/newhall>).
4. Executive Order (EO) S-3-05 established 2050 as the target year for an 80 percent reduction in statewide GHG emissions below 1990 levels. The regulatory framework needed to achieve this target requires transforming the State's transportation, energy, and industrial sectors. As such, the

future GHG emission profiles for these sectors are not generally known. And, modeling emissions significantly beyond 2050 requires speculation about GHG emissions that are not knowable or known.

Here, the Project’s mitigation period under mitigation measure M-GHG-3 is 30 years. Because the mitigation obligation is subject to phased implementation, based on the incremental portion of development associated with each Site Plan and its corresponding building permits, the mitigation period extends beyond 2050 for Site Plans with corresponding building permits that are issued later in the Project’s construction schedule. For example, the anticipated build-out year of the project is 2030. If any building permits for implementing Site Plans are issued in 2030, the mitigation period for the associated buildings would extend to 2059.

Based on information provided above regarding regulatory input and modeling parameter limitations for post-2050 emissions estimates, a 30-year project life (that extends beyond the target year established by the referenced EO) has been established as the period of time for which GHG emissions can be reasonably estimated without undue speculation.

5. The modeling analysis likely overestimates the Project’s GHG emissions because the modeling does not take into account reasonably foreseeable regulatory programs and other governmental strategies and technological factors that likely would result in further reductions in GHG emissions levels throughout California that are needed to achieve the State’s 2030 and 2050 GHG reduction targets. Those future policies, regulations and programs are not yet adopted and their precise parameters are unknown at this time.²⁴ Because of these uncertainties, predicting, with quantified precision, key variables and inputs affecting long-range GHG emissions forecasts beyond the 30-year period requires speculation, contrary to CEQA Guidelines Section 15145. The inherent uncertainties are reflected in available GHG emissions modeling tools, which are limited to the integration of existing regulatory and technological standards.

In using the 30-year project life, the County recognizes that the residential and non-residential development facilitated by the Project could continue to exist for more than 30 years. During and after the 30-year project life period, the Project would be subject to a range of existing and future regulatory standards and policies applicable to the built environment. Indeed, California is expected to implement numerous additional policies, regulations and programs to reduce statewide emissions to achieve the GHG reduction goals of SB 32 and EO S-3-05. The County has exercised its discretion to determine that a 30-year project life is reasonable and supported by the substantial evidence discussed below.

Also of note, in a decision issued on December 19, 2018 (see *Friends of the Santa Clara River et al. v. County of Los Angeles* [Case No. BS 170568]), the Los Angeles County Superior Court found that a 30-

²⁴ CARB’s 2017 Climate Change Scoping Plan incorporates the “Cleaner Technology and Fuels Scenario” of CARB’s *Mobile Source Strategy* (May 2016), which is based on the assumption that the combined car and light trucks sales of zero emission vehicles and plug-in hybrid electric vehicles will reach 100 percent by 2050. (*Mobile Source Strategy*, p. 36.) On page 65 of the *Mobile Source Strategy*, CARB similarly observes that: “The updated Vision analysis shows the vast majority of the on-road fleet must be ZEVs and PHEVs by 2050 in order to meet GHG targets, requiring sales to achieve nearly 100 percent ZEVs (BEVs, FVCs, and PHEVs combined) by that point.” Therefore, CARB, with the contemplated amendment of its Advanced Clean Cars regulation described in the *Mobile Source Strategy*, is striving to ensure that 5.3 million combined ZEVs and PHEVs statewide are on California’s roadways in 2050. (*Mobile Source Strategy*, p. 65.)

The referenced “Vision analysis” is based on a multi-pollutant scenario planning tool that quantifies changes in criteria air pollutants (and their pre-cursors), GHG emissions, toxic air contaminants and petroleum usage as various technologies become widespread in vehicle and equipment fleets. (*Mobile Source Strategy*, p. 6.)

year period for the mitigation of operational GHG emissions via carbon offsets is supported by substantial evidence. The Superior Court cited evidence in the record of proceedings before it concerning reasonable scientific limits; the parameters of available modeling tools; the changing regulatory structure and post-2050 uncertainties; and, the use of the same temporal period by other expert agencies, including CARB and SCAQMD, as well as multiple CEQA lead agencies. The referenced decision is included in Attachment RO6.1 of these Responses to Comments. While the Superior Court’s decision in that matter is not citable precedent in a legal context, was appealed and is currently being considered by California’s Second District Court of Appeal, Division Five (see Case No. B296547), the petitioners in that case have not challenged the Superior Court’s decision relative to any GHG issues, including the 30-year mitigation period.

In summary, and in accordance with the authority established by CEQA Guidelines Section 15064.4(a)(1), the choice of a 30-year project life is consistent with established modeling frameworks used in CEQA analysis and the available scientific and evidentiary information. Each of these five grounds independently substantiates the 30-year period set forth in mitigation measure M-GHG-3. They provide the substantial evidence needed for the County to develop project-specific methods in accordance with CEQA Guidelines Section 15064.4(a)(1). Given the use and endorsement of a 30-year project life method by multiple experts in the field (i.e., CARB, SCAQMD, the County of San Diego, and other lead agencies and GHG consultants), as well as the speculation required to estimate post-2050 GHG emissions and the embedded conservatism of the Project’s GHG emissions inventory data, the 30-year mitigation period is appropriate, reasonable, and supported by substantial evidence.

Scientific Attributes of GHG Emissions and Global Climate Change

While the EIR’s recommended mitigation framework includes a locational preference criterion, the County also notes that GHG emissions result in a global, cumulative impact. This has been acknowledged by the California Supreme Court in *Center for Biological Diversity et al. v. California Department of Fish and Wildlife* (2015) 62 Cal. 4th 204. In that decision, the Supreme Court stated that:

“First, because of the global scale of climate change, any project’s contribution is unlikely to be significant by itself … With respect to climate change, an individual project’s emissions will most likely not have any appreciable impact on the global problem by themselves, but they will contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe … Second, the global scope of climate change and the fact that carbon dioxide and other greenhouse gases, once released into the atmosphere, are not contained in the local area of their emission means that the impacts to be evaluated are also global rather than local.”

The County also notes that, unlike criteria pollutants where individual districts are characterized by varying levels of pollutant concentrations and source types, GHGs and their attendant climate change ramifications are a global problem (CAPCOA 2008). Climate change is a global phenomenon in that all GHG emissions generated throughout the earth contribute to it; the action of GHGs is global in nature, rather than local or regional (or even statewide or national) (CAPCOA 2008). Thus, it logically follows that *mitigation* for such impacts also does not depend on – and need not take place – where the GHG is emitted.

Former County Board Supervisor Ron Roberts, who also served for many years as a California Air Resources Board member and was well-versed in climate change issues as a result of his position with CARB, made this same point during the February 14, 2018 Board hearing regarding the CAP:

[GHG] is not the same as air quality. Air quality is a localized issue … But fundamentally, [GHG] is different. If I can reduce [GHG] emissions on the North Pole, then just as good for the planet. It doesn’t make a difference. I need to be able to verify that I’m actually

getting real reductions. Don't know that there's many emissions on the North Pole, so it's probably not a good example, but I keep hearing it's got to be done in San Diego County. The priority should be get it done, period. If we can go to Imperial County and we can develop a [carbon offset] program with people – the farmers in Imperial County, do it. As long as it's verifiable, we can certify, and we can – we know it's sustainable.

(Transcript of February 14, 2018 Board of Supervisors meeting, pages 125-126.)

Accordingly, geographical limits to mitigation options do not align with the science and understanding of GHGs and the global, cumulative nature of GHG emissions. When considered in relation to the state of climate science, one metric ton of GHG emitted in San Diego, California has the same impact on global climate change as one metric ton of GHG emitted in London, England. Likewise, the elimination of one ton of GHG in London (or anywhere else in the world) produces the same mitigation benefit *locally* as the elimination of one ton of GHG in San Diego. As all GHG emissions generated throughout the earth contribute to climate change, a reduction in GHG emissions on earth would offset the generation of GHG emissions and their contribution to climate change regardless of geographic location.

Implementation of Feasible Project Design Features Prior to Reliance on Carbon Offsets

Some comments state that the proposed Project should include additional project design features and incorporate other mitigation measures before relying on the purchase of carbon offsets to reduce GHG emissions. The County does not concur because: (i) CEQA does not impose geographical constraints on the identification of feasible mitigation strategies and (ii) the Project incorporates numerous on-site EDCs and the EIR recommends numerous on-site mitigation measures that reduce the major components of the Project's GHG emissions profile to the extent feasible *before* pivoting to the use of off-site carbon offsets to allow for attainment of a net zero emissions level. The Project's EDCs and mitigation measures were developed based on a review of reduction strategies recommended by GHG experts (such as CARB) and refined in response to public comment. The evidence and analysis supporting this conclusion is summarized further below.

To begin, CEQA provides lead agencies with discretion to formulate feasible mitigation measures for the reduction of GHG emissions. Specifically, CEQA Guidelines Section 15126.4(c) addresses the mitigation of GHG emissions and provides a non-exclusive list of potentially feasible mitigation concepts for consideration by lead agencies and project proponents. CEQA Guidelines Section 15126.4(c) does not establish a hierarchy of allowable mitigation options – there are no limits imposed on the geographic or locational attributes of the mitigation options, and there is no imperative to secure additional on-site reductions before utilizing carbon offsets.

As background, CEQA Guidelines Section 15126.4(c) was adopted by CNRA at the conclusion of the rulemaking processes mandated by SB 97 (Dutton, 2007; see also Pub. Resources Code, §21083.05) and became effective in March 2010. On page 50 of the CNRA's *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97* (December 2009), CNRA expressly rejected invitations to establish any sort of mitigation hierarchy for GHG emissions in CEQA Guidelines Section 15126.4(c):

“Several comments, for example, suggested that the Guidelines provide a specific ‘hierarchy’ of mitigation requiring lead agencies to mitigate GHG emissions on-site where possible, and to allow consideration and use of off-site mitigation only if on-site mitigation is impossible or insufficient. OPR and the Resources Agency recognize that there may be circumstances in which requiring on-site mitigation may result in various co-benefits for the project and local community, and that monitoring the implementation of such measures

may be easier. However, CEQA leaves the determination of the precise method of mitigation to the discretion of lead agencies.”

When discussing how local governments can support climate action through CEQA, on page 102 of *California’s 2017 Climate Change Scoping Plan* (November 2017), CARB “recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project’s region that contribute potential air quality, health, and economic co-benefits locally.” On that same page, CARB recognizes that “[w]here further project design or regional investments are infeasible or not proven to be effective,” it also “may be appropriate and feasible to mitigate project emissions through purchasing and retiring carbon credits.” As such, much like the framework established in CEQA Guidelines Section 15126.4(c), CARB recognizes the utilization of a portfolio-based approach in the development and selection of feasible mitigation measures for the reduction of GHG emissions, while simultaneously recommending the prioritization of GHG emissions-reducing strategies in a project’s vicinity due to the corresponding economic and air quality co-benefits. Consistent with this, as discussed above, CARB does not mandate that AB 900 projects limit their utilization of offsets to those that have a local origin.

Here, the proposed Project would utilize a portfolio-based approach that includes on-site EDCs and on-site mitigation measures to reduce Project emissions by approximately 15 percent and, to achieve net zero emissions, carbon offsets. The on-site EDCs and on-site mitigation measures considered in Section 2.10, Global Climate Change, of the 2019 Recirculated Portions of the Draft EIR include:

- An EDC to prohibit wood-burning fireplaces and only permit natural gas fireplaces;
- An EDC to provide curbside recycling in residential and non-residential development areas;
- An EDC to implement the Water Conservation Plan, which would reduce outdoor water usage by 30 percent when compared to existing outdoor water usage for typical residential homes;
- Transportation Demand Management (TDM) strategies (M-GCC-1);
- Beyond code, high-efficiency lighting in multi-family homes and non-residential buildings (M-GCC-2);
- EnergyStar appliances in multi-family homes and non-residential buildings (M-GCC-3);
- Zero Net Energy single-family residences (M-GCC-4);
- Beyond code building design efficiencies in multi-family homes and non-residential buildings (M-GCC-5); and,
- Zero emission vehicle charging infrastructure in residential and non-residential areas (M-GCC-6).

The EIR conservatively accounts only for GHG emission reductions that are readily quantifiable, even though all EDCs and mitigation measures – whether or not strictly quantifiable – are required. Thus, it is notable that the EIR likely underestimates the amount of GHG emissions reductions achieved by the Project with its internal, on-site GHG-reducing strategies.

In summary, this approach to GHG reduction and mitigation strategies results in net zero GHG emissions through enforceable tiers of reduction strategies. The Project firstly would implement feasible EDCs and mitigation measures to avoid GHG emissions on-site, along with transportation features to reduce vehicle-related emissions. However, it is not possible or feasible to reduce GHG emissions to net zero using exclusively on-site reduction strategies. The proposed Project – like all residential development – necessarily results in carbon emissions associated with construction activities and the existence of future residents. On-site design features can *minimize* these associated GHG emissions through built-in energy efficiencies and designs that shift transportation decisions, but these designs cannot reduce construction

emissions and each future residence's carbon footprint to zero. Carbon offsets are, therefore, a critical tool to create offsetting reductions off-site where various factors otherwise prevent reduction activities.

Accordingly, to reduce GHG emissions to net zero, mitigation measures M-GCC-7 and M-GCC-8 would require the Project to purchase carbon offsets reducing emissions to net zero. As discussed above, carbon offsets are effective wherever the offset project is located because the environmental consequence of GHG emissions is not localized. Nevertheless, and while not required by CEQA, the mitigation measures impose locational prioritization standards. Under M-GCC-7 and M-GCC-8, the locational standards would be implemented and enforced at the implementation stage because it is not practical to pre-determine the availability of offsets from each location; offset projects are being continuously developed and may arise between Project approval and implementation. Further, while these locational standards are not scientifically necessary to the effectiveness of the mitigation and are not otherwise mandated, the EIR recommends them and they help support local and regional offset projects to the extent they are feasible and available. This strategy to mandate offsets from expanding locations in tiers ensures that *all* feasible measures are used to satisfy the proposed Project's commitment to net zero.

The Use of Carbon Offsets Is Not Inconsistent with the County's General Plan

Commenters have questioned whether the proposed Project's use of carbon offsets that are not associated with San Diego County-based, offsets-generating projects is consistent with the County's General Plan, and specifically Goal COS-20 and Policy COS-20.1 therein. However, as provided below (and as discussed in **Appendix E-1** of this EIR, which contains a tabular assessment of the Project's consistency with the General Plan), the proposed Project's mitigation framework is consistent with the General Plan because it reduces Project-related GHG emissions beyond a level necessary to align with the statewide reduction targets established by AB 32 and SB 32.

As background, the subject Goal and Policy are set forth below, with underline/strikeout text used to illustrate the modifications to the subject text made by the County in concert with its February 2018 adoption of its Climate Action Plan (see Global Response: County of San Diego Climate Action Plan).

Goal COS-20 (Governance and Administration)

Reduction of local community-wide (i.e., unincorporated County) and County Operations GHG greenhouse gas emissions contributing to climate change that meet or exceed requirements of the Global Warming Solutions Act of 2006, as amended by Senate Bill 32 (as amended, Pavley, California Global Warming Solutions Act of 2006: emissions limit).

Policy COS-20.1 (Climate Change Action Plan)

Prepare, maintain, and implement a climate change action plan with a baseline inventory of GHG emissions from all sources; GHG emissions reduction targets and deadlines, and environmental GHG emissions reduction measures. Climate Action Plan for the reduction of community-wide (i.e., unincorporated County) and County Operations greenhouse gas emissions consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15183.5.

As to Goal COS-20, the Goal envisions a reduction of GHG emissions associated with activities within the County's control (community-wide activities and County operations). The Goal does not specify how reductions must occur, prohibit certain types of reduction strategies, or mandate project-specific reduction requirements. For the reasons discussed above, and below, an offset is an effective method to reduce GHG emissions contributing to global climate change.

Instead of placing limits on GHG reduction tools, Goal COS-20 and Policy COS-20.1 more plainly express the County’s commitment to reduce GHG from emissions-generating activities under the County’s jurisdiction (i.e., those activities located in the unincorporated areas and those activities associated with County government operations). Goal COS-20 and Policy COS-20.1 also express the County’s commitment to reduce emissions at a level that meets or exceeds the requirements of the Global Warming Solutions Act (AB 32), as amended by SB 32, which, together, establish statewide GHG reduction targets for 2020 and 2030.

Significantly, Goal COS-20 is expressly linked to the operative legislation for the establishment of statewide GHG reduction targets – AB 32 and SB 32.²⁵ The County purposefully linked its Goal to this legislation to ensure it would have all tools available from the State to reduce GHG emissions. One such tool is the use of offsets. Consistent with the referenced legislation, numerous State laws and policies support the use of out-of-County offsets, examples of which are summarized in abbreviated form below:

- CEQA Guidelines section 15126.4(c), developed in concert by the California Natural Resources Agency and Governor’s Office of Planning and Research, allows for the use of offsets to mitigate GHG and imposes no geographic hierarchy or restrictions on available GHG mitigation tools.
- CARB most recently recommended the use of offsets as a potentially feasible mitigation measure for project-level CEQA analysis in Appendix B of its 2017 Scoping Plan, which was developed and approved by CARB in furtherance of attaining SB 32’s 2030 statewide reduction target. While CARB expressed a preference for in-State reduction opportunities, CARB – the State agency responsible for California’s climate change laws and policies – does not impose hardline geographic limitations on the tools and methods for reducing GHG emissions.
- CARB has determined that AB 900 projects (which are designated “environmental leadership development projects” under CEQA and subject to judicial streamlining (see Pub. Resources Code, §§21178-21189.3)) can achieve the statutorily-mandated no net increase GHG level through the purchase of offsets without imposing rigid, quantitative limits on the locational attributes of such offsets. While more recent AB 900 projects have committed to a preference for local reduction opportunities (using verbiage similar to that used by the County), no quantitative mandates are associated with that preference and the ultimate portfolio of procured carbon offset credits is subject only to feasibility principles. (See **EIR Appendix C-26, Survey of Local Performance Standards Used by AB 900 Projects**, for additional details on CARB’s standards.)
- AB 32 and SB 32, as codified in the Health & Safety Code (see, e.g., Health & Saf. Code, §38505(k)), specifically support the use of market-based compliance mechanisms, such as transactions in offsets. As such, in promulgating its Cap-and-Trade Program for stationary sources under AB 32, CARB allows regulated entities (which typically are large stationary source emitters, like fuel refineries) to achieve a portion of their GHG reductions through the use of non-local offsets.²⁶

²⁵ Policy COS-20.1 is intended to “assist the County as it makes decisions relating to each goal and indicates a commitment by the County to a particular course of action.” (General Plan, page 1-5.) As such, like Goal COS-20, Policy COS-20.1 should be interpreted and implemented via reference to the cited legislation.

²⁶ Carbon offsets purchased by the proposed Otay Ranch Resort Village would be from the voluntary marketplace (because the project is not a regulated entity covered by and subject to CARB’s Cap-and-Trade Program). The County notes that entities regulated by the Cap-and-Trade Program have direct operational control of the long-term GHG emissions from the source profile, whereas land use developers do not have continuing control and authority over many (if not all) of the sources (e.g., homeowners decide when to turn appliances on and off; business owners decide their hours of operation). The County further notes that covered entities (e.g., fuel refineries) regulated

- The California Department of Fish and Wildlife, with the support of CARB, approved the Newhall Ranch project, which relies on non-local GHG reduction opportunities to achieve net zero GHG emissions from a large-scale (more than 20,000 residential units and 9 million square feet of nonresidential development) planned community.

The absence of any absolute prohibition on the use of international offsets also is consistent with the policy and intent underlying the Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998), which recognizes that developed countries (like the United States) should provide resources, financial and otherwise, that enable the abilities of developing countries to reduce GHG emissions and adapt to the effects of climate change.

The interpretation of the General Plan offered by some commenters is unsupported by a plain reading of the Goal, is not consistent with the intent of the County (including its Board of Supervisors) when developing and adopting the Goal and is not scientifically supportable given the global nature and implications of climate change. If the County had intended to mandate only local reductions be used as CEQA mitigation measures, the Goal would have mentioned CEQA and read: “Local reduction of ...;” but, it does not.

Particularly in the scientific realm of global climate change, such an interpretation of the Goal is over-broad and unsupported. In fact, both COS-20 and the 2011 GPU PEIR mitigation specifically refer to AB 32, the Global Warming Solutions Act, and global warming in general (2011 GPU EIR pages S-20, 2.17-1 et seq., and 7-80; 2011 GPU pages 5-31-33, 38). Further, GHG emissions are a global, cumulative impact, as discussed above.

An interpretation of Goal COS-20 that requires exclusively local reductions also is not consistent with CARB’s *California’s 2017 Climate Change Scoping Plan* (which recognizes and affirms the use of nonlocal reduction opportunities) or its review of AB 900 projects (which have not been conditioned to mandate the exclusive use of local reductions, the Cap-and-Trade Program (which allows regulated entities to achieve a portion of their GHG reductions through the use of non-local offsets), the California Department of Fish and Wildlife’s approval of the Newhall Ranch project (which also relies on non-local GHG reduction opportunities to achieve net zero GHG emissions), and the policy principles of the Kyoto Protocol (which encourage the investment of GHG reduction programs in developing nations).

The Goal must also be read in the context of the policies that guide its implementation. As background, the relationship between Goals, Policies, and Implementation Measures is described in the County of San Diego General Plan on pages I-5 and I-6:

- Goals describe ideal future conditions for a particular topic, such as town centers, rural character, protection of environmental resources, traffic congestion, or sustainability. Goals tend to be very general and broad.

by the Cap-and-Trade Program are not required to achieve a net zero GHG emissions level. Rather, such entities are subject to a declining GHG emissions cap that gradually and incrementally reduces emissions from the regulated emissions-generating activities (see https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf). Covered entities are permitted to emit a certain, positive quantity of GHG emissions, unlike the proposed Project, which would achieve a net zero GHG emissions level in order to avoid a cumulatively considerable contribution to global climate change. These important distinctions between the Cap-and-Trade Program’s covered entities and the proposed Otay Ranch Resort Village are important factors to be considered when designing the Project EIR’s framework for the reduction of GHG emissions.

- Policies provide guidance to assist the County as it makes decisions relating to each goal and indicates a commitment by the County to a particular course of action. The policy is carried out by implementation measures. While every effort has been made to provide clear and unambiguous policies, the need for interpretation will inevitably arise. The authority of interpretation lies with the County and will be enacted through its implementation measures and decisions. Therefore, the Implementation Plan should be reviewed for a complete understanding of each policy.
- Implementation Measures, adopted by the County in a separate Implementation Plan, identify all the specific steps to be taken by the County to implement the policies. They may include revisions of current codes and ordinances, adoption of plans and capital improvement programs, financing actions, and other measures that will be assigned to different County departments after the General Plan is adopted.

The General Plan’s policies, operating as policy guidance, guide the County’s policy efforts to achieve the ideal future conditions envisioned in the goal. These policies frame the intent and vision for implementation of a goal. For Goal COS-20, the General Plan does not set forth policies envisioning direct application to individual projects, but rather policies envisioning changes to County operations and the creation of applicable plans: Policy COS-20.1 directs the County to implement a Climate Action Plan; Policy 20.2 directs the County to establish and maintain a program to monitor GHG emissions from various sources for a review of effective GHG-reducing strategies; COS-20.3 directs the County to coordinate with other jurisdictions; and COS-20.4 directs the County to provide education and assistance on the importance and approaches for reductions to GHG emissions.

These Policies are not applicable to individual projects (like the proposed Project). As to Policy COS-20.1, it pertains to a jurisdictional responsibility of the County of San Diego and applies to the County’s development of a Climate Action Plan. For the reasons set forth in Global Response: County of San Diego Climate Action Plan, the proposed Project does not use, tier from, or rely on, the County’s 2018 Climate Action Plan (or its mitigation), which is the subject of pending litigation. Regardless, CEQA Guidelines Section 15064.4 does not require that the County use a climate action plan to evaluate the environmental significance of a project. Rather than rely on consistency with a climate action plan as a significance criteria, the analysis presented here conservatively treats any increase in GHG emissions as a cumulatively considerable impact of the proposed Project, which is supported by the 2017 Scoping Plan. The proposed Project is required to implement all feasible mitigation to reduce the impact to less than significant. As discussed above, offsets are a feasible mitigation measure and therefore the County must require the Project to purchase offsets under CEQA.

Subsequent to adoption of the County’s General Plan in 2011, and since 2013, the County has permitted land use development projects to offset their GHG emissions by purchasing offsets.²⁷ This practice was followed when the Board approved the Soitec solar project (an AB 900 project) in February 2015; the Park Circle, Sweetwater Place, and Sweetwater Vistas projects in the fall of 2017; and the Lake Jennings Marketplace project in January 2018. All of these approvals occurred prior to the County’s adoption of its Climate Action Plan in 2018, and the related amendments to Goal COS-20 and Policy COS-20.1. These were not ad hoc decisions or applications of an unarticulated policy. Rather, these project approvals

²⁷ The County’s 2013 *Guidelines for Determining Significance and Report Format and Content Requirements for Climate Change* (“Climate Change Guidelines”) which expressly allowed offsets as mitigation for GHG impacts and identified a number of County-sanctioned offset registries, all of which offer out-of-County, out-of-state, and international offsets. Although the 2013 Climate Change Guidelines were later set aside as part of the 2012 CAP litigation, they nevertheless demonstrate that the County, since at least 2013, intended to include out-of-County offsets as one of the mitigation tools available to reduce GHG emissions within the County’s jurisdiction.

demonstrate that the Board has consistently interpreted Goal COS-20 and Policy COS-20.1, in their original form, to allow out-of-County offsets and intended that such offsets be included in the array of GHG reduction tools available to the County.

In any case, even if Goal COS-20 is erroneously interpreted as requiring reductions through local measures only, the Project is consistent with the goal. As discussed above, the Project incorporates all feasible on-site measures to reduce GHG emissions. After exhausting feasible on-site measures, the Project would have GHG emissions that would be required to be offset. Mitigation measures M-GCC-7 and M-GCC-8 require that the County and Project follow and enforce a geographic priority system with respect to the purchase of carbon offsets, with the highest level of priority afforded to local offsets. As discussed above, this priority system is enforced at the implementation stage based on the availability of offsets at that time. These measures require the Project to exhaust all feasible and available offset opportunities from the higher priority geographic category before utilizing offsets from the next category.

Thus, while this priority system is Project-specific and not otherwise mandatory, it is consistent with the preferences expressed by some commenters to maximize localized reductions and local offsets. Further, given that an infeasibility determination is necessary to utilize offsets from a lower locational priority, the Project's use of a lower locational priority beneficially replaces a determination that further mitigation is infeasible.

In the context of global climate change, this structure provides the necessary hardline goal and policy flexibility necessary to address the multi-faceted and inter-related tools to reduce overall GHG emissions. Project-level consistency must accordingly be measured by the project's consistency with the County's plans and operations as directed through General Plan Policies COS-20.1 through 20.4.

Attachment GR.R1.1

California Environmental Protection Agency
Air Resources Board

**Proposed Regulation to Implement
the California Cap-and-Trade Program**

PART I
Volume I

Staff Report: Initial Statement of Reasons

Release Date: October 28, 2010

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State of California
California Environmental Protection Agency
AIR RESOURCES BOARD
Office of Climate Change

**STAFF REPORT: INITIAL STATEMENT OF REASONS
PROPOSED REGULATION TO IMPLEMENT
THE CALIFORNIA CAP-AND-TRADE PROGRAM**

PART I
Volume I

**Public Hearing to Consider the Proposed Regulation
to Implement the California Cap-and-Trade Program**

Date of Release: October 28, 2010
Scheduled for Consideration: December 16, 2010

Location:

California Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

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Executive Summary

Background

Climate change is one of the most serious environmental threats facing the world today, and California is already feeling its effects. The goal of the California Global Warming Solutions Act of 2006 (AB 32, Nuñez, Chapter 488, Statutes of 2006) is to reduce greenhouse gas (GHG) emissions in a cost-effective manner. The California *Climate Change Scoping Plan* lays out a comprehensive program to scale back our greenhouse gas emissions to 1990 levels by 2020, reduce our dependence on fossil fuels, stimulate investment in clean and efficient technologies, and improve air quality and public health. Achieving these goals is best accomplished through a coordinated set of programs that employ strategies tailored to specific needs, including market-based compliance mechanisms, performance standards, technology requirements, and voluntary reductions.

The cap-and-trade program is a key element of this overall strategy. It creates a limit on the emissions from sources responsible for 85 percent of California's GHG emissions, establishes the price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy, and affords covered entities flexibility to seek out and implement the lowest-cost options to reduce emissions. The cap-and-trade program is designed to work in concert with other measures, such as standards for cleaner vehicles, low-carbon fuels, renewable electricity and energy efficiency. The program will also complement and support California's existing efforts to reduce criteria and toxic air pollutants.

The cap-and-trade program and the broader Scoping Plan effort provide a model for action that can be taken at the federal level and by other states individually and through regional action. By moving forward, California is both positioning our economy to benefit as climate action is taken internationally and catalyzing action throughout the country and the world.

The California cap-and-trade program has been designed to be part of a regional trading system. The program design allows linkage with programs established by partner jurisdictions in the Western Climate Initiative (WCI) to create a regional market system. The goal of the regional program is to enhance individual jurisdictions' actions through collective action to reduce GHG emissions. On par with California, the regional cap-and-trade program would cover sources that encompass nearly 90 percent of the region's emissions.

Linking with programs established by our WCI partners has several advantages for California. The reduction of greenhouse gas emissions that can be achieved collectively by the WCI partner jurisdictions are almost double what can be achieved through a California-only program. The broad scope of a WCI-wide market will also provide greater flexibility to California businesses by offering a wider range of emissions reduction opportunities and greater market liquidity.

This report presents staff's basis and rationale for the proposed regulation to establish the California Cap-and-Trade Program. Staff developed this proposed regulation to advance California's GHG reduction goals, as required by AB 32. This regulation was developed through an extensive public process involving multiple stakeholders; local, state, and federal agencies; and the public.

Cap-and-Trade Program Objectives

In the cap-and-trade program, ARB will place a limit, or cap, on GHG emissions by issuing a limited number of tradable permits (called *allowances*) equal to the cap. Over time, the cap will steadily decline. The cap is enforced by requiring each source that operates under the cap to turn in one allowance or offset credit for every metric ton of carbon dioxide equivalent (MTCO₂e) that it emits.

Because these allowances are tradable, individual emitters do not have specific emission limits. By establishing a limit for the program overall rather than for individual sources, the cap-and-trade program gives sources flexibility to make the most cost-effective choices about when and how to reduce emissions. The price of allowances will be established by the marketplace based on supply and demand. Allowance prices efficiently inform consumption and investment decisions and stimulate the development of new technological solutions that can enable lower-cost reductions now and in the future. For some in the program, implementing new, low-emitting technologies may be relatively inexpensive. Those participants will buy fewer allowances or sell surplus allowances to those that face higher costs. A participant will choose to buy more allowances when the cost of an allowance is lower than the cost of reducing its emissions. By giving participants a financial incentive to control emissions and the flexibility to determine how and when to do so through the ability to trade allowances, a three-year compliance period, and other provisions such the ability to bank allowances, emissions are reduced to the capped level while minimizing the cost of emissions reductions.

In addition to allowances, a limited number of credits for emissions reductions from sources that are outside the cap coverage, called *offsets*, can be used for compliance with the program. At the end of each compliance period, covered entities are required to turn in, or surrender, enough allowances and offsets to match their emissions during this time period.

Major Provisions of the Proposed Regulation

The following elements constitute the basic components of the proposed cap-and-trade program.

Scope

The cap-and-trade program will cover the major sources of GHG emissions in the State, including refineries and power plants, industrial facilities, and transportation fuels. Starting in 2012, the program will cover electricity generation,

including imports, and large industrial sources and processes with annual GHG emissions at or above 25,000 MTCO₂e. The program will expand in 2015 to include fuel distributors to address emissions from combustion of transportation fuels and combustion of natural gas and propane at sources not covered in the first phase of the program.

The proposed regulation addresses emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

The Cap

The limit on GHG emissions—the program “cap”—determines the environmental effectiveness of the cap-and-trade program. If the cap is not set at a stringent enough level to reduce GHG emissions, the emissions-reduction goal of the program may not be met even if all sources comply with the program requirements. Staff has designed the program to be sufficiently stringent to spur GHG emissions reductions to achieve AB 32 goals.

The program cap determines the number of total allowances issued by ARB. At the start of the program, ARB will issue allowances for each year consistent with the declining level of the cap. The initial cap level in 2012 will be set at the level of emissions expected in 2012 from sources covered at the start of the program. In 2015, the program scope expands to include the distributed use of fuels, and the cap increases to include emissions from those fuels based on the level of emissions expected in 2015 from the newly covered fuels. The cap will decline to a level in 2020 designed to ensure that emissions decline over time and California achieves the AB 32 GHG emissions target in 2020.

Allowance Distribution and Trading

ARB plans to distribute allowances through a mix of direct allocation and auction. At the beginning of the program, most allowances will be distributed for free to help provide a soft start for the program. The allocation system is designed to reward those who have taken early action and have invested in energy efficiency and GHG emissions reductions and will encourage continued investment in efficiency and clean energy in the future. Because the allowances can be traded, the program provides incentives for those with the most cost-effective reduction opportunities to reduce emissions quickly.

Covered entities are not the only entities that may hold and trade allowances in the cap-and-trade program. Other entities may be eligible to participate voluntarily in the program, including financial institutions, brokers, offset developers, and those who may want to voluntarily retire allowances. An entity that holds an allowance may surrender it to comply with its obligation under the regulation, bank it for future use, sell it to another entity, or ask ARB to retire it.

Because not all allowances will be distributed for free, the program includes creation of an auction system that will allow for broad participation and minimize opportunities for manipulation. Over time, the program will transition toward a greater reliance on auctioning, which will help maximize incentives for continued investment in clean and efficient technologies and provide revenue that can be reinvested for public benefit.

Cost Containment Mechanisms

The flexibility afforded by a cap-and-trade program helps ensure that the needed GHG emissions reductions are cost-effective. Key elements of the program have been designed to optimize cost-effectiveness, including: (1) three year compliance periods, which smooth year-to-year variations in emissions levels; (2) allowance banking, which allows participants to hold allowances and use them for compliance in a later period; (3) offsets, which offer additional low-cost emissions-reduction opportunities; and (4) the establishment of an allowance reserve account, which allows covered entities access to allowances at set prices as a hedge against higher costs. A key consideration in designing these cost-containment mechanisms is to reduce compliance costs without compromising the environmental goals of the program.

Reporting

The cap-and-trade program will rely on the Mandatory Reporting Regulation (MRR) as the primary mechanism for emissions reporting. Revisions to the MRR are being proposed by ARB staff concurrently with the proposed cap-and-trade regulation. These revisions are intended to align California's reporting requirements with the federal reporting rules recently enacted by the U.S. Environmental Protection Agency (U.S. EPA), and to ensure that the information collected by those covered by the cap-and-trade program is of sufficient quality to support the program.

Additional registration and reporting requirements are established in the cap-and-trade regulation for those who hold allowances or offset credits, and for other participants in the program, including offset registries and offset project developers. These requirements have been designed to ensure transparency and effective public disclosure while also minimizing the administrative burden on those covered by the regulation and on ARB staff.

Offsets

Under the cap-and-trade program, covered entities may use a limited amount of offset credits to satisfy a portion of their compliance obligation. Offsets are tradable credits that represent verified GHG emissions reductions made in areas or sectors not covered by the cap-and-trade program. One offset credit is equal to one metric ton of GHG emissions. In addition to providing compliance flexibility, the inclusion of offsets in the program will support the development of innovative

projects and technologies from sources outside capped sectors that can play a key role in reducing emissions both inside and outside California.

Offsets must meet rigorous criteria that demonstrate that the emissions reductions are real, permanent, verifiable, enforceable, and quantifiable. To be credited as an offset, the action or project must also be in addition to what is required by law or regulation or would otherwise have occurred. Under the California cap-and-trade program, ARB will adopt specific compliance protocols for different project types, and will issue or recognize offset credits based on those adopted protocols that can be used for compliance purposes.

Offset Protocols

ARB staff reviewed four offset protocols and recommends that they be approved by the Board as part of this regulatory package: (1) the Urban Forest Projects Protocol; (2) the U.S. Ozone Depleting Substances Projects Protocol; (3) the Livestock Manure (Digester) Projects Protocol; and (4) the U.S. Forest Projects Protocol. These protocols are based on those initially developed by the Climate Action Reserve (CAR) and its predecessor, the California Climate Action Registry (CCAR). The individual protocols are reviewed in Parts II through V of this rulemaking package, and each Part includes its own staff report and recommendations. To help ensure an adequate supply of high-quality offsets, staff anticipates that additional protocols will be reviewed and brought to the Board for consideration in 2011 and beyond.

Sector-Based Offset Credits

Achieving the goal of climate stabilization will require a commitment to work at the international level to reduce GHG emissions globally. Sector-based crediting can increase participation in international efforts to control GHG emissions and address concerns about competitiveness and emissions leakage. Sectoral crediting can mobilize private and public resources, enabling the host government to reduce GHG emissions and transition toward a low-carbon economy. California has been working with strategic partners in the forest and cement sectors to explore sectoral crediting approaches to international action. The proposed regulation anticipates future inclusion of sectoral credits based on continuing work with international partners.

Compliance and Enforcement

For each compliance period, each covered entity is required to surrender a sufficient number of compliance instruments (allowances and offset credits) to cover its total GHG emissions during that compliance period. A portion of the allowances must be provided annually, with the remaining allowances due following the end of the compliance period. Once allowances and offsets are surrendered they are permanently retired by ARB.

A robust enforcement program will play a vital role in the success of the cap-and-trade program by discouraging noncompliance and by deterring and punishing fraudulent activities. It also will play a vital role in the success of the cap-and-trade program by discouraging gaming of the system and by deterring and punishing fraudulent activities. Staff designed the proposed regulation to remove any financial incentive for noncompliance by requiring that additional allowances be surrendered for excess emissions not covered by the compliance deadline. Staff will also ensure that the requirements are enforced fairly, and that the enforcement process is transparent.

Linkage to Other Greenhouse Gas Emissions Trading Systems

Linkage involves the reciprocal acceptance of compliance instruments issued by another system. The proposed regulation includes a framework for California to link its cap-and-trade program to other emissions trading systems of similar scope and rigor. Linkage can expand the coverage of the cap-and-trade program to include emissions-reduction opportunities for sources covered in another program.

Staff has designed the cap-and-trade program to allow California to link with the programs developed by WCI Partner jurisdictions that are consistent with the WCI Detailed Program Design. The proposed cap-and-trade regulation does not currently include linkage to other programs, though staff anticipates bringing recommendations to the Board in 2011 for possible linkage with the programs being developed by the four other WCI Partners that are currently working to implement programs by January, 2012: New Mexico, British Columbia, Quebec, and Ontario. Each program will undergo a case-by-case analysis by staff as part of a formal rulemaking process, and the Board will need to approve regulatory amendments reflecting the linkage with a particular program before it can take effect.

Program Monitoring

ARB will closely monitor whether, over time, the cap-and-trade program is meeting the objectives set forth in AB 32. These objectives include beneficial outcomes that should be maximized and adverse consequences that should be minimized or avoided. Much of the monitoring information ARB will need is collected as a part of normal program management, such as emissions data reports from the Mandatory Reporting Regulation, allowance price and use, or offset project annual reports. To supplement these sources, and to ensure that ARB has adequate information to identify whether the objectives are being met, ARB will require specified information from relevant expert sources, including the Offset Project Registries and Air Districts, and solicit additional information from stakeholders, including the public. Monitoring for potential emissions and economic leakage will be emphasized.

Using the results of monitoring, ARB will regularly evaluate (at a minimum once every three-year compliance period) whether the objectives identified by statute are being achieved. Periodic evaluation will be coordinated with other actions and information collection occurring at the end of compliance periods.

ARB will conduct its evaluation sufficiently in advance of the end of each compliance period to allow ARB sufficient time adjust the cap-and-trade program, if warranted, before commencement of the next compliance period. If ARB determines during its periodic review that the cap-and-trade program is not achieving the objectives as defined by AB 32, or if substantial, unanticipated adverse economic or environmental effects are identified (e.g., substantial leakage), ARB will revise the operation and/or design of the program accordingly.

Evaluation of the Regulation

Staff analyzed four alternatives to the proposed cap-and-trade regulation: (1) a “no project” alternative; (2) additional source-specific regulations; (3) a carbon fee; and (4) linking California’s cap-and-trade program to a future federal cap-and-trade program. In evaluating these alternatives, ARB staff found that none were as or more effective than the implementation of a cap-and-trade program in carrying out the goals of AB 32. In addition, staff analyzed a number of specific alternatives to the design of the cap-and-trade program. In recommending the specific design included in this proposal, staff balanced the need to maintain the environmental integrity of the program, to retain a level of flexibility to help ensure cost-effectiveness, and to consider the potential for co-benefits.

This proposal has been evaluated for possible environmental impacts consistent with the requirements of the California Environmental Quality Act (CEQA). The environmental analysis also identifies potential environmental benefits associated with the proposed cap-and-trade program. The analysis identified potentially significant impacts related to air quality and to activities that disturb the ground, such as construction projects or site preparation for tree planting to establish offset credits. Based on the information available, such impacts are highly unlikely, but are nonetheless possible. ARB’s adaptive management program will include review of required reports and solicitation of comments from the public and stakeholders, including in-state and out-of state resource management agencies with jurisdiction over the forestry-related offset projects.

Emissions Assessment

Air pollutant emissions that contribute to ozone and particulate matter pollution (i.e., criteria pollutants) and toxic air pollutants are “co-pollutants” often associated with GHG emissions from combustion processes. AB 32 requires ARB to consider the co-pollutant benefits of reducing GHGs. California’s air pollution control programs for criteria and toxic pollutants will continue to significantly reduce emissions and health risk into the future. Technology improvements and enhanced energy efficiency resulting from the cap-and-trade

program can further reduce these co-pollutants, providing public health benefits on both a regional and local basis in addition to the benefits of reducing GHG emissions.

For market based-regulations like the cap-and-trade program, AB 32 requires ARB to consider the potential for direct, indirect, and cumulative emissions impacts, including localized impacts. Staff evaluated potential emissions impacts statewide and in four community case studies. The assessment focuses on the potential criteria and toxic pollutant emissions impacts from the industrial sources covered by the program. However, the assessment does not include criteria pollutant and toxic emissions reductions that the cap-and-trade program is expected to provide from transportation fuels and commercial and residential gas use, in addition to those likely to occur at industrial facilities.

Due to the inherent flexibility of the cap-and-trade regulation, as well as the overlay of other complementary greenhouse gas reduction measures, it is difficult to predict the decisions that individual facilities may make in any given community. However, based on the available data, current law and policies that control industrial sources of air pollution, and expected compliance responses, ARB believes that emissions increases at the statewide, regional, or local level due to the regulation are not likely. ARB seeks to ensure that the cap-and-trade program, as it operates over time, avoids and minimizes all instances of localized air quality impacts. ARB will use information collected through the mandatory reporting regulation, the cap-and-trade regulation, the industrial efficiency audit, and other sources to evaluate how facilities are complying with the cap-and-trade regulation. ARB will also solicit information from local air districts regarding permit modifications and new permit applications for covered sources. ARB will evaluate data from a variety of sources to determine whether there are any disproportionate impacts to low-income communities or any increases in the emissions of toxic air contaminants or criteria air pollutants resulting from the cap-and-trade program. If unanticipated adverse localized air quality impacts are identified during this periodic review, ARB is committed to promptly developing and implementing appropriate responses.

Economic Analysis

The cap-and-trade program is expected to result in increased investment in efficient buildings and technologies and in advanced fuels. At expected allowance prices (\$15 and \$30 per metric ton in 2020), these investments would reduce fuel use by 2 to 4 percent in 2020, while economic growth between 2007 and 2020 continues at a rate of 2.3 percent, virtually on par with the projected rate of 2.4 percent. Implementation of the program will, however, shift investment and growth within the overall economy toward those sectors driven by the production of cleaner and more efficient technologies.

Implementing the cap-and-trade program can also help mitigate the economic consequences of continued reliance on fossil fuels. Experience in recent

decades, such as the spike in world oil prices in the summer of 2008, has illustrated the economic costs of volatile energy prices on California's economy. While this report does not attempt to quantify the insurance benefits of reduced dependence on fossil fuels in the face of continued volatility of world energy prices, it does show that California can significantly reduce its dependence on these fuels and, therefore, its vulnerability to future price spikes.

This economic analysis focuses exclusively on the economic effects in California of implementing the cap-and-trade program, and does not consider the avoided costs of inaction. The potential effects of climate change on California that are expected to occur, such as increased water scarcity, reduced crop yield, sea level rise, and increased incidence of wildfires, could cause severe economic impacts. While California has developed a Climate Adaptation Strategy to help alleviate these potential costs, the risk of potentially high economic costs from climate change in California remains real.

Requirements of AB 32

AB 32 calls on ARB to adopt regulations by January 1, 2011, to implement measures to "achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions." AB 32 requires that the reductions be real, permanent, quantifiable, verifiable, and enforceable. AB 32 includes specific standards that apply to regulations that use market-based compliance mechanisms, such as the cap-and-trade program.

Furthermore, AB 32 calls for the Board to "ensure that the greenhouse gas emissions-reduction rules, regulations, programs, mechanisms, and incentives under its jurisdiction, where applicable and to the extent feasible, direct public and private investment toward the most disadvantaged communities in California and provide an opportunity for small business, schools, affordable housing associations, and other community institutions to participate in and benefit from statewide efforts to reduce greenhouse gas emissions."

The proposed regulation was developed in accordance with the requirements of AB 32 and the Staff Report presents supporting details. The following provides a brief response to several of the key AB 32 requirements that have received particular attention during the cap-and-trade rulemaking.

Several AB 32 requirements relate to the potential economic effects of GHG regulations, including direction to minimize costs and maximize the total benefits, and to minimize leakage. Staff has designed the proposed cap-and-trade program, including the allowance allocation system, to minimize the cost of implementation and compliance and to maximize the overall benefits. The allowance allocation system is equitable within and across sectors of the California economy, and its primary reliance on efficiency benchmarks and auction encourages early action to reduce emissions. In addition, the ability to

bank allowances for future use provides an incentive for early action to reduce emissions.

By ensuring that most GHG emissions in California are covered by the program, and that incentives are in place to ensure that the most cost-effective reductions are made, the program design shares the emissions-reduction burden equitably.

Other AB 32 requirements relate to maximizing co-benefits, avoiding disproportionate impacts, considering the potential for emissions impacts, and avoiding emissions increases. Staff has evaluated both the health and economic effects of the proposed program to ensure to the extent feasible that no disproportionate negative impact will occur. The overall health and environmental effects of the regulation are expected to be positive, and the program has been designed to minimize the economic costs of the program, which will minimize the effects on low-income communities.

AB 32 also calls for providing appropriate credit for early voluntary reductions and encouraging early action. ARB staff has recommended a system for distributing allowances in the industrial sector that will primarily rely on the relative efficiency of facilities for any free allocation. This approach rewards those who have already invested in emissions reductions. In addition, a portion of the allowances will be auctioned, and those who have taken early action will be less reliant on purchasing allowances at auction. This allowance allocation system provides appropriate credit for those who have taken steps to voluntarily reduce their emissions before the start of the cap-and-trade program. In addition, the ability to bank allowances for future use provides an incentive for early action to reduce emissions. The regulation would also allow existing offset credits generated under early versions of any offset protocols that the Board adopts to be used for compliance as early action offset credits.

Public Process for Cap-and-Trade Regulation Development

ARB staff developed this proposed cap-and-trade regulation through an extensive public process. In 2008, staff discussed the general framework for a cap-and-trade program as part of the development of the Scoping Plan. The Board included the cap-and-trade program as one of the central measures in the Scoping Plan.

Following the Board's adoption of the Scoping Plan, staff held more than 30 public workshops in 2009 and 2010 devoted to developing the cap-and-trade program design in more detail. These meetings allowed stakeholders and the public to discuss and share ideas on the appropriate design of the cap-and-trade program. Staff reviewed hundreds of public comments received from stakeholders and the general public from these workshops. Staff considered these comments in crafting the design of the proposed cap-and-trade regulation.

In November 2009, staff released a conceptual framework for the cap-and-trade program called the Preliminary Draft Regulation (PDR). The PDR combined preliminary regulatory language on the cap-and-trade process and structure, along with narrative text that described significant issues for which specific regulatory language had not yet been developed. In some cases, most notably the allocation sections, placeholders marked where specific language still needed to be developed. Staff released the PDR to maximize the opportunity for public comment and to advance the public dialogue on the proposed structure and content of this key Scoping Plan measure. In response to the PDR, staff received numerous written comments.

Staff also provided regular updates to the Board on the development of the cap-and-trade program, including on allocation and offsets. Staff has also met with individuals, businesses, government representatives, scholars, experts, non-governmental organizations, and general members of the public on a regular basis during the development of this regulation.

Recommendation

Staff recommends that the Board adopt the proposed cap-and-trade regulation. The program is expected to reduce GHG emissions between 18 and 27 MMTCO₂e in 2020, and the flexibility included in the program will ensure that these reductions are cost-effective. By establishing an overall cap on emissions from the major sources in California, the program will also play a critical role in ensuring that the AB 32 emissions target is met by 2020.

III OVERVIEW OF THE COMPLIANCE OFFSETS PROGRAM

A. Offset Credits Issued by ARB

Individual projects can be developed to achieve GHG reductions from activities not otherwise regulated or covered under the cap-and-trade program. These projects can generate offset credits, or verifiable emissions reductions whose ownership can be transferred to others, including entities with a compliance obligation under the cap-and-trade program. In addition to providing compliance flexibility, the inclusion of offset credits in the program will support the development of innovative projects and technologies from sources outside capped sectors that can play a key role in reducing emissions both inside and outside California. Offset projects can reduce emissions, thereby generating offset credits that can be used by entities who must comply with the program. The use of an offset credit allows a covered entity to forgo some amount of on-site reductions by offsetting emissions elsewhere. Therefore, the integrity of the offsets program is crucial to achieving the AB 32 goal.

As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional (HSC §38562(d)(1) and (2)). Offset credits issued by ARB must be quantified according to Board-adopted methodologies. The proposed regulation includes provisions to verify and enforce the reductions incentivized through the generation and retirement of offset credits. The criteria for compliance offset credits will ensure that the reductions are quantified accurately and are not double-counted within the market tracking system.

Offset credits can provide covered entities a source of low-cost emissions reductions. Reductions achieved through the offset program must be measured using rigorous quantification methods. Offset protocols provide a basis to determine whether offset projects are also additional. Establishing that offset projects are additional is one of the most important factors for the validity of individual offset credits. After a project uses an approved offset protocol to quantify its emissions reductions, it must continue to monitor, report, and verify its emissions reductions.

1. Role of the Offsets Program

The offsets program is designed to increase compliance flexibility and contain costs associated with complying with cap-and-trade program requirements. Because offset credits are expected to cost less than allowances, they are considered by many to be the most important cost-containment tool in the cap-and-trade program. Offset credits allow greater flexibility for covered entities to cover their emissions by offering an additional supply of compliance instruments in the market, which can create a demand for lower-cost emissions reductions and reduce the overall cost of achieving the emissions cap.

In addition to increasing the cost-effectiveness of the program, the California offsets program can benefit other AB 32 goals by:

- Stimulating emissions-reduction opportunities and technological innovation in sectors outside of the capped sectors.
- Encouraging early emissions-reduction activities while providing a transition period for industry to develop and deploy low-GHG technologies.
- Promoting technology and knowledge transfer between developed and developing countries, such as helping to preserve rainforests in danger of deforestation.
- Providing environmental, social, and economic benefits, such as reduced air or water pollution through improved land management practices and wildlife habitat.

Staff recognizes that a robust supply of offset credits can help to contain the costs of a cap-and-trade program. To promote the supply of offsets, staff proposes that: (a) ARB issues offset credits for projects using ARB-approved protocols, and (b) ARB recognizes offset credits from ARB-approved offset programs. Approved programs could include sectoral programs such as those Reducing Emissions from Deforestation and Forest Degradation (REDD) in developing countries. Offset credits from linked programs (such as WCI partner jurisdictions) would also be eligible for use in California's cap-and-trade program. ARB staff incorporates provisions in the proposed regulation to allow these two methods to be used following Board approval of specific protocols or programs.

Staff has developed four compliance offset protocols, , which can be found in Parts II through V of the Cap-and-Trade Program Staff Report, for use under the compliance offset program.. These protocols include the U.S. Forest Projects Protocol, the Livestock Manure (Digester) Projects Protocol, the Urban Forest Projects Protocol, and the U.S. Ozone Depleting Substances Projects Protocol. They are incorporated by reference in the proposed regulation and are being considered for adoption by the Board as part of this rulemaking package. While the program contains provisions to allow offset projects from North America, staff is taking offset protocols applicable in the United States to the Board for approval as part of this rulemaking package.

For these four protocols, staff relied on Climate Action Reserve (CAR) work on the four protocols for use in the voluntary offsets market. Staff recognizes the extensive contributions that stakeholders and experts have made to the CAR protocols, including fashioning effective solutions to difficult problems. Accordingly, ARB is relying on this work to help support ARB's offset quality objectives, as well as provide continuity and stability for offset projects both within California and other parts of the United States.

In addition to these four protocols, staff intends to review and adopt additional offset protocols in the future. Staff will evaluate additional offset project types and protocols. Protocols developed by third parties may be reviewed and, if applicable, be considered for adoption by ARB.

To ensure that there is a ready supply of offset projects developed according to Board-approved protocols, staff proposes to work with qualified third-party offset programs to bring offset credits from new offset projects into the offset program. Staff recognizes that third-party offset programs have existing capabilities and infrastructure that can be deployed quickly to enhance the supply of offset credits. The proposed regulation includes conditions and processes under which third-party programs can be approved to generate offset credits for compliance use according to ARB-approved protocols.

In addition to protocols developed and approved by ARB, staff proposes to recognize offset credits from existing offset projects under protocols developed for the four project types for purposes of early action. The proposed regulation includes a process for offset credits from qualified existing offset projects to be accepted into the compliance offsets program, to help create an initial supply of offset credits for the cap-and-trade program.

2. Transparency in the Offsets Program

Transparency is critical to the environmental integrity and effective administration of an offset program. The proposed regulation establishes an open and transparent offsets system to build confidence in the long-term success of the cap-and-trade program. ARB will ensure that information regarding offset projects and assessments will be made publicly available. The proposed regulation establishes requirements for offset projects and the offset credits they are issued to be listed on a publicly available webpage.

3. ARB as an Offset Program Administrator

An important procedural aspect of the offset program relates to the entity that issues offset credits. Staff proposes for ARB to play the role of a credit-issuing body, with provisions for third parties to fulfill some of these responsibilities subject to ARB oversight.

Offset credits are created for GHG reductions or removals that have been quantified, verified, and recorded. Credit-issuing bodies review all project quantification and verification information to determine if GHGs have been reduced. Once the credit-issuing body determines that the reduction occurred, usually based on third-party verification statements, they create (or issue) offset credits, each of which represents one metric ton of CO₂e.

As the offset program administrator, ARB would fulfill specific roles during the offset credit creation process. These roles include: approving compliance offset protocols as required by AB 32; reviewing and listing offset projects in the system; overseeing monitoring, reporting, and verification activities; and making

the determination of whether offset credits should be issued and, if so, how many. The regulation also proposes provisions to allow third parties that operate offset programs to fulfill some of these same roles, subject to ARB audits and oversight. These registries would be allowed to list offset projects in their own system and oversee monitoring, reporting, and verification activities. These third-party offset programs—referred to as *Offset Project Registries* in the proposed regulation—must meet requirements included in the proposed regulation and be approved by ARB. They must share all information they collect for offset projects with ARB, and make this information publicly available. Staff proposes to allow Offset Project Registries to assume these roles to access their existing capabilities and infrastructure so that the offsets program can be deployed quickly to enhance the supply of offset credits. The obligations and services of Offset Project Registries are discussed later in this Chapter.

4. General Requirements for Offset Credits Issued by ARB

The proposed regulation includes provisions to ensure all offset credits used for compliance purposes are real, additional, permanent, quantifiable, verifiable, and enforceable. Ensuring the environmental integrity of the offsets program is critical to guaranteeing the credibility of the entire cap-and-trade program, achieving the environmental objectives of real emissions reductions, and preserving the value of offset credits to project developers, offset buyers, and all market participants. To assure offset quality, the proposed regulation includes rigorous and transparent quantification methodologies, training and oversight of independent ARB-accredited verifiers, and a registration and tracking system.

The proposed program relies on offset protocols that are developed with stakeholder input, standardized, and approved by the Board. The offset quantification and the regulatory offset verification requirements are designed to reduce subjectivity and uncertainty. These procedures are the cornerstone of the offsets program and will help ensure the rigor and integrity of offset credits. The offsets verification program will require that verifiers demonstrate competence in each specific project type, employ conflict-of-interest assessments, and include random verifier audits and strict performance evaluations to ensure that verification activities are conducted accurately and consistently. The registry system for compliance instruments is being designed to provide strong enforcement capabilities, including mechanisms to prevent double-counting, public disclosure requirements, and methods to clearly define ownership.

5. Approving Compliance Offset Protocols

Offset credits issued by ARB must be generated using offset protocols adopted by the Board. The proposed regulation establishes a process by which the Board will approve and amend protocols and their quantification methodologies based on staff's evaluation and a public process. These protocols will be made publicly available so that anyone interested in developing an offset project can do so according to Board-approved standards.

Four protocols are part of this rulemaking package, as described below. ARB staff will periodically propose new offset protocols or revisions to previously approved protocols to reflect the current regulatory environment and latest scientific information, to the Board. Before ARB staff brings new protocols or updates to existing protocols to the Board, a public stakeholder process will be conducted to develop, review and revise the offset protocols. Before the Board adopts a new protocol there will be a separate CEQA review to assess the environmental impacts associated with that protocol.

Four Protocols for Board Approval

As part of this rulemaking package, staff is bringing four offset protocols to the Board for approval:

- **U.S. Ozone Depleting Substances (ODS) Projects Protocol:** Destruction of ODS from refrigerant and foam-blown agents sourced from and destroyed within the United States. Production of ODS is being phased out through the Montreal Protocol, but there are significant banks from which these gases will be emitted in coming years unless they are destroyed. ODS destruction has stratospheric ozone benefits in addition to climate benefits.
- **Livestock Manure (Digesters) Projects Protocol:** Capture and destruction of methane from anaerobic manure treatment and/or storage facilities on dairy cattle and swine farms within the United States.
- **Urban Forest Projects Protocol:** Urban tree planting projects by municipalities, educational campuses, utilities, and partner organizations to sequester carbon.
- **U.S. Forest Projects Protocol:** Increasing sequestered carbon or avoided GHG emissions due to forest management activities in three project types: reforestation, improved forest management, and/or avoided conversion within the United States.

ARB has coordinated with the other WCI partner jurisdictions to develop the offset program, and three of these proposed protocols have been reviewed as part of that effort.³⁴ The U.S. Ozone Depleting Substances Projects Protocol has not been part of this review process to date, but the WCI Partner jurisdictions are

³⁴ Det Norske Veritas. *Review of Existing Protocols Against WCI Offset Criteria*. For the Western Climate Initiative. April 2010. Found at: <http://www.westernclimateinitiative.org/component/repository/Offsets-Committee-Documents/WCI-Review-of-Existing-Offset-Protocols>.

currently reviewing it and assessing it relative to the WCI offset criteria recommendations. Staff will continue to work within WCI to address any issues that may arise with use of this protocol in the context of linking with a WCI Partner.

Staff is relying on the work that the Climate Action Reserve (CAR) has done to develop these four protocols for use in the voluntary offset market. In reviewing these protocols for possible use in the cap-and-trade program, staff examined all aspects of the protocols, including but not limited to the following:

- Mechanisms for ensuring permanence in forest projects, to ensure that they are effective and enforceable by ARB.
- Technical details, including incorporating minor adjustments to emission factors.
- Modifications to each protocol to align them with the requirements of the cap-and-trade program, such as aligning project start eligibility dates and crediting periods, or alignment of terms and definitions.

On June 23, 2010, staff held a workshop to discuss the transition of the four CAR protocols for use in a compliance program. Specifically, this workshop focused on options for aligning the most recent versions of these protocols with the offset criteria proposed in the cap-and-trade regulation. In addition to seeking public input, a CEQA review of each protocol has been completed and is included as part of this regulatory package in Appendix O: Functional Equivalent Document.

6. Requirements for Compliance Offset Protocols

Compliance offset protocols serve as a cornerstone to ensure that reductions are appropriately quantified, monitored, reported, and documented. Protocols taken to the Board for adoption will consist of standardized methods that quantify reductions based on specific criteria and pre-established calculation methods. This approach will streamline the calculation of project baselines and determination of additionality of projects by using standard eligibility criteria that ensure that projects are additional. Protocols approved by the Board will include project-type-specific monitoring and reporting requirements and methods for addressing leakage.

a. Additionality

Protocols approved by the Board provide a basis to determine whether offset projects are additional. Approved protocols are designed to ensure that the determination of additionality will be replicable for all offset projects of the same type. Additionality in the offset program requires that ARB only credit projects that would not have otherwise occurred in the absence of an offsets mechanism. Staff designed the offset system with this requirement to be consistent with AB 32, which requires that emissions reductions used for compliance must be “in addition to any greenhouse gas emissions reduction otherwise required by law or

regulation, and any greenhouse gas emissions reduction that otherwise would occur" (HSC §38562[d][2]). Most existing offset programs have excluded project activities required by law or regulation from receiving offset credits in their programs. However, staff expects some GHG emissions-reduction activities not required by law or regulation to occur under a business-as-usual scenario. ARB is defining *additionality* to exclude these offset projects from receiving credit.

The proposed regulation establishes that an offset project, which has already begun to generate offset credits under a protocol approved by the Board, may continue to generate offset credits until the end of its crediting period, even if in the future regulations are adopted that mandate reductions from projects that have already begun to generate offset credits. At the time a newly adopted regulation takes effect, a project type or technology would cease to be additional for new offset projects wishing to enter the system. Generally an offset project will be developed if the revenue it expects to generate over the length of the crediting period will cover its upfront investment and ongoing maintenance costs. This means that an offset project will be implemented only if it is expected to be financially beneficial to do so over that length of time. Therefore, staff believes that offset projects should be credited for emissions reductions throughout the entire crediting period. Crediting periods are discussed in more detail later in this Chapter.

b. Project Baselines

Project baselines are a core component of the quantification process and the determination of additionality. Project baselines are conservative estimates of business-as-usual reductions or removals for an offset project. The difference between the project baseline and the reductions achieved by the offset project is what will be considered beyond business-as-usual, and therefore creditable as an offset. Therefore, in the proposed regulation, staff proposes to require that protocols include a method for calculating project baselines to quantify a project's emissions reductions. The GHG reductions or removals can only be assessed if the baseline reflects an accurate and realistic business-as-usual emissions scenario.

c. Accounting for Leakage

In the context of offset credits, *leakage* refers to a shift in emissions due to the offset project activity to another place that negates some or all of the emissions reductions achieved by the offset project. Leakage can occur with offset credits because they are based on individual projects. The proposed regulation requires that protocols include a clear methodology to account for leakage when quantifying emissions reductions from offset projects. Two types of leakage must be accounted for in offset projects, if applicable for the specific offset project type: activity-shifting and market-shifting leakage. Any leakage associated with an offset project type will be factored into the final calculation of emissions and emissions reductions for individual offset projects.

d. Accounting for Uncertainty

When uncertainty exists in quantifying GHG reductions, ARB will only issue offset credits when there is a high level of confidence that reductions actually occurred. Staff proposes to employ a principle of conservativeness in the quantification of emissions reductions. This method will ensure that the accounting will underestimate rather than overestimate any reductions when there is a high level of uncertainty. Staff prefers this approach to applying an arbitrary discount factor to account for uncertainty after emissions reductions have been verified.

Applying a single discount factor across projects to account for risk and uncertainty could penalize projects that achieve truly real and additional emissions reductions.

e. Permanence Requirements

Permanence refers to the period of time that an emissions reduction must stay absent from the atmosphere. In general, it is equal to the duration of an emitted GHG in the atmosphere. Requiring permanence in the offsets program ensures that if there is a risk of reversal, the atmosphere can be made whole. It also ensures that offset credits are equivalent to emissions reductions that would be achieved from covered entities at their facilities. Permanence is particularly an issue in projects with a risk of GHG reversal, such as sequestration-based projects. Disturbances, such as fire, insects, disease, and project mismanagement or failure can return sequestered carbon or release GHGs to the atmosphere.

In the case of sequestration-based projects, the proposed regulation requires an upfront commitment by the project developer to permanently maintain GHG reductions to ensure permanence. To achieve this, staff proposes to establish a Forest Buffer Account to provide insurance, in the case of an unintentional GHG reversal. The details of the Forest Buffer Account are discussed later in this Chapter. Although staff includes the Forest Buffer Account to deal with unintentional reversals, there are still risks that intentional reversals can occur in forest projects. In this, case the forest owner must replace all credited carbon that has been reversed.

f. Crediting Periods

Each protocol must establish a crediting period for the relevant offset project type. The crediting period refers to the period that an offset project is allowed to be issued compliance offset credits. Without certainty about a project's life span, there may be too much risk for a project to attract investors. Therefore, staff understands there must be some guarantee that the emissions reductions achieved according to a protocol will be eligible to generate offset credits for a given period. However, some types of offset projects could no longer be valid for generating offset credits in the future. This could be because the offset projects have become unadditional because business practices change or the sources are now suited for direct regulation or another market-based incentive program. Staff determined that there must be a balance between guaranteeing investment

certainty and allowing ARB to update methods and quantification, as well as to reevaluate and readjust baseline and additionality requirements in protocols in the future.

To achieve this balance, staff proposes to set a range for crediting periods. For non-sequestration projects, each protocol will include a crediting period between seven and 10 years. Staff believes that this is sufficient time needed to make an investment attractive for most non-sequestration projects. For sequestration-based projects, each protocol will include a crediting period between 10 and 30 years. Staff recommends this period for sequestration projects because they require long-term investment and commitment by project developers, and these projects achieve gradual GHG removals over longer timescales. Staff will establish a crediting period for a specific project type in each protocol.

The proposed regulation includes two types of crediting periods: an initial crediting period and a renewed crediting period. The initial crediting period occurs once and begins on the date that the first verified GHG reductions occur according to an offset verification statement submitted by an ARB-accredited verifier. Offset projects may qualify for renewed crediting periods if they continue to meet the requirements for additionality. An offset project must also utilize the most updated version of an approved protocol for that offset project type at the time of renewal. An offset project that does not involve sequestration of GHGs may be renewed twice. Staff believes this is generally the amount of time that an offset project in industrial sectors will remain additional. There is no limitation on the number of times a crediting period may be renewed for sequestration-based offset projects; however, when added together the crediting periods may not exceed a total of 100 years.

7. Requirements for Offset Projects

The proposed regulation establishes requirements for offset projects if they want to be issued offset credits. These include using a Board-approved protocol, meeting the requirements for additionality, being located in an applicable jurisdiction, and complying with all applicable laws and regulations at the national, state or provincial, and local levels. Throughout this Staff Report, those that develop offset projects are referred to as offset project developers, without elaborating on who these parties may be. Under the proposed regulation, those that have legal authority to implement offset projects—referred to as *Offset Project Operators* in the proposed regulation—must identify themselves to ARB or an Offset Project Registry. In most cases these are facility operators or landowners. Many times facility operators or landowners will contract with third-party investors to assist in the development, implementation, and maintenance of the project. Staff recognizes that some facility operators and landowners may not be the parties implementing and overseeing the offset project; therefore, staff is allowing these parties to identify another party—referred to as an *Authorized Project Designee* in the proposed regulation—to be identified as responsible for the offset project. In the proposed regulation, a facility operator or landowner may delegate responsibilities, such as

communications with ARB or an Offset Project Registry regarding the offset project, to an Authorized Project Designee. In some cases, the facility operator or landowner may also assign rights to own offset credits that are issued to the offset project to the Authorized Project Designee or another third party.

a. Requirement to Use a Compliance Offset Protocol

An offset project developer must use a protocol approved by the Board to qualify for the issuance of offset credits. Staff will make all approved protocols available on ARB's public website.

b. Requirements for Additionality

Offset project developers must ensure that offset credits generated under their project are considered additional. To be additional GHG reductions must result from activities that:

1. Are not required by or undertaken to comply with any federal, state or local law or ordinance, including any regulation, consent order, and stipulated agreement or Memorandum of Understanding.
2. Are not considered common practice or would not have occurred under a business-as-usual scenario.
3. Were not commenced prior to January 1, 2007.
4. Exceed a project baseline calculated by a protocol for an offset project of that type.

Establishing the eligibility date for an offset project is critical to determining the additionality of offset projects. The eligibility date is the date from which a project can be issued offset credits by ARB. ARB will not issue offset credits for emissions reductions until after they have been verified. For the issuance of offset credits, ARB is proposing that offset projects which commence on or after January 1, 2007, be eligible. This date is the implementation date of AB 32 and provides for a better likelihood that the project was implemented to achieve AB 32 goals. Staff is also proposing that when recognizing offset credits issued according to non-ARB offset protocols or those issued by other programs approved by ARB, the eligibility date may differ from the date for ARB-issued offset credits. For purposes of recognizing projects undertaken to achieve early action GHG reductions, staff may recognize offset credits issued prior to January 1, 2007. The specific eligibility date requirements will be established depending on the evaluation of a specific program or set of protocols.

c. Locations of Offset Projects

While staff proposes to allow offset projects from North America to be credited under ARB-approved protocols, staff is only taking protocols to the Board for approval as part of this rulemaking package that are applicable for projects in the United States and its territories. Staff plans to evaluate how the four protocols

being taken to the Board can be expanded to include projects in Mexico³⁵ and Canada. Although staff encourages offset projects to be developed in California, it recognizes out-of-state projects will expand the scope of the program to allow for more low-cost GHG reduction possibilities to be incorporated and reduce the overall costs of the program. Therefore, staff recommends that ARB issue offset credits for projects located in the U.S., Canada, and Mexico. Staff proposes that all GHG reductions for offset projects, whether they are located within or outside of California, be verified by an ARB accredited third-party verifier, and that ARB have the ability to audit all accredited verifiers.

Offset credits from projects located outside of North America may also be used for compliance if they are issued by an outside program that is approved by the Board, though no such approval of another program is being recommended at this time. Recognition of offsets issued by other programs is discussed in more detail in Section B of this Chapter.

Staff's intent in approving protocols is that the standard for additionality will be set to reflect the most stringent regulatory or legal requirements among linked WCI partners. This would result in the most conservative assessment of GHG reductions, helping to ensure the integrity of the offset system. Setting an additionality standard based on the most stringent regulation in the region would remove any incentive to weaken or solely maintain environmental protections to qualify more offset projects. For some project types it will be difficult to apply this standard in the protocols based on regional differences. For these project types, staff may address regional differences using alternative methods.

d. Environmental Assessment Requirements

In the proposed regulation, staff includes requirements that offset projects meet all local, state, and federal laws for environmental assessments. The purpose of including this requirement is to ensure that offset project developers assess and disclose any potential impacts associated with implementing their offset projects. While staff is not requiring that offset projects meet specific requirements for environmental assessments, this requirement acknowledges the importance of all potential projects adhering to the environmental laws of the jurisdiction in which the project is located. For example, new offset projects in California may be subject to local permitting processes and, if not exempt, environmental review under CEQA.

³⁵ Staff does not intend to evaluate an ODS protocol for offset projects in Mexico because the substances covered under the protocol have not yet been completely phased out in developing countries.

8. Listing Offset Projects

The proposed regulation requires that project developers “list” their projects—or submit information pertaining to their offset projects—with ARB or an Offset Project Registry. Listing establishes a mechanism for a project developer to record information on their offset project for ultimate issuance of offset credits. Project listing requires the submittal of information on each project for transparency purposes. The requirements for what information must be submitted can be found for each type of offset project in its corresponding protocol, all of which are incorporated by reference in the proposed regulation. Before listing, a project developer must register for an account with ARB to hold compliance instruments and must attest to ARB that all information they submit for listing purposes is truthful and accurate. These attestations will be used for enforcement purposes.

All listed projects and associated information will be posted on a publicly available website. Once ARB or an Offset Project Registry has determined that all the information submitted by the project developer is complete and that the offset project generally meets the requirements for additionality, it will be listed as a “proposed” project on the website. This status will change to an “active” project once the project developer submits its verification statements (attested to by an ARB-accredited verification body) and ARB or an Offset Project Registry issues an offset credits for the GHG reductions. Changing the status of the offset project from “proposed” to “active” will allow the public to know that the offset project has begun to be issued offset credits and has completed its first verification process.

The listing process is not intended to be an approval process for offset projects. The determination that an offset project meets all the regulatory requirements occurs at the time an accredited verifier issues a positive or qualified positive offset verification statement and ARB or the Offset Project Registry issues an offset credit based on that statement. This means that some offset projects may be listed as a proposed project but never have the status changed to an active project or receive offset credits.

Offset project developers are required to list their offset projects for an initial crediting period no later than the date they submit their project’s first annual reporting data. For renewed crediting periods, project developers must submit their listing information no earlier than 18 months before and no later than 9 months after the conclusion of the previous crediting period. This timeframe establishes the period of time in which additionality would be assessed and will also determine which protocol version should be utilized.

9. Monitoring, Reporting, and Record Retention Requirements for Offset Projects

Ongoing monitoring of offset projects is necessary to ensure that offsets credited to the project have occurred, and to provide the necessary data for quantifying and verifying GHG reductions. Monitoring requirements in the proposed

regulation include measurement and data collection for key project parameters, as well as related procedures and quality control procedures. The monitoring requirements address what needs to be measured, how often it needs to be measured, and what methods and instrumentation are acceptable for data collection. General monitoring requirements can be found in the proposed regulation, while specific requirements for each type of offset project can be found in the individual protocols. Protocol-specific monitoring requirements increase consistency among projects of the same type, while allowing monitoring requirements to be tailored to each project type.

Staff includes separate requirements for the substitution of missing fuel analytical data in the proposed regulation, in the case that an offset project's gas or fuel analytical monitoring data equipment breaks down. In turn, it is necessary to collect data that would be needed to support the missing data substitution procedures for fuel use. The offset project developer may benefit from such a provision because it could reduce or eliminate the need for more punitive data substitution in a missing data situation.

The proposed regulation requires reporting on the performance of offset projects, including summarizing project monitoring data, calculating the GHG reductions achieved in the applicable period, and documenting that information in a project report. The required content and level of detail demanded in project reports—referred to as *Offset Project Data Reports* in the proposed regulation—vary between project types.

Staff proposes an annual reporting frequency. Reductions can be aggregated by year and reported once every six years in the case of urban forest projects. Staff chose these timeframes because reporting represents a project cost due to the resources required to prepare and subsequently verify reported data. Staff believes these timeframes strike a balance between cost and accountability, and are cost-effective for the various types of offset projects. All reports will be due on April 1 of the subsequent year for which GHG reductions are being reported. These general requirements for offset project reporting are described in the proposed regulation. There are also specific reporting requirements for each type of offset project in the individual protocols. In addition to meeting these requirements, project developers must submit a statement to ARB attesting to the accuracy and truthfulness of the Offset Project Data Reports they submit. If a project developer fails to submit their reported data by the appropriate deadline, they will be disqualified from being issued offset credits based on the reported GHG reductions covered in that particular data report.

The proposed regulation includes requirements for project developers to retain records and documents pertaining to monitoring and reporting activities. Project developers must retain all information used to develop their Offset Project Data Reports. The information retained must also be sufficient to allow for verification of the GHG reductions contained in each report. These general record retention requirements can be found in the proposed regulation, while specific

requirements for each type of offset project are described in the individual protocols, if applicable. Developers of non-sequestration-based projects are required to retain these records for five years after the crediting period in which that data report is submitted ends. Developers of sequestration offset projects must retain these records for the length of time that the offset project is issued offset credits plus 100 years.

10. Verification for Offset Projects

Verification is the process of reviewing offset project information to ensure that claimed GHG emissions reductions have been achieved in accordance with the proposed regulation. According to the proposed regulation, verification will occur after project implementation and prior to offset credit issuance.

In the proposed regulation, staff includes requirements for a verification program that are consistent with international standards and subject to ARB oversight. This oversight includes verifier accreditation, verification body accreditation, requirements for verification services, and conflict of interest requirements. The proposed regulation includes enforcement provisions that apply to parties that participate in the offset program. These parties include offset project developers, verifiers, and covered entities.

To establish a high level of trust in the program and address public concerns related to the integrity of offset projects, staff has developed a verifier accreditation process and conflict-of-interest process that ensures quality in the evaluations and prevents potential bias when offset projects are verified by independent third parties.

The verifier and verification body accreditation program established in the MRR for purposes of emissions reporting will be expanded to include the accreditation of verifiers and verification bodies for offsets. Expanding the accreditation program will involve project type or protocol-specific training for verifiers accredited through the MRR program.

a. Offset Verification Services

Staff includes several key elements for offsets verification in the proposed regulation. The first is a mandatory site visit during the first year of verification. Site inspection allows the verification team to ensure that all GHG sources, sinks, and reservoirs within the defined offset project boundary are included in the project's reduction and removal estimates and that the reported data are complete as required by the proposed regulation and the applicable protocol. It is also an opportunity for the verifier to assess the adequacy of the data management and data acquisitions systems used to collect and process data underlying reduction and removal estimates. At the same time, the verification team may conduct a review of contracts and other documents to substantiate reported data and ensure that data sampling and monitoring were conducted as applicable in the regulation and applicable protocol.

The offset verification team is also required to develop a verification plan. Verification plans provide documentation of planned activities, site visits, and document reviews. The plan will be submitted by the verification body to ARB or an Offset Project Registry, if applicable, with a Notice of Verification Services, ten days prior to a kick-off meeting with the offset project developer. The Notice of Verification Services allows for ARB to plan in advance for any additional oversight of the verification, with dates of verification activities proposed in advance.

A critical element of offset verification is the sampling plan. This plan is used to conduct data checks on the reported GHG sources, sinks, and reservoirs. Offset verification does not call for a duplication of all calculations, but rather checking specific subsets of the reported data based on several criteria. Selection of data subsets for checking involves a review of the largest contributions to overall GHG sources, sinks, and reservoirs that result in reduction or removals, as well as the sources, sinks, and reservoirs associated with the greatest uncertainties in estimation. Therefore, the sampling plan includes a ranking of source contributions to overall GHG sources, sinks, and reservoirs and a ranking of sources, sinks, and reservoirs with the greatest calculation uncertainty.

The offset verification team conducts a qualitative risk assessment based on the uncertainty of the data acquisition equipment, data sampling and frequency, data processing, reduction or removal calculations, data reporting, and management policies or practices applied to the Offset Project Data Reports. For example, in evaluating the uncertainty of the data acquisition equipment, an offset verifier may check the age of a meter or the maintenance record for the meter. For data processing, the offset verifier may check how the data management system records and tracks data that supports reduction or removal estimates. The risk assessment qualitatively evaluates how much confidence rests with the underlying infrastructure that generates reduction or removal estimates.

The proposed regulation does not prescribe the number of data checks that the offset verification team must perform. The offset verification team must exercise professional judgment in choosing these. Ultimately, the offset verification team must have reasonable assurance that the reported emissions reductions or removals do not contain a material misstatement that would overestimate reductions or removals or a material misstatement that would underestimate by more than 5 percent the reported emissions reductions or removals, and that all applicable regulatory requirements in the proposed regulation and the applicable protocol have been met in the estimation and reporting of those reduction or removal estimates.

During the course of the offset verification, the offset verification team is required to maintain an issues log of any findings that may affect materiality or conformance with the proposed regulation. The offset verification team must also log how those issues are resolved to the satisfaction of the team so that the verification body may then provide a positive offset or qualified offset verification

statement. Any findings that result in a change of the initial Offset Project Data Report submitted to ARB or an Offset Project Registry must be documented. This careful documentation provides transparency in the offset verification process and allows ARB to follow the verification in detail as part of its oversight role.

b. Completing the Offset Verification Process

Upon completion of review by the offset verification team, the verification body may submit a positive offset verification statement to the operator—and ARB and/or an Offset Project Registry—if the offset verification team has found no material error in the Offset Project Data Report, and if the team finds the report meets the requirements of the regulation. The verification body may submit a qualified positive offset verification statement if the team has found no material error in the report, but it may include one or more nonconformance(s) with quantification, monitoring, or metering requirements that do not result in material error. The verification body may also submit an adverse verification statement if the team has found material error or is otherwise unable to state that the Offset Project Data Report meets the requirements of the regulation. When providing the offset verification statement, the verification body will have an opportunity to add any comments or qualifiers they deem necessary to provide a complete context for the verification. The verification body will also submit a detailed verification report to the offset project developer that includes the verification plan, sampling plan, issues log, and additional documentation. The detailed verification report is retained by the project developer, but is made available to ARB or an Offset Project Registry upon request. The detailed verification report may be used by ARB or an Offset Project Registry at its discretion, to review the work of the verification body or review the verification process or the submitted data.

If a verification body and offset project developer cannot agree on the verifiability of the reported reductions or removals, or the need to revise the Offset Project Data Report, the project developer may petition ARB or an Offset Project Registry for review of the offset verification statement. ARB could use any experts at its disposal to review questions, and both parties would be held to the subsequent ARB decision.

11. Verifier and Verification Body Accreditation

A key element for ensuring the credibility of the offsets program is independent verification of reductions or removals to ensure the completeness and accuracy of the estimates and conformance to the regulation. Under the proposed regulation, verification for offsets will be performed by qualified and trained third-party verifiers that meet specifications for education and experience, and demonstrate that there is no conflict of interest for verifying reductions or removals due to current or previous relationships with the project developer. Verifiers will be required to attend a multi-day ARB-approved verifier training

course and successfully complete an exit exam prior to being accredited to provide verification services for offset projects.

For offset verification, staff recognizes the need for project type- or protocol-specific verifiers, especially in the case of forestry projects or those including carbon sequestration. These sectors often have complex baseline and emissions-reduction calculation methods, contractual arrangements, and sales and purchase complexities that require verifiers to have special knowledge. ARB will offer project type-specific training in addition to general verification and lead verifier training. All lead verifiers and general verifiers may take the additional project type-specific training if there is a training offered by ARB. Lead verifiers who lack experience in environmental or financial auditing would have additional training. Based on guidance from existing programs, such as the International Organization for Standardization (ISO), these various requirements aim to ensure quality and consistency in the conduct of verification activities.

12. Conflict of Interest for Offset Projects

Conflict of interests arise when an individual or organization have interests in one activity that could possibly influence its objectives in another activity. Conflict-of-interest safeguards are especially important in the offsets program because verification bodies and the offset project developers enter into contracts for performing verification activities, in which they agree on a monetary payment for services rendered. In an offset verification scenario, the verifier reviews the amount of GHG emissions reductions reported, as well as the project developer's conformance with the requirements of the regulation. The monetary value of this contractual relationship depends on the complexity of the project verified by the verification body. The proposed regulation contains requirements and criteria for potential conflict-of-interest assessments between verification bodies and offset project developers to prevent them from occurring.

The conflict-of-interest requirements in the proposed regulation ensure that the verification process is independent and free of any external bias or interests of the verifier influencing the review of data reported by the offset project developer. The proposed regulation provides guidance and criteria as to what types of relationships and practices are unacceptable between a verification body and the offset project developer.

Prior to providing verification services to an offset project developer, the verification body must evaluate the level of potential conflict between itself and the developer. The proposed regulation provides requirements and criteria for determining whether a potential conflict is low, medium, or high. If the potential conflict is determined to be high, then offset verification may not commence between that verification body and the project developer. If the potential conflict is found to be low, then the verification may commence. If there is a medium level of risk for conflict of interest, and the verification body wishes to pursue offset verification services, it must provide a plan for how it will mitigate any

conflict before finding the risk as acceptable and proceeding with the offset verification process.

ARB plans to train its accredited offset verifiers to properly assess conflict-of-interest situations based on the criteria laid out in the regulation. ARB's role in the conflict-of-interest process will be actively auditing the offset verifiers to ensure they appropriately assess and certify their conflict of interests before they move forward with providing offset verification services.

The proposed regulation contains a requirement for offset project developers to change offset verifiers after six years to avoid potential conflict-of-interest issues from lengthy business relationships. This results in a new set of eyes to review the reduction or removal estimates provided by the project developer. Staff includes this requirement to reduce complacency that may occur given the familiarity a verification body may feel toward an offset project developer after that time period.

13. Issuance and Registration of Offset Credits

Once emissions reductions or removals from projects listed through the ARB process have been verified and issued a positive offset or qualified positive offset verification statement, ARB or an Offset Project Registry will issue offset credits in an amount equal to the GHG reductions or removals verified. Each offset credit that is issued by ARB or an Offset Project Registry will be assigned a unique serial number and be entered (registered) into the respective registry systems and subsequently the account of the registered owner of the offset credits, unless the offset credit is being diverted into ARB's Forest Buffer Account for forestry permanence purposes. Owners of offset credits will be notified by ARB or an Offset Project Registry within 45 days of the determination for issuance of offsets.

Offset credits do not constitute a property right and may be invalidated by ARB. Once issued, offset credits can be traded, sold, or used as part of an entity's compliance obligation. To ensure that offset credits are not double-counted, the serial numbers must be taken out of circulation when an offset credit has been retired or used for compliance.

Before offset credits issued by Offset Project Registries can be used for compliance in the cap-and-trade program, all information for that offset project submitted by the project developer to the Offset Project Registry—including listing, reporting, and verification information—must be transferred from the registry to ARB. The offset project developer must also submit a series of attestations to ARB stating that all information they have submitted to a registry is truthful and accurate. These attestations provide an enforcement link between the project developer and ARB. In the event that ARB needs additional information regarding the initial information submitted, ARB will notify the project developer and allow time for this review. After all information is satisfactory and the attestations are made, ARB will issue an offset credit within 30 days. ARB

will place it into the owner's Holding Account once it has confirmation that any corresponding offset credit has been retired in the originating registry.

14. Forest Buffer Account

The proposed regulation establishes a *Forest Buffer Account*—a permanence mechanism for ensuring GHG emissions remain out of the atmosphere—to replace offset credits in the event of an unintentional reversal. The account acts as an insurance policy; the developers pay a premium up front to be fully covered in the event of an unintentional loss of sequestered carbon. An unintentional reversal of stored GHGs means any reversal, including wildfires or disease, that is not the result of the forest project developer's negligence, gross negligence, or willful intent. Ultimately, the risk of impermanence may affect the cap, if obligated metric tons are lost, and the liable party is not able to make good on their obligation. In the case of an unintentional or an intentional reversal, the forest project operator must notify ARB of the reversal and how many metric tons were reversed. If the unintentional reversal reduces the project's stored carbon below its project baseline, the project will automatically be terminated, but the developer may relist the offset project under certain conditions. If the reversal is intentional, the offset project will be terminated, and it may not be relisted.

The proposed regulation requires that a portion of all offset credits issued by ARB to offset projects developed according to ARB's U.S. Forest Projects Protocol be placed into the Forest Buffer Account to cover unintentional reversals. The forest project operator is required to follow the methods in the U.S. Forest Projects Protocol for calculating the project's risk rating. The risk rating is based on a number of default and calculated factors that differ depending on the individual project. The factors and equations that must be used to determine each project's risk rating are provided in the protocol.

The project must place offsets into a buffer mechanism, regardless of whether a forest project originates with ARB or an Offset Project Registry. If a forest project originates through the use of an Offset Project Registry, all offset credits that are set into the Offset Project Registry's buffer account must be transferred to ARB at the time that a forest offset credit is brought into the compliance offset program.

Staff will monitor the use of the Forest Buffer Account over time. If the account appears to be diminishing at a faster rate than it is being replenished, ARB may need to adjust the U.S. Forest Projects Protocol to require that more offset credits are placed into the buffer pool in the future. If the buffer pool is ever exhausted, staff would evaluate options for replenishing it, including potentially retiring allowances from the Reserve.

15. Invalidations of Offset Credits

To ensure the enforceability of compliance offsets, ARB needs to have the ability to investigate and take action for violations or noncompliance with the proposed regulation. There are two primary reasons that ARB may need to invalidate offset credits after they have been issued: (1) fraud or malfeasance on behalf of

the project developer, the third-party verifier, verification bodies, or others involved in producing the documentation used to support the issuance of offset credits, or (2) a reversal in the forest sector. If an offset credit has been used for compliance or retired and is subsequently invalidated, it must be replaced within 30 days. If the offset credit has already been retired, staff is proposing in all cases of fraud or malfeasance that the entity that used or retired it be responsible for replacing the invalidated offset credits. The covered entity may then take appropriate action through third-party contractual arrangements they may have established prior to purchase. These arrangements currently exist in the voluntary offset market, and staff expects that as the offset market becomes more established, that a standardized contract for third-party liability will be established. In the event that the offset credit has not yet been used or retired, it will be canceled in the market tracking system and removed from any Holding or Compliance Accounts.

If there is an unintentional reversal in the forest sector, staff will retire the appropriate number of offset credits from the Forest Buffer Account, whether or not they have already been used or retired within the system. If there is an intentional reversal in the forest sector, staff proposes that the forest project developer replace the invalidated offset credits within 30 days, whether or not they have been retired within the system. Staff is proposing to hold the project developer liable for intentional reversals in the forest sector because the risk of reversal is more prevalent. Buyers will have little incentive to invest in forestry projects if the liability falls back to them. Instead they will pursue projects with more certain emissions reductions.

16. Offset Project Registries

Staff includes provisions in the proposed regulation to allow third-party offset programs (Offset Project Registries), that meet ARB standards, to perform many of the responsibilities in the offset creation process to take advantage of their resources and expertise and minimize the administrative burden of the offsets program on ARB staff. The responsibilities that Offset Project Registries may take on include: listing offset projects; overseeing monitoring; reporting; and verification activities; and issuance of ensuing offset credits. These services are also referred to as *registry services*. All offset credits issued according to Board-approved protocols must be verified using ARB-accredited verifiers. ARB would still need to perform required CEQA analyses, adopt compliance protocols, and oversee Offset Project Registry activities. ARB oversight of the conduct of Offset Project Registries and ARB-accredited verifiers is critical to the overall quality of the program.

The proposed regulation includes comprehensive requirements that an Offset Project Registry must meet to be approved by ARB, including the submittal of: an application, information regarding its staff and Board members, and proof of professional liability insurance. ARB will then evaluate the application and information submitted to ensure that it meets the regulatory criteria in the proposed regulation and does not have any conflict of interests. If the program is

approved, ARB will issue an Executive Order designating the Offset Project Registry to provide registry services which will be valid for five years. At the end of the five years it may reapply to continue offering registry services to ARB. ARB may also decide to modify, suspend, or revoke this approval for good cause.

Offset Project Registries are required to make specific information publicly available on all of the listed offset projects. They are also required to perform annual audits of 20 percent of a representative sample of listed offset projects. This information must be submitted to ARB, along with an annual report of its findings. The Offset Project Registry must also make its staff and all documentation related to any offset project it lists available to ARB for audits, and it must retain all records related to its audits and its listed offset projects for a specified period of time, as laid out in the proposed regulation.

B. Recognition of Compliance Instruments from Other Programs

1. Early Action Offset Credits

Beginning in 2005, the Climate Action Reserve (CAR) and its predecessor, the California Climate Action Registry began adopting voluntary GHG accounting protocols to encourage voluntary early action to reduce GHG emissions. ARB recognizes the rigor of the voluntary accounting procedures CAR adopted to establish that GHG emissions reductions are real, additional, and permanent. CAR has issued approximately 7.5 million credits for offset reduction projects to date under its voluntary program.³⁶ Staff proposes to allow eligible offset credits and ongoing projects using protocols developed for four project types and adopted by CAR's Board to transition into ARB's compliance offset program. Recognition of early action offset credits will increase the supply of eligible compliance offset credits available in the short term.

Staff is proposing to allow offset credits issued according to the following protocols developed for four project types to be used for compliance purposes:

- Climate Action Reserve Livestock Protocol versions 1.0 through 3.0.
- Climate Action Reserve Urban Forestry Protocol versions 1.0 through 1.1.
- Climate Action Reserve Ozone Depleting Substances Protocol version 1.0.
- Climate Action Reserve Forestry Protocol version 2.1, or Climate Action Reserve Forestry Protocol versions 3.0 through 3.2, if the offset project has a conservation easement or has contributed offset credits based on its reversal risk to an insurance buffer account.

³⁶ Information found at: <http://www.climateactionreserve.org/>. (accessed October 24, 2010)

If an offset project has used one of the above-mentioned protocols, its offset credits may be used for compliance purposes if the GHG reductions meet the following criteria:

- Occurred between January 1, 2005, and December 31, 2014.
- Result from an offset project with an offset project commencement date prior to January 1, 2012.
- Result from an offset project located in the United States.
- Have not been retired, canceled, or used to meet a voluntary commitment or a surrender obligation in any voluntary or regulatory system.
- Meet the requirements for verification and conflict of interest for offset projects as required by the proposed regulation and required under AB 32 for all GHG reductions and GHG removals used for compliance purposes.

If an offset credit meets all of these requirements it may be used for compliance purposes. To avoid double-counting, the third-party offset program that issued the offset must retire it in their system before it is issued within ARB's tracking system.

Staff is aware that several voluntary offset programs currently use and may, in the future, use these protocols to issue offset credits. In the proposed regulation, staff includes requirements that an offset program must meet in order to have its offset credits issued according to these protocols for compliance purposes. If the program is an Offset Project Registry has been issued an Executive Order, it will be approved for purposes of recognizing early action offsets. If it has not been issued an Executive Order, it must prove it meets the requirements spelled out in the proposed regulation.

2. Sector-Based Offset Crediting Programs

Because climate stabilization requires global cooperation to reduce GHG emissions, staff proposes a framework for including sector-based offset credits from subnational programs in developing countries in the proposed regulation. Sector-based crediting is a concept that has emerged in international climate forums as an opportunity to broaden the scope and scale of emissions reductions in developing countries. It offers a bottom-up approach to developing-country mitigation, whereby host jurisdictions commit to establishing programs to reduce emissions in a particular sector of their economy, while jurisdictions in developed nations provide markets and other incentives to help finance those reductions.

The term *sector* refers to an economic activity or a group of related economic activities that occurs across a government jurisdiction. The cement and forest sectors are two examples. In a sector-based crediting program, a host jurisdiction's entire sector would need to meet an emission target before crediting

could be used in a California compliance market. The program's host jurisdiction would establish its own baseline (which would represent existing conditions for the particular sector) and a crediting baseline (which would represent a significant reduction in GHG emissions from its existing condition for the entire sector within that jurisdiction). Emissions reductions that occur below the crediting baseline could be issued credits that can be used by covered entities in the California compliance market, subject to approval of that program by the Board.

Sectoral approaches allow jurisdictions to focus on those economic sectors that have contributed the most significant GHG emissions within their jurisdiction or that have the potential for significant future emissions. By moving from a project-by-project approach, a sector-based crediting program can cover a larger geographical area or market and reduce the risk of emissions leakage within the jurisdiction. By crediting a sector based on some target level of reductions, competitiveness concerns among trade-exposed sectors can also be alleviated.

The regulation establishes a framework for accepting sector-based offset credits from developing countries. While staff is not proposing to approve any sector-crediting programs or adopt any protocols for sector-based offset credits at this time, this framework should help provide a necessary incentive for developing countries³⁷ to reduce their emissions and work toward meeting compliance grade sector-based offset credit requirements in California.

California has been working with state and provincial partners in two major initiatives exploring and developing sector-based offset crediting mechanisms. First, Governor Schwarzenegger established the Governors' Climate and Forests Task Force (GCF) in 2008. The GCF is a consortium of states and provinces aimed at establishing a market for forest carbon offset credits from reducing emissions from deforestation and forest degradation (REDD). Second, California has also been a leader and co-founder of the International Carbon Action Partnership (ICAP), a consortium of states and countries pursuing the development of carbon markets.

³⁷ *Developing countries*, for the purpose of this regulation, are defined as those identified as Non-Annex 1 Parties by the United Nations Convention on Climate Change (UNFCCC). These countries have been recognized as being especially vulnerable to the adverse impacts of climate change and include countries with low-lying coastal areas, those prone to desertification and drought, and those that rely heavily on fossil fuel production due to their economic vulnerability to climate change mitigation measures. *Least Developed Countries*, as identified by the United Nations, are included in this list due to their limited capacity to respond to climate change and adapt to its adverse effects. California will also take into consideration opportunities where emissions reductions also have significant health benefits.

a. Sector-Based Crediting Program Approval

Each sector-based crediting program will need to be approved by the Board, and ARB's review of each sector-based crediting program will include a public consultation process pursuant to the Administrative Procedure Act. Staff anticipates a limited number of sector-based programs will be approved in the near-term because of the intensive review each program will undergo. Initially, staff anticipates that the Board would limit itself to working with subnational jurisdictions that have the most advanced and promising infrastructure necessary to develop sector-based programs. Staff also proposes that the first sectors to be considered for approval be developed through existing partnerships such as the GCF and ICAP. To that end, REDD is likely to be the first type of sector-based crediting program brought to the Board for consideration, as is discussed below in more detail.

Some general principles that will guide ARB's review of sector-based crediting programs include the following:

- Whether the sector represents a significant portion of the host jurisdiction's economy-wide GHG emissions.
- Whether the opportunities for reductions resulting from the program are especially significant.
- Whether the host jurisdiction has employed robust emissions monitoring, reporting, and verification practices.
- Whether the host jurisdiction has a GHG emissions-reduction strategy that incorporates reductions from its own domestic actions or policies in addition to reductions that result from a carbon offset program.
- Whether the program has homogeneity of the product, production process, and concentration of firms located or operating within the jurisdiction.
- Whether the host-jurisdiction's program includes means for public participation and consultation in the program design process.

Following Board approval of a program, offset credits generated from the program can be used for compliance in the California cap-and-trade program, consistent with the regulation. ARB will evaluate opportunities for additional programs after the first programs are established and tested.

b. Crediting Pathways to Emissions Reductions

Staff proposes the inclusion of two crediting pathways for ARB-approved sector-based crediting programs. A *crediting pathway* refers to how a sector-based crediting program issues credits for reducing or avoiding emissions, or for removing and sequestering carbon from the atmosphere.

The first type of crediting pathway would be used when an ARB-approved program achieves sector-wide emissions reductions from mitigation policies undertaken by or in coordination with the jurisdiction. The second crediting pathway occurs when an ARB-approved program issues credits to project developers for project-level activities that are “nested” within a jurisdiction-wide sectoral program. A nested system must coordinate the accounting of reductions at the project within the jurisdiction’s own sectoral planning and accounting.

Under either crediting pathway, sector-based credits used for compliance in the California program must be additional to the host jurisdiction’s legal requirements and in excess of the host jurisdiction’s own commitment toward GHG emissions reductions for that sector. This additionality requirement ensures that the host jurisdiction is responsible for achieving a reasonable level of emissions reductions across the sector prior to credits being issued to covered entities.

c. Quantitative Limit

Because sector-based offset crediting programs are new and evolving, staff proposes to limit the number of sector-based offset credits allowed in the California compliance market to 25 percent of the overall quantitative offset limit during the first and second compliance periods, and 50 percent of the limit during the third compliance period.

d. General Sector-Based Offset Credit Program Elements

For the Board to consider a given sector-based crediting program for approval, the program would need to satisfy several criteria. While the proposed regulation establishes general requirements, staff will need to develop more sector-specific criteria and methodologies dependent upon the specific program considered prior to Board approval.

Programs must establish a business-as-usual reference-level baseline that accurately reflects the sector’s historic and/or potential future GHG emissions for that jurisdiction’s entire sector. The program would need an agreed level of deviation from the reference-level baseline, or *crediting baseline*, which is achieved through the jurisdiction’s direct policies and mitigation actions. Sector-based credits could then be used for compliance once GHG emissions are reduced beyond the program’s established crediting baseline. Emissions reductions must be verified by a third party to ensure reductions are real, additional, quantifiable, and permanent.

The program must also include a robust and transparent system for inventory, monitoring, and reporting to track and evaluate GHG reduction activities for the sector’s emissions performance over time. Inventory and monitoring for land-use sectors should reflect, at a minimum, Intergovernmental Panel on Climate

Change (IPCC) Tier 2 methodologies,³⁸ which apply country or region-specific emission factors and higher temporal and spatial resolution rather than more general default factors and course resolution. The program will also need to establish an accounting mechanism that has the ability to reconcile accounting at both the project and sector level, as well as nest into a national accounting system, if one exists. A program must also include a registry, mechanisms for credit retirement, and protection against reversals where applicable. Each sector may require its own set of unique set of criteria beyond the general criteria currently included in the regulation.

e. Reducing Emissions from Deforestation and Forest Degradation (REDD)

Staff proposes that the first sector-based credits to be incorporated in the cap-and-trade program come from Board-approved REDD sector-based crediting programs. This recommendation is based on the important role that forests play in climate change in terms of sequestering carbon, and in particular, the role that tropical forests play in directly affecting the climate. According to the Technical Summary from the IPCC Working Group,³⁹ CO₂ emissions from tropical deforestation and degradation account for approximately 17 percent of global greenhouse gas emissions to the atmosphere, representing the second largest emissions sector after fossil fuel use.

The significance of deforestation emissions has brought the issue to the forefront of both domestic and international negotiations. Attention has focused on developing a REDD mechanism that offers incentives for domestic actions to further avoid deforestation and to transition to a low-carbon economy. In the above-mentioned Technical Summary, the IPCC has stated that “Reduced deforestation and degradation is the forest mitigation option with the largest and most immediate carbon stock impact in the short term per hectare and per year globally.” For California’s cap-and-trade program, sector-based credits from avoided deforestation are a potentially promising opportunity for covered entities to reduce compliance costs while ensuring net reduction of GHG emissions to the atmosphere.

³⁸ Paustian, K. et al. IPCC Guidelines for National Greenhouse Gas Inventories. Volume 4, Chapter 1, (2006). Found at: http://www.ipcc-nrgip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_01_Ch1_Introduction.pdf. See Page 1-11, Box 1.1 Framework of Tier Structure for Agriculture, Forestry, and Other Land Use Methods.

³⁹ Nabuurs, G. J., O. Masera, et al. (2007). Forestry. Climate Change 2007: Mitigation of Climate Change. Contributions of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. M. Apps and E. Calvo. New York, Cambridge University Press. Found at: http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch9.html

Since 2008, California established itself as a leader in the REDD effort at the subnational level through the creation of and participation in the GCF process, creating global subnational partnerships and a blueprint for supporting eligible forest carbon activities in REDD programs. Subnational jurisdictions that are members of the GCF are home to 21 percent of the world's tropical forests, most of which are experiencing severe deforestation pressure for alternative uses, such as large-scale agriculture, and ranching.⁴⁰

While REDD poses significant emissions mitigation opportunities, the concept is newly emerging, and it is imperative that California moves forward carefully with the goal of establishing a REDD model for subnational programs that is of high quality and replicable.

i. Setting a Framework and Criteria for Subnational REDD Programs

A protocol must be developed and approved by the Board to quantify, monitor, report, and verify emissions reductions achieved by REDD programs. To be considered for approval by the Board, a REDD program will need to be designed as closely to the following framework and criteria as possible:

- *REDD Plan.* The host jurisdiction's REDD program must be based on a forest sector plan that has been approved by the host jurisdiction and specifically:
 - Assesses the local drivers of deforestation in its jurisdiction; identifies reforms and policies to address these drivers; identifies emissions from deforestation; and identifies systems to be used for data collection, monitoring, and the development of institutional capacity necessary to implement a deforestation reduction program.

⁴⁰ Gibbs, H. K. and J. O. Niles. 2010 (unpublished). Preliminary Estimates of Forest Area and Forest Carbon Stocks in Developing Country GCF States and Provinces. Tropical Forest Group Report for the Governors' Climate and Forest Taskforce (GCF). Boulder, CO. 2010. Based on: A. Ruesch, and H.K. Gibbs. 2008. New IPCC Tier-1 Global Biomass Carbon Map For the Year 2000. Available online from the Carbon Dioxide Information Analysis Center <http://cdiac.ornl.gov>, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Note: Carbon estimates are based on Ruesch and Gibbs (2008) spatial database of biomass carbon stored in above and belowground living vegetation, circa 2000, which was created following the International Panel on Climate Change (IPCC) Good Practice Guidance for reporting national greenhouse gas inventories. The team synthesized and mapped the IPCC Tier -1 default values using the GLC2000 global land cover map stratified by continent, ecoregion and forest disturbance level. The database is appropriate for regional to global assessments only and has not been validated with field data and therefore may be used for estimations. Spatial resolution is 1km by 1km.

http://cdiac.ornl.gov/epubs/ndp/global_carbon/carbon_documentation.html

- Establishes a timeframe for implementing the program and transitioning to low emissions development with respect to emissions from forest and land use activities.
- *Inventory.* The REDD program must utilize the most up-to-date and comprehensive accounting of sources and sinks available to the host jurisdiction, and is consistent with estimates of carbon stocks and emissions based on forest classes defined in the Intergovernmental Panel on Climate Change *Good Practice Guidance for Land Use, Land Use Change, and Forestry*.⁴¹
- *Reference Level.* The REDD program must set a GHG emissions reference level that represents a conservative estimate across a jurisdiction's forest sector. Staff's initial thinking is that this reference level should be derived from absolute deforestation based on historic emissions averaged over a 10-year period and adjusted if necessary.
- *Crediting Baseline.* The REDD program must set a crediting baseline based on specific targets for 2020 and beyond.
- *Nested Accounting.* If the program is nested, it must include the necessary infrastructure for clear reconciliation of project performance with the performance of the sector as a whole.
- *Retirement.* The program must include a retirement mechanism for removing the credits that have been used for compliance from the state-level accounting system, crediting baseline, and credits retired.
- *Public Participation and Participatory Management Mechanism.* The REDD program must establish and incorporate an effective public participation and participatory management process that provides for the consultation and full involvement of forest-dependent communities in affected areas during the planning, design, implementation, monitoring, and evaluation of program activities.
- *Protection Against Reversals.* The REDD program must establish a statewide forest sector performance insurance mechanism to ensure projects are not penalized for reversals against the jurisdiction's crediting baseline.

⁴¹ Good Practice Guidance for Land-Use, Land-Use Change and Forestry, (2003). Edited by Penman J., et al. Published by the Institute for Global Environmental Strategies (IGES) for the IPCC. Found at: http://www.ipcc-nccc.iges.or.jp/public/gpglulucf/gpglulucf_contents.html.

ii. Next Steps for REDD Implementation

In 2011, ARB will work closely with REDD technical experts, scientists, stakeholders, research institutes, and the Governors' Climate and Forests Task Force to address critical technical and policy issues in order to refine guidance for a high-quality subnational REDD program. Staff anticipates that REDD offset credits from Board-approved programs could enter the California market in 2015. Staff is, however, contemplating how pilot activities with host-jurisdictions closest to having program infrastructure in place could be considered for approval earlier than 2015. A pilot program or group of pilot programs could provide REDD credits sometime during the first compliance period.



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About Us

As the premier carbon offset registry for the North American carbon market, the Climate Action Reserve encourages action to reduce greenhouse gas (GHG) emissions by ensuring the environmental integrity and financial benefit of emissions reduction projects.

The Reserve establishes high quality standards for carbon offset projects, oversees independent third-party verification bodies, issues carbon credits generated from such projects and tracks the transaction of credits over time in a transparent, publicly-accessible system.

The Reserve offsets program demonstrates that high-quality carbon offsets foster real reductions in GHG pollution, support activities that reduce local air pollution, spur growth in new green technologies and allow emission reduction goals to be met at lower cost.

Through its processes, multi-stakeholder participation and rigorous standards of the Reserve help earn confidence that registered emissions reductions are real, additional, verifiable, enforceable and permanent. The Reserve's expertise and insight helped inform the development of the State of California's cap-and-trade program, which adopted four of the Reserve's protocols for use in its regulation.

As the California Climate Action Registry, which was created by the State of California in 2001 to address climate change through voluntary calculation and public reporting of emissions. The California Registry helped over 415 leading California-based corporations, organizations, government agencies and municipalities to voluntarily calculate and publicly report their GHG emissions. Its established expertise in emissions accounting and its expertise in emissions reductions accounting for the North American carbon market.

Mission

To develop, promote and support innovative, credible market-based climate change solutions that benefit economies, ecosystems and society.

International Initiatives

In addition to development of the Mexico protocols for its core program, the Reserve has launched and engaged in many other international initiatives. This work has included development of international emissions reduction standards, collaborating with partners and serving as an expert consultant for governments and others.

In 2014, the Reserve began providing technical support to the Government of Kazakhstan to support the development of its emission trading program with reliable and trusted offset provisions. The Reserve is developing one or more standardized protocols for domestic carbon offset projects for Kazakhstan; providing technical support to the Ministry of Environmental Protection (MEP) to implement a program to evaluate and register offset projects; training project developers in the country to develop and submit projects under the protocols; and training verifiers in the country with respect to the protocols.

The Reserve has also conducted training for the government of South Korea, has engaged with and supported the World Bank's Partnership for Market Readiness, and is actively seeking opportunities to support emerging carbon trading programs and markets.

The Reserve has expanded its regulatory-quality work in forestry standards and applied its expertise internationally. For many years, it has played an active role in the development of REDD+ standards internationally through its partnerships with the World Bank Forest Carbon Partnership Facility (FCPF) and the REDD Offset Working Group (ROW). Additionally, it has consulted on forestry issues with national and subnational governments, including Acre, Brazil.

The Reserve has also hosted delegations from China, Japan, South Korea, Russia, the United Kingdom, Australia, and Indonesia and has staged side events at and participated in the United Nations Conference of Parties for many years.

Annual Reports

2017 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2018/03/annual-report-2017-s-1.pdf>)
(<https://www.climateactionreserve.org/wp-content/uploads/2018/03/annual-report-2017-s-1.pdf>).

2016 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2017/05/annual-report-2016-final-small.pdf>).
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2015 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2016/04/Climate-Action-Reserve-2015-Annual-Report.pdf>).
(<https://www.climateactionreserve.org/wp-content/uploads/2016/04/Climate-Action-Reserve-2015-Annual-Report.pdf>).

2014 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2015/05/CAR-AR-2015-Final.pdf>).
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2013 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2014/04/CAR-AnnualReport-FINAL.pdf>).
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2012 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2013/08/CAR-AnnualReport-FINAL.pdf>).
(<https://www.climateactionreserve.org/wp-content/uploads/2013/08/CAR-AnnualReport-FINAL.pdf>).

2011 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2012/05/Reserve-annual-report-2011.pdf>).
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2010 Annual Report (https://www.climateactionreserve.org/wp-content/uploads/2011/06/Annual_Report_2010.pdf).
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2009 Annual Report (<https://www.climateactionreserve.org/wp-content/uploads/2009/03/2009-Annual-Report.pdf>).
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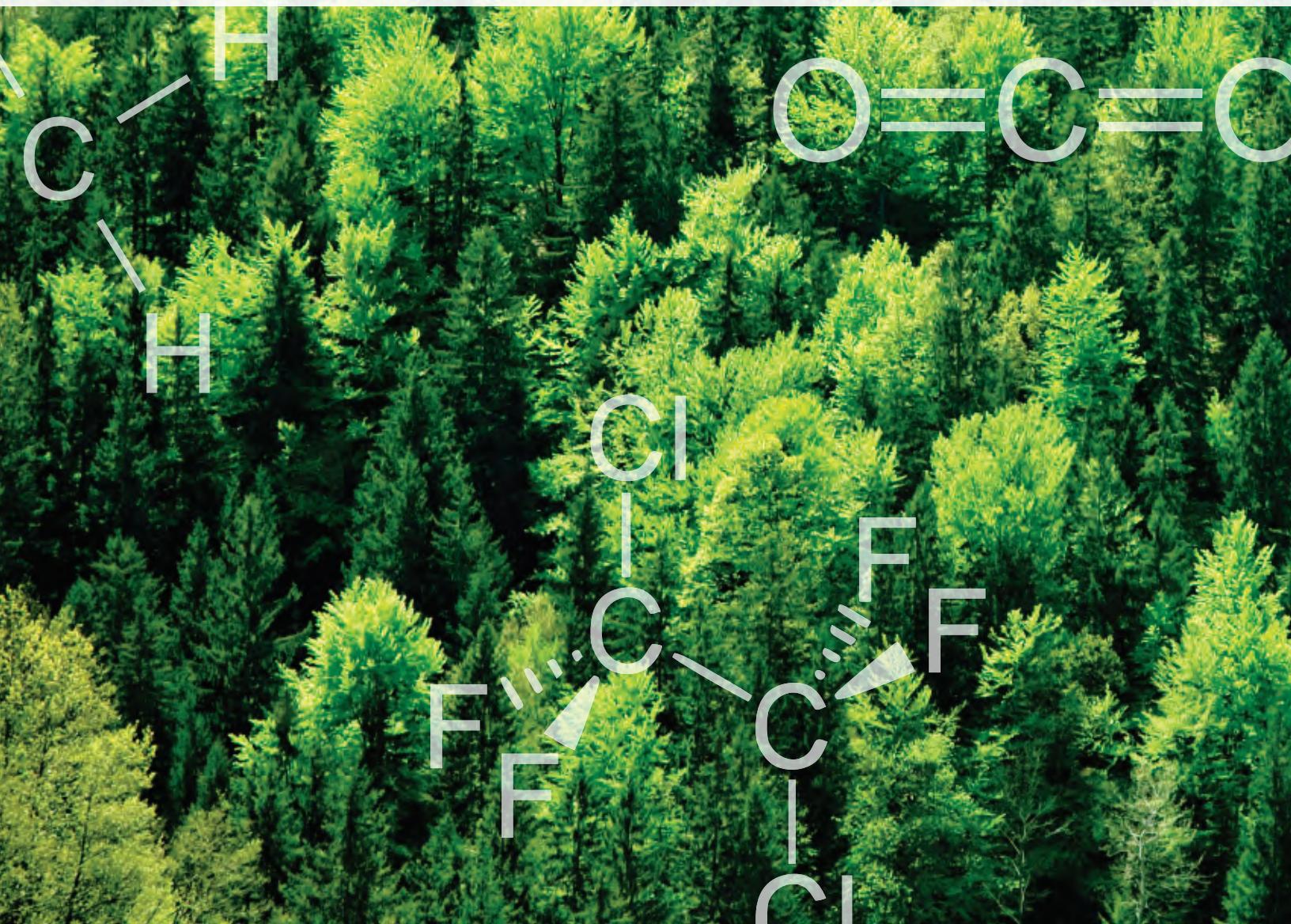
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Program Manual

September 1, 2015



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For information, comments or questions, please email
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Climate Action Reserve Program Manual

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1 Introduction

The voluntary carbon market has the potential to significantly facilitate efforts to reduce greenhouse gases in the atmosphere and to help mitigate climate change. At the same time, there has been a great need for increased environmental integrity, transparency, rigor, and accuracy in this market. The Climate Action Reserve (Reserve) was created to meet this need by providing a rigorous set of protocols, guidelines, and tools to support the voluntary carbon market. The Reserve is intended to increase certainty and build confidence in the greenhouse gas (GHG) reduction market on the part of investors, project developers, the environmental community, and the public.

This Program Manual summarizes the Reserve's overarching principles, its general project accounting guidelines, and its rules and procedures for registering projects and creating offset credits for the voluntary market. It also describes the process used by the Reserve to develop protocols for determining the eligibility of, and quantifying reductions from, carbon offset projects.

Detailed information on the Reserve's general operating procedures and verification program can be found in the following documents:

- Climate Action Reserve Operating Procedures
<http://www.climateactionreserve.org/open-an-account/>
- Climate Action Reserve Terms of Use
<http://www.climateactionreserve.org/open-an-account/>
- Climate Action Reserve Verification Program Manual
<http://www.climateactionreserve.org/how/program/program-manual/>

Guidance in this Program Manual is limited to the Reserve's program serving the voluntary carbon market. For information on the Reserve's role as an Early Action Offset Program and Offset Project Registry for the California Compliance Offset Program, please see the following resources:

- Climate Action Reserve California Compliance Offset Program website
<http://www.climateactionreserve.org/how/california-compliance-projects/>
- California Air Resources Board Compliance Offset Program website
<http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm>

1.1 The Climate Action Reserve

The Climate Action Reserve is a national offsets program working to ensure integrity, transparency, and financial value in the U.S. carbon market. It does this by establishing regulatory-quality standards for the development, quantification, and verification of GHG emission reduction projects in North America; issuing carbon offset credits known as Climate Reserve Tonnes (CRTs) generated from such projects; and tracking the transaction of credits over time in a transparent, publicly-accessible system. Adherence to the Reserve's high standards ensures that emission reductions associated with projects are real, permanent, and additional, thereby instilling confidence in the environmental benefit, credibility, and efficiency of the U.S. carbon market.

At the heart of the Reserve is a publicly accessible web-based system where owners and developers of carbon offset projects can register project information along with verification

reports demonstrating GHG emission reductions. Emission reductions are verified as CRTs, which provide title assurance and unique serial number identifiers to assure that each metric ton is counted and retired only once.

The Reserve uses a rigorous, open, and comprehensive process for developing all of its protocols. The Reserve's primary focus is on accurate and conservative GHG accounting to ensure that the emission reductions it certifies are real, permanent, additional, verifiable, and enforceable.

1.2 Reserve Program Principles

The Reserve's program rules and procedures, eligibility criteria, and quantification and verification protocols are designed to ensure that GHG emission reductions certified by the Reserve are:

- **Real:** Estimated GHG reductions should not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions should be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage").
- **Additional:** GHG reductions must be additional to any that would have occurred in the absence of the Climate Action Reserve, or of a market for GHG reductions generally. "Business as usual" reductions – i.e. those that would occur in the absence of a GHG-reduction market – should not be eligible for registration.
- **Permanent:** In order to function as offsets to GHG emissions, GHG reductions must effectively be "permanent." This means, in general, that any net reversal in GHG reductions used to offset emissions must be fully accounted for and compensated through the achievement of additional reductions.
- **Verified:** GHG reductions must result from activities that have been verified on an *ex post* basis. Verification requires third-party review of monitoring data for a project to ensure the data are complete and accurate.
- **Owned Unambiguously:** No parties other than the registered project developer must be able to reasonably claim ownership of the GHG reductions.

In addition, the Reserve strives to ensure that the offset projects it registers are **not harmful**. Project activities should not cause or contribute to negative social, economic or environmental outcomes and ideally should result in benefits beyond climate change mitigation.

Finally, the Reserve strives for **practicality**, by integrating rigorous requirements with time- and cost-minimizing steps for project developers. Practicality involves alleviating potential barriers to GHG project implementation without compromising credibility.

2 Program Level GHG Reduction Accounting Guidelines

The Reserve develops protocols specifying eligibility criteria and detailing steps to estimate, monitor, and verify GHG reductions achieved by specific types of projects. While each project protocol contains guidance specific to individual project types, Reserve protocols also adhere to general project accounting principles. This section describes the Reserve's standardized project accounting guidelines that are the foundation for all project protocols.

2.1 General Approach, Principles, and References

The Reserve strives to develop protocols that are "standardized" in nature, meaning they apply standardized factors and eligibility rules to the extent possible while maintaining sufficient rigor and accuracy. In addition, the form and content of Reserve protocols follow internationally established accounting principles and standards.

2.1.1 Standardized Offset Crediting

A core objective of the Climate Action Reserve is to adopt "standardized" approaches to offset crediting. Standardized offset crediting has two main elements:¹

1. Determining the eligibility and additionality of projects using standard criteria, rather than project-specific assessments.
2. Quantifying GHG emission reductions using standard baseline assumptions, emission factors, and monitoring methods.

The main goal of standardized offset crediting is to minimize the subjective judgment required in evaluating whether a project should receive credit for emission reductions, and in determining how much credit it should receive. Compared to project-specific assessment and analysis, standardized crediting reduces transaction costs for project developers, alleviates uncertainties for investors, and increases the transparency of project approval and verification decisions. Furthermore, the Reserve believes that appropriately designed standardized protocols can be as rigorous as project-specific approaches in ensuring additionality and environmental integrity (see Section 2.4.1 below for further discussion of standardized additionality tests).

Three challenges with standardized crediting are worth noting. First, developing standardized methods for determining additionality and estimating baselines requires significant upfront research and analysis. In order to avoid the need for extensive data collection and analysis on a project-by-project basis, the Reserve invests significant time and resources to establish credible benchmarks and emission factors that can be applied to similar projects throughout an entire industry or sector. The Reserve may frequently build off existing project-specific methodologies, but in general will augment these methodologies with further analysis to establish standardized tests and metrics.

Second, because "business as usual" activities can vary significantly across different geographic areas, standardized benchmarks and factors for one region will not necessarily be appropriate for other regions. Therefore, standardized protocols will almost always apply to a specific, limited geographic area. Every Reserve protocol specifies the geographic region(s) to which it applies. In adapting protocols for other geographic regions, the Reserve engages in a

¹ For further reference, see Broekhoff, D., 2007. *Expanding Global Emissions Trading: Prospects for Standardized Carbon Offset Crediting*. International Emissions Trading Association, Geneva.

full stakeholder process designed to assess and incorporate region-specific benchmarks and factors.

Third, not all possible offset project types are equally amenable to standardized crediting.² For some types of projects, determining additionality and estimating baseline emissions cannot be done credibly and accurately on a standardized basis. In general, the Reserve will avoid developing protocols for these project types. Alternatively, the Reserve may incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of protocols to address only activities and conditions for which standardized approaches are feasible.

2.1.2 Reference Standards

The Reserve's offset project protocols are designed to be consistent with the principles, requirements, and guidance of two overarching standards for project-based GHG accounting:³

- International Organization for Standardization (ISO) 14064, Part 2
- The World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting

Both standards contain consistent general requirements for quantifying reductions in GHG emissions (or increases in carbon sequestration) that result from project-based activities, including requirements for:

1. Establishing GHG accounting boundaries
2. Estimating baseline emissions
3. Determining project-case emissions
4. Monitoring project activities

Although the ISO and WRI/WBCSD standards are largely consistent in their basic requirements, they have different terminologies and structures. Reserve protocols may utilize terminology from either or both standards depending on circumstances. The structure and general content of Reserve protocols are presented in the remainder of this section.

2.2 GHG Accounting Principles

There is now strong international consensus around a core standard set of overarching principles to guide decisions about the accounting, quantification, and reporting of project-based GHG reductions. These consensus principles are listed and defined in both the ISO and WRI/WBCSD standard referenced above. Definitions of these principles differ slightly between the two standards; the Reserve interprets the principles as follows in developing its protocols:

- **Relevance:** Data, methods, criteria, assumptions, and accounting boundaries should be chosen based on their "intended use." For the Reserve, this means protocols are

² Ibid.

³ International Organization for Standardization, 2005. *ISO 14064, 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, Geneva, Switzerland; World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

designed around standardized, practical approaches to GHG accounting while still adhering to other core accounting principles.

- **Completeness:** All relevant information should be considered when developing criteria and procedures, and all relevant GHG emissions and removals should be accounted for. Reserve protocols comprehensively identify the GHG sources, sinks, and reservoirs affected by project activities and require accounting for all significant changes in GHG emissions or removals that may result from a project. Where there are multiple baseline possibilities, protocols must thoroughly address identification and quantification methods for each possibility.
- **Consistency:** Data, methods, criteria, and assumptions should allow meaningful and valid comparisons of the GHG reductions achieved by different projects. Reserve protocols are standardized to apply consistent GHG accounting and monitoring methods to all projects of the same type. Reserve protocols are also designed to reflect similarly rigorous and conservative accounting methods and assumptions for all project types.
- **Transparency:** Sufficient information should be disclosed to allow reviewers and stakeholders to make decisions about the credibility and reliability of GHG reduction claims with reasonable confidence. Access to sufficient and appropriate GHG-related information is critical for assuring users of the Reserve that a project's GHG reduction claims are credible. To this end, the Reserve uses an open, consultative process for developing protocols; makes protocols publicly available; requires regular, rigorous, and complete reporting from registered projects; and provides a publicly accessible database detailing all relevant information used to quantify GHG reductions for each registered project. In addition, the Reserve's standardized protocols reduce ambiguities associated with how project-related information is interpreted.
- **Accuracy:** Uncertainties and bias should be reduced as far as is practical. Greater accuracy in estimating GHG emissions and reductions will help ensure credibility of GHG reduction claims. Reserve protocols require that quantification of GHG reductions and monitoring of GHG emissions and other variables be conducted within acceptable levels of uncertainty. All GHG reduction estimates must pass rigorous review by an independent verification body. Where accuracy is difficult to achieve, Reserve protocols will err on the side of being conservative with GHG reduction estimates.
- **Conservativeness:** Conservative assumptions, values, and procedures should be used to ensure that GHG reductions are not over-estimated. Reserve protocols employ conservative estimation methods whenever data and assumptions are uncertain and measures to reduce uncertainty would be impractical.

2.3 Project Definition

A GHG project is a specific activity or set of activities intended to reduce GHG emissions, increase the storage of carbon or enhance GHG removals from the atmosphere.⁴ A GHG project is considered to be a “carbon offset” project if the GHG reductions or removals it generates are used to compensate for GHG emissions occurring elsewhere.⁵ Projects that meet the Reserve’s standards are issued emission reduction or removal credits, and those credits act as offsets when they are certified and retired in the Reserve’s online registry. The Reserve’s primary purpose is to certify GHG reductions as carbon offsets.

⁴ World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), 2005. *The GHG Protocol for Project Accounting*. World Resources Institute, Washington, D.C.

⁵ Offset Quality Initiative, 2008. *Ensuring Offset Quality: Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy*. Available at: <http://www.offsetqualityinitiative.org/>.

Every Reserve protocol clearly defines the type of activity (or activities) that constitute a GHG reduction project. A clear project definition ensures that GHG quantification methods prescribed by the protocol are applied only where they are relevant and appropriate. The “project definition” section of each protocol specifies the kinds of activities that must be undertaken to reduce GHG emissions (or increase removals), the required conditions that must be met for these activities, and the necessary elements of project design and implementation.

2.3.1 Project Types

The Reserve only registers GHG projects that follow project protocols that have been developed by the Reserve. In other words, only projects meeting the requirements of project protocols that have been approved and adopted by the Reserve’s Board are eligible for registration on the Reserve. The Reserve may establish linkages with additional programs in the future to allow other projects to be registered.

Approved project protocols and information on additional project protocols in development are available for download at <http://www.climateactionreserve.org/how/protocols/>.

2.4 Project Eligibility Criteria

Eligibility criteria specify essential characteristics a project must have in order to register with the Reserve, as well as the conditions under which the Reserve will issue CRTs to a project. In Reserve protocols, eligibility criteria serve three main purposes:

1. To ensure that baseline estimation methods and emission factors prescribed by the protocol are relevant and appropriate. Reserve protocols use standardized baseline estimation methods that are calibrated to specific geographic regions; to be eligible, projects must be located in an appropriate geographic region.
2. To ensure that projects are “additional.” To test for additionality, the Reserve employs objective criteria designed to distinguish additional projects from those that would have happened anyway (i.e. in the absence of an offset market). These criteria fall into two categories: (1) a legal requirement test, and (2) a performance standard test. These tests are explained and described further below.
3. To ensure that projects adhere to all applicable laws and do not cause adverse environmental, social or economic impacts.

Generally, the Reserve seeks to specify eligibility criteria that are as standardized and objective as possible. This means that criteria will be designed to require a minimum amount of subjective judgment in determining whether a project is eligible.

2.4.1 Additionality Determinations

Within existing carbon offset programs, there are two basic approaches to determining “additionality”: project-specific and standardized. The Reserve applies a standardized approach to determining additionality, where performance standards and other conditions or criteria that projects must meet in order to be considered additional are determined by the Reserve. These standards and criteria are established separately for each project type, and are designed to exclude non-additional (or “business as usual”) projects from eligibility. In all cases, projects that are required by law or regulation are excluded. Other criteria and conditions are specified in each project protocol.

This approach differs from some other offset programs, where additionality is assessed using information and analysis specific to each project (see Box 1). It avoids the need to subjectively interpret individual project developers' assertions about additionality, and sends a clear signal to market participants about which projects will be eligible and which ones will not. Like any testing method, however, it is potentially subject to error. The Reserve strives to establish rigorous standards for additionality that serve to exclude the vast majority of non-additional projects. At the same time, the Reserve acknowledges that no system of testing for additionality is perfect, and it reserves the right to update and modify additionality criteria over time in light of new data and information.

Box 1. Project-Specific vs. Standardized Additionality Tests

Project-specific approaches to determining additionality seek to assess, by weighing certain kinds of evidence, whether a project in fact differs from a hypothetical baseline scenario in which there is no carbon offset market. Generally, a project and its possible alternatives are subjected to a comparative analysis of their implementation barriers and/or expected benefits (e.g. financial returns). If an option other than the project itself is identified as the most likely alternative for the "business as usual" (or "baseline") scenario, the project is considered additional. The Kyoto Protocol's Clean Development Mechanism (CDM), a global carbon offset program for projects in developing countries, requires project-specific additionality tests.

Standardized, or performance-based, approaches to additionality evaluate projects against a consistent set of criteria designed to exclude non-additional projects and include additional ones on a sector-wide basis. For example, standardized tests could involve determinations that a project:

- Is not mandated by law
- Exceeds common practice
- Involves a particular type of high-performing technology
- Has an emission rate lower than most others in its class (e.g. relative to a performance standard)

From a regulatory perspective, standardized performance-based additionality tests are advantageous in that they are less subjective and administratively easier to implement than project-specific tests. Additionally, they can reduce transaction costs for project developers, alleviate uncertainties for investors, and increase the transparency and consistency of regulatory decisions. For further discussion of these two approaches, see Broekhoff, D., 2007. *Expanding Global Emissions Trading: Prospects for Standardized Carbon Offset Crediting*. International Emissions Trading Association, Geneva.

The Reserve incorporates standardized additionality tests in all of its protocols. These tests generally have two components: a legal requirement test and a performance standard test.

2.4.1.1 Legal Requirement Test

Projects are very likely to be non-additional if their implementation is required by law. A legal requirement test ensures that eligible projects (and/or the GHG reductions they achieve) would not have occurred anyway in order to comply with federal, state or local regulations, or other legally binding mandates. A project passes the legal requirement test when there are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions or other legally binding mandates requiring its implementation, or requiring the implementation of similar measures that would achieve equivalent levels of GHG emission reductions.

In Reserve protocols, the specific provisions of the legal requirement test may differ depending on the project type. During protocol development, the Reserve performs a review of existing and pending regulations to identify any specific regulatory requirements that would mandate the implementation of project activities covered by the protocol. If such requirements are identified, then project activities in relevant jurisdictions may be categorically excluded from eligibility.

In addition, Reserve protocols require project developers to review and determine whether federal, state or local regulations and other legal requirements (including local agency ordinances or rulings) require the implementation of their project. This review is always required at the time a project is registered and may be required each verification period thereafter depending on the protocol. Generally, Reserve protocols will stipulate the following:

- Project monitoring plans must include procedures that the project developer will follow to periodically ascertain and demonstrate that the project passes the legal requirement test.
- Project developers must submit a signed Attestation of Voluntary Implementation form stipulating that the project is not required by law.

2.4.1.2 Performance Standard Test

Projects that are not legally required may still be non-additional if they would have been implemented for other reasons, e.g. because they are attractive investments irrespective of carbon offset revenues. Performance standard tests are intended to screen out this potential set of projects. In developing performance standards, the Reserve considers financial, economic, social, and technological drivers that may affect decisions to undertake a particular project activity. Standards are specified such that the large majority of projects that meet the standard are unlikely to have been implemented due to these other drivers. In other words, incentives created by the carbon market are likely to have played a critical role in decisions to implement projects that meet the performance standard.

Although performance standard tests do not require individual project assessments of financial returns and implementation barriers, they are designed to reflect these factors in determining which projects are additional. Projects that pass a performance standard test should be those that – in the absence of a carbon offset market – would have insufficient financial returns or would face other types of insurmountable implementation barriers.

In Reserve protocols, performance standards may be specified in several ways:

- *Emission rate thresholds.* For some project types, a performance standard may be specified in terms of a rate of GHG emissions (usually per unit of production of some product or service, e.g. tonnes of CO₂ per megawatt-hour). Generally, the threshold rate would be based on a level of performance that is significantly better than average for the industry or sector. Projects that have lower emission rates than the threshold, for example, would be considered additional.
- *Practice- or technology-based thresholds.* Performance standards may also be specified in terms of a specific practice or technology that is rarely or never implemented in the absence of a carbon offset market. Such standards are generally based on surveys of the market penetration rates of candidate practices or technologies. Projects employing a qualifying technology or practice are automatically considered additional.
- *Other qualifying conditions or criteria.* Performance standards may also incorporate, or be based on, other specific qualifying conditions that a project must meet in order to be

considered eligible. Conditions may include characteristics related to the project site, specifications for a particular eligible technology or practice, or other contextual factors. Projects meeting the conditions would be considered additional.

Several specifications may be combined in a single performance standard test. For example, a protocol may define a performance standard in terms of a specific type of technology that has an emission rate below a certain threshold and is implemented at an eligible project location.

Performance standard tests are developed through extensive analysis of standard practices and technology deployment in industry sectors related to a project type. They may also be based on an assessment of “typical” financial, implementation, and operating conditions facing a certain type of project. Most Reserve protocols contain an appendix explaining and summarizing the analyses undertaken to establish the protocol’s performance standard.

The Reserve has no predefined threshold for determining an acceptable performance standard. Rather, establishing performance standards involves balancing the need to restrict eligibility for non-additional projects with the goal of allowing additional (and otherwise eligible) projects to participate. Setting a threshold always involves making tradeoffs between these two goals, and may also involve considerations about the size of the market for carbon credits and the potential supply of reductions available from certain project types.⁶ See Box 2 for further discussion and a hypothetical example.

Box 2. Determining Acceptable Performance Standard Thresholds

A common rule of thumb for establishing performance standards is that they should make eligible only technologies or practices that are not “common practice.” However, “common practice” is often difficult to define. Instead of adopting a simple rule for defining “common practice” (as a threshold market penetration rate, for example) the Reserve requires setting performance standards based on an overall assessment of the market for GHG reductions and the risk of crediting too many non-additional reductions.

For example, suppose a particular emission-reducing technology has a market penetration rate of five percent. Colloquially, such a technology would not be considered “common practice.” However, if a threshold were established allowing all instances of this technology to be eligible for offset crediting, we could expect existing users of the technology to apply for credit despite the fact that they were employing it already, without any incentives from the carbon market. This will have consequences for the integrity of the carbon market. Whether such consequences are serious depends on the potential supply of reductions from this technology compared to overall demand for reductions. If five percent of the market would result in hundreds of millions of tonnes of GHG reductions, for example, then a simple technology-based threshold would be too lenient, and the Reserve would explore using additional criteria that could further exclude “business as usual” instances of the technology despite its relative rarity. If five percent of the market would result in only a few thousand tonnes of GHG reductions, then the Reserve may consider a simple technology-based threshold acceptable.

⁶ For further discussion of setting thresholds and establishing the parameters for addtionality tests, see Trexler, M., D. Broekhoff, and L. Kosloff, 2006. “A Statistically-Driven Approach to Offset-Based GHG Addtionality. Determinations: What Can We Learn?” in *Sustainable Development Law & Policy*, Volume VI, Issue 2, Winter 2006.

2.4.2 Project Location

Projects throughout the United States are eligible to be registered with the Reserve. Some project types are also eligible in Mexico. Project developers should check the project location eligibility requirements specified in each project protocol.

2.4.3 Project Start Date

In general, the start date for a project will correspond to the start of the activity that generates GHG reductions (sometimes referred to as “start of operations”). Specific requirements for determining the start date of a project are contained in each protocol.

The Reserve limits the eligibility of projects according to their start dates. Start date restrictions are intended to accommodate “early actors” for a period of time following the adoption of new protocols, but to otherwise restrict eligibility to new projects. The Reserve’s general policy is as follows:

1. For qualifying projects that have not previously been listed or registered on a greenhouse gas registry or program:
 - a. For a period of 12 months following the adoption by the Reserve Board of any new protocol, the Reserve will accept projects for listing with start dates (as defined in the protocol) that are no more than 24 months earlier than the date of the Reserve protocol’s adoption. These are considered pre-existing projects.
 - b. After the 12-month period following the date of the Reserve protocol’s adoption, the Reserve will accept projects for listing with start dates (as defined in the protocol) that are no more than 6 months prior to the date on which they are submitted. A project submitted within 6 months of its start date is considered a “new” project.
2. For qualifying projects that have previously been listed or registered on a greenhouse gas registry or program:
 - a. Projects with start dates (as defined in a relevant Reserve protocol) on or after January 1, 2001 but more than 24 months earlier than the date of adoption of a relevant new Reserve protocol – and which were listed or registered with another registry or program at least 24 months earlier than the date of adoption of the new Reserve protocol – may apply for transfer to the Reserve. These are considered pre-existing projects.
 - b. Projects with start dates (as defined in a relevant Reserve protocol) that are no more than 24 months before and no more than 12 months after the date of adoption of a relevant new Reserve protocol – and that were listed or registered with another registry or program no more than 12 months after the date of adoption of the new Reserve protocol – may apply for transfer to the Reserve.
 - c. Projects with start dates (as defined in a relevant Reserve protocol) that are more than 12 months after the date of adoption of a relevant new Reserve protocol, and that were listed or registered with another registry or program within 6 months of the project start date, may apply for transfer to the Reserve.

The Reserve considers a protocol to be “new” if it:

- Covers an entirely new project type not covered by any of the Reserve’s existing protocols;
- Creates a wholly new category of eligible projects under an existing protocol (in which case only the new project category would qualify for a 12-month period of “early actor” eligibility); or
- Significantly expands the geographic coverage of the protocol (in which case only projects in newly covered geographic areas would qualify for a 12-month period of “early actor” eligibility).

If a new version of a protocol is adopted (e.g. updating from Version 1.0 to Version 2.0), this does not necessarily mean it will be considered a “new” protocol.

2.4.4 Project Crediting Period

The project “crediting period” defines the period of time over which a project’s GHG reductions are eligible to be verified as CRTs. In general, the start of a project’s crediting period will correspond to its start date.

The length of a project’s crediting period is defined in each project protocol. For most non-sequestration projects registered with the Reserve, there is a 10-year crediting period that may be renewed one time for a maximum of two 10-year crediting periods. For sequestration projects, the crediting period may be up to 100 years. Refer to each project protocol for specific details on allowable crediting periods.

If a project wishes to apply for eligibility under a second crediting period, it must do so by re-submitting project submittal forms within the final six months of the project’s initial crediting period and paying the project submittal fee. The project must meet all of the eligibility requirements of the most current version of the applicable protocol at the time of re-submittal to be eligible for a second crediting period.

Note that projects registered under early protocol versions that do not have provisions for a second crediting period can apply for one under the most current version of the protocol, if the most current version allows for a second crediting period.

Notwithstanding any pre-defined crediting period, projects that become required by law will not be eligible to receive CRTs for the reductions they generate, unless otherwise specified in the protocol. Thus, in most cases, if a project becomes subject to a regulation, ordinance or permitting condition that effectively requires its implementation, the project can no longer be considered additional and its crediting period will be terminated. The crediting period will likewise be terminated if the emission sources affected by a project are included under an emissions cap (e.g. under a state or federal cap-and-trade program) or GHG emissions from the project/project site are directly regulated by a local, state or federal agency. As specified in each protocol, emission reductions may be reported to the Reserve until the date that a regulation or emissions cap takes effect.

Details on the allowable crediting period for each type of project recognized by the Reserve are contained in each protocol.

Once a project has reached the end of its crediting period(s) and is no longer being issued CRTs, the project is considered “completed.” Although the project is completed, project information remains publicly available through the Reserve software indefinitely.

2.4.5 Bundling/Aggregation of Projects

Only certain types of Reserve-recognized GHG projects may be aggregated for registration and reporting purposes. Generally, each GHG project, as defined by the project definition and/or project boundary (described in each protocol), must register separately with the Reserve. However, protocols for certain project types may allow project boundaries to span multiple activities or locations. For example, the Livestock Project Protocol covers centralized manure digesters by allowing the project boundary to include all individual livestock operations that contribute manure to the centralized processing facility, as well as the centralized facility itself. The Reserve has also developed aggregation guidelines for project types in the agriculture sector and for small-scale forest projects, which allow forest inventory and verification requirements to be streamlined for individual projects.

Project developers should check specific project protocols and associated guidance documents for direction on whether and how aggregation is allowed.

2.4.6 Regulatory Compliance and Environmental and Social Safeguards

The Reserve requires project developers to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice. When registering a project, the project developer must attest that the project was in material compliance with all applicable laws, including environmental regulations, during the verification period. The project developer is also required to disclose any and all instances of non-compliance – material or otherwise – of the project with any law to the Reserve and the verification body.

If a project or project activities have caused a material violation, then CRTs will not be issued for GHG reductions that occurred during the period(s) when the violation occurred. Individual violations due to “acts of nature” or due to administrative or reporting issues (such as an expired permit without any other associated violations or tardiness in filing documentation) are not considered material and will not affect CRT crediting. If it is determined that a project was out of compliance after CRTs have been issued, CRTs may be cancelled for the time period of non-compliance.

A violation is considered to be “caused” by a project or project activities if it can be reasonably argued that the violation would not have occurred in the absence of the project activities. If there is any question of causality, the project developer shall disclose the violation to the verifier.

In addition, individual protocols may contain requirements designed specifically to ensure environmental and social safeguards. Individual protocols may allow for project developers to report measures taken to avoid negative impacts. Individual protocols may also encourage project developers to report on the potential environmental co-benefits of their projects, such as reductions in other air pollutants, improvements in water quality, enhancement of wildlife habitat, etc.

In developing environmental and social safeguard criteria and requirements for specific protocols, the Reserve applies the following general principles:

Common Agency

Environmental and social harms will only be considered in determining project eligibility⁷ to the extent that they can be attributed to the same agents (e.g. project developers, implementers or operators) in charge of implementing the project. Harms that may occur concurrently with a project, but are caused by other actors, will not be a factor in determining eligibility. The agents responsible, individually or collectively, for implementing projects will be determined during the protocol development process in consultation with stakeholders.

Proximity

Only environmental and social harms directly associated with a project activity (i.e. either physically or causally proximate) will be considered:

- Harms directly caused by project activities, regardless of where the harms physically occur, will be a factor in determining eligibility.
- Harms physically proximate to project activities but not directly caused by those activities may also be considered in determining eligibility if they are caused by agents responsible for project implementation. Such harms will be considered only if the agents are *required by the relevant protocol* to be involved in project implementation. Required agents will be specified in the Reserve's protocols, e.g. as part of the project definition or definition of eligible "project developers." If an agent is allowed, but not required, to be involved in project implementation, then physically proximate harms caused by that agent will not be considered (even if such an agent is directly involved with a particular project).
- Harms caused by agents in charge of implementing a project that occur at sites or facilities not linked or co-located with the project will *not* be a factor in determining eligibility.

Both agency and proximity of effects will be considered in the protocol screening and development processes to identify and set clear standards for the application of this policy.

In determining whether environmental and social harms are occurring, the Reserve will use the following criteria:

Legal Obligation

The Reserve will rely first and foremost on legal requirements within the jurisdiction(s) where the project is implemented. Project agents that are found to be out of material compliance with applicable laws, regulations or other legal mandates that apply to the project itself or activities proximate to the project will be penalized.

"Do No Harm" Beyond Legal Requirements

In some cases, the Reserve may determine, in consultation with stakeholders, that existing legal requirements are insufficient to guarantee protection against important environmental and social harms. In these cases, the Reserve may include additional criteria in protocols to ensure that projects will not give rise to these harms, or may screen out certain project types or activities from eligibility under a protocol altogether.

⁷ Either initial eligibility or eligibility to receive credits.

The Reserve coordinates with government agencies and environmental representatives to ensure that its climate-oriented projects complement other environmental policies and programs.

2.5 Defining the GHG Assessment Boundary

The GHG Assessment Boundary delineates the GHG sources, sinks, and reservoirs (SSRs)⁸ that must be assessed in order to determine the total net change in GHG emissions caused by a GHG reduction project.⁹ GHG Assessment Boundaries are defined for each type of project activity addressed in a Reserve protocol.

The GHG Assessment Boundary is not a boundary related to a project's physical location. Instead, it encompasses all SSRs that could be significantly affected by a project activity, regardless of where such SSRs are located or who owns or controls them. A comprehensive and clearly defined GHG Assessment Boundary is required in order to provide a complete accounting of the net GHG reductions achieved by a project. All SSRs within the GHG Assessment Boundary are included in the calculation of GHG reductions.

SSRs are only included in the GHG Assessment Boundary if a project activity will have a *significant* effect on their associated GHG emissions or removals. The Reserve determines significance based on an assessment of the range of possible outcomes for a relevant SSR. There is no numerical threshold for significance. Inclusion or exclusion of SSRs is determined for each protocol based on the principles of completeness, accuracy, and conservativeness, and the need for practicality (e.g. related to measurement and monitoring costs). In general, relevant SSRs will only be excluded from the GHG Assessment Boundary if:

1. Projects are likely to reduce GHG emissions (or increase removals) at a SSR, so that excluding the SSR would be conservative (i.e. doing so would result in an underestimation of total net GHG reductions for the project); or
2. The total increase in GHG emissions from *all* excluded SSRs is likely to be less than five percent of the total GHG reductions achieved by a project.¹⁰

For each included SSR, the protocols:

- Identify whether the SSR is present in the baseline, project case or both
- Identify whether and how GHG emissions, removals or storage from the SSR will be measured, calculated or estimated
- If GHG emissions, removals or storage will be estimated, justify why values will be estimated rather than measured (or calculated from other measurements)

⁸ Terminology is from International Organization for Standardization, 2005. *ISO 14064, 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, Geneva, Switzerland.

⁹ See World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

¹⁰ If excluding SSRs is unavoidable for practical reasons, then calculation and estimation methods related to included SSRs must be made suitably conservative in order to avoid overestimating total net GHG reductions.

Each protocol contains a table that:

- Lists all SSRs potentially affected by a project
- Explains or describes the SSR
- Indicates whether each SSR is included in the GHG Assessment Boundary
- Justifies instances where an SSR is excluded from the GHG Assessment Boundary
- Briefly describes how GHG emission values for the SSR will be determined, and justifies instances where such values will be estimated

Most protocols also contain a schematic diagram showing how different SSRs are related to each other and indicating which SSRs are included in or excluded from the GHG Assessment Boundary.

The Reserve does not restrict the GHGs that may be considered within the GHG Assessment Boundary. Any gas that has been determined by the IPCC to have a radiative forcing effect on the atmosphere may be considered for inclusion in a protocol. Reserve protocols may address gases other than the six GHGs regulated under the Kyoto Protocol (i.e. CO₂, CH₄, N₂O, SF₆, HFCs, and PFCs).

2.5.1 Physical Project Boundaries

For some types of projects, it is necessary to define a physical boundary for a project in addition to a GHG Assessment Boundary. Physical boundaries are defined in terms of the physical area affected by a project activity and possibly specific equipment or facilities involved. Protocols will only require identification of a physical boundary where a physical boundary is necessary to quantify the magnitude of GHG emissions, removals or storage associated with one or more SSRs included in the GHG Assessment Boundary. The primary example would be forest projects, where the amount of carbon stored by a project depends on the area of land on which the project activity takes place.

2.5.2 Leakage Accounting

The term “leakage” is often used to refer to unintended increases in GHG emissions that may result from a GHG reduction project. Generally, leakage occurs at SSRs that are physically distant from the project itself or otherwise outside the project’s physical boundaries. Because the Reserve requires the definition of a comprehensive GHG Assessment Boundary – which must include any and all SSRs associated with significant GHG emissions, regardless of their physical location – Reserve protocols generally do not require an explicit and separate accounting for “leakage” effects. Instead, all effects of a GHG reduction project – both positive and negative – are accounted for without distinguishing one kind of effect from another. This does not mean that Reserve protocols neglect or ignore what other methodologies or protocols identify as “leakage.”

Where helpful for conceptual understanding, Reserve protocols may organize SSRs according to whether they are associated with a project’s “primary” or “secondary” effects. A project’s primary effect is its intended effect on GHG emissions (i.e. intended GHG reductions). Secondary effects are unintended effects on GHG emissions, often associated with leakage.¹¹

¹¹ The terms “primary effect” and “secondary effect” are from the World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

2.6 Quantifying GHG Reductions

GHG emission reductions are quantified by comparing actual project GHG emissions to baseline GHG emissions. Baseline emissions are an estimate of the GHG emissions from sources within the GHG Assessment Boundary that would have occurred in the absence of the project (assuming the project is additional and would not have happened anyway). Project emissions are actual GHG emissions that occur at sources within the GHG Assessment Boundary. Project emissions must be subtracted from the baseline emissions to quantify the project's total net GHG emission reductions. For sequestration projects, the formula is reversed: the baseline carbon sequestration rate is subtracted from the project carbon sequestration rate.

For most protocols, GHG emission reductions must be quantified and verified on at least an annual basis. Project developers may choose to quantify and verify GHG emission reductions on a more frequent basis if they desire and if the protocol allows it. The length of time over which GHG emission reductions are quantified is called a "reporting period." The length of time over which GHG emission reductions are verified is called a "verification period." Under some protocols, a verification period may cover multiple reporting periods (see Section 3.4.2).

2.6.1 Estimating Baseline Emissions

Baseline emissions are always subject to uncertainty because they are counterfactual, i.e. they are an estimate of GHG emissions or removals that would have occurred in the absence of the project. Depending on the project type and SSRs involved, many methods can be used to try to estimate baseline emissions. The Reserve uses standardized baselines in its protocols to the extent possible, meaning that the same conservative assumptions, emission factors, and calculation methods are applied to all projects. Standardized baseline approaches seek to avoid case-by-case analysis of individual projects while maintaining overall levels of quantification accuracy and environmental integrity. Within Reserve protocols, however, project-specific calculations and emission factors may be used wherever necessary to ensure accuracy, or where standardized methods would result in estimates that are overly conservative in a large number of cases.

Standardized baselines are developed by considering broad trends (economic, technological, regulatory, and policy) in the industry or sector relevant to a project type and determining what future "business as usual" alternative activities are likely to be. To develop standardized baselines, the Reserve works with stakeholders to determine the most likely alternative technologies or practices. In many cases, a single practice, activity or technology is assumed to be the common baseline alternative for a class of project activities. In some cases, the performance threshold developed for additionality may also be used as an emissions baseline. After establishing a standard baseline alternative, the Reserve develops specific quantification steps, calculation methods, and formulas to estimate baseline emissions, incorporating site-specific data where appropriate. Depending on the project type, baseline emission estimates may either be fixed at the outset of a project, or they may be regularly updated using actual data collected during the project's operation (used to infer baseline conditions).

2.6.2 Quantifying Project Emissions

Project GHG emissions are quantified based as much as possible on actual measurements of project activity performance. GHG emissions for each SSR may be measured directly, or calculated from measurements of parameters from which GHG emissions can be derived. For SSRs where direct or indirect measurements are too costly or infeasible, project GHG emissions may be estimated using standard assumptions or models.

2.6.3 Quantification Methods

The Reserve develops methods to calculate baseline and project emissions that meet an acceptable level of accuracy. As a general rule, methods should ensure 95% confidence that actual emissions are within +/- 5% of measured or calculated values, although required levels of accuracy will often depend on the specific magnitudes involved and their materiality. Methods may employ one or more of the following approaches:

- **Emission factor** approaches use input data multiplied by specific emission factors that approximate emissions per unit of the input. The factors are derived from research or model simulations and they are typically categorized by variables such as geographic location, local climate data, tree species, equipment standards, etc.
- **Dynamic models** estimate processes that cause GHG emissions (or biological carbon sequestration). Model users input specific parameters and the model generates emission or removal estimates. Research studies identify the parameters as important drivers of emissions or removals. Sometimes the parameter may be chosen from data provided by the Reserve or they may need to be measured at the project location.
- **Direct emission measurement** uses special instruments that monitor the flow of GHGs from the source into the atmosphere. This involves instrumentation and monitoring of GHG emission sources on-site.

2.6.3.1 Quantification Uncertainty and Conservativeness

Where cost-effective methods for quantifying GHG emissions or carbon storage yield uncertain estimates (e.g. greater than a five percent range), it may not be possible to accurately quantify baseline or project emissions. In these cases, Reserve protocols must use conservative assumptions and/or parameter values that will tend to underestimate, rather than overestimate, total GHG reductions and removals.

2.6.4 Calculating GHG Reductions or Removals

GHG reductions are calculated by periodically comparing the baseline to the project over a certain time period, usually one year.

The general formula for calculating GHG reductions is:

$$\text{GHG Reductions} = \text{Baseline Emissions} - \text{Project Emissions}$$

Positive GHG reductions are achieved when the project results in lower GHG emissions to the atmosphere over a certain time period compared to what would have happened absent the project activity.

For biological carbon sequestration projects, the general formula for calculating GHG removals is:

$$\begin{aligned}\text{GHG Removals} = & (\text{Incremental Project Sequestration} - \text{Incremental Baseline Sequestration}) \\ & + (\text{Baseline Emissions} - \text{Project Emissions})\end{aligned}$$

Positive GHG removals are achieved when the project results in more carbon sequestered in biological carbon stocks over a certain time period than would have been in the absence of the project activity.

2.6.5 Immediate Crediting for Future Avoided Emissions

In accordance with recognized principles for carbon offset quality, the Reserve has upheld a general policy against “forward crediting” of GHG emission reductions. Forward crediting occurs when credits are issued for GHG reductions before such reductions have occurred and before the activities that caused such reductions have been verified.¹² Subject to certain conditions, however, the Reserve does credit reductions upfront when a verified action results in the immediate avoidance of a future stream of GHG emissions. Please see the Reserve’s policy memo on this subject, available at <http://www.climateactionreserve.org/how/program/program-manual/>.

2.7 Project Monitoring

Monitoring of GHG projects is required in order to determine project performance, quantify actual GHG emissions, and in some cases, calibrate baseline emissions estimates. Under all Reserve protocols, GHG reductions are quantified only based on actual project monitoring data. Monitoring requirements are specified in each protocol and include provisions for:

- Monitoring GHG emissions or removals associated with SSRs within the GHG Assessment Boundary
- Monitoring other data related to assumptions underlying GHG emissions and/or carbon stock estimates
- Documenting data storage and quality assurance/quality control (QA/QC) measures
- Ensuring all project components are operated in a manner consistent with the manufacturer's recommendations
- Ensuring all monitoring instruments are calibrated and maintained as specified by the manufacturer

The Reserve requires a monitoring plan to be established for all monitoring and reporting activities associated with a project. The monitoring plan serves as the basis for verification bodies to confirm that the monitoring and reporting requirements in each protocol have been met and that consistent, rigorous monitoring and record-keeping is ongoing at the project site. Monitoring plans must cover all aspects of monitoring and reporting contained in a protocol and must specify how data for all relevant parameters will be collected and recorded. Each protocol specifies in a table the parameters that must be monitored and how data for each parameter must be acquired (e.g. from measurement, calculation, approved references or operating records).

At a minimum, a monitoring plan must stipulate the frequency of data acquisition; a record keeping plan; the frequency of instrument field check and calibration activities; and the role of individuals performing each specific monitoring activity. Monitoring plans should include QA/QC provisions to ensure that data acquisition and meter calibration are carried out consistently and with precision.

Finally, monitoring plans for most protocols must include procedures that project developers will follow to ascertain and demonstrate that the project passes the legal requirement test for additionality.

¹² Offset Quality Initiative, 2008. *Ensuring Offset Quality: Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy*, p. 10. Available at: <http://www.offsetqualityinitiative.org/>.

2.8 Ensuring Permanence of GHG Reductions

Because CO₂ and other GHG emissions remain in the atmosphere for very long periods of time, offsetting reductions in GHG emissions must effectively be permanent. Some types of offset projects, however, cause GHG reductions by removing CO₂ from the atmosphere and storing it in a reservoir (e.g. in trees or other organic materials, or in geologic formations). In these cases, there is a risk that CO₂ may be re-emitted to the atmosphere, leading to a “reversal” of GHG reductions. A reversal occurs when the total amount of CO₂ stored by a project becomes less than the total number of CRTs issued to the project. This can happen, for example, if some or all of the trees associated with a forest project are destroyed by fire, disease or intentional harvesting.

The Reserve requires that reversals be compensated for in order to ensure the integrity of CRTs and to maintain their effectiveness at offsetting GHG emissions. Specific rules and conditions for reversal compensation are detailed in individual protocols. Generally, the Reserve requires that CRTs be retired in proportion to any reversals, such that the total number of issued CRTs does not exceed the total quantity of CO₂ stored by a project over a sufficiently long period of time.

3 Program Rules and Procedures

3.1 Program Manual

This manual contains details on the Reserve's program, policies, and requirements. Users of the Reserve program, including verification bodies, are subject to the requirements and guidance specified in the most recent version of the Program Manual. The Program Manual is considered effective as of the date it is posted on the Reserve website. All account holders and verification bodies are notified when an update to the Program Manual is released, and the manual is available on the Reserve's Program Manuals and Policies webpage at <http://www.climateactionreserve.org/how/program/program-manual/>.

3.1.1 Revisions to the Program Manual

Between updates, the Reserve may release policy memos that update or replace guidance in the Program Manual or protocols. These memos are considered effective on the date they are posted on the Reserve website; users of the Reserve program and verification bodies must follow the guidance specified in the memo from that date forward. All account holders and verification bodies are notified when a policy memo is released, and memos are posted on the Reserve's Program Manuals and Policies webpage at <http://www.climateactionreserve.org/how/program/program-manual/>.

In most cases, the contents of the memos are incorporated into the next update of the Program Manual.

3.2 Start Date

In general, the start date for a project corresponds to the start of activity that generates GHG reductions or removals. Specific requirements for determining the start date of a project are contained in each protocol. Project start date is used in determining project eligibility and initiates a project's crediting period.

Although the project start date is defined by each protocol, the date that begins the project's initial verification period is not. A project must begin its initial verification period on the project start date. This ensures that all project emissions within the GHG Assessment Boundary are accounted for from the project start date until the end of its crediting period.

It is possible that a project developer may not have implemented the appropriate monitoring or QA/QC procedures per the protocol on the project start date. Regardless, the project developer must still begin the initial verification period on the project start date. The project developer shall claim no emission reductions for any time period that the project cannot meet the data, monitoring or QA/QC requirements of the protocol. The verification body must confirm with reasonable assurance that project emissions were not greater than baseline emissions during a verification period, including the time period from the project start date until the protocol requirements were met. Verification bodies shall perform a review of project documentation and calculations for such a time period and may use professional judgment when assessing available project documentation.

If the verifier cannot confirm with reasonable assurance that project emissions were less than or equal to baseline emissions for the verification period, the Reserve will make a determination of action on a case-by-case basis.

3.3 Project Registration

This section summarizes the administrative steps a project developer must follow to register a project with the Climate Action Reserve. The timing of project registration may be independent of its start date. In other words, projects may be submitted after they begin operation (subject to the eligibility restrictions on the project start date described above) or before they begin operation. However, the steps outlined in this section must be followed in order for the Reserve to issue CRTs to a project.

Detailed information on the Reserve's software operating procedures, including step-by-step instructions for creating accounts, entering information, receiving CRTs, and transferring CRTs among accounts can be found in the Reserve's User Guide:

<http://www.climateactionreserve.org/how/program/documents/>.

3.3.1 Fee Structure Summary

The Reserve imposes required fees that are charged to account holders during the project registration process (Sections 3.3.2 to 3.3.13). A summary of those fees is below:

Reserve Account Fees (Effective December 1, 2014)	
Account Setup Fee	\$500
Account Maintenance Fee (annual per project)	\$500
Account Re-activation Fee	\$500
Project Submittal Fee (per project)	\$500
Project Transfer Fee (per project transferred between account holders, paid by the transferee)	\$500
Project Registration Extension (per request)	\$200
CRT Issuance Fee (per CRT issued)	\$0.22
CRT Transfer Fee (per CRT transferred between account holders, paid by the transferer)	\$0.03
Retirement (per CRT retired)	no charge

3.3.2 Account Registration

As a first step, an account must be set up with the Reserve. Account registration only needs to occur once; any number of projects can be registered under the same account.

Any person or organization may apply for a Reserve account regardless of location or affiliation. Account applications are completed through the Reserve software. Along with completing an online application, each user must also agree to the legal Terms of Use for the Reserve. The Terms of Use binds users of both the Reserve software and the program itself to the terms laid out in the protocols, the Program and Verification Manuals, and the Operating Procedures as modified from time to time. The Terms of Use document can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

When a new account is approved by the Reserve, the account holder will receive an invoice for the account maintenance fee (\$500 annually). Payment is due within 30 days of approval to avoid cancellation of the new account.

Account management can be shared between the account owner and another party provided a Designation of Authority form has been completed (see Section 3.3.2.2).

3.3.2.1 Types of Accounts

There are seven types of accounts in the Reserve:

1. **Project Developer.** An account type for organizations that wish to register projects that generate GHG reductions or removals. This account type can also be used to transfer and manage CRTs.
2. **Trader/Broker/Retailer.** This type of account allows the transfer and management of CRTs, but not registration of projects.
3. **Verifier.** An account type for verification bodies that have been trained and authorized by the Reserve to verify projects. There is no annual account fee for verification bodies.
4. **Reviewer.** This account type is only for those who have been asked by the Reserve to serve as a project reviewer. There is no annual account fee for reviewers.
5. **Client.** This type of account is for any individual or entity that wishes to retire CRTs but not develop its own projects.
6. **Aggregator.** This account type is designated for use by project aggregators. This account type enables the management of CRTs on behalf of multiple projects formally registered as part of an aggregation, as allowed under certain project protocols. The account type can be held by any entity authorized to manage accounting, reporting, and/or CRT transfers on behalf of an aggregation of projects.
7. **Aggregation Participant.** This account type is designated for use by project developers participating in an aggregate according to protocol-specific rules and procedures. This account type allows the registration of projects that are formally part of an aggregation. This account type may also be used to transfer and manage CRTs under the terms and restrictions imposed by the relevant project protocol and/or aggregation guidance.

The public also has the ability to view information on the Reserve, but an account is not needed to view publicly available information.

3.3.2.2 Designation of Authority

A project developer and trader/broker/retailer account holder may designate an agent to access the Reserve software on their behalf.

Account holders must complete the Designation of Authority form to specify agents besides themselves who will have access to all information contained in their account. An example of an account holder agent would be a technical consultant hired by the project developer to manage a project on their behalf.

An account holder agent will have all the rights and responsibilities of the account holder and will also be bound by the Reserve Terms of Use. The Designation of Authority form can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.3.3 Project Submittal

Project developers must complete and upload the appropriate project submittal forms for the project type and pay a project submittal fee to the Reserve (\$500 per project). Submittal forms are specific to the project type and include project descriptions and preliminary information used

to assess eligibility. The submittal forms for each type of project are available for download at <http://www.climateactionreserve.org/how/program/documents/>. A project is considered "submitted" when all of the appropriate forms have been completed, uploaded and submitted through the Reserve software.

3.3.4 Requests for Variances from Protocol Requirements

The Reserve will allow variances from protocol requirements only where Reserve staff determines that such variances are acceptable. Variances are only granted for deviations from requirements related to monitoring or measuring of GHG reductions or removals. The Reserve will not consider variances related to project eligibility criteria, or to the general methodological approaches for quantifying GHG reductions or removals specified in a protocol.

Reserve protocols are standardized documents developed through a transparent, stakeholder-driven process during which public input is solicited and considered thoroughly. Through this process, a single set of requirements and methodologies is established for all projects. If a requested variance diverges significantly from the approved methodology in a protocol, in that it requires extensive analysis of site-specific features and/or employs concepts not fully vetted through public consultation, the variance will be denied.

Variance requests that affect eligibility rules or methodological approaches cannot be granted, but if a request appears to have merit and may have application beyond a single project, it may be a candidate for future work and inclusion in future protocol revisions. Therefore, while a variance may not be approved at the time of submittal, the Reserve may elect to initiate work to explore the issue further if the resolution may be extrapolated, standardized, and used to inform future protocol revisions. If a future version of a protocol addresses the request for variance in such a way that the project would meet the requirements of the revised protocol, the project may be re-submitted and will not be deemed ineligible because of start date requirements (i.e. that the project must be submitted within six months of the project start date – see Section 2.4.3).

To submit a variance request, the project developer must complete and submit a Request for Project Variance form and pay a \$1,350 fee. No variance request will be considered until the project in question has been formally submitted to the Reserve. Each variance request is only applicable to a single project. A project developer seeking a similar variance on multiple projects must still submit a variance request for each project.

Upon receipt of the appropriate documentation and payment of the invoice, the Reserve will review the variance and will provide explicit, written acceptance to the project developer if the variance is approved. Decisions on variances are considered *sui generis*, and are not precedent-setting. The Reserve retains the right to reject a variance, request further documentation or impose additional constraints and/or discount factors on the proposed monitoring or measuring methods. There is no process to appeal the denial of a variance; the decision to approve or deny a variance request lies solely with the Reserve. If the Reserve approves a variance request, a letter describing the variance granted will be sent to the project developer, and will be made publicly available.

The Reserve also maintains a publicly-accessible Variance Tracking Log, which provides a summary list of all variance requests approved by the Reserve. The variance log can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

The Request for Project Variance form can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.3.5 Project Listing

Once the project submittal fee has been received, the Reserve reviews the forms to determine whether they are complete and conducts a preliminary assessment of the project's eligibility according to the eligibility criteria set forth within the appropriate project protocol. Once this review is satisfactorily completed, the project is "listed" and made publicly available on the Reserve. Project verification activities cannot begin until a project is listed. Review of submitted forms will generally take no more than 10 business days.

Note that a project may be verified against the protocol version in place at the time of project submittal as long as the project is verified by its verification deadline (see Section 3.4.2). As long as a project meets its verification deadline, a project developer is not required to verify against a new protocol version, even if one becomes effective in between the time a project is submitted and registered. Project developers always have the option, however, of voluntarily choosing to verify against the most recent version of a protocol at any time.

Listing a project does not constitute a validation or verification of the project or its eligibility; it is a preliminary review of project information provided to the Reserve by the project developer. It is not a final determination of the eligibility of the project, nor does it guarantee CRT issuance or CRT ownership. Project registration and CRT issuance is contingent upon the submission and approval of all required forms and documents for a particular project type, including, but not limited to:

- Attestation of Title (see Section 3.3.6)
- Attestation of Voluntary Implementation (see Section 3.3.7)
- Attestation of Regulatory Compliance (see Section 3.3.8)
- NOVA/COI form (see Section 3.3.9)
- Verification Report, Verification Statement, and List of Findings

The required forms and documents for registration under each project type can be found at <http://www.climateactionreserve.org/how/program/documents/>.

3.3.6 Attestation of Title

All project developers must submit a signed Attestation of Title form indicating that they have exclusive ownership rights to the GHG reductions or removals associated with the project and for which the Reserve will issue CRTs. In addition, the project developer agrees that ownership of the GHG reductions or removals will not be sold or transferred except through the transfer of CRTs in accordance with the Reserve Terms of Use policies.

This form shall be signed and submitted after the conclusion of each verification period for a project, as specified in each protocol. Note that the entity/individual signing the Attestation of Title (and the other attestation forms) must be the account holder who submitted the project. Projects will not be registered unless the account holder and signatory to the attestation forms match.

The Attestation of Title form can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.3.7 Attestation of Voluntary Implementation

All project developers must submit a signed Attestation of Voluntary Implementation form that confirms the project was implemented and established voluntarily and continues to operate as such. The project developer attests that at no time was the project required to be enacted by any law, statute, rule, regulation or other legally binding mandate by any federal, state, local or foreign governmental or regulatory agency having jurisdiction over the project.

This form is signed and submitted after the conclusion of each verification period (unless otherwise exempted by the protocol under which the project is registered). The Attestation of Voluntary Implementation, along with activities detailed in the project's monitoring plan, are the primary mechanisms by which the project passes the legal requirement test, as specified in each protocol.

The Attestation of Voluntary Implementation form can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.3.8 Attestation of Regulatory Compliance

All project developers must sign and submit an Attestation of Regulatory Compliance form after the conclusion of each verification period, as specified in each protocol. By signing this form, the project developer attests to the project's compliance status throughout the project verification period. The form identifies specific dates during the verification period over which the project was in material compliance with all laws. In addition, the form confirms that the project developer has disclosed to its verification body in writing any and all instances of non-compliance of the project with any law. The Attestation of Regulatory Compliance form and the accompanying disclosure to the verification body of non-compliance events are the primary mechanisms by which the project passes the regulatory compliance eligibility criterion, as specified in each protocol.

The Attestation of Regulatory Compliance form can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.3.9 Conflict of Interest Evaluation and Initiation of Project Verification

As described in Section 3.4, the Reserve requires third-party verification of all GHG reductions by an ISO-accredited and Reserve-approved verification body. Once the project developer has selected a verification body, the verification body must submit a Notice of Verification Activities and Conflict of Interest (NOVA/COI) evaluation form to the Reserve at least 10 business days prior to the commencement of verification activities. This form includes the scope of proposed verification activities and other required information used to assess the potential for conflict of interest between the verification body and the project developer. In order for verification activities to begin, the Reserve must determine that the potential for conflict of interest between the project developer and the verification body is low or can be mitigated. The conflict of interest evaluation must be completed before verification activities can begin. The NOVA/COI form is available for download at <http://www.climateactionreserve.org/how/program/documents/>.

Once the conflict of interest evaluation is complete, the project developer must upload the required attestations and enter project data into the Reserve software, and then submit the project for verification. Required data is described in each protocol, and can include project information, monitored GHG emissions data, estimated GHG emission reductions, and other data required by the project monitoring guidelines. Once the project has been submitted by the

project developer, the Reserve software automatically notifies the verification body that the project is ready for verification.

The verification body then reviews the project data in the Reserve software, performs verification activities, conducts site visits as needed, and verifies that the listed project has fully complied with the appropriate project protocol and that the GHG reductions or removals have been appropriately quantified. The verification body then submits a Verification Report, Verification Statement, and List of Findings through the Reserve software.

3.3.10 Approval of Verification and Project Registration

Once the verification body completes the Verification Statement, Verification Report, and List of Findings, the project developer reviews the verification body's documents and then formally submits the project to the Reserve for final approval of the verification. The Reserve reviews the submission for completeness, reviews the Verification Statement, Verification Report, and List of Findings, and either approves the verification or requests a re-submittal of one or more components. Upon approval, the project developer receives an invoice for the issuance of CRTs generated by the project (\$0.20 per CRT).

A project becomes “registered” the first time it is verified and accepted by the Reserve. The status of the project then changes from listed to registered in the Reserve software. See Section 3.4 below and the Reserve Verification Program Manual for further information about the project verification cycle.

3.3.11 Project Completion

A project is considered “completed” when it is no longer reporting to the Reserve. A project may be considered completed because it reaches the end of its crediting period(s), becomes ineligible or the project developer voluntarily chooses not to continue reporting. The reason for the completed status is noted in the Reserve system. Once a project is completed, project information remains publically available indefinitely.

3.3.12 Record Keeping

According to the Terms of Use, the Reserve has the right to examine, audit, and obtain copies of users' records from the most recent 12 month period. The Reserve does not anticipate this being a routine need, but rather a rare event to verify the accuracy of any attestation, transfer or statement, or to review account holders' performance of obligations under the protocols, the Terms of Use or the Reserve's Operating Procedures.

Project developer account holders on the Reserve must also maintain copies of all relevant records related to their projects and associated account usage for the time period specified in each protocol.

3.3.13 Publicly Available Information

The Reserve is intended to serve both account holders and the interested public. To this end, information about each project registered with the Reserve is accessible to the public. This openness and transparency provides interested parties with valuable information and helps instill confidence in the Reserve and enhance the credibility of the offset credits it certifies.

The public and all account holders can access the following information online:

- **Participating companies.** Organizations that have an active Reserve account (address or contact information is not disclosed).
- **Projects.** Projects that are listed or registered with the Reserve. Rejected project submittals and projects that are de-listed prior to registration and/or CRT issuance are not displayed; however, information will be made publicly available indefinitely for any project to which CRTs have been issued, regardless of whether the project is completed, terminated or transferred to another program.
- **Project CRTs issued.** Projects for which CRTs have been issued along with the quantity of CRTs issued to each project. Current CRT balances in individual accounts are not automatically displayed.
- **Search of CRT serial numbers.** The Reserve software allows searching for a CRT serial number by batch number or block start or end numbers. This search feature is designed for someone who wants to see details about a given CRT batch (for example, a CRT buyer). It cannot be used to search every CRT issued for a company or project. Search results include whether the CRTs are active or retired and, if retired, the time and date of retirement.
- **Accounts disclosed to public.** Active or retired CRT balances that account holders have chosen to be shown to the general public.
- **Retired CRTs.** Displays the CRTs that have been retired by account holders.

Information that is never shared with the public includes:

- Company street addresses
- Company phone, fax or email addresses
- Internal company information, like billing addresses
- Any person's contact information

Account holders' contact information is not used by the Reserve except to notify users of important system occurrences and policy updates and is not shared with other parties.

3.4 Project Verification

The Reserve requires periodic third-party verification of all GHG projects, as specified in each project protocol. This provides an independent review of data and information used to register CRTs. For every project, a third-party verification body reviews documentation, monitoring data, and procedures used to estimate GHG reductions or removals. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of CRTs that can be issued to the project. The Reserve makes these documents publicly available. Verifiers conducting verification activities for projects listed or registered on the Reserve must be trained by the Reserve or its approved designees and employed by or subcontracted to an accredited verification body. A list of accredited verification bodies is available at <http://www.climateactionreserve.org/how/verification/connect-with-a-verification-body/>.

Verification bodies follow guidelines set forth in the Reserve's Program Manual and Verification Program Manual, as well as rules and procedures described in the specific verification guidance that is included in each project protocol.

3.4.1 Validation

Validation involves determining the project methodology and a project's eligibility to generate GHG reductions or removals. Unlike some other offset programs, the Reserve does not require that validation be conducted. Eligibility criteria and methodologies for emission reduction calculations are built into the Reserve protocols. Because the Reserve's eligibility criteria are mostly standardized, determination of eligibility is usually straightforward and requires minimal interpretative judgment by verification bodies. The first time a project is verified, verification bodies are required to affirm the project's eligibility according to the rules defined in the relevant project protocol. Project developers may choose to have a project verified without verifying CRTs for issuance in order to establish its eligibility for registration and provide more certainty to potential CRT buyers or sellers. However, when a project developer is seeking to register CRTs, a full verification must be conducted. See the Verification Program Manual for more information.

3.4.2 Reporting Period and Verification Period

GHG emission reductions are generally quantified and verified on an annual basis. Some protocols allow project developers to verify GHG emission reductions on a more frequent or less frequent basis if they desire. The length of time over which GHG emission reductions are quantified and reported to the Reserve is called a "reporting period." The length of time over which GHG reductions are verified is called a "verification period." Under some protocols, the reporting period and the verification period are identical and no distinction is made between these terms (the protocol may refer only to a "reporting period"). Other protocols distinguish between the two and the maximum period for each is specified. Note that some protocols may allow the verification period to cover multiple reporting periods. However, the end date of a verification period must always correspond to the end date of a reporting period.

CRTs are issued according to the quantity of verified reductions achieved during a verification period, regardless of the period's length.

Reporting periods must be contiguous; there can be no time gaps in reporting during the crediting period of a project once the initial reporting period has commenced.¹³ Gaps in monitoring data or activity must be included in reporting periods and verified accordingly. The verification body must confirm that no reductions are claimed for any period for which a gap in monitoring data exists or for which a project was non-operational.

3.4.3 Initial Verification and Registration

A project must complete verification within 12 months of the end of its initial reporting period. To satisfy this verification deadline, the project developer must submit a completed Verification Report and signed Verification Statement to the Reserve.

For project types that require annual verification at a minimum, the Verification Statement and Report may cover a maximum of 12 months of project activity, with the following exceptions. A pre-existing project (see Section 2.4.3) undergoing its initial verification and registration with the Reserve may submit a Verification Statement and Report that cover multiple years, back to the project's start date. This data is considered "historic data." Historic data may only be registered during a pre-existing project's initial verification with the Reserve. The Reserve also allows project developers to register more than 12 months of data during a project's initial verification

¹³ There is an exception to this requirement for projects under the U.S. and Article 5 Ozone Depleting Substances Project Protocols. Under those protocols, reporting periods need not be contiguous.

period while still meeting the 12-month verification deadline (based on the maximum initial reporting period specified by each protocol), or register a project's initial verification period as a zero-credit reporting period (see Section 3.4.6).¹⁴

A project is considered “registered” when the project has been successfully verified by an approved third-party verification body, submitted by the project developer to the Reserve for final approval, and accepted by the Reserve.

A project that fails to meet its initial verification deadline must re-submit under the latest version of the applicable protocol. Projects that do so are not subject to the start date requirements in Section 2.4.3, provided that the project met all applicable requirements at the time of initial submittal.

If a project misses its initial verification deadline, the project is “de-listed”¹⁵ in the Reserve software and is no longer viewable by the public. The Reserve will contact the project developer to inform them they must re-submit under the latest version of the protocol within 60 calendar days of notification.

If the project developer re-submits the project within 60 calendar days, the project is “re-listed”¹⁶ under the same project ID and the project maintains its original start date. The project is given a new listing date.

If the project developer fails to re-submit within 60 calendar days, the project is cancelled. The project developer could still re-submit the same project at a later date, but it would be assigned a new project ID and would have to meet all the requirements of the applicable protocol, including start date requirements.

Projects that successfully re-list must submit either 1) a Verification Statement and Verification Report or 2) a Zero-Credit Reporting Period Acknowledgment and Election form within 12 months of re-submittal, with the following exceptions. Forest and urban forest projects are not eligible for zero-credit reporting periods and therefore must complete initial verification within 12 months of re-submittal.

If a re-listed project misses the deadline above, the project is cancelled. Again, the project developer could still re-submit the same project at a later date, but it would be assigned a new project ID and would have to meet all the requirements of the applicable protocol, including start date requirements.

3.4.4 Registration Extension Request

The Reserve does allow project developers to request a one-time project registration extension for a project's initial verification. No extension requests are granted unless the project has commenced verification and has undergone the site visit for the initial verification period and all outstanding invoices for the project and account holder have been paid. The following extensions may be granted:

¹⁴ Forest and urban forest projects are not eligible for zero-credit reporting periods.

¹⁵ “De-list” is not a phase in the Reserve software. De-listed projects will no longer appear to the public in the software.

¹⁶ “Re-list” is not a phase in the Reserve software. Projects will be identified as “listed” in the software with the same project ID.

- Forest and urban forest projects may be granted a 12 month extension.
- U.S. livestock and U.S. ozone depleting substances projects may be granted a six month extension.
- All other project types may be granted a 30 day extension if the account holder can demonstrate to the Reserve's satisfaction that they will miss the deadline due to extraordinary circumstances. The Reserve holds the right to determine what rises to the level of an extraordinary circumstance.

To submit a request, account holders must submit a completed Request for Project Registration Extension form and requested documentation to the Reserve and pay a \$200 review fee. The form must be received by the verification deadline.

The Request for Project Registration Extension form can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.4.5 Subsequent Verification

After a project is registered, a Verification Statement and Verification Report must be submitted within 12 months of the end of each subsequent verification period. The maximum allowed length of a verification period is specified in each protocol. For example, a Verification Statement and Report for GHG reductions achieved between January 1, 2015 and December 31, 2015 would have to be submitted by December 31, 2016. The only exception to the verification deadline is if the project developer is taking a zero-credit reporting period (see Section 3.4.6 below).

The Reserve makes account holders aware of upcoming verification deadlines for projects in their account. Project developers that miss this verification deadline are notified and given the choice to:

- A) cancel the project; or
- B) continue the project by initiating verification using the latest version of the relevant protocol.

Once notified that the verification deadline has passed, a project developer has six months to choose one of the options above. If no choice is communicated to the Reserve within six months, the project is cancelled.

If a project developer chooses Option B, they are required to submit a Zero-Credit Reporting Period Acknowledgment and Election form and the appropriate monitoring documents¹⁷ to retroactively cover the time period since the end date of the last successful verification period (see Section 3.4.6). Thus, the project developer acknowledges that CRTs will not be issued for any GHG reductions or removals achieved by the project since its last successful verification. They are also required to verify the project to the latest version of the relevant protocol. A project utilizing Option B maintains its original project start date, and thus maintains the crediting period defined by that start date. This option is available to a registered project within its remaining crediting period only; it cannot be used across two crediting periods.

¹⁷ Monitoring plan and monitoring report – see Program Manual, Section 3.4.6 for more details.

If a verification period spans two crediting periods and there is a more recent version of the protocol that must be used for the renewed crediting period (see Section 2.4.4), the project developer can either be issued CRTs for two verification periods by completing separate verifications for each crediting period, or can be issued CRTs for one verification period that spans two crediting periods if they choose to verify the entire verification period to the more current protocol version.

3.4.5.1 Subsequent Verification for Forest and Urban Forest Projects

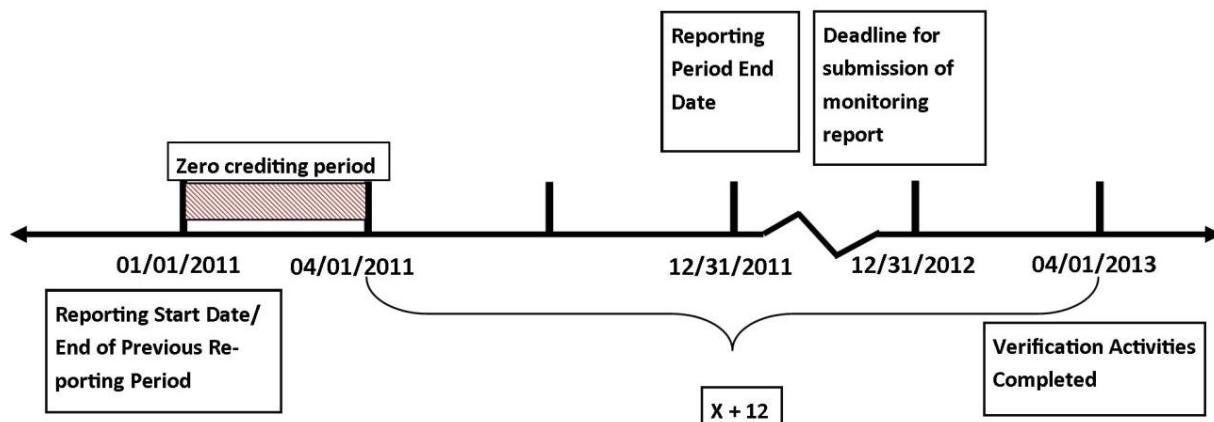
The only exceptions to the options regarding a missed verification deadline detailed above are for forest and urban forest projects, as these project types are not eligible for a zero-credit reporting period. If a registered forest or urban forest project misses a subsequent verification deadline, project account activities will be suspended until the verification is complete. The project developer has 36 months from the end of the reporting period(s) being verified to complete verification. Otherwise, the project will be terminated.

3.4.6 Zero-Credit Reporting Period

To provide flexibility for project developers in instances where verification is not practical for a specific reporting period/verification period, developers of projects *other than forest and urban forest projects* may choose to delay verification on the condition that they acknowledge no CRTs will be issued for any period of time that falls outside the standard window for completing verification of monitoring data. Such a period is referred to as a “zero-credit reporting period,” and is generally defined as the period of time that is subsequent to the end of a project’s prior verification period but is more than “ $X + 12$ ” months prior to the date of submission of a Verification Report, where “ X ” is the maximum length for a verification period as specified by the appropriate project protocol. Project developers may also declare a project’s initial verification period as a zero-credit reporting period.

For most eligible project types, the maximum length of a verification period is 12 months, allowing CRTs to be issued only for GHG reductions achieved up to 24 months prior to submission of a Verification Report. See Figure 1 below for an example.

Figure 1: Zero-Credit Reporting Period for a Project with a 12 Month Maximum Verification Period ($X=12$ Months)



For any zero-credit reporting period, the project developer must sign a Zero-Credit Reporting Period Acknowledgment and Election form (Acknowledgment and Election form) acknowledging

that CRTs will not be issued for any GHG emission reductions or removals achieved by the project during the zero-credit reporting period. Along with the Acknowledgment and Election form, the project developer must also submit the project's monitoring plan and a monitoring report to the Reserve that covers data for the zero-credit reporting period.

The Acknowledgment and Election form and monitoring documents shall be submitted via the Reserve software within 12 months of the end date allowed for a verification period (i.e. by the verification deadline). The monitoring plan and monitoring report are not publicly available documents. The Acknowledgment and Election form is made public.

If neither a Verification Report nor an Acknowledgment and Election form is submitted within 12 months of the end date allowed for a verification period, the project is either de-listed or cancelled (see Section 3.4.2 and 3.4.5).

A zero-credit reporting period may not exceed the maximum length for a verification period as prescribed in the protocol pertaining to the project. However, a project is allowed to have contiguous zero-credit reporting periods.

The Acknowledgment and Election form and monitoring documents are required in order to meet the regular documentation requirements of the Reserve program and ensure the continuation of a project's crediting period. CRTs for subsequent verification periods will not be issued until these documentation requirements are met. The submission of the monitoring plan and monitoring report for a zero-credit reporting period will satisfy the requirement for contiguous reporting in Section 3.4.2.

The Acknowledgment and Election form and project-specific monitoring report templates can be downloaded at <http://www.climateactionreserve.org/how/program/documents/>.

3.4.7 Zero-Credit Reporting Period Verification

To ensure that project emissions were not greater than baseline emissions during a zero-credit reporting period, monitoring data collected during the zero-credit reporting period must be verified the next time the project undergoes verification. While the project is not required to conform to the protocol's monitoring and QA/QC procedures during a zero-credit reporting period, the verification body must be able to confirm with reasonable assurance that project emissions were less than baseline emissions during the zero-credit reporting period. Project developers shall provide project documentation and calculations for zero-credit reporting period emissions to the verifiers.

If the verifier cannot confirm with reasonable assurance that project emissions were less than or equal to baseline emissions, the Reserve will make a determination of action on a case by-case basis.

The Reserve views a zero-credit reporting period as a separate reporting period from the one undergoing verification for CRT issuance; to that end, the zero-credit reporting period should not be represented as part of the verification period that will be issued CRTs. For example, the dates of the verification period being issued CRTs shall not include the dates of the zero-credit reporting period. Similarly, for attestations that specify a beginning and end date, the time period should not include the zero-credit reporting period (i.e. Attestation of Regulatory Compliance, Attestation of Voluntary Implementation).

3.5 Climate Reserve Tonnes (CRTs)

In the Reserve, GHG reductions and removals are recognized as Climate Reserve Tonnes or CRTs, which are equal to one metric ton of carbon dioxide equivalent (CO₂e) reduced or sequestered. After projects are registered, CRTs are issued based on the GHG reduction or removal amount reported by the project developer and confirmed by an approved verification body. CRTs are issued only on an *ex post* basis (i.e. after verification that reduction activities have actually occurred) and only for GHG reductions or removals that occur within the project crediting period. For transparency, each CRT has a unique serial number with embedded information that identifies the project type, location, developer, and vintage. The unique serial number persists as CRTs are transferred between accounts or are retired and become offsets.

3.5.1 Issuance of CRTs

CRTs are issued by the Reserve for actual GHG reductions or removals achieved by a project, as determined in approved Verification Reports. Once a project is registered and the project's account holder pays the appropriate CRT Issuance Fee, CRTs for verified GHG reductions or removals are released into the account holder's primary CRT account. CRTs will not be issued until the CRT Issuance Fee is received by the Reserve. CRTs can then be transferred to another Reserve account holder's account, moved into one of the project account holder's other accounts or retired.

An account holder can only hold or retire CRTs in its account for which it is the sole holder of legal title and Beneficial Ownership Rights, except as permitted under Section 9 of the Terms of Use.

3.5.2 Over-Issuance of CRTs

In the event that the Reserve determines that GHG reductions or removals for a project were incorrectly quantified or reported, such that the number of CRTs issued to the project account holder was in excess of the correct number according to the requirements of the applicable protocol, it is primarily the project account holder's responsibility to compensate for the over-issuance of CRTs.

The Reserve will notify the project account holder of the over-issuance, including the basis for its determination, and the number of CRTs to be surrendered for cancellation or authorized to be withheld from issuance as further described below. The Reserve shall determine, at its sole discretion, which option or combination of options a project account holder may use; this will be determined on a case-by-case basis and detailed in the over-issuance notification.

Within 30 days, the project account holder must:

1. Surrender CRTs for cancellation; and/or
2. Provide written authorization to the Reserve to withhold CRTs from future issuances to the project.

If the project account holder fails to satisfy its obligations within 30 days, the Reserve may:

1. Cancel CRTs held by the project account holder;
2. Withhold from issuance CRTs otherwise issuable to the project account holder; and/or
3. Purchase CRTs from third parties at the project account holder's expense and cancel them.

The project account holder may dispute the over-issuance determination using the dispute resolution provisions set forth in Section 11(c) of the Climate Action Reserve Terms of Use.

3.5.3 Transfer of CRTs

In order to transfer CRTs to another party, that party must have an approved account with the Reserve. There is a transfer fee to transfer CRTs from one account holder to another (\$0.03 per CRT charged to the transferer). The transfer is conducted via the software between the two account holders; the Reserve does not play a role in the transfer.

Note that the Reserve does not function as a trading system or commodity exchange. The sale or purchase of CRTs takes place outside of the Reserve. Account holders may record sales by using the Reserve to move CRTs from one account to another. However, the Reserve makes no warranties concerning, and has no control over, the legal ownership of CRTs that may be held in individual accounts.

3.5.4 Retirement of CRTs

CRTs may be “retired” to indicate that the emission reductions or removals they represent have been used to satisfy a voluntary GHG emission reduction claim or to offset other emissions. To support such claims, CRTs are taken out of circulation so that they cannot be used to support any further claims. The Reserve retires CRTs by transferring them to a locked retirement account where they remain permanently and in perpetuity, precluding further use or transfer to other parties. Each account holder has its own associated retirement account. Information about retired CRTs is publicly available and includes details like project type, location, serial number, date issued, reason for retirement, etc. to support the transparency of the offsets within the Reserve. There is no charge to retire CRTs.

3.5.5 Holding and Retirement of CRTs on Behalf of Other Parties

In some circumstances, an account holder may hold and retire CRTs on behalf of one or more third parties. See Section 9 of the Reserve Terms of Use for related requirements.

3.5.6 Transferring CRTs from the Reserve

CRTs may be transferred to other GHG registries and offset programs under processes that are specific to the receiving registry/program.

VCS

CRTs may be exported to a Verified Carbon Standard (VCS) registry and converted into Verified Carbon Units (VCUs). Transfers may be initiated by any account holder with active CRTs. The account holder initiates this process as they would a CRT transfer. Once the transfer is accepted by the VCS registry administrator, the Reserve processes the transfer and VCUs are issued on the VCS registry. The exported CRTs are denoted as “converted to VCUs” in the Reserve software and public reports.

3.6 Transferring Projects into the Climate Action Reserve

Existing projects that have been registered with other carbon offset programs may be transferred to the Reserve if they meet, and are successfully verified against, the Reserve’s protocol requirements, and if they meet the project start date requirements detailed in Section 2.4.3. Such projects must submit a Registry Project Transfer Form, available for download at <http://www.climateactionreserve.org/how/program/documents/>. The Registry Project Transfer

Form requires additional information and documentation to determine the status of the project and any offset credits issued for it under other programs.

The project developer must also provide the Reserve with a signed Project Transfer Letter before CRTs for that project are issued by the Reserve. The letter must be sent to the administrator of the other program where the project was registered, confirming that no further emission reductions or removals for the project will be verified or registered under the other program.

Transferred projects are considered pre-existing projects and thus are able to register more than 12 months of data during their initial verification with the Reserve (see Section 3.4.2). Transfer projects are also subject to contiguous reporting, which means that a project's initial verification period with the Reserve must be contiguous with the end of the last verification period under the program from which the project is transferred.

The crediting period for a transferred project will be reduced by the length of time that has elapsed since the project start date, as defined by each protocol.

Note that while projects can be transferred from another program to the Reserve, previously issued credits from another program cannot be transferred to the Reserve. Furthermore, projects that generated offset credits in the past but were never registered on a carbon offset registry cannot be registered with the Reserve.

3.7 Transferring Projects from the Climate Action Reserve

Projects may be transferred from the Reserve to other GHG registries and offset programs. To transfer a project, the developer shall provide a signed Project Transfer Letter to the Reserve specifying the effective date of transfer and confirming that no further emission reductions or removals for the project will be verified or registered with the Reserve.

Once a project is transferred, no future reductions or removals from that project will be registered as CRTs. Project information and previously issued CRTs will remain in the Reserve system under their given serial numbers. Previously issued CRTs may be transferred to other accounts on the Reserve system and retired on the Reserve system, as long as the project developer maintains an account with the Reserve. Section 3.5.3 of this manual describes how to transfer CRTs to other Reserve accounts.

3.8 Transferring Projects between Account Holders in the Reserve

Projects may be transferred between project developer account holders within the Reserve program. The project developer transferee (the project developer who is acquiring the project) must submit an Account Holder Project Transfer form and pay \$500 per project transfer. The Reserve will review this form and the project will then be transferred to the new account holder. The original account holder will no longer have access to restricted (non-public) project information.

The Account Holder Project Transfer form can be downloaded at
<http://www.climateactionreserve.org/how/program/documents/>.

3.9 The Reserve and the Verified Carbon Standard

The Reserve is the first recognized independent GHG offset program under the Verified Carbon Standard, a global standard and program for approval of credible voluntary offsets. As an approved VCS program, offset projects that meet the Reserve's protocols can generate VCS credits, known as VCUs. CRTs issued by the Reserve can also be converted to VCUs and transferred to a VCS registry (see Section 3.5.6). However, VCUs cannot be converted to CRTs; only projects registered with the Reserve using Reserve protocols are able to generate CRTs.

For more information on VCS, visit <http://www.v-c-s.org>.

4 Project Protocol Development Process

The Reserve is committed to producing high quality GHG project accounting protocols, and to this end uses an intensive multi-stakeholder process to develop its project protocols. This approach integrates extensive data collection and analysis with review and input from a diverse range of experts and stakeholders. Reserve staff guides this process to ensure that final protocols adhere to the principles outlined in Section 1.2. This process produces high quality, well-vetted, and credible protocols based on best practices from national and international standards. This section details the Reserve's unique and rigorous project protocol development process.

4.1 Screening Process

The Reserve uses an internal screening process to identify candidate project types with good potential for offset protocol development. The Reserve takes into consideration a number of issues when assessing a project type for further development, including:

- Does the project type create direct or indirect emission reductions? All else equal, the Reserve will focus on project types that result in direct reductions. Direct emission reductions are generally easier to verify because the sites where they occur can be directly monitored. When emission reductions occur at sites or sources owned by the project developer, there is also less risk that an entity other than the project developer will claim ownership of the reductions. Thus, these projects are unlikely to be at risk for double counting or ownership issues.
- How amenable is the project type to standardized additionality and baseline determinations? For some types of projects, it is difficult to credibly and accurately determine additionality and estimate baseline emissions on a standardized basis. In general, the Reserve will avoid developing protocols for these project types. Alternatively, the Reserve may incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of protocols to address only activities and conditions for which standardized approaches are feasible.
- What is the likelihood that the sector where the project activity occurs will be covered under a future cap-and-trade system? Since issuing offset credits for reductions that occur at capped emission sources would result in double counting, the Reserve prefers to focus on projects affecting GHG emissions that are unlikely to be capped.
- What are the total potential GHG reductions that could result from this type of project? As it takes significant effort and resources to produce a standardized project protocol, there should be large and geographically diverse potential reduction opportunities.
- Are there potential positive or negative environmental or social impacts from this type of project activity or the operations, facilities or sectors with which this type of project may be associated? Negative effects should be avoided. All else equal, the Reserve will prioritize sectors and project types that can create significant co-benefits for the habitats and communities where projects take place. Where necessary, the Reserve will also consider developing additional criteria for ensuring environmental and social safeguards.

- Are there existing methodologies or protocols that could serve as a starting point? Standardized protocols are more easily developed where sound scientific methods already exist to determine baselines and quantify emission reductions.
- Are there high quality datasets to evaluate “business as usual” activities for the sector in which the project activity occurs? Setting performance thresholds and other standardized tests for additionality requires defensible data on the current state of the sector.

Once the internal screening process is complete, project types with good potential are either explored more fully through the development of an issue paper or the Reserve holds a scoping meeting to engage stakeholders in further evaluating what types of activities should be targets for protocol development.

4.1.1 Issue Paper

An issue paper evaluates the feasibility and desirability of developing a protocol (or set of protocols) for a particular project type. It assesses possible issues with developing a standardized protocol for the project type, including an evaluation of potential approaches to GHG emission quantification; exploration of options for defining eligible project activities; evaluation of approaches to setting project boundaries; and assessment of the availability of datasets and other pertinent information. It also assesses the environmental and social impacts associated with prospective project activities, as well as potential impacts from the operations, facilities or sectors with which project activities may be associated. Issue papers are prepared by researching existing sector methodologies and datasets and consulting sector experts. After completion, the issue paper may be sent to interested parties (industry experts, environmental groups, state agencies, academics) for review and comment.

4.1.2 Scoping Meeting

Interested parties may be invited to a scoping meeting to discuss protocol development options and challenges for the project type in question. At the scoping meeting stage, the Reserve will generally propose a series of activities within the project type category for which specific accounting and verification standards could be developed. Feedback from the scoping meeting is used to determine whether the Reserve will move forward in developing a protocol, and which activities the protocol should encompass.

4.2 Development Process

After a project type is identified, the Reserve follows a rigorous multi-stakeholder consultation process to develop an appropriate protocol.

4.2.1 Workgroup Assembly

To initiate the project protocol development process, the Reserve assembles a balanced multi-stakeholder voluntary workgroup, drawing from industry experts, state and federal agencies, environmental organizations, and other various stakeholders. Workgroups are assembled by invitation, but all parties are encouraged to express their interest in participating in the workgroup process. Throughout the protocol development process, the workgroup provides expert review and direct input into the development of the project protocol.

Interested stakeholders that are not on the workgroup can still participate in the workgroup process as “observers.” Any individual is welcome to be an observer to a protocol development

process. Observers can listen to workgroup meetings via conference call, but are not solicited for comments or feedback until the public review period.

4.2.2 Options Paper

Where appropriate, the Reserve may develop an options paper to further address and lay out different approaches for key elements of the protocol. A draft is shared with the workgroup and comments are incorporated into a final options paper that forms the basis of the draft protocol.

4.2.3 Draft Protocol for Workgroup Review

The Reserve develops a draft protocol based on expert input and insights from an issue paper or the final options paper. The draft protocol is released to the workgroup for review and revision, and is also posted on the Reserve's website for review by observers and other interested members of the public. The draft protocol review process usually includes at least one or more in-person workgroup meetings in which members are invited to discuss issues at length. At this point in the process, the Reserve explicitly requests input on possible environmental and social harms associated with project activities and associated operations or facilities, and requests discussion of whether existing legal and regulatory safeguards are appropriate and adequate to mitigate any harms.

Written comments from the workgroup are incorporated into the draft protocol, which may go through multiple iterations of workgroup review before it is ready for public review. Note that observers and the public do not comment on the draft protocol at this stage.

4.2.4 Public Review Period and Public Workshop

The revised draft protocol is posted on the Reserve's website for a 30-day public comment period. The public is notified via the Reserve's listserv database and other venues, and reviewers are asked to submit written comments. During the 30-day public review period, the Reserve also hosts a public workshop to solicit feedback and address concerns regarding the draft protocol in an open forum. After receiving written feedback, all comments are recorded and addressed. A final protocol is produced, taking into account public comments and any further workgroup feedback.

4.2.5 Board Approval

The Reserve's Board of Directors must vote to adopt each project protocol. Protocols are presented at quarterly board meetings, which are open to the public, and issues raised throughout the development process are reviewed, giving workgroup members and interested stakeholders a chance to raise any last concerns or questions. After the Board adopts the protocol, it becomes an official Reserve protocol and is immediately available for use.

4.2.6 Ongoing Public Feedback and Comments

After Board approval, the Reserve continues to solicit, document, and respond to public feedback and comments on the current version of the project protocol. Comments and feedback on adopted protocols can be submitted to the Reserve at policy@climateactionreserve.org. The public is also welcome to contact Reserve staff directly to discuss their comments and concerns.

Public feedback and comments are assessed on an ongoing basis and may initiate a revision to a project protocol.

4.3 Revisions to Project Protocols

After Board approval, the protocols are periodically revised in light of public comments, on-the-ground experience, and technological, scientific, and regulatory developments. In addition, the Reserve may review and update performance standards and standardized baselines to ensure they continue to effectively screen projects for additionality and accurately represent “business as usual” emissions. There are two types of revisions to project protocols: policy revisions and program revisions.

4.3.1 Policy Revisions

Policy revisions are those that affect project definition or eligibility, or that involve significant changes or adjustments to baseline estimation and/or the quantification of emission reductions or removals. A policy revision is generally focused on specific elements of the protocol and is not necessarily an opportunity to revisit all decisions made in the initial protocol development process.

Depending on the extent of the revision, the Reserve may convene an expert stakeholder group or reach out to stakeholders involved in the initial protocol development process. This group may be asked to comment on a revised draft protocol or be convened to discuss key issues prior to changes being circulated for comment. All policy revisions require a 30-day public comment period and adoption by the Reserve’s Board. Policy revisions are brought for adoption at the quarterly board meetings or are brought to the executive committee of the Board for adoption if expedited action is required. When adopted, a policy revision creates a new version of the project protocol (e.g. Version 1.0 undergoes a policy revision to become Version 2.0).

4.3.2 Program Revisions

Program revisions are editorial or technical in nature and do not require a public comment period, nor do they require adoption by the Reserve’s Board. These revisions do not significantly change the policies or eligibility in the project protocol, but can change or revise quantification methodologies or monitoring requirements. Program revisions create a new sub-version of the protocol (e.g. Version 1.0 undergoes a program revision to become Version 1.1). Program revisions are considered adopted on the date they are posted on the Reserve website. A protocol revision notification is sent to the Reserve’s listserv and to Reserve account holders at that time.

4.3.3 Grace Period for Registration under Prior Protocol Versions

Project developers have 90 days from the date on which a revised protocol is adopted to submit a project to the Reserve using the previous version of the protocol. The project must still complete verification within 12 months of the end of its initial reporting period. Otherwise, the project must be resubmitted for registration under the most current version of the protocol.

Projects that have been registered using a previous version of the protocol are not required to have their projects verified under any updated versions. Instead, projects may continue being verified against the original protocol version for the duration of their crediting period. Project developers always have the option, however, of voluntarily choosing to verify against the most current version. Applying the most current protocol to a project does not change the project’s crediting period.

4.3.4 Errata and Clarifications

If typographical errors are found in a protocol after it is released, the Reserve may issue an "Errata" document indicating required corrections. Errata are issued to correct typographical errors in text, equations or figures. Similarly, if the Reserve discovers that certain protocol requirements are ambiguous or in need of further guidance, the Reserve may issue a "Clarifications" document. Clarifications are issued to ensure consistent interpretation and application of the protocol.

Errata and Clarifications documents become effective immediately for the version(s) of the protocol to which they apply (applicable versions are identified in each document). Project developers and verification bodies must refer to and follow the corrections and guidance presented in Errata and Clarifications documents once they are issued. Errata and clarifications are considered effective on the date they are first posted on the Reserve website. All listed and registered projects must follow the guidance specified in the Errata and Clarifications document. On a case-by-case basis, in order to ensure that the protocol is consistently applied and that the purpose of the protocol is achieved, the Reserve has sole discretion to apply current errata retroactively to a project for which CRTs have been issued prior to the release of the errata that may affect quantification of its GHG reductions and/or CRTs issued.

All account holders and verification bodies will be notified if an Errata and Clarifications document is released or updated. Errata and Clarifications documents will be appended to all applicable versions of the protocol, and will also be available as stand-alone documents on the relevant protocol's webpage. The errata and clarifications identified in these documents will be incorporated into subsequent versions of the relevant protocol.

4.4 Communication with Public

Current versions of each project protocol and information about protocols in development are available at <http://www.climateactionreserve.org/how/protocols/>. Each project protocol also has its own dedicated webpage that can be accessed from here.

Interested members of the public can receive protocol development announcements and program updates by joining the Reserve's mailing list at <http://www.climateactionreserve.org/news-and-events/newsletter/>.

5 Glossary

Aggregator	A corporation or other legally constituted entity, city, county, state agency or individual (or a combination thereof) that manages projects within an aggregate. In the Reserve software, this account enables the management of projects held by aggregation participants.
Aggregation participant	A corporation or other legally constituted entity, city, county, state agency or individual who is participating in an aggregate according to protocol-specific rules and procedures. In the Reserve software, this account type allows the creation of a project that is linked to an aggregator account. CRTs issued to an aggregation participant's project may only be transferred to the linked aggregator account.
Business day	Any day except Saturday, Sunday or a Federal Reserve Bank holiday. A business day shall open at 8:00 a.m. and close at 5:00 p.m. Pacific Prevailing Time.
Client	In the Reserve software system, a "client" is an organization or individual who wishes to retire CRTs but does not develop its own projects.
Climate Action Reserve	The national offsets program that establishes standards for quantifying and verifying GHG emission reduction projects, issues carbon credits generated from such projects, and tracks the transfer and retirement of credits in a publicly-accessible online system.
Climate Reserve Tonne or CRT	The unit of offset credits used by the Climate Action Reserve. One Climate Reserve Tonne is equal to one metric ton of CO ₂ e reduced or sequestered.
Completed	A project is considered "completed" when it is no longer reporting to the Reserve. A project is completed if it reaches the end of its crediting period(s), becomes ineligible, or if the project developer chooses not to continue reporting. The reason for the completed status is noted in the Reserve's public reports. Once a project is completed, project information remains publicly available indefinitely.
Group Retirement Subaccount	The subaccount for the retirement of CRTs that are held by an account holder on an omnibus basis on behalf of one or more third parties that hold legal title and/or beneficial ownership rights in those CRTs.

Listed	A project is considered “listed” once the Reserve has satisfactorily reviewed all project submittal forms. The project will then appear in the public interface of the Reserve system.
Offset	A reduction or removal of GHG emissions from the atmosphere that is used to compensate for an equivalent amount of emissions from another GHG emitting activity occurring elsewhere. For the purposes of the Reserve program, a CRT becomes an offset when it is retired.
Project developer	An organization or individual that registers projects for the purpose of generating emission reductions or removals. In the Reserve software system, project developers may be issued CRTs for the verified emission reductions or removals that their projects achieve. They can also transfer and manage CRTs.
Project protocol	A Reserve-developed document that contains the eligibility rules, GHG assessment boundary, quantification methodologies, monitoring and reporting parameters, etc. for a specific project type. Project protocols are akin to “methodologies” in other offset programs.
Reduction	A verified decrease in GHG emissions caused by a project, as measured against an appropriate forward-looking estimate of baseline emissions for the project.
Registered	A project is considered “registered” when the project has been verified by an approved third-party verification body, submitted by the project developer to the Reserve for approval, and accepted by the Reserve.
Removal	A verified increase in carbon stocks caused by a forest project, as measured against an appropriate forward-looking estimate of baseline carbon stocks for the project.
Reporting period	A discrete period of time over which a project developer quantifies and reports GHG reductions to the Reserve.
Retired	When CRTs are transferred to a retirement account in the Reserve system, they are considered retired. Retirement accounts are permanent and locked, so that a retired CRT cannot be transferred again. CRTs are retired when they have been used to offset an equivalent tonne of emissions or have been removed from further transactions on behalf of the environment.
Submitted	A project is considered “submitted” when all of the appropriate forms have been completed, uploaded, and submitted to the Reserve software.

Trader/Broker/Retailer	An organization or individual that transfers and manages CRTs in the Reserve system, but does not develop its own projects.
User	An individual or entity that holds an account with the Reserve and has agreed to the Terms of Use and shall include such representative as the entity shall appoint and designate by completing the Designation of Authority form.
Verified	A project is considered “verified” when the project verification body has submitted the project’s Verification Statement and the Verification Report in the Reserve system.
Verification body	An organization or company that has been ISO-accredited and approved by the Reserve to perform GHG verification activities for specific project protocols.
Verification period	A discrete period of time over which a project’s GHG reductions are verified. Under some protocols, a verification period may cover multiple reporting periods. The end date of a verification period must correspond to the end date of a reporting period.
Verifier	An individual that is employed by or subcontracted to an ISO-accredited and Reserve-approved verification body and is qualified to provide verification services for specific project protocols.

(<https://verra.org/project/vcs-program/>)

Overview (<https://verra.org/project/vcs-program/>)

Projects & Programs (<https://verra.org/project/vcs-program/projects-and-jnr-programs/>)

Rules & Requirements (<https://verra.org/project/vcs-program/rules-and-requirements/>)

Methodologies (<https://verra.org/project/vcs-program/methodologies/>)

Validation & Verification (<https://verra.org/project/vcs-program/validation-verification/>)

Registry System (<https://verra.org/project/vcs-program/registry-system/>)

The world's leading voluntary
GHG program



EXPLORE VCS PROJECTS ([HTTPS://WWW.VCSPACKETDATABASE.ORG/#/VCS](https://www.vcspacketdatabase.org/#/vcs))

The VCS Program

The VCS Program is the world's most widely used voluntary GHG program. Almost 1500 certified VCS projects have collectively reduced or removed more than 200 million tonnes of carbon and other GHG emissions from the atmosphere.

Individuals and corporations around the world are recognizing the importance of reducing their GHG emissions. As a result, many of them are reducing their carbon footprints through energy efficiency and other measures. Quite often, however, it is too expensive for these entities to meet their targets or eliminate their carbon footprint entirely with internal reductions, and they need a mechanism to achieve these aspirational goals. Enter the carbon markets.

By using the carbon markets, entities can neutralize, or offset, their emissions by retiring carbon credits generated by projects (<https://verra.org/project/vcs-program/projects-and-jnr-programs/>) that are reducing GHG emissions elsewhere. Of course, it is critical to ensure, or verify, that the emission reductions generated by these projects are actually occurring. This is the work of the VCS Program – to ensure the credibility of emission reduction projects.

Once projects have been certified against the VCS Program's rigorous set of rules and requirements (<https://verra.org/project/vcs-program/rules-and-requirements/>), project developers can be issued tradable GHG credits that we call Verified Carbon Units (VCUs) (<https://verra.org/project/vcs-program/registry-system/verified-carbon-units-vcus/>). Those VCUs can then be sold on the open market and retired by individuals and companies as a means to offset their own emissions. Over time, this flexibility channels financing to clean, innovative businesses and technologies.

Verra's role is to develop and administer the program. We provide oversight to all operational components of the VCS Program and we are responsible for updating the VCS rules such that they ensure the quality of VCUs. The development of the VCS Program is supported by the VCS Program Advisory Group (<https://verra.org/vcs-program-advisory-group/>), a multi-stakeholder body that helps ensure that the VCS Program continues to serve its users in an effective and efficient manner and drives practical and robust solutions to mitigate climate change.

How It Works

Projects developed under the VCS Program must follow a rigorous assessment process in order to be certified. VCS projects cover a diverse range of sectors, including renewable energy (such as wind and hydroelectric projects), forestry (including the avoidance of deforestation), and others. Emission reductions certified by our program are eligible to be issued as VCUs, with one VCU representing one metric tonne of greenhouse gas emissions reduced or removed from the atmosphere.

VCS Standard: The VCS Standard lays out the rules and requirements which all projects must follow in order to be certified.

Independent Auditing: All VCS projects are subject to desk and field audits by both qualified independent third parties (<https://verra.org/project/vcs-program/validation-verification/>) and Verra staff to ensure that standards are met and methodologies are properly applied.



Accounting Methodologies: Projects are assessed using a technically sound GHG emission reduction quantification methodology (<https://verra.org/project/vcs-program/methodologies/>) specific to that project type.

Registry System: The registry system is the central storehouse of data on all registered projects, and tracks the generation, retirement and cancellation of all VCUs. To register with the program, projects must show that they have met all standards and methodological requirements.

While VCS projects typically include a discrete set of activities, governments are now establishing policies and programs to mitigate GHG emissions across entire national or subnational jurisdictions. In the forest sector, these programs (called REDD+ programs) can be accounted for and credited using the world's first jurisdictional-scale framework, the Verra Jurisdictional and Nested REDD+ (JNR) (<https://verra.org/project/jurisdictional-and-nested-redd-framework/>) framework. JNR integrates government-led and project-level REDD+ activities and establishes a clear pathway for subnational- and project-level activities to be incorporated within broader REDD+ programs.

VCS Factsheets

- Project Development (<https://verra.org/wp-content/uploads/2016/05/Project-Cycle-Factsheet.pdf>) (Español (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_ESP-v3_PT_PM_0.pdf) | Português (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_Portuguese_0.pdf) | 中文 (<https://verra.org/wp-content/uploads/2016/05/FactSheet-Project-Cycle-Chinese.pdf>))
- Agriculture Forestry & Other Land Use (<https://verra.org/wp-content/uploads/2016/05/FactSheet-AFOLU-2013-UPDATED.pdf>) (Es (https://verra.org/wp-content/uploads/2016/05/FactSheet-AFOLU-2013-FINAL_ESP-v3_PT_PM_0.pdf) pañol (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_ESP-v3_PT_PM_0.pdf) | Po (https://verra.org/wp-content/uploads/2016/05/FactSheet-AFOLU-2013-FINAL_Portuguese_0.pdf) rtuguês (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_Portuguese_0.pdf) | 中文 (<https://verra.org/wp-content/uploads/2016/05/AFOLU.pdf>))
- Methodology Approval Process (https://verra.org/wp-content/uploads/2016/05/VCS_MAP_FactSheet_2014.pdf) (Es (https://verra.org/wp-content/uploads/2016/05/FactSheet-MAP-2013-FINAL_ESP-v3_PT_PM_0.pdf) pañol (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_ESP-v3_PT_PM_0.pdf) | Po (https://verra.org/wp-content/uploads/2016/05/FactSheet-MAP-2013-FINAL_Portuguese_0.pdf) rtuguês (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_Portuguese_0.pdf) | 中文 (<https://verra.org/wp-content/uploads/2016/05/MAP.pdf>))
- Standardized Methods (https://verra.org/wp-content/uploads/2016/05/FactSheet-STAMAS-2013-FINAL_0.pdf) (Es (https://verra.org/wp-content/uploads/2016/05/FactSheet-STAMAS-2013-FINAL_ESP-v3_PT_PM_0.pdf) pañol (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_ESP-v3_PT_PM_0.pdf) | Po (https://verra.org/wp-content/uploads/2016/05/FactSheet-STAMAS-2013-FINAL_Portuguese_0.pdf) rtuguês (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_Portuguese_0.pdf))

- FINAL_Portugese_0.pdf) | 中文 (<https://verra.org/wp-content/uploads/2016/05/Standardized-Methods.pdf>)
- Jurisdictional and Nested REDD+ (<https://verra.org/wp-content/uploads/2016/05/English-Updated-JNR-Factsheet-Nov-2014.pdf>) (Es (<https://verra.org/wp-content/uploads/2016/05/JNR-Benefits-2014-Spanish.pdf>) pañol (https://verra.org/wp-content/uploads/2016/05/FactSheet-PROJECT-CYCLE-2013-FINAL_ESP-v3_PT_PM_0.pdf) | Français (<https://verra.org/wp-content/uploads/2016/05/JNR-Factsheet-French.pdf>)

NEWS ([HTTPS://VERRA.ORG/NEWS/](https://verra.org/news/))

17 JUNE 2019

VCS and CCB Projects Open for Public Comment

(<https://verra.org/open-for-public-comment/>)

Comments are invited from the public on the following projects...

24 AUGUST 2016

Launching Colombia's Voluntary Carbon Market

(<https://verra.org/launching-colombias-voluntary-carbon-market/>)

Last Thursday, August 18th, in front of a standing-room only crowd of more than 500...

21 JULY 2016

VCS Recognized as Offset Mechanism under Draft South African Carbon Tax Regulation

(<https://verra.org/vcs-recognized-as-offset-mechanism-under-draft-south-african-carbon-tax-regulation/>)

On June 20th, The South African Government published a draft regulation for its new carbon...

OTHER PROGRAMS



Jason Lander (<https://www.flickr.com/photos/eyeliam/2366844211/in/photolist-4B9GjP-jufno-7psNrP-2hXscs-afecNs-ABGyJ-afecNS-4kzwdR-afSPoy-5C3ttg-9Fz3fM-3Lbvy-9PtCBA-4fHdbY-7woX3c-5hjEpV-afZje-afQ4ha-mCKgS-afSPof-hMjHV-afSSpN-9wSAgL-iEDQnQ-5Cuxms-5UTyDR-6aDLkh-afPG7e-buSS6S-5YdTdr-afFZkr-buSRbW-fZ23To-ah8qlg-6TTD46-afJKUW-754Hk8-afJKVN-9158l-FCkzD-pg25Hu-8Dga51-eJsqF5-o3mCg4-afecPy-fANfnE-afFZnX-5C3tfc-2kU5B8-8duTXy>)

California Offset Project Registry

The Offset Project Registry (OPR) facilitates the participation of offset projects within the California cap-and-trade program

LEARN MORE > ([HTTPS://VERRA.ORG/PROJECT/CALIFORNIA-OFFSET-PROJECT-REGISTRY/](https://verra.org/project/california-offset-project-registry/))



Asian Development Bank (<https://www.flickr.com/photos/asiandevelopmentbank/9663210284/in/album-2157632638719566/>)

Initiative for Climate Action Transparency

Supporting countries around the world in the evaluation of the climate, sustainable development and transformational impacts of their policies and actions



Sustainable Development Verified Impact Standard

The SD VISta Program The Sustainable Development Verified Impact Standard (SD VISta) is a flexible...

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content/uploads/2018/03/VERRA-PRIVACY-POLICY.PDF))

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VCS Standard

VCS Version 3
Requirements Document
21 June 2017, v3.7

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1 | Introduction

The VCS *Standard* provides a global standard for GHG emission reduction and removal projects and programs. It uses as its core the requirements set out in *ISO 14064-2:2006*, *ISO 14064-3:2006* and *ISO 14065:2007*. The two principal documents of the program are the *VCS Program Guide* and the *VCS Standard*. The *VCS Program Guide* describes the rules and requirements governing the VCS Program and further describes the constituent parts of the program such as the project and program registration process, the VCS registry system, the methodology approval process and the accreditation requirements for validation/verification bodies. The *VCS Standard* provides the requirements for developing projects, programs and methodologies, as well as the requirements for validation, monitoring and verification of projects, programs and GHG emission reductions and removals. The *VCS Standard* is supported by other documents that provide further requirements specific to agriculture, forestry and other land use (AFOLU), ozone-depleting substances projects and methodologies, and jurisdictional programs and nested REDD+ projects. The *VCS Program Guide* should be read before using the *VCS Standard*.

The VCSA recognizes the kind agreement of the International Organization for Standardization (ISO, www.iso.org) to allow inclusion of critical clauses of *ISO 14064-2:2006* and *ISO 14064-3:2006* in the VCS documentation to facilitate comprehension. In particular, the sections in this document on project and methodology requirements include text drawn from *ISO 14064-2:2006* clause 5 and *ISO 14064-3:2006* clause 4.9, amended where necessary to fit the context of the VCS Program.

1.1 VERSION

All information about version control under the VCS Program is contained in the *VCS Program Guide*.

This document will be updated from time-to-time and readers shall ensure that they are using the most current version of the document. Where external documents are referenced, such as the *IPCC 2006 Guidelines for National GHG Inventories*, and such documents are updated, the most recent version of the document shall be used.

2 | VCS Program Specific Issues

2.1 SCOPE OF VCS PROGRAM

2.1.1 The scope of the VCS Program includes:

- 1) The six Kyoto Protocol greenhouse gases.
- 2) Ozone-depleting substances as set out in VCS document *ODS Requirements*.

- 3) Project activities supported by a methodology approved under the VCS Program through the methodology approval process.
- 4) Project activities supported by a methodology approved under a VCS approved GHG program, unless explicitly excluded under the terms of VCS approval.
- 5) Jurisdictional REDD+ programs and nested REDD+ projects as set out in VCS document *JNR Requirements*.

The scope of the VCS Program excludes:

- 1) Projects that can reasonably be assumed to have generated GHG emissions primarily for the purpose of their subsequent reduction, removal or destruction.
- 2) Projects that reduce hydrofluorocarbon-23 (HFC-23) emissions.

2.2 LANGUAGE

- 2.2.1** The operating language of the VCS Program is English. The project and program description, validation report, monitoring report, verification report and all other documentation (including all and any appendices) required under the VCS Program shall be in English.

2.3 TIMING OF CREDITING

- 2.3.1** VCUs shall not be issued under the VCS Program for GHG emission reductions or removals that have not been verified.

- 2.3.2** Project activities are eligible for immediate crediting of future avoided emissions under the conditions set out below, which shall be addressed at the level of the methodology:

- 1) The project immediately avoids future streams of GHG emissions as a result of an upfront intervention that permanently precludes further emissions from the source. VCUs shall be issued only after such an intervention has occurred and the GHG emission reductions have been verified. Examples of such activities include projects that destroy chlorofluorocarbons recovered from refrigeration equipment thereby immediately precluding their future release into the atmosphere, and composting projects that divert organic waste from landfill sites thereby immediately precluding future methane emissions. A REDD project would not qualify for immediate crediting because future streams of GHG emissions are not permanently precluded.
- 2) The physical processes that would generate GHG emissions in the absence of an intervention are well-understood, stable and quantifiable. Models used to simulate such processes shall meet the requirements set out in Section 4.1.6. Any default factors associated with input parameters shall meet the requirements set out in Section 4.1.7.
- 3) VCUs may be issued only for GHG emissions avoided over a ten year period, even if such GHG emissions are likely to have continued over a longer period of time under the baseline scenario. For example, a composting project that diverts organic waste from a landfill site

would be eligible for crediting (in relation to a specific amount of composted organic waste) for the GHG emissions that would have occurred at the landfill site over a ten year period, and any emissions that would have occurred beyond the ten year period (in relation to the specific amount of composted organic waste) are not eligible. Note that in this particular example the ten year rule applies to the specific amount of composted organic waste and the usual rules on duration of the project and project crediting period still apply.

2.4 PRINCIPLES

- 2.4.1** The application of principles is fundamental in ensuring that GHG-related information is a true and fair account. The principles below shall provide the basis for, and shall guide the application of, the VCS rules and requirements.

Principles taken from ISO 14064-2:2006, clause 3.

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.

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.

Conservativeness

Use conservative assumptions, values and procedures to ensure that net GHG emission reductions or removals are not overestimated.

Note – Accuracy should be pursued as far as possible, but the hypothetical nature of baselines, the high cost of monitoring of some types of GHG emissions and removals, and other limitations make accuracy difficult to attain in many cases. In these cases, conservativeness may serve as a moderator to accuracy in order to maintain the credibility of project and program GHG quantification.

3 | Project Requirements

3.1 GENERAL REQUIREMENTS

- 3.1.1** Projects shall meet all applicable rules and requirements set out under the VCS Program, including this document. Projects shall be guided by the principles set out in Section 2.4.1.
- 3.1.2** Agriculture, forestry and other land use projects shall meet the rules and requirements set out in VCS document *AFOLU Requirements*. Ozone-depleting substances projects shall meet the rules and requirements set out in VCS document *ODS Requirements*.
- 3.1.3** Projects shall apply methodologies eligible under the VCS Program. Methodologies shall be applied in full, including the full application of any tools or modules referred to by a methodology, noting the exception set out in Section 3.14.1. The list of methodologies and their validity periods is available on the VCS website.
- 3.1.4** Where projects apply methodologies that permit the project proponent its own choice of model (see VCS document *Program Definitions* for definition of model), such model shall meet with the requirements set out in Section 4.1.6(2)-(6) and it shall be demonstrated at validation that the model is appropriate to the project circumstances (i.e., use of the model will lead to an appropriate quantification of GHG emission reductions or removals).
- 3.1.5** Where projects apply methodologies that permit the project proponent its own choice of third party default factor or standard to ascertain GHG emission data and any supporting data for establishing baseline scenarios and demonstrating additionality, such default factor or standard shall meet with the requirements set out in Section 4.1.7(1).
- 3.1.6** Projects shall preferentially apply methodologies that use performance methods (see Section 4.1.11 for further information on performance methods) where a methodology is applicable to the project that uses a performance method for determining both additionality and the crediting baseline (i.e., a project shall not apply a methodology that uses a project method where such a performance method is applicable to the project). Methodologies approved under the VCS Program that use performance methods provide a list of similar methodologies that use project methods (that were approved under the VCS Program or an approved GHG program at the time the performance method was developed). Such lists are not necessarily exhaustive but can serve as the starting point for determining whether a performance method is applicable to the project. Following the approval of a methodology that uses a performance method, projects may use any applicable pre-existing methodology that uses a project method for a six-month grace period.
- 3.1.7** Where projects apply methodologies from approved GHG programs, they shall comply with any specified capacity limits (see VCS document *Program Definitions* for definition of capacity limit) and any other relevant requirements set out with respect to the application of the methodology

and/or tools referenced by the methodology under those programs. Where the rules and requirements under an approved GHG program conflict with the rules and requirements of the VCS Program, the rules and requirements of the VCS Program shall take precedence.

- 3.1.8** Where the VCSA issues new requirements relating to projects, registered projects do not need to adhere to the new requirements for the remainder of their project crediting periods (i.e., such projects remain eligible to issue VCUs through to the end of their project crediting period without revalidation against the new requirements). The new requirements shall be adhered to at project crediting period renewal, as set out in Section 3.8.5.

3.2 MULTIPLE PROJECT ACTIVITIES

- 3.2.1** Projects may include multiple project activities where the methodology applied to the project allows more than one project activity and/or where projects apply more than one methodology.
- 3.2.2** Where more than one methodology has been applied to a project with multiple project activities, the following applies:
- 1) Each project activity shall be specified separately in the project description, referencing the relevant methodology.
 - 2) All criteria and procedures set out in the applied methodologies in relation to applicability conditions, demonstration of additionality, determination of baseline scenario and GHG emission reduction and removal quantification shall be applied separately to each project activity, noting the following:
 - a) A single set of criteria and procedures for the demonstration of additionality may be applied where the applied methodologies reference the same additionality tool and/or procedures, and where separate demonstration of additionality for each project activity is not practicable. For example, separate demonstration of additionality may not be practicable in project activities that are implemented at a single facility and therefore represent a single investment. The onus is upon the project proponent to demonstrate to the validation/verification body that separate demonstration of additionality is not practicable, failing which separate demonstration of additionality shall be provided. Where a methodology specifies requirements for demonstrating additionality in addition to those specified in the referenced additionality tool and/or procedures, such requirements shall be adhered to.
 - b) The criteria and procedures for identifying the baseline scenario may be combined where the relevant methodologies or the referenced additionality tool and/or procedures specify criteria and procedures for combining baseline scenarios.
 - 3) The criteria and procedures relating to all other aspects of the methodologies may be combined.
 - 4) Where AFOLU projects are required to undertake non-permanence risk assessment and buffer withholding determination, this shall be done separately for each project activity.

Note – Where a single methodology is applicable to more than one project activity and where the methodology does not provide clear procedures for the application of more than one project activity, the above requirements shall be adhered to.

3.3 MULTIPLE INSTANCES OF PROJECT ACTIVITIES

- 3.3.1** Projects may include more than one project activity instance, such as a wind power project that includes a number of wind turbines. Inclusion of further project activity instances subsequent to initial validation of a non-grouped project is not permitted (see Section 3.4 for information on grouped projects). The baseline determination and additionality demonstration for all project activity instances shall be combined (e.g., multiple wind turbines shall be assessed in combination rather than individually).
- 3.3.2** Where a project includes multiple project activity instances from multiple project activities, the project activity instances from each project activity shall be assessed in accordance with Section 3.2.
- 3.3.3** Non-grouped projects with multiple project activity instances shall not exceed any capacity limits to which a project activity is subject.

3.4 GROUPED PROJECTS

- 3.4.1** Grouped projects are projects structured to allow the expansion of a project activity subsequent to project validation. Validation is based upon the initial project activity instances identified in the project description. The project description sets out the geographic areas within which new project activity instances may be developed and the eligibility criteria for their inclusion. New instances meeting these pre-established criteria may then be added to the project subsequent to project validation, as set out in the sections below. These sections provide the requirements for all grouped projects, which are further expanded upon in VCS document *AFOLU Requirements*. VCS methodologies may also provide additional specifications for grouped projects.

Note – Project activity and project activity instance both have the specific meanings that are set out in VCS document *Program Definitions*.

Baseline Scenario and Additionality

- 3.4.2** Grouped projects shall have one or more clearly defined geographic areas within which project activity instances may be developed. Such geographic areas shall be defined using geodetic polygons as set out in Section 3.10 below.
- 3.4.3** Determination of baseline scenario and demonstration of additionality are based upon the initial project activity instances. The initial project activity instances are those that are included in the project description at validation and shall include all project activity instances currently implemented on the issue date of the project description. The initial project activity instances may also include any planned instances of the project activity that have been planned and developed

to a sufficient level of detail to enable their assessment at validation. Geographic areas with no initial project activity instances shall not be included in the project unless it can be demonstrated that such areas are subject to the same (or at least as conservative) baseline scenario and rationale for the demonstration of additionality as a geographic area that does include initial project activity instances.

- 3.4.4** As with non-grouped projects, grouped projects may incorporate multiple project activities (see Section 3.2 for more information on multiple project activities). Where a grouped project includes multiple project activities, the project description shall designate which project activities may occur in each geographic area.
- 3.4.5** The baseline scenario for a project activity shall be determined for each designated geographic area, in accordance with the methodology applied to the project. Where a single baseline scenario cannot be determined for a project activity over the entirety of a geographic area, the geographic area shall be redefined or divided such that a single baseline scenario can be determined for the revised geographic area or areas.
- 3.4.6** The additionality of the initial project activity instances shall be demonstrated for each designated geographic area, in accordance with the methodology applied to the project. Where the additionality of the initial project activity instances within a particular geographic area cannot be demonstrated for the entirety of that geographic area, the geographic area shall be redefined or divided such that the additionality of the instances occurring in the revised geographic area or areas can be demonstrated.
- 3.4.7** Where factors relevant to the determination of the baseline scenario or demonstration of additionality require assessment across a given area, the area shall be, at a minimum, the grouped project geographic area. Examples of such factors include, *inter alia*, common practice; laws, statutes, regulatory frameworks or policies relevant to demonstration of regulatory surplus; determination of regional grid emission factors; and historical deforestation and degradation rates.

Capacity Limits

- 3.4.8** Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows:
 - 1) Each project activity instance that exceeds one percent of the capacity limit shall be identified.
 - 2) Such instances shall be divided into clusters, whereby each cluster is comprised of any system of instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters.
 - 3) None of the clusters shall exceed the capacity limit and no further project activity instances

shall be added to the project that would cause any of the clusters to exceed the capacity limit.

Eligibility Criteria

- 3.4.9** Grouped projects shall include one or more sets of eligibility criteria for the inclusion of new project activity instances. At least one set of eligibility criteria for the inclusion of new project activity instances shall be provided for each combination of project activity and geographic area specified in the project description. A set of eligibility criteria shall ensure that new project activity instances:
- 1) Meet the applicability conditions set out in the methodology applied to the project.
 - 2) Use the technologies or measures specified in the project description.
 - 3) Apply the technologies or measures in the same manner as specified in the project description.
 - 4) Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.
 - 5) Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area. For example, the new project activity instances have financial, technical and/or other parameters (such as the size/scale of the instances) consistent with the initial instances, or face the same investment, technological and/or other barriers as the initial instances.

Note – Where grouped projects include multiple baseline scenarios or demonstrations of additionality, such projects will require at least one set of eligibility criteria for each combination of baseline scenario and demonstration of additionality specified in the project description.

Inclusion of New Project Activity Instances

- 3.4.10** Grouped projects provide for the inclusion of new project activity instances subsequent to the initial validation of the project. New project activity instances shall:
- 1) Occur within one of the designated geographic areas specified in the project description.
 - 2) Comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances. Partial compliance with multiple sets of eligibility criteria is insufficient.
 - 3) Be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.
 - 4) Be validated at the time of verification against the applicable set of eligibility criteria.
 - 5) Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).
 - 6) Have a start date that is the same as or later than the grouped project start date.

- 7) Be eligible for crediting from the start date of the instance through to the end of the project crediting period (only). Note that where a new project activity instance starts in a previous verification period, no credit may be claimed for GHG emission reductions or removals generated during a previous verification period (as set out in Section 3.16.7) and new instances are eligible for crediting from the start of the next verification period.

Where inclusion of a new project activity instance necessitates the addition of a new project proponent to the project, such instances shall be included in the grouped project within two years of the project activity instance start date or, where the project activity is an AFOLU activity, within five years of the project activity instance start date. The procedure for adding new project proponents is set out in VCS document *Registration and Issuance Process*.

Project Description for Grouped Projects

- 3.4.11** A grouped project shall be described in a single project description, which shall contain the following (in addition to the content required for non-grouped projects):
- 1) A delineation of the geographic area(s) within which all project activity instances shall occur. Such area(s) shall be defined by geodetic polygons as set out in Section 3.10 below.
 - 2) One or more determinations of the baseline for the project activity in accordance with the requirements of the methodology applied to the project.
 - 3) One or more demonstrations of additionality for the project activity in accordance with the requirements of the methodology applied to the project.
 - 4) One or more sets of eligibility criteria for the inclusion of new project activity instances at subsequent verification events.
 - 5) A description of the central GHG information system and controls associated with the project and its monitoring.

Note – Where the project includes more than one project activity, the above requirements shall be addressed separately for each project activity, except for the delineation of geographic areas and the description of the central GHG information system and controls, which shall be addressed for the project as a whole.

3.5 METHODOLOGY DEVIATIONS

- 3.5.1** Deviations from the applied methodology are permitted where they represent a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (i.e., deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan). Methodology deviations shall not negatively impact the conservativeness of the quantification of GHG emission reductions or removals, except where they result in increased accuracy of such quantification. Deviations relating to any other part of the methodology shall not be permitted.

- 3.5.2** Methodology deviations shall be permitted at validation or verification and their consequences shall be reported in the validation or verification report, as applicable, and all subsequent verification reports. Methodology deviations are not considered to be precedent setting.

3.6 PROJECT DESCRIPTION DEVIATIONS

- 3.6.1** Deviations from the project description are permitted at verification. The procedures for documenting the deviation depend on whether the deviation impacts the applicability of the methodology, additionality or the appropriateness of the baseline scenario. Interpretation of whether the deviation impacts any of these shall be determined consistent with the CDM *Guidelines on assessment of different types of changes from the project activity as described in the registered PDD*, mutatis mutandis. The procedures are as follows:

- 1) Where the deviation impacts the applicability of the methodology, additionality or the appropriateness of the baseline scenario, the deviation shall be described and justified in a revised version of the project description. This shall include a description of when the changes occurred, the reasons for the changes and how the changes impact the applicability of the methodology, additionality and/or the appropriateness of the baseline scenario. An example of such a deviation is a change in project capacity where a different baseline scenario would be more plausible, the applied methodology would no longer be applicable, or there would be a significant impact on the investment analysis used by the project to demonstrate additionality. Other examples include changes to the project that might have similar impacts such as the addition of new carbon pools or new types of project activities.
- 2) Where the deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the project remains in compliance with the applied methodology, the deviation shall be described and justified in the monitoring report. This shall include a description of when the changes occurred and the reasons for the changes. The deviation shall also be described in all subsequent monitoring reports. Examples of such deviations include changes in the procedures for measurement and monitoring, or project design changes that do not have an impact on the applicability of the methodology, additionality or the appropriateness of the baseline scenario.

Note that project proponents may apply project description deviations for the purpose of switching to the latest version of the methodology, or switching to a different methodology. For example, a project proponent may want to switch to the latest version of a methodology where such version includes additional types of carbon pools or project activities.

- 3.6.2** The deviation shall be assessed by a validation/verification body and the process, findings and conclusions shall be reported in the verification report. The assessment shall determine whether the deviation is appropriately described and justified, and whether the project remains in compliance with the VCS rules. The deviation shall also be reported on in all subsequent verification reports. Project description deviations are not considered to be precedent setting.

- 3.6.3** The validation/verification body assessing the project description deviation shall be accredited for the validation, recognizing that assessment of project description deviations is a validation activity, as further set out in the *VCS Program Guide*.

3.7 PROJECT START DATE

- 3.7.1** The project start date is the date on which the project began generating GHG emission reductions or removals (see VCS document *AFOLU Requirements* for further specification for AFOLU projects). The rules and requirements on project start date, as well as validation and verification dates, are set out in the sections below. For projects registered under an approved GHG program which are seeking registration with the VCS Program, further specification with respect to the validation deadline is set out in Sections 3.11.10 and 3.11.11.

Note – The rules and requirements in relation to project start date (as well as validation and verification dates) under VCS Version 1 are different from *VCS 2007*, *2007.1* and *VCS Version 3*, and are provided in VCS document *Registration and Issuance Process*.

Non-AFOLU

- 3.7.2** Non-AFOLU projects shall complete validation within two years of the project start date. Additional time is granted for non-AFOLU projects to complete validation where they are applying a new VCS methodology. Specifically, projects using a new VCS methodology and completing validation within two years of the approval of the methodology by the VCSA may complete validation within four years of the project start date. Note that *new VCS methodology* in this context refers to both newly issued VCS methodologies and newly issued VCS revisions to approved GHG program methodologies. The grace period does not apply in relation to any subsequent versions of such new methodologies and new methodology revisions that may be issued.

AFOLU

- 3.7.3** AFOLU projects with a project start date on or after 8 March 2008 shall complete validation within five years of the project start date.
- 3.7.4** AFOLU projects with a project start date on or after 1 January 2002 and before 8 March 2008 shall complete validation before 8 March 2013.
- 3.7.5** For AFOLU projects with a project start date before 1 January 2002, the following applies:
- 1) Validation and verification shall be completed by 1 October 2011. However, additional time is granted for AFOLU projects with a project start date before 1 January 2002 to complete validation and verification where they are applying a new VCS methodology. Specifically, projects using a new VCS methodology shall complete validation and verification within one year of the approval of the methodology, and no later than 1 October 2012. *New VCS methodology* in this context has the same meaning as set out in Section 3.7.2.

- 2) It shall be demonstrated that the project was designed and implemented as a GHG project from its inception. Evidence may include minutes and/or notes related to Board decisions to undertake the project as a GHG project, or other evidence of real actions to undertake the project as a GHG project such as relevant contracts with consultants, documentation related to the sale of GHG credits or contracts with validation/verification bodies.
- 3) It shall be demonstrated that the project, prior to 1 January 2002, applied an externally reviewed methodology and engaged independent carbon expert(s) to assess and quantify the project's baseline scenario and net GHG emissions reductions or removals.

Standardized Methods

- 3.7.6** Notwithstanding the requirements set out in Sections 3.7.1 – 3.7.5 above, projects applying a standardized method for determining additionality shall initiate the project pipeline listing process set out in VCS document *Registration and Issuance Process* within the project validation timelines set out above. Validation may be completed any time thereafter. For example, a non-AFOLU project applying a standardized method for determining additionality shall initiate the project pipeline listing process within two years of the project start date, and may complete validation any time thereafter.

3.8 PROJECT CREDITING PERIOD

- 3.8.1** For non-AFOLU projects and ALM projects focusing exclusively on reducing N₂O, CH₄ and/or fossil-derived CO₂ emissions, the project crediting period shall be a maximum of ten years which may be renewed at most twice. For all other AFOLU projects other than such ALM projects, the project crediting period shall be a minimum of 20 years up to a maximum of 100 years, which may be renewed at most four times with a total project crediting period not to exceed 100 years. Where projects fail to renew the project crediting period, the project crediting period shall end and the project shall be ineligible for further crediting.
- 3.8.2** The earliest project crediting period start date for AFOLU projects shall be 1 January 2002.
- 3.8.3** Projects registered under other GHG programs are not eligible for VCU issuance beyond the end of the total project crediting period under those programs. For example, a CDM project with a seven year twice renewable project crediting period is not eligible for VCU issuance beyond the end of those 21 years. Where projects have been registered under more than one other GHG program, they are not eligible for VCU issuance after the date that is the earliest end date of all applicable project crediting periods.

Note – Since the total project crediting period under the Joint Implementation (JI) program is not defined *ex-ante*, the total project crediting period shall be deemed as 21 years for non-AFOLU JI projects and as 60 years for AFOLU JI projects¹.

¹ Consistent with the UNFCCC's other project-based mechanism, CDM.

3.8.4 Project crediting periods under the VCS Program shall be renewed as set out in Section 3.8.5.

Renewal of Project Crediting Period

3.8.5 The following shall apply with respect to the renewal of the project crediting period under the VCS Program:

- 1) A full reassessment of additionality is not required when renewing the project crediting period. However, regulatory surplus shall be demonstrated in accordance with Section 4.6.3 and the project description shall be updated accordingly.
- 2) The validity of the original baseline scenario shall be demonstrated, or where invalid a new baseline scenario shall be determined, when renewing the project crediting period, as follows:
 - a) The validity of the original baseline scenario shall be assessed. Such assessment shall include an evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario.
 - b) Where it is determined that the original baseline scenario is still valid, the GHG emissions associated with the original baseline scenario shall be reassessed using the latest version of the *CDM Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period*.
 - c) Where it is determined that the original baseline scenario is no longer valid, the current baseline scenario shall be established in accordance with the VCS rules.
 - d) The project description, containing updated information with respect to the baseline, the estimated GHG emission reductions or removals and the monitoring plan, shall be submitted for validation. Such updates shall be based upon the latest approved version of the methodology or its replacement. Where the project does not meet the requirements of the latest approved version of the methodology or its replacement, the project proponent shall select another applicable approved methodology (which may be a new methodology or methodology revision it has had approved via the methodology approval process), or shall apply a methodology deviation (where a methodology deviation is appropriate). Failing this, the project shall not be eligible for renewal of its project crediting period.
- 3) The updated project description shall be validated in accordance with the VCS rules. In addition, the project shall be validated against the (current) scope of the VCS. Such validation report shall be issued after the end of the (previous) project crediting period but within two years after the end of the (previous) project crediting period.

Additional time is granted for projects to complete such validation where they are switching to a new VCS methodology (*new VCS methodology* in this context has the same meaning as set out in Section 3.7.2) when renewing the project crediting period. Specifically, projects switching to a new VCS methodology and completing such validation within one year of the approval of the methodology by the VCSA may complete such validation within three years of the end of the (previous) project crediting period.

Note – The project crediting period under *VCS Version 1* shall be deemed as 10 years, and

commences at the specific project crediting period start date. Note also, VCS Version 1 allowed an earlier project start date than subsequent versions and such projects remain eligible for project crediting period renewal under VCS Version 3.

3.9 PROJECT SCALE

- 3.9.1** Projects are categorized by size according to their estimated average annual GHG emission reductions or removals, as set out below, and materiality requirements for validation and verification differ accordingly, as set out in Section 5.3.1:
- 1) Projects: Less than or equal to 300,000 tonnes of CO₂e per year.
 - 2) Large projects: Greater than 300,000 tonnes of CO₂e per year.
- 3.9.2** Where applying a methodology with scale and/or capacity limits, it shall be demonstrated that the project is not a fragmented part of a larger project or activity that would otherwise exceed such limits. The project shall be considered a fragmented part of a larger project if within one kilometer of the project boundary there exists another project where:
- 1) The project proponents for both projects are the same.
 - 2) The sectoral scope and project activity for both projects are the same.
 - 3) The other project has been registered under the VCS or another GHG program within the previous two years.

3.10 PROJECT LOCATION

- 3.10.1** Project location shall be specified in the project description as follows:
- 1) Project location for non-AFOLU projects shall be specified by a single geodetic coordinate. Where there are multiple project activity instances (see Section 3.3 for more information on multiple project activities), the following applies:
 - a) Where it is reasonable to do so, a geodetic coordinate shall be provided for each instance and provided in a KML file; or
 - b) Where there are a large number project activity instances (e.g., cookstoves or energy efficient light bulbs), at least one geodetic coordinate shall be provided, together with sufficient additional geographic information (with respect to the location of the instances) to enable sampling by the validation/verification body.
 - 2) Project location for grouped projects shall be specified using geodetic polygons to delineate the project's geographic area or areas (see Section 3.4.2 for further information on geographic areas for grouped projects) and provided in a KML file.
 - 3) Project location for AFOLU projects shall be specified using geodetic polygons to delineate the geographic area of each AFOLU project activity and provided in a KML file.

3.11 OWNERSHIP AND OTHER PROGRAMS

Project and Program Ownership

3.11.1 The project description shall be accompanied by one or more of the following types of evidence establishing project ownership accorded to the project proponent(s), or program ownership accorded to the jurisdictional proponent(s), as the case may be (see VCS document *Program Definitions* for definitions of project ownership and program ownership). To aid the readability of this section, the term project ownership is used below, but should be substituted by the term program ownership, as appropriate:

- 1) Project ownership arising or granted under statute, regulation or decree by a competent authority.
- 2) Project ownership arising under law.
- 3) Project ownership arising by virtue of a statutory, property or contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals (where the project proponent has not been divested of such project ownership).
- 4) Project ownership arising by virtue of a statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions and/or removals (where the project proponent has not been divested of such project ownership).
- 5) An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals which vests project ownership in the project proponent.
- 6) An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions or removals which vests project ownership in the project proponent.
- 7) Project ownership arising from the implementation² or enforcement of laws, statutes or regulatory frameworks that require activities be undertaken or incentivize activities that generate GHG emission reductions or removals.

Emission Trading Programs and Other Binding Limits

3.11.2 Where projects reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading, evidence shall be provided that the GHG emission reductions or removals generated by the project have not and

² Implemented in the context of this paragraph means enacted or introduced, consistent with use of the term under the CDM rules on so-called Type E+ and Type E- policies.

will not be otherwise counted or used under the program or mechanism. Such evidence may include:

- 1) A letter from the program operator, designated national authority or other relevant regulatory authority that emissions allowances (or other GHG credits used in the program) equivalent to the reductions or removals generated by the project have been cancelled from the program or national cap, as applicable.
- 2) Evidence of the purchase and cancellation of GHG allowances equivalent to the GHG emissions reductions or removals generated by the project related to the program or national cap.
- 3) Evidence from the program operator, designated national authority or other relevant regulatory authority stating that the specific GHG emission reductions or removals generated by the project or type of project are not within the scope of the program or national cap.

Other Forms of Environmental Credit

3.11.3 Projects may generate other forms of GHG-related environmental credits, such as renewable energy certificates (RECs), though GHG emission reductions and removals presented for VCU issuance shall not also be recognized as another form of GHG-related environmental credit. The requirements set out in Sections 3.11.4 and 3.11.5 below assist the VCS registry administrator in confirming that this requirement has been met at the point of the issuance request (i.e., the registry administrator uses the information disclosed in the project documents to perform its checks).

Therefore, project proponents interested in issuing (sequentially) both VCUs and another GHG-related environmental credit should consider which periods of time they wish to issue one credit or the other. Project proponents should also investigate whether such other GHG-related environmental credits can be cancelled from the relevant program, in case such credits have already been issued for periods where the project proponent wishes to issue VCUs. Note that additional requirements regarding evidence that no double issuance has occurred are set out in VCS document *Registration and Issuance Process*.

3.11.4 Where projects have sought or received another form of GHG-related environmental credit, the following information shall be provided to the validation/verification body:

- 1) Name and contact information of the relevant environmental credit program.
- 2) Details of the project as registered under the environmental credit program (e.g., project title and identification number as listed under the program).
- 3) Monitoring periods for which GHG-related environmental credits were sought or received under the environmental credit program.
- 4) Details of all GHG-related environmental credits sought or received under the environmental credit program (e.g., volumes and serial numbers).

- 3.11.5** Where projects are eligible to participate under one or more programs to create another form of GHG-related environmental credit, but are not currently doing so, a list of such programs shall be provided to the validation/verification body.

Note - The requirements set out in Section 3.11.4 above and this Section 3.11.5 do not apply to non-GHG related environmental credits, such as water or biodiversity credits.

Participation Under Other GHG Programs

- 3.11.6** Projects may be registered under both the VCS Program and either an approved GHG program or a GHG program that is not an approved GHG program. The rules and requirements set out in the sections below apply.

General Requirements

- 3.11.7** Project proponents shall not claim credit for the same GHG emission reduction or removal under the VCS Program and another GHG program. Projects issuing GHG credits under both the VCS Program and another GHG program shall also comply with the rules and requirements set out in VCS document *Registration and Issuance Process*.

- 3.11.8** Projects registered under other GHG programs are not eligible for VCU issuance beyond the end of the total project crediting period under those programs (see Section 3.8.3 for further information).

- 3.11.9** For projects registered under the CDM as a Program of Activities (PoA), each Component Project Activity (CPA) shall be registered with the VCS Program as a separate project accompanied by its associated Program of Activities Design Document. Each such project shall be validated in accordance with Section 3.11.10(1) below. The project start date for such projects is the date on which the first activity under the Program of Activities began reducing or removing GHG emissions. Where the project start date is before 8 March 2011, validation shall be completed within four years of the project start date; otherwise, validation shall be completed within two years of the project start date (in this case, validation refers to validation of the first CPA under the associated PoA).

Approved GHG Programs

- 3.11.10** The following applies with respect to projects registered under an approved GHG program which are seeking registration with the VCS Program:

- 1) For projects registered under the CDM, the cover page and sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13 and 2.6 of the *VCS Project Description Template* shall be completed. A validation/verification body shall undertake a validation of same, which shall be accompanied by a validation representation, to provide a gap validation for the project's compliance with the VCS rules.
- 2) For projects registered under the JI program, a new *VCS Project Description Template* shall

- be completed (applying a methodology eligible under the VCS Program). A validation/verification body shall undertake a full validation of same in accordance with the VCS rules. The validation report shall be accompanied by a validation representation.
- 3) For projects registered under the Climate Action Reserve, the cover page and sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 2.6, 5.1, 5.2, 5.3 and 5.4 of the *VCS Project Description Template* shall be completed. A validation/verification body shall undertake a validation of same, which shall be accompanied by a validation representation, to provide a gap validation for the project's compliance with VCS rules.
 - 4) The approved GHG program validation (or verification, where the approved GHG program does not have a validation step) or VCS validation shall be completed within the relevant validation deadline as set out in Section 3.7. Validation (or verification) is deemed to have been completed when the validation (or verification) report that is submitted to the relevant program to request registration has been issued.
 - 5) AFOLU projects shall comply with the additional requirements set out in VCS document *AFOLU Requirements*.

Other GHG Programs

3.11.11 Non-AFOLU projects registered under a GHG program that is not an approved GHG program may also register with the VCS Program where a validation or verification report has been issued under such program (by an entity approved under the program to issue such reports). For such projects, the following applies:

- 1) The project start date shall be on or after 19 November 2007.
- 2) A new *VCS Project Description Template* shall be completed (using a methodology eligible under the VCS Program) and a validation/verification body shall undertake a full validation of same in accordance with the VCS rules. The validation report shall be accompanied by a validation representation.

The validation or verification that is submitted to request registration under the other GHG program shall be completed within the relevant validation deadline set out in Section 3.7. Validation or verification is deemed to have been completed when the validation or verification report that is submitted to the other GHG program to request registration has been issued.

Projects Rejected by Other GHG Programs

3.11.12 Projects rejected by other GHG programs due to procedural or eligibility requirements can be considered under the VCS Program, but the following conditions shall be met:

- 1) The project description (where the other GHG program has rejected the project before VCS validation) or monitoring report (where the other GHG program has rejected the project after VCS validation) shall clearly state all GHG programs to which the project has applied for registration and the reason(s) for rejection. Such information shall not be deemed as

- commercially sensitive information.
- 2) The validation/verification body shall be provided with the rejection document(s), including any additional explanations.
 - 3) The project shall be validated against the VCS rules. For projects where the other GHG program has rejected the project after VCS validation, this means a complete revalidation of the project against the VCS rules.

3.12 PROJECT BOUNDARY

- 3.12.1** The project boundary shall be described (using diagrams, as required) and GHG sources, sinks and reservoirs shall be identified and assessed in accordance with the methodology applied to the project. The project shall justify not selecting any relevant GHG source, sink and reservoirs.

3.13 BASELINE SCENARIO

- 3.13.1** The baseline scenario for the project shall be determined in accordance with the requirements set out in the methodology applied to the project, and the choice of baseline scenario shall be justified.
- 3.13.2** Equivalence in type and level of activity of products or services provided by the project and the baseline scenario shall be demonstrated and, where appropriate, any significant differences between the project and the baseline scenario shall be explained.
- 3.13.3** In developing the baseline scenario, assumptions, values and procedures shall be selected that help ensure that net GHG emission reductions and removals are not overestimated.

3.14 ADDITIONALITY

- 3.14.1** Additionality shall be demonstrated and assessed in accordance with the requirements set out in the methodology applied to the project, noting the following exceptions:
- 1) Where a VCS module using an activity method (see Section 4.1.11 for further information on activity methods) is applicable to the project, additionality may be demonstrated using the module in substitution of the additionality requirements set out in the methodology. For example, if a module uses an activity method (i.e., positive list) to deem a project activity additional, the project proponent does not have to follow the additionality requirements in the methodology applied to the project and may instead demonstrate additionality by demonstrating that it meets the applicability conditions and any other criteria of the activity method. Note that only modules may be used in this way. Where a methodology contains an activity method for additionality, the additionality procedures may not be applied in conjunction with a different methodology.
 - 2) Where the applied methodology was developed under an approved GHG program and uses an activity method or other simplified procedure for demonstrating additionality, the project proponent shall demonstrate to the validation/verification body that the simplified procedure is

appropriate to apply to the project considering the project characteristics, including the context in which the project activity takes place. For example, where a project is developed in the United States and applies a CDM methodology which uses a simplified procedure for demonstrating additionality, the project proponent shall demonstrate to the validation/verification body that the simplified procedure is appropriate to apply given that the simplified procedure was originally developed for application in a developing country context. Failing this demonstration, the project proponent shall not use the simplified procedure for demonstrating additionality, and shall instead use an appropriate additionality assessment method in substitution.

3.15 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

- 3.15.1** GHG emissions and/or removals shall be estimated for each GHG source, sink and/or reservoir relevant for the project (including leakage) and the baseline scenario.
- 3.15.2** The net GHG emission reductions and removals generated by the project shall be quantified.
- 3.15.3** Metric tonnes shall be used as the unit of measure and the quantity of each type of GHG shall be converted to tonnes of CO₂e. The six Kyoto Protocol greenhouse gases and ozone-depleting substances shall be converted using 100 year global warming potentials derived from the IPCC's *Fourth Assessment Report*.

3.16 MONITORING

Data and Parameters

- 3.16.1** Data and parameters used for the quantification of GHG emission reductions and/or removals shall be provided in accordance with the methodology.
- 3.16.2** Quality management procedures to manage data and information shall be applied and established. Where applicable, procedures to account for uncertainty in data and parameters shall be applied in accordance with the requirements set out in the methodology.

Monitoring Plan

- 3.16.3** The project proponent shall establish a GHG information system for obtaining, recording, compiling and analyzing data and information important for quantifying and reporting GHG emissions and/or removals relevant for the project (including leakage) and baseline scenario.
- 3.16.4** A monitoring plan for the project that includes roles and responsibilities shall be established.
- 3.16.5** Where measurement and monitoring equipment is used, the project proponent shall ensure the equipment is calibrated according to the equipment's specifications and/or relevant national or international standards.

Monitoring Report

- 3.16.6** The monitoring report describes all the data and information related to the monitoring of GHG emission reductions or removals. The project proponent shall use the *VCS Monitoring Report Template*, *VCS Joint Project Description & Monitoring Report Template*, *VCS & CCB Monitoring Report Template* or *VCS+SOCIALCARBON Monitoring Report Template*, as appropriate, and adhere to all instructional text within the template.
- 3.16.7** The verification period of the monitoring report shall be a distinct time period that does not overlap with previous verification periods. Projects shall not be eligible for crediting of GHG emission reductions generated in previous verification periods. In addition, verification periods shall be contiguous with no time gaps between verification periods.
- 3.16.8** Where a monitoring report and associated verification report divide a verification period into vintages, separate VCU issuance records in accordance with vintage periods may be issued, as set out in VCS document *Registration and Issuance Process*.

3.17 SAFEGUARDS

No Net Harm

- 3.17.1** The project proponent shall identify potential negative environmental and socio-economic impacts, and shall take steps to mitigate them. Additional certification standards may be applied to demonstrate social and environmental benefits beyond GHG emission reductions or removals.

Note that VCUs may be labelled with additional standards and certifications on the VCS project database where both the VCS and another standard are applied. The VCS website provides the list of standards that are accepted as VCU labels and the procedure for attaining such VCU labels.

Local Stakeholder Consultation

- 3.17.2** The project proponent shall conduct a local stakeholder consultation prior to validation as a way to inform the design of the project and maximize participation from stakeholders. Such consultations allow stakeholders to evaluate impacts, raise concerns about potential negative impacts and provide input on the project design.
- 3.17.3** The project proponent shall establish mechanisms for ongoing communication with local stakeholders to allow stakeholders to raise concerns about potential negative impacts during project implementation.
- 3.17.4** The project proponent shall take due account of all and any input received during the local stakeholder consultation and through ongoing communications, which means it will need to either update the project design or justify why updates are not appropriate. The project proponent shall

demonstrate to the validation/verification body what action it has taken in respect of the local stakeholder consultation as part of validation, and in respect of ongoing communications as part of each subsequent verification.

Public Comment Period

- 3.17.5** All VCS projects are subject to a 30-day public comment period. The date on which the project is listed on the project pipeline marks the beginning of the project's 30-day public comment period (see VCS document *Registration and Issuance Process* for more information on the VCS project pipeline).
- 3.17.6** Projects shall remain on the project pipeline for the entirety of their 30-day public comment period.
- 3.17.7** Any comments shall be submitted to the VCSA at secretariat@v-c-s.org and respondents shall provide their name, organization, country and email address. At the end of the public comment period, the VCSA provides all and any comments received to the project proponent.
- 3.17.8** The project proponent shall take due account of any and all comments received during the consultation, which means it will need to either update the project design or demonstrate the insignificance or irrelevance of the comment. It shall demonstrate to the validation/verification body what action it has taken.

3.18 RECORDS AND INFORMATION

Records Relating to the Project

- 3.18.1** The project proponent shall ensure that all documents and records are kept in a secure and retrievable manner for at least two years after the end of the project crediting period.

Information for the Validation/Verification Body

- 3.18.2** For validation, the project proponent shall make available to the validation/verification body the project description, evidence of project ownership and any requested supporting information and data needed to support statements and data in the project description and evidence of project ownership.
- 3.18.3** For verification, the project proponent shall make available to the validation/verification body the project description, validation report, monitoring report applicable to the monitoring period and any requested supporting information and data needed to evidence statements and data in the monitoring report.

3.19 PROJECT DESCRIPTION

- 3.19.1** The project description describes the project's GHG emission reduction or removal activities. The project proponent shall use the *VCS Project Description Template*, *VCS Joint Project Description & Monitoring Report Template*, *VCS & CCB Project Description Template*, *VCS+SOCIALCARBON Project Description Template* or approved GHG program project description template where the project is registered under an approved GHG program, as appropriate, and adhere to all instructional text within the template.
- 3.19.2** All information in the project documents shall be presumed to be available for public review, though commercially sensitive information may be protected, as set out in VCS document *Registration and Issuance Process*, where it can be demonstrated that such information is commercially sensitive. The validation/verification body shall check that any information designated by the project proponent as commercially sensitive meets the VCS Program definition of commercially sensitive information. Information in the project documents related to the determination of the baseline scenario, demonstration of additionality, and estimation and monitoring of GHG emission reductions and removals shall not be considered to be commercially sensitive and shall be provided in the public versions of the project documents.

4 | Methodology Requirements

4.1 GENERAL REQUIREMENTS

General

- 4.1.1** The list of methodologies approved under the VCS Program, together with their respective validity periods, is available on the VCS website. All new methodologies applying for approval under the VCS Program shall use the *VCS Methodology Template*, comply with the requirements set out in this Section 4 and any other applicable requirements set out in the VCS rules, and be approved via the methodology approval process. AFOLU methodologies shall meet the rules and requirements set out in VCS document *AFOLU Requirements*. Ozone-depleting substances methodologies shall meet the rules and requirements set out in VCS document *ODS Requirements*.
- 4.1.2** Methodologies shall be informed by a comparative assessment of the project and its alternatives in order to identify the baseline scenario. Such an analysis shall include, at a minimum, a comparative assessment of the implementation barriers and net benefits faced by the project and its alternatives.
- 4.1.3** Methodologies may employ a modular approach in which a framework document provides the structure of the methodology and separate modules and/or tools are used to perform specific

methodological tasks. Such methodologies shall use the *VCS Methodology Template* for the framework document and the *VCS Module Template* for the modules and tools. The framework document shall clearly state how the modules and/or tools are to be used within the context of the methodology.

- 4.1.4** Methodology elements shall be guided by the principles set out in Section 2.4.1. They shall clearly state the assumptions, parameters and procedures that have significant uncertainty, and describe how such uncertainty shall be addressed. Where applicable, methodology elements shall provide a means to estimate a 90 or 95 percent confidence interval. Where a methodology applies a 90 percent confidence interval and the width of the confidence interval exceeds 20 percent of the estimated value or where a methodology applies a 95 percent confidence interval and the width of the confidence interval exceeds 30 percent of the estimated value, an appropriate confidence deduction shall be applied. Methods used for estimating uncertainty shall be based on recognized statistical approaches such as those described in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. Confidence deductions shall be applied using conservative factors such as those specified in the CDM Meth Panel guidance on addressing uncertainty in its Thirty Second Meeting Report, Annex 14.
- 4.1.5** New methodologies shall not be developed where an existing methodology could reasonably be revised (i.e., developed as a methodology revision) to meet the objective of the proposed methodology, as set out in VCS document *Methodology Approval Process*.
- 4.1.6** Where methodologies mandate the use of specific models to simulate processes that generate GHG emissions (i.e., the project proponent is not permitted to use other models), the following applies, given the note below:
- 1) Models shall be publicly available, though not necessarily free of charge, from a reputable and recognized source (e.g., the model developer's website, IPCC or government agency).
 - 2) Model parameters shall be determined based upon studies by appropriately qualified experts that identify the parameters as important drivers of the model output variable(s).
 - 3) Models shall have been appropriately reviewed and tested (e.g., ground-truthed using empirical data or results compared against results of similar models) by a recognized, competent organization, or an appropriate peer review group.
 - 4) All plausible sources of model uncertainty, such as structural uncertainty or parameter uncertainty, shall be assessed using recognized statistical approaches such as those described in *2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, Chapter 3*.
 - 5) Models shall have comprehensive and appropriate requirements for estimating uncertainty in keeping with IPCC or other appropriate guidance, and the model shall be calibrated by parameters such as geographic location and local climate data.

- 6) Models shall apply conservative factors to discount for model uncertainty (in accordance with the requirements set out in Section 4.1.4), and shall use conservative assumptions and parameters that are likely to underestimate, rather than overestimate, the GHG emission reductions or removals.

Note – The criteria set out in (2)-(6) above are targeted at more complex models. For simple models, certain of these criteria may not be appropriate, or necessary to the integrity of the methodology. Such criteria may be disregarded, though the onus is upon the methodology developer to demonstrate that they are not appropriate or necessary.

- 4.1.7** Where methodologies use default factors and standards to ascertain GHG emission data and any supporting data for establishing baseline scenarios and demonstrating additionality, the following applies:

- 1) Where the methodology uses third party default factors and/or standards, such default factors and standards shall meet with the requirements for data set out in Section 4.5.6, *mutatis mutandis*.
- 2) Where the methodology itself establishes a default factor, the following applies:
 - a) The data used to establish the default factor shall comply with the requirements for data set out in Section 4.5.6, *mutatis mutandis*.
 - b) The methodology shall describe in detail the study or other method used to establish the default factor.
 - c) The methodology developer shall identify default factors which may become out of date (i.e., those default factors that do not represent physical constants or otherwise would not be expected to change significantly over time). Such default factors are subject to periodic re-assessment, as set out in VCS document *Methodology Approval Process*.
- 3) Where methodologies allow project proponents to establish a project-specific factor, the methodology shall provide a procedure for establishing such factors.

Note – Methodologies may use deemed savings factors which, as set out in the definition of deemed savings factor, are a specific type of default factor.

- 4.1.8** Where proxies are used, it shall be demonstrated that they are strongly correlated with the value of interest and that they can serve as an equivalent or better method (e.g., in terms of reliability, consistency or practicality) to determine the value of interest than direct measurement of the value itself.

- 4.1.9** Methodologies shall use a standardized method (i.e., performance method or activity method) or a project method to determine additionality and/or the crediting baseline, and shall state which type of method is used for each. A project method is a methodological approach that uses a project-specific approach for the determination of additionality and/or crediting baseline. Standardized methods are further described in Section 4.1.11 and additional guidance is available in VCS document *Guidance for Standardized Methods*. This guidance document

provides additional information to aid the interpretation of the VCS rules on standardized methods and should be read before developing or assessing such methods. Although the guidance document does not form part of the VCS rules, interpretation of the rules shall be consistent with the guidance document.

- 4.1.10** Methodologies may use any combination of project, performance or activity methods for determining additionality and the crediting baseline. However, methodologies shall provide only one method (i.e., a project method or performance method) for determining the crediting baseline (i.e., methodologies shall not provide the option of using either a project method or a performance method for the crediting baseline).

Standardized Methods

- 4.1.11** Standardized methods are methodological approaches that standardize the determination of additionality and/or the crediting baseline for a given class of project activity, with the objective of streamlining the development and assessment process for individual projects. Additionality and/or the crediting baseline are determined for the class of project activity, and qualifying conditions and criteria are set out in the methodology. Individual projects need only meet the conditions and apply the pre-defined criteria set out in the standardized method, obviating the need for each project to determine additionality and/or the crediting baseline via project-specific approaches and analyses.

The VCS defines two types of standardized methods:

- 1) Performance methods: These methods establish performance benchmark metrics for determining additionality and/or the crediting baseline. Projects that meet or exceed a pre-determined level of the metric may be deemed as additional and a pre-determined level of the metric may serve as the crediting baseline.
- 2) Activity methods: These methods pre-determine additionality for given classes of project activities using a positive list. Projects that implement activities on the positive list are automatically deemed as additional and do not otherwise need to demonstrate additionality. One of three options (namely, activity penetration, financial viability or revenue streams) is used to qualify the project activity for the positive list, as set out in Section 4.6.9.

Note – There is some overlap between performance and activity methods with respect to concepts, objectives and outcomes, and methodologies may use any combination of methods (performance, activity, and project) for determining additionality and the crediting baseline as set out in Section 4.1.10. However, both performance and activity methods are sufficiently distinct, and this document sets out the rules and requirements for each method separately.

- 4.1.12** Methodologies shall include sufficient information and evidence to allow the reader to reach the same assessment conclusion on the appropriateness and rigor of the standardized method reached by the two validation/verification bodies in the methodology approval process, noting that the confidentiality of proprietary data may be protected as set out in Section 4.5.6(5). To aid the

readability and clarity of methodologies, such information and evidence may be included in appendices to methodology documents rather than in the body of the documents themselves. Following their initial approval, methodologies are subject to periodic re-assessment, as set out in VCS document *Methodology Approval Process*.

Performance Methods

- 4.1.13** All new performance methods shall be prepared using the VCS *Methodology Template*. A performance method is an integral part of a methodology and therefore it cannot be developed and approved as a separate module that is then applied by projects in conjunction with other methodologies.
- 4.1.14** The methodology may use a performance method for determining additionality only, for determining additionality and the crediting baseline, or for determining the crediting baseline only. The level of the performance benchmark metric for determining additionality and for the crediting baseline may be the same, or each may be different. Where they are different, the level for determining additionality shall be more stringent than the level of the crediting baseline.
- 4.1.15** Where the methodology uses a performance method for determining both additionality and the crediting baseline, the methodology shall list all methodologies that use a project method for determining the crediting baseline that are applicable to similar project activities and are approved under the VCS Program or an approved GHG program. The purpose of this requirement is to facilitate the transition to standardized methods, as further set out in Section 3.1.6.
- 4.1.16** The performance benchmark metric shall be specified in terms of tonnes of CO₂e per unit of output (i.e., GHG emissions per unit of product or service), tonnes of CO₂e per unit of input (e.g., GHG emissions per unit of input per unit of land area) or as a sequestration metric (e.g., carbon stock per unit of land area), as appropriate to the project activity applicable under the methodology. This may represent tonnes of CO₂e reduced or tonnes of CO₂e sequestered. An input metric shall only be used where an output metric is not practicable (e.g., the corresponding output metric is subject to influences outside the control of the project proponent) and leakage shall be addressed. The unit shall be unambiguously defined to allow a consistent comparison of project performance with the performance benchmark. The *GHG Protocol for Project Accounting*, Chapter 7 (WRI-WBCSD) provides some examples of products and services that may serve as candidates for performance benchmark metrics. Note that proxies for the performance benchmark metric may be used for determining additionality, as set out in Section 4.6.7.
- 4.1.17** It is recognized that an overly stringent level for the performance benchmark metric used for additionality may exclude additional projects (false negatives) while an overly lenient level may allow in non-additional projects (false positives). Similarly, an overly stringent level of the performance benchmark metric used for the crediting baseline may result in too little incentive for project proponents while an overly lenient level may allow the crediting of non-additional GHG emission reductions and removals. In order to address these considerations, the following shall apply with respect to setting the level(s) of the performance benchmark metric:

- 1) The methodology shall provide a description and analysis of the current distribution of performance within the sector as such performance relates to the applicability of the methodology or each performance benchmark (see Section 4.3.5 for further information on applicability of methodologies and performance benchmarks). The methodology shall also provide an overview of the technologies and/or measures available for improving performance within the sector, though an exhaustive list is not required recognizing that performance methods may be somewhat agnostic with respect to the technologies and/or measures implemented by projects.
- 2) The methodology shall discuss and evaluate the tradeoff between false negatives and false positives and shall describe objectively and transparently the evidence used (including reference to primary and secondary data sources), experts consulted, assumptions made, and analysis (including numerical analysis) and process undertaken in determining the selected level(s) of the performance benchmark metric (noting that expert consultation is a key part of this process, as set out below). The selected level(s) shall not systematically overestimate GHG emission reductions or removals.
- 3) The process of determining the level(s) of the performance benchmark metric shall include and be informed by an expert consultation process, undertaken by the methodology developer as follows:
 - a) The objective of the expert consultation shall be to engage and solicit input from technical experts on the appropriateness of the proposed level(s) of the performance benchmark metric to ensuring environmental integrity and provision of sufficient financial incentive to potential projects. Technical experts are persons who have specific knowledge or expertise relevant to the methodology and performance benchmark metric.
 - b) The methodology developer shall ensure that a representative group of experts participates in the consultation, including, but not limited to, representation from industry, environmental non-governmental organizations, and government or other regulatory bodies. Where a diverse range of views can be expected with regard to the appropriate level of the performance benchmark metric, experts representing the range of views shall participate in the consultation. Participation by experts shall be pro-actively sought and facilitated. Consultation that does not involve a representative group of experts shall be deemed insufficient.
 - c) Experts shall be provided, under appropriate confidentiality agreements (as necessary), with sufficient background and technical information about the methodology and its context to allow meaningful participation in the consultation. The consultation process shall use meetings, conference calls and other appropriate methods to allow all experts to provide comments and exchange views in an open, fair and transparent manner.
 - d) A report on the expert consultation process and outcome shall be prepared and submitted to the VCSA when the methodology is submitted under the methodology approval process. This may be included as an annex to the methodology, to be removed from any final approved version of the methodology. The report shall provide a summary of expert views, and shall demonstrate how the above requirements have been met and

how expert views were taken due account of (i.e., how expert views have affected the final level(s) of the performance benchmark metric in the draft methodology).

Note that expert consultation only needs to be undertaken by the methodology developer with respect to the level of the performance benchmark metric, since the methodology is also subject to public stakeholder consultation as part of the VCS methodology approval process.

4.1.18 Where there is heterogeneity of performance (measured in terms of the performance benchmark metric) that may be practicably achieved by individual projects, multiple benchmarks or correction factors may be required. Multiple benchmarks or correction factors shall be established under the following circumstances:

- 1) The project activity includes technologies and/or measures which may be implemented at both greenfield and brownfield sites and the performance (measured in terms of the performance benchmark metric) that may be practicably achieved at each is substantially different.
- 2) The methodology encompasses both larger and smaller scale project activities and the performance (measured in terms of the performance benchmark metric) that may be practicably achieved in each case is substantially different.
- 3) Any other circumstances related to the baseline scenario or project activity, such as plant age, raw material quality and climatic circumstances, that lead to heterogeneity of performance (measured in terms of the performance benchmark metric) that may be practicably achieved by individual projects.

Activity Methods

4.1.19 The activity method shall be prepared using the *VCS Module Template*, or, where a new methodology is being developed, may be written directly into the methodology (i.e., a positive list may be prepared and approved as a standalone additionality test that may be used in conjunction with applicable methodologies, or may be prepared as a direct part of a new methodology, in which case it may not be used in conjunction with other methodologies). To aid the readability of this document, it is assumed that the activity method is being written directly into the methodology, so readers should take references to *methodology* to mean *methodology or module*, as appropriate.

4.1.20 The activity method shall set out, using the specification of the project activity under the applicability conditions, a positive list of project activities that are deemed as additional under the activity method (see Section 4.3 for further information on providing specification of project activities). All such project activities are deemed as additional under the activity method.

4.2 METHODOLOGY REVISIONS

General

- 4.2.1** Methodology revisions are appropriate where a project activity is broadly similar to the project activities eligible under an existing methodology and such project activity can be included through reasonable changes to that methodology. Methodology revisions are also appropriate where an existing methodology can be materially improved. Materially improving a methodology involves comparing the existing and proposed methodologies so as to show that the changes will deliver material improvements that will result in greater accuracy of measurement of GHG emissions reductions or removals, improved conservatism and/or reduced transaction costs.
- 4.2.2** Methodology revisions shall be prepared using the *VCS Methodology Template* and shall be managed via the methodology approval process. They may be prepared and submitted to the methodology approval process by the developer of the original methodology or any other entity.
- 4.2.3** The VCS Program distinguishes between revisions to VCS methodologies and revisions to approved GHG program methodologies. The requirements for the development and assessment of each are set out in VCS document *Methodology Approval Process*.

Standardized Methods

- 4.2.4** Standardized methods approved under the VCS Program shall be periodically reviewed and may require revision, as set out in VCS document *Methodology Approval Process*.

Activity Methods

- 4.2.5** Where an activity method uses the activity penetration option and the level of activity penetration has risen (since initial approval) to exceed the five-percent threshold level, the activity method may not be revised to use the financial viability or revenue streams options.

4.3 APPLICABILITY CONDITIONS

General

- 4.3.1** The methodology shall use applicability conditions to specify the project activities to which it applies and shall establish criteria that describe the conditions under which the methodology can (and cannot, if appropriate) be applied. Any applicability conditions set out in tools or modules used by the methodology shall also apply.

Standardized Methods

- 4.3.2** Precise specification of the project activity is required to provide a carefully targeted standardized method with an appropriate level of aggregation with respect to the project activity. The

applicability conditions shall be specified accordingly and shall cause to be excluded from the methodology, to the extent practicable, those classes of project activities that it can be reasonably assumed will be implemented without the intervention created by the carbon market. For example, the methodology may exclude facilities larger than a specific size or capacity, constructed before a given date or that have regular access to lower cost fuels than most facilities. The methodology shall demonstrate how the applicability conditions achieve such objective with respect to free-riders.

Performance Methods

- 4.3.3** The applicability conditions shall limit the applicability of the methodology to project activities whose performance can be described in terms of the performance benchmark metric set out in the methodology.
- 4.3.4** Where the methodology uses a performance method for determining additionality, the applicability conditions shall ensure that the project implements technologies and/or measures that cause substantial performance improvement relative to the crediting baseline and what is achievable within the sector, and the methodology shall explicitly specify such technologies and/or measures (or examples thereof). Note that the implementation date of such technologies and/or measures is the project start date and the VCS rules with respect to project start date apply (i.e., implementation will need to have occurred within timeframes permitted under the VCS rules on project start date). Activities that have not implemented any such technologies and/or measures, or that have implemented them on a date that is earlier than that permitted under the VCS rules on project start date, shall be excluded from the methodology.
- 4.3.5** The applicability conditions shall establish the scope of validity of the methodology, and where multiple benchmarks are established, each performance benchmark, including the geographic scope. In establishing the scope of validity of the methodology or each performance benchmark, the methodology shall clearly demonstrate that there is similarity across the sub-areas of the geographic scope in factors such as socio-economic conditions, climatic conditions, energy prices, raw material availability and electricity grid emission factors, as such factors relate to the baseline scenario and additionality, noting that variation is permitted where correction factors address such variation as set out in Section 4.1.18.

It may be necessary to stratify and establish multiple performance benchmarks, or to limit the applicability of the methodology, to comply with this requirement.

- 4.3.6** The applicability of the methodology or a performance benchmark shall be limited to the geographic area for which data are available, or it shall be demonstrated that data from one geographic area are representative of another or that it is conservative to apply data from one geographic area to another. Representativeness shall be determined in terms of the similarity of the geographic areas considering such factors as those set out in Section 4.3.5 above. Likewise, it shall be determined that it is conservative to apply data from one geographic area by considering the same factors. In determining whether two areas are sufficiently similar, or that it is

conservative, to allow data to apply from one area to another, only factors related to the baseline scenario and additionality need to be considered.

Activity Methods

- 4.3.7** The applicability conditions specify the project activity and they shall therefore serve as the specification of the positive list (i.e., all project activities that satisfy the applicability conditions are deemed as additional).
- 4.3.8** The methodology shall clearly specify the project activity in terms of a technology or measure and its context of application. A technology or measure encompasses the plant, equipment, process, management and conservation measure or other practice that directly or indirectly generates GHG emission reductions and/or removals. The context of application refers to the conditions or circumstances under which such technology or measure may be implemented.
- 4.3.9** The applicability conditions shall establish the scope of validity of the methodology, including the geographic scope. In establishing the scope of validity of the methodology, the methodology shall clearly demonstrate that there is similarity across the sub-areas of the geographic scope in factors such as socio-economic conditions, climatic conditions, energy prices, raw material availability and electricity grid emission factors, as such factors relate to the baseline scenario and additionality, It may be necessary to limit the applicability of the methodology to comply with this requirement.
- 4.3.10** Where the activity method is set out as a separate module (i.e., is not an integrated part of a methodology), the activity method may be applied to any methodology eligible under the VCS Program that permits the project activity specified in the module (see Section 3.14.1 for further details).

4.4 PROJECT BOUNDARY

General

- 4.4.1** The methodology shall establish criteria and procedures for describing the project boundary and identifying and assessing GHG sources, sinks and reservoirs relevant to the project and baseline scenarios. Justification for GHG sources, sinks and reservoirs included or excluded shall be provided.
- 4.4.2** In identifying GHG sources, sinks and reservoirs relevant to the project, the methodology shall set out criteria and procedures for identifying and assessing GHG sources, sinks and reservoirs that are controlled by the project proponent, related to the project or affected by the project (i.e., leakage).
- 4.4.3** In identifying GHG sources, sinks and reservoirs relevant to the baseline scenario, the methodology shall:

- 1) Set out criteria and procedures used for identifying the GHG sources, sinks and reservoirs relevant for the project.
- 2) Where necessary, explain and apply additional criteria for identifying relevant baseline GHG sources, sinks and reservoirs.
- 3) Compare the GHG sources, sinks and reservoirs identified for the project with those identified in the baseline scenario, to ensure equivalency and consistency.

Standardized Methods

4.4.4 (No specific requirements)

4.5 BASELINE SCENARIO

General

- 4.5.1** Methodologies using a project method shall establish criteria and procedures for identifying alternative baseline scenarios and determining the most plausible scenario, taking into account the following:
- 1) The identified GHG sources, sinks and reservoirs.
 - 2) Existing and alternative project types, activities and technologies providing equivalent type and level of activity of products or services to the project.
 - 3) Data availability, reliability and limitations.
 - 4) Other relevant information concerning present or future conditions, such as legislative, technical, economic, socio-cultural, environmental, geographic, site-specific and temporal assumptions or projections.
- 4.5.2** Methodologies using a standardized method for determining the crediting baseline shall describe (taking into account the factors set out Section 4.5.1 above), as far as is possible, the technologies or measures that represent the most plausible baseline scenario or the aggregated baseline scenario (see Section 4.5.4 for further information on aggregate baseline scenarios), though it is recognized that it may not be possible to specify precisely all technologies or measures given that the baseline may represent a variety of different technologies and measures.

Standardized Methods

- 4.5.3** Standardized methods shall be developed with the objective of predicting, as accurately as is practicable, the most plausible baseline scenario or aggregated baseline scenario. Notwithstanding this principle, it is recognized that standardized methods cannot perfectly capture the precise baseline behavior for all proposed projects eligible under a standardized method.

Performance Methods

- 4.5.4** The methodology shall identify alternative baseline scenarios and determine either the most plausible baseline scenario or an aggregate baseline scenario for the project activity. Aggregate baseline scenarios shall be determined by combining likely scenarios on a probabilistic (i.e., likelihood) basis.
- 4.5.5** The performance benchmark shall be established based upon available technologies and/or current practices, and trends, within the sector. Where the analysis of trends shows a clear trend of improvement in the baseline scenario over time, the performance benchmark shall take account of the trend. This means that where the performance benchmark does not use a dataset that is updated at least annually, an autonomous improvement factor shall be used that provides a performance benchmark that tightens annually. Notwithstanding this requirement, methodologies may allow projects to use the level of the performance benchmark metric available at project validation for the duration of their project crediting periods (see also Section 4.5.7 below). Where the analysis of trends shows a trend of increasing GHG emissions or decreasing GHG removals in the baseline scenario over time, the performance benchmark shall not consider such trend.
- 4.5.6** Appropriate data sources for developing performance methods include economic and engineering analyses and models, peer-reviewed scientific literature, case studies, empirical data, and common practice data. The data and dataset derived from such data sources shall meet the requirements below. The *CDM Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines* also provides useful related guidance.
- 1) Data collected directly from primary sources shall comply with relevant and appropriate standards, where available, for data collection and analysis, and be audited at an appropriate frequency by an appropriately qualified, independent organization.
 - 2) Data collected from secondary sources shall be available from a recognized, credible source and must be reviewed for publication by an appropriately qualified, independent organization or appropriate peer review group, or be published by a government agency.
 - 3) Data shall be from a time period that accurately reflects available technologies and/or current practice, and trends, within the sector. Selection of the appropriate temporal range shall be determined based on the guidance provided in the *GHG Protocol for Project Accounting*, Chapter 7 (WRI-WBCSD).
 - 4) Where sampling is applied in data collection, the requirements set out in Section 4.1.4 shall be adhered to. The methodology developer shall demonstrate that sampling results provide an unbiased and reliable estimate of the true mean value (i.e., the sampling does not systematically underestimate or overestimate the true mean value).
 - 5) Data shall be publicly available or made publicly available. Proprietary data (e.g., data pertaining to individual facilities) may be aggregated, and therefore not made publicly available, where there are demonstrable confidentiality considerations. However, sufficient data shall be publicly available to provide transparency and credibility to the dataset.

- 6) All data shall be made available, under appropriate confidentiality agreements as necessary, to the VCSA and each of the validation/verification bodies assessing the proposed performance benchmark methodology, to allow them to reproduce the determination of the performance benchmark. Data shall be presented in a manner that enables them to independently assess the presented data.
- 7) Data shall be appropriate to the methodology's geographic scope and the project activities applicable under it.
- 8) All reasonable efforts shall be undertaken to collect sufficient data and the use of expert judgment as a substitute for data shall only be permitted where it can be demonstrated that there is a paucity of data. Expert judgment may be applied in interpreting data. Where expert judgment is used, good practice methods for eliciting expert judgment shall be used (e.g., *IPCC 2006 Guidelines for National GHG Inventories*).
- 9) Where data must be maintained in a central repository on an on-going basis (e.g., in a database that holds sector data for use by project proponents in establishing specific performance benchmarks for their projects), there shall be clear and robust custody arrangements for the data and defined roles and responsibilities with respect to the central repository.

Where such data requirements set out above cannot be met, a performance method shall not be applied except as set out in Section 4.3.5.

- 4.5.7** The dataset may be documented and contained within the methodology, or may be maintained in a separate repository that is referenced by the methodology. Datasets documented and contained within methodologies are static datasets, where all projects use the level of the performance benchmark metric specified in the methodology (noting that autonomous improvement factors may be used, as set out in Section 4.5.5 above). The following applies with respect to datasets maintained in a separate repository:
- 1) The dataset may be static or dynamic (i.e., may or may not be periodically updated).
 - 2) The methodology shall establish criteria and procedures for use of the dataset and for establishing specific performance benchmarks for individual projects.
 - 3) The methodology may specify that projects use the level of the performance benchmark metric available at project validation for the duration of their project crediting periods, or may specify that projects use an updated level of the performance benchmark metric at each verification event. The frequency that data is updated within the dataset shall be determined by the methodology developer.
 - 4) It shall be demonstrated that procedures are in place to maintain the dataset in accordance with the applicable requirements set out for data and datasets in Section 4.5.6 above.

Activity Methods

- 4.5.8** There are no specific requirements for activity methods, noting that methodologies using an activity method may use a project or performance method for determining the crediting baseline, as set out in Section 4.1.10.

4.6 ADDITIONALITY

General

- 4.6.1** The methodology shall establish a procedure for the demonstration and assessment of additionality based upon the requirements set out below. Note that such requirements are for methodology development, and projects shall demonstrate and assess additionality in accordance with the requirements set out in the applied methodology.
- 4.6.2** Methodologies shall use a project method, performance method and/or activity method to determine additionality. The high level specifications and procedural steps for each approach are set out in Sections 4.6.3 to 4.6.9 below. New methodologies developed under the VCS shall meet this requirement by doing one of the following:
- 1) Referencing and requiring the use of an appropriate additionality tool that has been approved under the VCS or an approved GHG program;
 - 2) Developing a full and detailed procedure for demonstrating and assessing additionality directly within the methodology; or
 - 3) Developing a full and detailed procedure for demonstrating and assessing additionality in a separate tool, which shall be approved via the methodology approval process, and referencing and requiring the use of such new tool in the methodology.

Note - Reference in a methodology to the VCS requirements on additionality is insufficient. The VCS requirements are high level requirements and do not represent a full and detailed procedure for the demonstration of additionality. The only exception to this is with respect to regulatory surplus (i.e., methodologies may directly reference the VCS requirements on regulatory surplus and do not need to further develop a procedure for demonstrating and assessing regulatory surplus).

Project Method

4.6.3 Step 1: Regulatory Surplus

The project shall not be mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework. For UNFCCC non-Annex I countries, laws, statutes, regulatory frameworks or policies

implemented³ since 11 November 2001 that give comparative advantage to less emissions-intensive technologies or activities relative to more emissions-intensive technologies or activities need not be taken into account. For all countries, laws, statutes, regulatory frameworks or policies implemented since 11 December 1997 that give comparative advantage to more emissions-intensive technologies or activities relative to less emissions-intensive technologies or activities shall not be taken into account.

4.6.4 Step 2: Implementation Barriers

The project shall face one or more distinct barrier(s) compared with barriers faced by alternatives to the project:

- 1) Investment barrier: Project faces capital or investment return constraints that can be overcome by the additional revenues associated with the sale of GHG credits.
- 2) Technological barriers: Project faces technology-related barriers to its implementation.
- 3) Institutional barriers: Project faces financial (other than identified in investment barrier above), organizational, cultural or social barriers that the VCU revenue stream can help overcome.

4.6.5 Step 3: Common Practice

The project shall not be common practice, determined as follows:

- 1) Project type shall not be common practice in sector/region, compared with projects that have received no carbon finance.
- 2) Where it is common practice, the project proponent shall identify barriers faced compared with existing projects.
- 3) Demonstration that the project is not common practice shall be based on guidance provided in *The GHG Protocol for Project Accounting*, Chapter 7 (WRI-WBCSD).

Performance Method

4.6.6 Step 1: Regulatory Surplus

The project activity shall meet with the requirements on regulatory surplus set out under the project method in Section 4.6.3.

4.6.7 Step 2: Performance Benchmark

The GHG emissions generated (or carbon sequestered) per unit of output, unit of input or sequestration metric by the project shall be below (or above, for sequestration) the prescribed

³ Implemented in the context of this paragraph means enacted or introduced, consistent with use of the term under the CDM rules on so-called Type E+ and Type E- policies.

performance benchmark metric or proxy for such metric (see Section 4.1.16 for specification of the metric). Proxy metrics or conditions may be specified where it can be demonstrated that they are strongly correlated with the performance benchmark metric and that they can serve as an equivalent or better method (e.g., in terms of reliability, consistency or practicality) to determine whether performance is achieved to a level at least equivalent to that of the performance benchmark metric.

GHG emissions generated (or carbon sequestered) may be above (or below, for sequestration) the prescribed performance benchmark metric or proxy for such metric for a given verification period, though the project shall not be granted credit for such verification periods.

Activity Method

4.6.8 Step 1: Regulatory Surplus:

The project activity shall meet with the requirements on regulatory surplus set out under the project method in Section 4.6.3.

4.6.9 Step 2: Positive List:

The methodology shall apply one or more of the following three options:

1) Option A: Activity Penetration

The methodology shall demonstrate that the project activity has achieved a low level of penetration relative to its maximum adoption potential, as follows:

- a) The methodology shall demonstrate that the project activity has achieved a low level of penetration relative to its maximum adoption potential, determined using the following equation:

$$AP_y = OA_y / MAP_y$$

Where:

AP_y = Activity penetration of the project activity in year y (percentage)

OA_y = Observed adoption of the project activity in year y (e.g., total number of instances installed at a given date in year y, or amount of energy supplied in year y)

MAP_y = Maximum adoption potential of the project activity in year y (e.g., total number of instances that potentially could have been installed at a given date in year y, or the amount of energy that potentially could have been supplied in year y)

The maximum adoption potential is the total adoption of a project activity that could currently be achieved given current resource availability, technological capability, level of service, implementation potential, total demand, market access and other relevant factors

within the methodology's applicable geographically defined market. Maximum adoption potential does not consider market price, cost of adoption, consumer education, cultural or behavioral barriers, and laws, statutes, regulatory frameworks or policies.

Maximum adoption potential is constrained by numerous factors each imposing their own limitations on the total adoption of a project activity. The following list provides further specification with respect to factors that do, and do not, need to be considered in determining maximum adoption potential:

- i) Resource availability is the limitation imposed by the supply of raw materials or energy resources to the activity.
- ii) Technological capability is the limitation imposed by the technical efficiency of the project activity.
- iii) Level of service is the limitation imposed by the technical reliability or quality of the service provided by the project activity relative to its alternatives.
- iv) Implementation potential is the limitation imposed by the availability of appropriate locations for implementing the project activity.
- v) Total demand is the limitation imposed by demand for the product or service provided by, or associated with, the project activity and all relevant alternative sources of the product or service.
- vi) Market access is the limitation imposed by current infrastructure and the degree to which the outputs of project activity can be practically supplied to the market.
- vii) Market price is the limitation imposed by the current price achievable for outputs from the project activity. Cost of adoption is the limitation imposed by the cost of switching to the project activity from an alternative activity. Consumer education is the public knowledge or awareness of the activity and its benefits. Behavioral or cultural barriers are limitations resulting from social or cultural inertia with respect to the adoption of the project activity.

Data used in determining the level of activity penetration shall meet the requirements for data set out for performance benchmarks in Section 4.5.6, *mutatis mutandis*.

- b) The level of penetration of the project activity shall be no higher than five percent.
 - c) Where the project activity has been commercially available in any area of the applicable geographic scope for less than three years (i.e., it uses a new technology or measure), it shall be demonstrated that the project activity faces barriers to its uptake. Such barriers shall be demonstrated in accordance with Step 3 (barrier analysis) of the latest version of the CDM Tool for the demonstration and assessment of additionality.
- 2) **Option B: Financial Viability**

The methodology shall demonstrate that the project activity is less financially or economically attractive than the alternatives to the project activity using the procedures for investment analysis set out in the CDM Tool for the demonstration and assessment of additionality. This

requires that Steps 1, 2 and 4 of such tool are followed. The analysis shall be conducted for the class of project activities to which the methodology is applicable, and the following also applies:

- a) Sub-step 1a. *Other realistic and credible alternative scenarios* shall be taken to mean the full range of alternatives to the class of project activity that are found and are operational in the applicable geographic scope.
- b) Sub-step 1b. Where the methodology is applicable to more than one country, the mandatory applicable legal and regulatory requirements of all countries shall be examined.
- c) Sub-step 2b and Sub-step 2c. The following applies:
 - i) The full range of circumstances which can influence the project activity shall be considered, and either average circumstances or the circumstances that lead to the most cost effective outcome shall be assumed (e.g., if the observed wind resource in the geographic scope of the methodology leads to plant load factors for wind turbines of between 25 and 30 percent, an average of these figures can be used, or 30 percent may be assumed).
 - ii) Likewise, the full range of cost and/or revenue estimates for the project activity shall be considered, and either average estimates or the estimates that lead to the most cost effective outcome shall be assumed.
 - iii) The full range of circumstances related to the baseline alternatives shall be considered, and either average circumstances or the circumstances that lead to the most cost effective outcome shall be assumed. Only observed or realistic circumstances shall be included (e.g., in a country where cement plants are all located close to harbors or large rivers with a view to easy access to transport, it would not be realistic to assume cement plants would be located in remote areas without easy access to transport).
 - iv) Likewise, the full range of cost and/or revenue estimates for the baseline alternatives shall be considered, and either average estimates or estimates pertaining to the most likely baseline alternative shall be assumed. Where estimates pertaining to the most likely baseline alternative are used, it shall be substantiated that such baseline alternative is the most likely among the alternatives.
- d) Sub-step 2b, Option III. Company internal benchmarks may not be used.
- e) Sub-step 2d. Where average circumstances or estimates have been used in Sub-step 2b and/or Sub-step 2c (i.e., calculations have been based upon a range of circumstances or estimates, see above), a sensitivity analysis shall be undertaken. The objective of the sensitivity analysis is to test whether the conclusion regarding the financial/economic attractiveness of the class of project activity is robust to reasonable variations in the critical assumptions, and where it does not demonstrate conclusively that the (entire class of) project activity is additional, the project activity shall not qualify for the positive

list under this Option B. Where the most cost effective, and therefore most conservative, circumstances or estimates have been used, a sensitivity analysis is not required.

- f) Step 2 (General). Where there are multiple circumstances and estimates that must be aggregated in order to calculate output figures, the method of aggregation shall account for the correlations between each circumstance and estimate.
- g) Step 4 (Common practice analysis). It shall be demonstrated that the project activity is not common practice using the full procedures for common practice analysis set out in the *CDM Tool for the demonstration and assessment of additionality*.

3) Option C: Revenue Streams

The methodology shall demonstrate that the project activity does not have any significant sources of revenue other than revenue from the sale of GHG credits, as follows:

- a) The project activity's gross annual revenue (including cost savings) excluding from the sale of GHG credits shall not exceed five percent of capital expenditure (see VCS document *Program Definitions* for definition of capital expenditure). All capital expenditures incurred during the project crediting period shall be accounted for and where the project activity involves capital expenditure subsequent to year zero, an appropriate discount rate shall be applied.
- b) It shall be demonstrated that the project activity is not common practice using the full procedures for common practice analysis set out in the *CDM Tool for the demonstration and assessment of additionality*.

4.7 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

General

- 4.7.1** The methodology shall establish criteria and procedures for quantifying GHG emissions and/or removals, and/or carbon stocks, for the selected GHG sources, sinks and/or reservoirs, separately for the project (including leakage) and baseline scenarios.
- 4.7.2** The methodology shall establish criteria and procedures for quantifying net GHG emission reductions and removals generated by the project, which shall be quantified as the difference between the GHG emissions and/or removals, and/or as the difference between carbon stocks, from GHG sources, sinks and reservoirs relevant for the project and those relevant for the baseline scenario. Where appropriate, net GHG emission reductions and removals, and net change in carbon stocks, shall be quantified separately for the project and the baseline scenarios for each relevant GHG and its corresponding GHG sources, sinks and/or reservoirs.

Performance Methods

- 4.7.3** In any given verification period, the methodology may result in the project's GHG emission reductions or removals being quantified as negative. This is permitted and the project shall be granted no credit in such periods.

Activity Methods

- 4.7.4** (No specific requirements)

4.8 MONITORING

General

- 4.8.1** The methodology shall describe the data and parameters to be reported, including sources of data and units of measurement.
- 4.8.2** When highly uncertain data and information are relied upon, conservative values shall be selected that ensure that the quantification does not lead to an overestimation of net GHG emission reductions or removals.
- 4.8.3** Metric tonnes shall be used as the unit of measure and the quantity of each type of GHG shall be converted to tonnes of CO₂e consistent with the requirements set out in Section 3.15.3 above.
- 4.8.4** The methodology shall establish criteria and procedures for monitoring, which shall cover the following:
- 1) Purpose of monitoring.
 - 2) Monitoring procedures, including estimation, modeling, measurement or calculation approaches.
 - 3) Procedures for managing data quality.
 - 4) Monitoring frequency and measurement procedures.

Standardized Methods

- 4.8.5** (No specific requirements)

5 | Validation and Verification Requirements

5.1 INTRODUCTION

- 5.1.1** Validation is the independent assessment of the project by a validation/verification body that determines whether the project complies with the VCS rules. Verification is the periodic ex-post independent assessment by a validation/verification body of the GHG emission reductions and removals that have occurred as a result of the project during the monitoring period, conducted in accordance with the VCS rules.
- 5.1.2** Validation and verification is a risk-based process and shall be carried out in conformance with *ISO 14064-3:2006* and *ISO 14065:2007*. Additional requirements with respect to validation and verification are set out in this Section 5 and shall be adhered to.
- 5.1.3** The validation/verification body shall select samples of data and information to be validated or verified to provide a reasonable level of assurance and to meet the materiality requirements of the specific project.

5.2 GENERAL REQUIREMENTS

- 5.2.1** The project shall be validated and GHG emission reductions or removals verified by a validation/verification body that meets with the eligibility requirements set out in the *VCS Program Guide*.
- 5.2.2** Validation and verification of the project may be undertaken by the same validation/verification body, noting the rules on rotation of validation/verification bodies set out in Section 5.3.12 below. Validation may occur before the first verification or at the same time as the first verification.
- 5.2.3** The project shall be listed on the project pipeline before the opening meeting between the validation/verification body and the project proponent (such opening meeting representing the beginning of the validation process). The validation/verification body is responsible for checking that the project is listed on the project pipeline and shall not conduct the opening meeting or otherwise begin validation until such time as the project is listed.
- 5.2.4** Where the project applies a methodology from an approved GHG program that does not have an independent validation step, the VCS rules still require validation of the project.
- 5.2.5** Validation/verification bodies are expected to follow the guidance provided in the *VCS Validation and Verification Manual* when validating or verifying projects and conducting methodology assessments under the VCS Program.

5.3 VALIDATION AND VERIFICATION PROCESS

General Requirements

- 5.3.1** In addition to the requirements set out in *ISO 14064-3:2006*, the following shall apply:
- 1) The level of assurance shall be reasonable, with respect to material errors, omissions and misrepresentations, for both validation and verification.
 - 2) The criteria for validation shall be the *VCS Version 3*, or approved GHG program where the validation is performed under an approved GHG program (as in cases of participation under the VCS Program and an approved GHG program). The criteria for verification shall be the *VCS Version 3* (regardless of the VCS version or GHG program under which the project was validated). This means the validation or verification shall ensure conformance of the project with the VCS rules, or rules and requirements of the approved GHG program, as applicable.
 - 3) The objective of validation or verification shall be in conformance with the VCS rules and the methodology applied to the project.
 - 4) The threshold for materiality with respect to the aggregate of errors, omissions and misrepresentations relative to the total reported GHG emission reductions and/or removals shall be five percent for projects and one percent for large projects.
- 5.3.2** Where the project does not fully comply with the methodology, the validation/verification body shall determine whether this represents a methodology deviation or a methodology revision (in accordance with the specifications for each), and the case shall be handled accordingly.
- 5.3.3** Where the project applies a revision to an approved GHG program methodology and the version of the (underlying) methodology referenced by the methodology revision is no longer current, the validation/verification body shall determine whether material changes have occurred to the underlying methodology that affect the integrity of the methodology revision. Where such material changes have occurred, the project shall not be approved.
- 5.3.4** Where the project does not meet the criteria for validation or verification, the validation/verification body shall produce a negative validation conclusion and provide the validation, or verification, report and project description, or monitoring report to the VCSA. The project shall be ineligible for registration until such time as corrective action is taken and the (same) validation/verification body has provided a positive validation or verification.

Competence

- 5.3.5** The validation/verification body and validation and verification team shall meet the competence requirements set out in *ISO 14065:2007, mutatis mutandis*.

Validation and Verification Reporting

- 5.3.6** The validation report describes the validation process, any findings raised during validation and their resolutions, and the conclusions reached by the validation/verification body. The validation/verification body shall use the *VCS Validation Report Template*, *VCS Joint Validation & Verification Report Template*, *VCS & CCB Validation Report Template*, *VCS+SOCIALCARBON Validation Report Template* or approved GHG program validation report template where the project is registered under an approved GHG program, as appropriate, and adhere to all instructional text within the template. The validation report shall be accompanied by a validation representation, which shall be prepared using the *VCS Validation Deed of Representation Template*.
- 5.3.7** The verification report describes the verification process, any findings raised during verification and their resolutions, and the conclusions reached by the validation/verification body. The validation/verification body shall use the *VCS Verification Report Template*, *VCS Joint Validation & Verification Report Template*, *VCS & CCB Verification Report Template* or *VCS+SOCIALCARBON Verification Report Template*, as appropriate, and adhere to all instructional text within the template. The verification report shall be accompanied by a verification representation, which shall be prepared using the *VCS Verification Deed of Representation Template*.

Validation and Verification Statement

- 5.3.8** The validation report and the verification report shall contain a validation statement and a verification statement, respectively.
- 5.3.9** Validation and verification statements shall:
- 1) Describe the level of assurance of the validation or verification.
 - 2) Describe the objectives, scope and criteria of the validation or verification.
 - 3) Describe whether the data and information supporting the GHG assertion were hypothetical, projected and/or historical in nature.
 - 4) Include the validation/verification body's conclusion on the GHG assertion, including any qualifications or limitations.
- 5.3.10** The verification statement shall state the volume of GHG emission reductions or removals generated during the monitoring period that have been verified.

Records of Validation and Verification

- 5.3.11** The validation/verification body shall keep all documents and records in a secure and retrievable manner for at least two years after the end of the project crediting period, even where they do not conduct verification for the whole project crediting period.

Rotation of Validation/Verification Bodies

5.3.12 Rotation of validation/verification bodies is required in respect of validation and verification, as follows:

- 1) Validation (including project crediting period renewal validation) and the first verification of a project (in a given project crediting period) may be undertaken by the same validation/verification body. However, the subsequent verification shall be undertaken by a different validation/verification body. For example, if validation and verification were undertaken at the same time, the subsequent verification would have to be undertaken by a different validation/verification body. If validation were undertaken first (i.e., separately), the first verification could be undertaken by the same validation/verification body, but the subsequent verification would have to be undertaken by a different validation/verification body.

Note – The gap validation of a project registered under an approved GHG program may be disregarded when assessing adherence to these requirements.

- 2) A validation/verification body may not verify more than six consecutive years of a project's GHG emission reductions or removals. The validation/verification body may undertake further verification for the project only when at least three years of the project's GHG emission reductions or removals have been verified by a different validation/verification body. Additionally, where a validation/verification body verifies the final six consecutive years of a project crediting period, the project crediting period renewal validation shall be undertaken by a different validation/verification body. Notwithstanding these rules, where AFOLU projects have verification periods longer than six years, a validation/verification body is permitted to verify more than six consecutive years of a project's GHG emission reductions or removals, and the subsequent verification shall be undertaken by a different validation/verification body.

Note – Validations and verifications performed under other GHG programs shall be counted when assessing adherence to these requirements.

Validation and Verification Requirements for Grouped Projects

5.3.13 Validation and verification of grouped projects shall assess conformance of the project with the requirements for grouped projects set out in the VCS rules.

5.3.14 New project activity instances shall be validated, based on the information reported in the monitoring report, against the applicable set of eligibility criteria. The validation/verification body shall specify which instances meet the eligibility criteria for inclusion in the project. Such validation may be reported in the verification report or a separate validation report.

5.3.15 Where, due to the number of project activity instances, it is unreasonable to undertake an individual assessment of each initial or new instance, the validation/verification body shall document and explain the sampling methods employed for the validation of such instances. Such sampling methods shall be statistically sound. The number of instances included in the project,

eligible for monitoring and generation of VCUs shall be proportional to the percentage of sampled instances found to be in compliance by the validation/verification body.

- 5.3.16** The verification report for grouped projects shall document and explain the sampling methods employed by the validation/verification body for the verification of GHG emission reductions or removals generated by the project. Such methods shall be statistically sound. Any subsequent changes to the sampling method(s) required as a result of the verification findings shall be documented.

APPENDIX 1: DOCUMENT HISTORY

Version	Date	Comment
v3.0	8 Mar 2011	Initial version released under VCS Version 3
v3.1	15 Jul 2011	<p>Main updates (all effective on issue date):</p> <ol style="list-style-type: none"> 1) Clarified the language for the validation deadline of AFOLU projects. 2) Provided an extension of the validation/verification deadline for AFOLU projects with a start date before 1 January 2002. 3) Incorporated requirements for projects registered sequentially under the VCS Program and a GHG program that is not an approved GHG program. 4) Updated requirements for estimating uncertainty in methodologies. 5) Clarified the rules on grace period granted to projects using new methodologies.
v3.2	1 Feb 2012	<p>Main updates (all effective on issue date, unless otherwise stated):</p> <ol style="list-style-type: none"> 1) Included requirements for standardized methods (Sections 3.1.6, 3.14.1 and 4). 2) Updated rules on double counting to focus on double selling and monetizing, and not double claiming (Section 3.11.2). 3) Expanded requirements and procedures for AFOLU projects registering and issuing credits under the VCS Program and an approved GHG program (Section 3.11). 4) Amended additionality rules on regulatory surplus such that the exception for Type E- policies and systematically enforced law is granted to non-Annex I countries only (Section 4.6.3). Effective from 1 August 2012. 5) Clarified that new requirements released by the VCSA do not impact registered projects (Section 3.1.8). 6) Replaced the term <i>proof of title</i> with <i>evidence of right of use</i> (Sections 3.4.10, 3.11.1, 3.18.2 and 3.19.2).
v3.3	4 Oct 2012	<p>Main updates (all effective on issue date, unless otherwise stated):</p> <ol style="list-style-type: none"> 1) Included reference to jurisdictional programs and nested REDD+ projects (Sections 1 and 2.1). 2) Clarified that the most recent version of external documents shall be used where referenced (Section 1.1). 3) Introduced rules for the use of models, default factors and proxies (Sections 2.3.2, 3.1.4, 3.1.5, 4.1.6, 4.1.7 and 4.1.8). 4) Clarified that the size/scale of project activity instances for grouped projects may need to be considered in establishing eligibility criteria for the inclusion of instances (Section 3.4.9). 5) Added new type of right of use for JNR (Sections 3.4.10 and 3.11.1). 6) Clarified requirements for methodology deviations (Section 3.5.1). 7) Introduced rules on project description deviations, replacing rules on monitoring plan deviations and switching methodologies (Section 3.6). 8) Clarified that the project crediting period under VCS Version 1 is deemed as 10 years (Section 3.8.5). 9) Changed the thresholds for project scale so that projects with emission reductions or removals greater than 300,000 tonnes CO₂e per year are considered large and the

		<p>materiality threshold is one percent for large projects. (Sections 3.9 and 5.3.1).</p> <ul style="list-style-type: none"> 10) Clarified that the consultation undertaken on the level of performance benchmark metrics is an expert consultation rather than a general stakeholder consultation (i.e., the purpose is to engage technical experts in the process) (Section 4.1.17). 11) Added QA/QC guidance for standardized methods data (Section 4.5.6). 12) Clarified that proxy metrics or conditions may serve as an <i>equivalent</i> method to determine whether performance is achieved to a level at least equivalent to that of the performance benchmark metric (Section 4.6.7). 13) Clarified that the difference in carbon stock between the baseline and project scenarios may be used to quantify the emission reductions from pools (Sections 4.7.1 and 4.7.2). 14) Removed monitoring section requirements for standards and factors (previously Section 4.8.2). 15) Specified rules on rotation of VVBs (Sections 5.2.2 and 5.3.12). Effective immediately, unless evidence of contracting for verification prior to 4 October 2012 is provided. 16) Added new requirement that listing on the project pipeline is required before validation can begin (Section 5.2.3). Effective from 4 April 2013. 17) Included reference to the VCS <i>Validation and Verification Manual</i> (Section 5.2.5). 18) Revised language on validation report conclusions (Section 5.3.4).
v3.4	8 Oct 2013	<p>Main updates (all effective on issue date):</p> <ul style="list-style-type: none"> 1) Clarified that readers <i>shall</i> use the most current version of this document (Section 1.1). 2) Clarified that verification periods cannot overlap (Sections 3.4.10 and 3.16.7). 3) Removed reference to JNR-specific right of use for grouped projects (previously Section 3.4.10(7)). 4) Extended validation grace period for projects applying a new VCS methodology, including at project crediting period renewal (Sections 3.7.2 and 3.8.5(3)). 5) Added requirements on debundling (Section 3.9.2). 6) Added new requirements with respect to other forms of GHG-related environmental credits (Sections 3.11.3 and 3.11.5). 7) Removed duplication of reporting requirements between the monitoring report, project description, validation report, and verification report and their respective templates (Sections 3.16.6, 3.19.1, 5.3.6 and 5.3.7). 8) Removed language on validation/verification body liability (Section 5.2.5). 9) Revised VCSA actions for projects not meeting criteria for validation and verification (Section 5.3.4). 10) Clarified validation/verification body rotation requirements in respect of project crediting period renewals (Section 5.3.12). 11) Expanded the document to be applicable to JNR, and made other minor edits and clarifications to text and grammar (throughout).
v3.5	25 Mar 2015	<p>Main updates (all effective on issue date, unless otherwise stated):</p> <ul style="list-style-type: none"> 1) Incorporated 9 January 2014 exclusion of HFC-23 from the scope of the VCS Program (Section 2.1.1).

		<ul style="list-style-type: none"> 2) Clarified language with respect to projects registered under other GHG programs which are seeking registration with the VCS Program (Sections 3.7.1, 3.11.9, 3.11.10, 3.11.10(1), 3.11.10(3), 3.11.11, 3.19.1, 5.3.6). 3) Specified the total project crediting period for projects registered under the JI Program which are seeking registration with the VCS Program (Section 3.8.3). 4) Incorporated 30 October 2014 clarification with respect to GHG-related environmental credits (Section 3.11.3). 5) Updated reference to CPA to be consistent with latest version of <i>Glossary of CDM Terms</i> (Section 3.11.9). 6) Added requirements and procedures for projects registered under the Joint Implementation program to also register with the VCS Program (Section 3.11.10(2)).
v3.6	19 Oct 2016	<p>Main updates (all effective on issue date, unless otherwise stated):</p> <ul style="list-style-type: none"> 1) Replaced term <i>right of use</i> with <i>project ownership</i> (Sections 3.4.10(5), 3.11.1, 3.18.2) 2) Incorporated 23 September 2015 standalone update removing validation deadline for projects applying a standardized method for determining additionality into document text (Section 3.7.6) 3) Incorporated 24 February 2016 clarification with respect to introduction of joint templates into document text (Sections 3.16.6, 3.19.1, 5.3.6, 5.3.7) 4) Introduced requirements for assessment of no net harm (Section 3.17.1). Effective immediately, unless evidence of contracting for validation prior to 19 April 2017 is provided. 5) Introduced requirements for conducting local stakeholder consultations (Sections 3.17.2-3.17.4). Effective immediately, unless evidence of contracting for validation prior to 19 April 2017 is provided. 6) Introduced requirements for public comment periods for projects (Sections 3.17.5-3.17.8). Effective from 19 April 2017.
v3.7	21 Jun 2017	<p>Main updates (all effective on issue date, unless otherwise stated):</p> <ul style="list-style-type: none"> 1) Introduced new requirement that new project activity instances added to grouped projects shall have a start date that is equal to or later than the grouped project start date (Section 3.4.10(6)) 2) Clarified that the project crediting period shall not be renewed until the end of the previous crediting period (Section 3.8.5(3)) 3) Updated CDM gap validation process and introduced new Climate Action Reserve gap validation process (Section 3.11.10(1, 3)) 4) Introduced new requirements for projects applying an approved GHG program methodology which uses an activity method or other simplified procedure for demonstrating additionality (Section 3.14.1) 5) Updated required source of global warming potentials from the IPCC's <i>Second Assessment Report</i> to the IPCC's <i>Fourth Assessment Report</i> (Sections 3.15.3 and 4.8.3). Projects may optionally transition to the updated global warming potentials immediately via a project description deviation. Projects shall transition to the updated global warming potentials at their project crediting period renewal. 6) Added reference to joint VCS, VCS & CCB and VCS+SOCIALCARBON templates (Sections 3.16.6, 3.19.1, 5.3.6, 5.3.7)

		<ul style="list-style-type: none">7) Clarified that project verification periods must be contiguous (Section 3.16.7)8) Clarified that any validation and verification activities performed under other GHG programs shall be counted when assessing compliance with VVB rotation requirements (Section 5.3.12)9) Removed requirement that a validation representation must be submitted where verification includes the validation of new project activity instances of a grouped project (formerly Section 5.3.14)
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How it Works



Integrity, Innovation, Impact.

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What We Do

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What We Do

In both the voluntary carbon market and California's regulated carbon market, ACR oversees the registration and verification of carbon offset projects following approved carbon accounting methodologies or protocols and issues offsets on a transparent registry system. Each offset represents the reduction or removal from the atmosphere equivalent to one metric tonne of carbon dioxide. The offsets products are specific to ACR's distinct operations in the California compliance market and the global voluntary carbon market.

California's regulated carbon market

As an approved Offset Project Registry (OPR) for the California Cap-and-Trade program, ACR works with the state regulatory agency, the Air Resources Board (ARB), to oversee the listing and verification of carbon offset projects developed using ARB's compliance offset and early action offset protocols.

For projects registered under California compliance protocols or early action quantification methodologies and verified by an accredited verification body, ACR issues Registry Offset Credits (ROCs) and Early Action Offset Credits (EAOCs). These offset types are both eligible to be converted to ARB compliance Offset Credits, which can be used by California entities to help meet their emissions reductions obligations in the Cap-and-Trade Program.

Voluntary carbon market

In the voluntary market, ACR oversees the registration and independent verification of projects that meet ACR Standards and follow ACR approved carbon accounting methodologies, which ensure accuracy, precision and rigor in the measurement, monitoring and verification of emission reductions. ACR provides the flexibility of a wide range of methodologies that diversify offset sourcing options and demonstrate environmental benefits beyond emissions reductions.

ACR brands the premium verified emissions reductions (VERs) issued against ACR standards as Emission Reduction Tonnes, ERTs. One ERT represents the reduction or removal from the atmosphere equivalent to one metric tonne of carbon dioxide.

Robust Registry System

ACR also operates a robust and secure electronic registry system, powered by APX, for members to register California and voluntary market projects and record the issuance, transfer and retirement of serialized, project-based and independently verified offsets.

The contracting of offsets for purchase or retirement takes place directly between buyer and seller through over-the-counter (OTC) transactions outside of the Registry system or on an approved, linked offset exchange. After a sale takes place, the counter-parties record the transfer of ownership or retirement of offsets within the Registry.

The use of a fully transparent registry system is fundamental to the credibility of the market. ACR ensures transparency by requiring that project registration and verification documents be made public. We ensure no double counting or double selling by serializing offsets and by linking to online offset issuance and retirement logs.

Offset Projects

ACR registers offset projects from around the globe from a wide range of project types including:

- Afforestation / Reforestation (A/R)
- Improved Forest Management (IFM)
- Reduced Emissions from Deforestation and Degradation (REDD)
- Wetland Restoration
- Fertilizer Management
- Avoided Conversion of Grasslands & Rangelands
- Rice Production
- Livestock Waste Management
- Improved Cookstoves
- Water Purification
- Destruction of Ozone Depleting Substances (ODS)
- Fugitive Methane Emissions
- Transport / Fleet Efficiency
- Landfill Gas Capture & Combustion
- Renewable Energy and Energy Efficiency

We welcome collaboration with partners to catalyze new emissions reduction opportunities and enable broader carbon market participation.



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 5.1

July 2018



THE AMERICAN CARBON REGISTRY STANDARD

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VERSION 5.1

July 2018

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ABOUT AMERICAN CARBON REGISTRY® (ACR)

A leading carbon offset 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.

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ACRONYMS

ACR	American Carbon Registry®
AEZ	agroecological zone
AFOLU	Agriculture, Forestry, and Other Land Use
CCBA	Climate, Community and Biodiversity Alliance
CDM	Clean Development Mechanism
CER	certified emission reduction
CO ₂ e	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
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

THE AMERICAN CARBON REGISTRY STANDARD

Version 5.1



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 offset 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. Since the 1990s, Winrock has been a leader in developing science-based greenhouse gas (GHG) measurement and monitoring methods and protocols.

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 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 offsets. The Standard establishes the quality level that every project must meet in order for ACR to register its GHG emissions reductions and removals as tradable environmental assets.

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>.

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 or pre-compliance early action 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 v5.1 supersedes the ACR Standard v5.0 (February 2018). Any project listed subsequent to August 1, 2018, must follow all requirements of and be validated against the ACR Standard v5.1. New projects listed prior to August 1, 2018, may be validated according to a previous version of the ACR Standard, as applicable at the time of listing. All Projects shall be verified to the version of the ACR Standard against which they were validated through the end of their Crediting Period.

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 1 Basics on ACR

Chapter 2 ACR's general accounting and data quality principles for offset projects

Chapter 3 ACR project eligibility requirements

Chapter 4 ACR tests to ensure that offset projects are additional to business-as-usual

Chapter 5 ACR's approach to ensuring permanence of GHG reductions and removals

Chapter 6 Process for Project Proponents to develop and register a project

Chapter 7 Processes for ACR approval of new methodologies and methodology modifications

Chapter 8 ACR requirements for ensuring Environmental and Community Safeguards

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

Chapter 11 ACR's appeals and complaints procedure

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

Appendix B ACR Buffer Pool Terms and Conditions, which details requirements for AFOLU projects that utilize the Buffer Pool for reversal risk mitigation

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 (2018). The American Carbon Registry Standard, version 5.1., 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 offset program that operates in both the regulated and non-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 (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons, sulfur hexafluoride (SF₆), 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 (http://ozone.unep.org/Publications/MP_Handbook).

1.E SCOPE: PROJECT TYPES

ACR credits project-level emissions reductions / removals for the following scopes as defined by the American National Standards Institute (ANSI), an International Accreditation Forum member and the body which accredits and oversees Validation and Verification Bodies (VVBs) for ACR.

1. GHG emission reductions from fuel combustion

- Renewable Energy Production: (hydropower, biomass energy, biomass fuels, geothermal power, solar power, wind energy, fuel cell)
- Energy Efficiency Improvements: (fuel switching, waste heat recovery, cogeneration)
- Transportation

2. GHG emission reductions from industrial processes (non-combustion, chemical reaction, fugitive and other)

- Ozone Depleting Substances Destruction
- SF₆ replacement
- SF₆ emission avoidance
- HFC destruction/decomposition
- PFC anode effect mitigation
- Production of nitric acid and adipic acid
- Reduced emissions from destruction of N₂O in manufacturing

3. Land Use, Land Use Change and Forestry

- Sequestration of carbon due to afforestation, avoided deforestation, sustainable forest management, forest products)
- Soil carbon sequestration (no-till, grass cover)

4. Carbon Capture and Storage

- Emissions sources that are injected into underground geological formations (e.g. abandoned oil and gas reservoirs, saline aquifers, or unminable coal seams)

5. Livestock

- Methane Collection and Destruction
- Livestock and other anaerobic digester operations
- Agricultural methane emission reduction
- Agricultural carbon emission reduction

6. Waste Handling and Disposal

- Capture and destruction of Landfill gas
- Capture and use of Landfill gas (biodegradation, aerobic treatment)
- Methane recovery in wastewater treatment
- Avoidance of methane production in wastewater treatment
- Coal mine methane

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;
- Methodologies approved by the Clean Development Mechanism (CDM) Executive Board, provided that, at the request of the Project Proponent, it has been reviewed and approved for consistency with ACR requirements;
- 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.

With the exception of hydropower, ACR accepts renewable energy projects 100 megawatts and under and energy efficiency projects where the baselines include indirect emissions, only if the Project Activity takes place in non-Annex 1 countries of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. For hydropower, ACR accepts run-of-river projects up to 10 megawatts.

ACR will register GHG reductions from renewable energy and energy efficiency projects in the United States and other Annex 1 countries, only 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 federal, regional, or state climate regulations, the project does not take place at a regulated source; and
- The project has not been counted toward a mandatory Renewable Portfolio Standard (RPS) obligation or claimed Renewable Energy Credits (RECs), unless regulations in the relevant jurisdiction clearly allow separation ("unbundling") of RECs and GHG attributes or the sources of REC and GHG attributes are clearly distinct.

ACR's scope excludes:

- 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 in the United States, unless meeting all criteria above. Projects that displace indirect emissions at a source not owned or controlled by the Project Proponent (e.g., grid-connected renewable power generation) do not meet these criteria because of the lack of unambiguous and uncontested ownership of the emission reductions, lack of clear additionality, potential for double counting of offsets and RECs in markets where regulations do not clearly allow for unbundling of RECs and GHG attributes, or where the sources of such attributes are indistinct, and potential for double counting of offsets and entity-level emissions reductions;
- International project-level REDD (Reducing Emissions from Deforestation and Degradation) 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
- Energy or life-cycle GHG accounting-based indirect emissions reductions and removals from projects originating in Annex I countries.

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 CO₂ equivalent (CO₂e) using calculations based on the 100-year Global Warming Potential factors listed in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4), Working Group 1, Chapter 2, Table 2.14.²

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 CO₂e. ERTs, also referred to as offsets, carbon offsets, and carbon offset credits, include emission reductions and removal enhancements (i.e., enhanced sequestration).

² See http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html.

1.I NO EX-ANTE CREDITING

A project-based offset 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 offsets 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.

On a project level and in certain circumstances, ACR may require all projects, including those validated under a previous version of the ACR Standard, to immediately implement a policy or process revision (e.g., updated administrative reporting procedures) detailed in a subsequent version of the ACR Standard.

1.K CONFLICT OF INTEREST POLICY

As a nonprofit organization that values its reputation for integrity, Winrock 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 Winrock director, officer, and staff member, including ACR staff, 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. Winrock and 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 includes conflict of interest provisions. ACR-approved VVBs must also execute a project-specific conflict of interest form for each project validated and/or reporting period verified, which ACR reviews and approves.

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.

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 $\pm 10\%$ 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. 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 how to calculate this uncertainty deduction. Methodologies submitted for ACR approval shall include methods for estimating uncertainty relevant to the project and baseline scenario.

Project Proponent 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 $\pm 10\%$ of the mean at 90% confidence, if sampling is required.

The use of biogeochemical or process models must also include an estimate of structural uncertainty related to the inadequacy of the model, model bias, and model discrepancy. This 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.

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 offset 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 eligibility review or, for carbon offset projects that have completed this step, upon submission of the proposal. The following requirements must be met for consideration:³

- 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 CO₂e);
- 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 benefit⁴
- 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).

³ This section is not relevant to RECs, which are discussed in Chapter 1, Section E.

⁴ Any project using an ACR-approved GHG quantification methodology for issuance of offsets 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 offsets.

CHAPTER 3: PROJECT ELIGIBILITY REQUIREMENTS

Table 2 details ACR eligibility criteria for all projects, defines each criterion, and articulates ACR requirements. 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.

Table 2: Eligibility Requirements for Offset Projects

CRITERION	DEFINITION	ACR REQUIREMENT
Start Date^{5,6}	<p>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.</p> <p>ACR defines the eligible Start Date(s) for AFOLU project types in Annex A, “ACR Requirements for AFOLU-Based Carbon Projects.”</p>	<p>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.</p> <p>One exception applies to these timeframes: Projects using a newly approved methodology⁷ or a newly approved modification that expands the eligibility of a previously published methodology⁸ 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.</p> <p>The Start Date and the start of the Minimum Project Term shall be the same. The Start Date and the start of the first Crediting Period</p>

⁵ 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.

⁶ 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, and must have a validated/verified Start Date of January 1, 2000, or after.

⁷ 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.

⁸ The project must demonstrate that it was not eligible under the previously published version of the relevant methodology, without the newly approved modification.

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CRITERION	DEFINITION	ACR REQUIREMENT
		are generally the same, unless otherwise allowable in the relevant methodology.
Minimum Project Term	<p>The minimum length of time for which a Project Proponent commits to project continuance, monitoring, and verification.</p>	<p>The Minimum Project Term for specific project types is defined in the relevant 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.</p> <p>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. Agreements between Project Proponent and landowner may have a shorter term and/or a “buy-out” option, provided the Project Proponent commits to replace issued ERTs in the event a landowner opts to discontinue Project Activities. See Chapter 4 and Chapter 6.</p> <p>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. At the end of the Minimum Project Term, if the Project Proponent does not renew for another Crediting Period and continue monitoring and verification, ACR conservatively assumes that its activities have ceased and retains and may retire any remaining buffer contributions (if applicable).</p>
Crediting Period	<p>Crediting Period is the finite length of time for which a GHG Project Plan is valid, and during</p>	<p>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.</p>

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CRITERION	DEFINITION	ACR REQUIREMENT
	<p>which a project can generate offsets against its baseline scenario.</p> <p>Crediting Periods are limited in order to require Project Proponents to re-confirm, 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. This is important because once a project has demonstrated its additionality, it is not required to do so again until applying to renew the Crediting Period.</p>	<p>A Project Proponent may apply to renew the Crediting Period by complying with all then-current ACR requirements, 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.</p> <p>Projects that are deemed to meet all ACR additionality criteria are considered additional for the duration of their Crediting Period. If regulations or common practice change during the Crediting Period, this may make the project non-additional and thus ineligible for renewal, but does not affect its additionality during the current Crediting Period, unless otherwise specified in the project-specific methodology.</p>
Real	<p>A real offset is the result of a project action that yields quantifiable and verifiable GHG emissions reductions and/or removals.</p>	<p>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.</p>
Emission or Removal Origin	<p>An emission or removal is direct if it originates from sources or sinks over which the Project Proponent has control.</p> <p>An emission or removal is indirect if it originates at sources or sinks over which the Project Proponent does not have control.</p>	<p>For projects reducing or removing direct emissions, the following requirement applies:</p> <p>The Project Proponent shall own, have control over, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, it shall document that effective control exists over the GHG sources and/or sinks from which the reductions/removals originate.</p> <p>For projects that reduce or remove energy-related indirect emissions, eligible projects</p>

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CRITERION	DEFINITION	ACR REQUIREMENT
		<p>must be located in non-Annex I countries to the UNFCCC.</p> <p>For projects reducing or removing non-energy indirect emissions,⁹ the following requirement applies:</p> <p>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).</p>
Offset Title	<p>Offset title is a legal term representing rights and interests in an offset, a future stream of offsets, or a project delivering offsets.</p>	<p>The Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain-of-custody documentation if offsets have been sold in the past. Title to offsets shall be clear, unique, and uncontested.</p> <p>If the Project Proponent does not own the lands or facilities from which the GHG reductions or removals originate, it shall provide documentation that the owner of those lands or facilities has transferred offset title. ACR will issue offsets into the account of a Project Proponent only if it has clear, unencumbered, and uncontested offset title.</p>
Additional	<p>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.</p>	<p>Every project shall use either an ACR-approved performance standard and pass a regulatory surplus test, or pass a three-pronged test of additionality in which the project must:</p> <ol style="list-style-type: none"> <li>1. Exceed regulatory/legal requirements; <li>2. Go beyond common practice; and <li>3. Overcome at least one of three implementation barriers: institutional, financial, or technical.

⁹ ACR will not consider projects or methodologies for indirect emissions reductions/removals based on life-cycle GHG accounting methods.

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CRITERION	DEFINITION	ACR REQUIREMENT
Regulatory Compliance	<p>Adherence to all laws, regulations, and other legally binding mandates directly related to Project Activities.</p>	<p>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. Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of non-compliance with laws, regulations, or other legally binding mandates directly related to Project Activities.</p>
Permanent	<p>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.</p>	<p>For projects with a risk of reversal of GHG removal enhancements, 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.</p> <p>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. Proponents of geologic sequestration projects shall mitigate reversal risk during the project term by contributing ERTs to the ACR Reserve Account and post-</p>

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CRITERION	DEFINITION	ACR REQUIREMENT
		<p>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.</p> <p>All projects must adhere to ongoing monitoring, reversal reporting, and compensation requirements as detailed in relevant methodologies and legally binding agreements (e.g., the ACR Reversal Risk Mitigation Agreement).</p>
Net of Leakage	<p>Leakage is an increase in GHG emissions or decrease in sequestration outside the project boundaries that occurs because of the project action.</p>	<p>ACR requires Project Proponents to assess, account for, and mitigate certain types of leakage, as summarized in relevant sector requirements and approved methodologies. 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.</p>
Independently Validated	<p>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.</p>	<p>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.</p> <p>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.</p>
Independently Verified	<p>Verification is the systematic, independent, and documented assessment by a qualified and impartial third party of the</p>	<p>Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals.</p>

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CRITERION	DEFINITION	ACR REQUIREMENT
	GHG assertion for a specific reporting period.	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 Safeguards	<p>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.</p>	<p>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.</p> <p>Project Proponents must identify community and environmental impacts of their project(s). Projects may disclose 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.</p> <p>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.</p> <p>Project Proponents shall disclose in their Annual Attestations any negative environmental or community impacts or claims thereof and the appropriate mitigation measure</p> <p>ACR reserves the right to refuse to list or issue credits to a project based on community or environmental impacts that have not or</p>

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CRITERION	DEFINITION	ACR REQUIREMENT
		cannot be mitigated, or that present a significant risk of future negative environmental or 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 on the next page. 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.¹⁰

¹⁰ An example is some CDM methodologies approved by ACR.

Table 3: Three-Prong Additionality Test

TEST	KEY QUESTIONS
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 or indirectly affect GHG emissions associated with a project action or its baseline candidates, and which require 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.

Projects that are deemed regulatory surplus are considered surplus for the duration of their Crediting Period. If regulations change during the Crediting Period, this may make the project non-additional and thus ineligible for renewal, but does not affect its additionality during the current Crediting Period, unless otherwise specified in the project-specific methodology. AFOLU projects with easements need to consider the legally binding requirements of the easement if the recordation date is within 1 year of 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. Generally, there are no barriers to the continuation of current activities, exceptions being regulatory or market changes that force a shift in a Project Activity or the end of equipment's useful lifetime.

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.¹¹ 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

¹¹ Adapted from the U.S. Environmental Protection Agency Climate Leaders offset methodologies at <http://www.epa.gov/stateply/resources/optional-module.html>.

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considered additional. Specific thresholds may vary by industry, sector, geography, and practice, and are specified in the relevant methodology.

- **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 CO₂e 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 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 that result in emissions into the atmosphere of stored or sequestered CO₂e 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 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 CO₂ 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 CO₂ 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. Only well-designed reversal risk mitigation mechanisms can make sequestration-based offsets 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 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 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. 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 number of offsets being issued multiplied by the Minimum Buffer Percentage.

If no reversals occur, the project's risk category and Minimum Buffer Percentage shall remain unchanged for 5 years. The risk analysis must be re-evaluated every 5 years, coincident with the interval of required site visit verification. An exception is in the event of a reversal, in which case the project baseline, 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 shall enter into a legally binding Reversal Risk Mitigation Agreement with ACR/Winrock 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 land owner(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 ACR Buffer Pool Terms and Conditions (Exhibit 1), 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 offsets 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 CO₂ captured and stored is permanently sequestered underground through detailed post-injection monitoring, required until it can be verified that no migration of injected CO₂ is detected across the boundaries of the storage volume and the modeled failure scenarios indicate that the CO₂ will remain contained within the storage volume. The Risk Mitigation Covenant 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.

CHAPTER 6: PROJECT DEVELOPMENT TRAJECTORY

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

ACR screens the eligibility of GHG Project Plans against the ACR Standard, and the relevant methodology. A successful screening results in ACR's non-binding determination that the GHG Project Plan text addresses and complies with all applicable requirements. The screening does not include a detailed review of project data or supporting documentation, and does not take the place of nor reduce the scope of validation and verification by an ACR-approved independent third-party VVB. The Project Proponent may choose to make the project listing public upon a successful eligibility screening, or wait until credits are issued. After a GHG Project Plan is listed, Validation and verification may occur simultaneously and must occur prior to issuance of ERTs. Upon acceptance of the verification statement, ACR registers the project, posts public project documents, including the validation report, verification report and statement, and the validated GHG Project Plan, and issues serialized ERTs to the Project Proponent's account. The next steps (sale, retirement, etc.) are at the discretion of Project Proponents and counterparties.

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 Plan using the ACR-approved methodology.
2. ACR screens the GHG Project Plan for project eligibility and compatibility with the ACR Standard, at fees per the currently published ACR fee schedule.¹² ACR conducts this evaluation against the ACR Standard, and methodology. This screening results in (a) approval to proceed to Validation/Verification Body 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 Plan for further screening. One re-submittal is allowed without additional fee; subsequent re-submittals require an additional fee. ACR reserves the right to accept or reject a GHG Project Plan at any time during the eligibility review. Upon a successful eligibility screening, a project is considered to be listed.

¹² The ACR fee schedule is posted at www.americancarbonregistry.org.

3. Having conducted the eligibility screening and received approval to proceed to Validation/Verification Body selection, the Project Proponent hires an ACR-approved independent third-party VVB to validate the GHG Project Plan and verify the Project's GHG assertions as outlined in the monitoring report. ACR must approve the VVB prior to the start of validation and verification services based on proper accreditation, conflict of interest review, and rotation requirements. Validation and verification may occur simultaneously and must occur prior to issuance of ERTs. Fees for validation and verification are as agreed between the Project Proponent and verifier. This results in submission to ACR of a verified monitoring report, validation report, verification report, and verification statement.
4. ACR reviews the validation and verification documents. This results in (a) acceptance, (b) acceptance contingent on requested corrections or clarifications, or (c) rejection. See ACR Validation and Verification Standard for further details.
5. Upon acceptance of the verification documents, ACR makes the validated GHG Project Plan, verified monitoring report, and verification statement public on its registry.
6. 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 credits are issued on the registry. 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.
7. 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.
8. 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 CO₂e;
- 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); and
- 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.

Project Proponents shall use the GHG Project Plan template available at www.americancarbon-registry.org.

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 available at www.americancarbonregistry.org.

6.E PROJECT MONITORING REPORTS

Project monitoring reports shall be completed for each verified reporting period. 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.

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

Project Proponents shall use the template for Project Monitoring Reports available at www.americancarbonregistry.org.

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 registered under a single ACR account.
- Implement a single ACR-approved methodology (or pair of ACR-approved methodologies when relevant¹³).
- 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 ($\pm 10\%$ 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;
- 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

¹³ 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.

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 does require 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 relevant¹⁴).
- 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 try to facilitate verification efficiencies.
- Sites within a cohort must be on the same validation and verification schedule.
- The Crediting Period requirements of the chosen methodology can be applied at the site level where the project may report and verify GHG emissions reductions for the duration of each site’s individual Crediting Period; however, 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 participating sites at the same time.

¹⁴ 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.

- 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.
- If a new version of the chosen methodology has been published, new sites may continue to be added to the same PDA project only after an updated GHG Project Plan is submitted and the project is re-validated using the most recent version of the methodology.
- 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 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 principles 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, made available to the VVB at the time of validation.
- Each 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 whole project, and in addition to desk-based review for each new site, must include site visits to a selection of the new sites, to the extent required by the chosen methodology and as determined by the VVB's sampling procedures.

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 site's Implementation 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 Desgin 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, 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.
- 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 ($\pm 10\%$ at 90% confidence interval) for the CO₂e estimate reported in the monitoring report.

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

Project Proponents may be able to increase the efficiencies around reporting and verification by strategically designing the groups of sites participating in an Aggregated Project or PDA. To maximize such potential efficiencies, sites should be grouped so their defining characteristics are as homogeneous as possible. VVBs may use equal probabilities among sites to select which will receive verification site visits, 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 some 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.
- For AFOLU projects only: Sites are located within a pre-defined geographic region, such that all fall within a maximum of three ecoregions, defined by the World Wildlife Foundation (2014) as “A large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions. The boundaries of an ecoregion are not fixed and sharp, but rather encompass an area within which important ecological and evolutionary processes most strongly interact.”¹⁵
 - ❖ 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>.
 - ❖ 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>.
- For AFOLU projects only: Sites encompass relatively similar forest land or soil types.
- Sites share a similar baseline scenario in which there are the same legal constraints (i.e., the without-project scenario is comparable).
- For methodologies that require direct measurements, stratification and organizing projects along some of the characteristics above will help make the precision target ($\pm 10\%$ 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. At a

¹⁵ WWF, 2014. http://wwf.panda.org/about_our_earth/ecoregions/about/what_is_an_ecoregion/.

¹⁶ Note: The geographic boundaries may be further constrained for projects where the chosen methodology requires regional-specific factors in the establishment of the baseline.

minimum, ACR shall disclose publicly the project baseline scenario, calculations, monitoring report, and additionality assertion. The VVB shall check that any information requested as “commercially sensitive” meets the ACR definition of Commercially Sensitive Information.

6.H ADDITIONAL REQUIRED DOCUMENTATION FOR ELIGIBILITY SCREENING

ACR may require the following documentation as part of screening the GHG Project Plan for listing:

- 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.

Project Proponents shall include documentation to establish chain of custody, prior to listing on ACR, if the project offsets have been bought and sold previously, or if the project has a forward option contract. Examples of appropriate documents are:

- Delivery of Confirmation Notice;
- Emissions Reduction Purchase Agreement;
- Signed Attestation of Ownership; and
- Forward Option Purchase Agreement.

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;

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- 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,
- Undergoing validation and verification, as required.

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 offsets 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 submits its Annual Attestation, periodic desk-based verifications, and full verifications at least every 5 years.

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 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.

CHAPTER 7: METHODOLOGIES AND TOOLS

If ACR has not yet published a methodology for a particular project type, the Project Proponent has two options: request approval of a methodology developed under another GHG program, or submit a new or modified methodology to ACR for approval. Any project proposing to use an ACR-approved methodology from another GHG program must comply with the ACR Standard.

7.A GHG MEASUREMENT TOOLS AND METHODOLOGIES

7.A.1 ACR-Published and CDM-Approved Methodologies

Methodologies published by ACR via the public consultation and peer review process are approved without qualification. Methodologies approved by the CDM Executive Board are generally approved for use; however, Project Proponents implementing projects under CDM methodologies must first have ACR's review, clarifications, and approval as described in 7.B.1 below to ensure compliance with ACR requirements.

7.A.2 Modifications to Existing Approved Methodologies

ACR may permit modifications where they do not negatively affect the conservativeness of an approved methodology's approach to determining additionality and quantification of GHG emissions reductions and removal enhancements. 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 to correct quantification errors or provide clarification on monitoring requirements may not require the full process.

7.A.3 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) 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; 2) Sample project using the proposed methodology including an economic analysis demonstrating that the proposed activity is viable under current market conditions; and 3) 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.
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.
3. 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.¹⁷ If the methodology author elects to proceed, they address any corrections and clarifications identified in the ACR review and resubmit the methodology. ACR's agreement to proceed with the methodology approval process does not guarantee that the methodology will be approved.
4. 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 complied report to the methodology author, who then incorporates revisions and/or documents responses to each comment, which are posted on ACR's website.

¹⁷ 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.

5. 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 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.
6. Once all required corrections have been made, 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.
7. 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 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 SAFEGUARDS

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;
- 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.

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)¹⁸ and other stakeholders¹⁹ 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 (optional).
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 (optional).

¹⁸ 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.

¹⁹ 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

In their Annual Attestations to ACR, Project Proponents shall disclose any negative environmental or community impacts or claims of negative environmental and community impacts and the appropriate mitigation measure.

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. 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 screening of every GHG Project Plan against applicable requirements of the ACR Standard and methodology. ACR may request clarifications and corrections regarding GHG Project Plan 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 $\pm 5\%$). 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

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

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. 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.²⁰ 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, 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.²¹ 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.

9.D VALIDATION AND VERIFICATION BODY REQUIREMENTS

Verification is a risk-based process carried out in conformance with ISO 14064-3:2006 and ISO 14065:2013.²² 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

²⁰ Verification activities may begin only after the completion of a project's reporting period.

²¹ 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 site visits to be visited during a full verification. More information can be found in Chapter 10 of the ACR Validation and Verification Standard.

²² ISO 14065:2013 references to "GHG programme" shall mean the ACR.

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;
- 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 years²³ 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 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;
- 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

²³ In this context, a year is defined as a 12-month period.

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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.

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 cancellation 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 do not “talk” to each other or may have inconsistent rules for reporting and/or retirement). To prevent double use, ACR requires clear proof of ownership upon registration, tracking of ownership of credits within the registry by serial number and account, and an annual attestation of ownership. In addition, ACR has rules against double selling and requirements for retailers to regularly

retire credits. All of these rules are detailed in the legal Terms of Use agreement executed by all ACR account holders, which expressly prohibits double use of credits or the transfer of ownership of credits off-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

Double claiming occurs when two or more parties claim the same GHG reduction, removal, or other mitigation outcome toward their regional, national, or sector-wide emissions reduction cap or target.

In the pre-2020 carbon market context, double claiming occurs if emissions reductions that reduce or remove emissions from activities that are part of a binding GHG emissions trading program, or that take place in a jurisdiction or sector in which there is a binding limit/cap established on GHG emissions, are being issued as offsets for use outside of those programs. This would include emissions reductions in Annex I countries that ratified the Kyoto Protocol, in the EU Emissions Trading System, in the California cap-and-trade program, and in the Regional Greenhouse Gas Initiative. In these instances, offset Project Proponents shall provide evidence that the reductions and removals the project generated have not and will not be used in the emissions trading program or for the purpose of demonstrating compliance with binding limits that are in place in that program or jurisdiction.

If Project Activities take place in such a program or jurisdiction, the Project Proponent shall include in its GHG Project Plan a written statement from the GHG emissions program operator, as well as other documentation in a form acceptable to ACR, that it has canceled from the program or national or regional cap (as applicable) a number of emissions allowances, offsets or other (acceptable) GHG credits equivalent to the reductions and removals generated by the project so that they can no longer be used within the operator's GHG program. Alternately, the Project Proponent may provide evidence of purchase and cancellation of GHG allowances equivalent to the GHG emissions reductions or removals the project generated related to the program or national cap.

In order to prevent double-counting of GHG emission reductions or removal enhancements for offset projects in non-Annex I countries under the UNFCCC, Project Proponents shall provide documentation that they have notified the relevant project host country Designated National Authority (DNA) of their project registration in the voluntary market, including the project's expected GHG reductions/removals.

10.B.1 The Paris Agreement and the International Civil Aviation Organization Carbon Offset Reduction Scheme for International Aviation

In the post-2020 carbon market context, in which all signatories to the Paris Agreement have emissions reduction targets/pledges as formulated in the nationally determined contributions (NDCs) and air carriers have an offsetting obligation under the International Civil Aviation Organization Carbon Offset Reduction Scheme for International Aviation (CORSIA), double claiming occurs when two or more Parties claim the same emission reduction to comply with their mitigation targets/pledges/obligations. Transparent reporting and accounting procedures at both the national and international level will be developed to track emissions reductions transferred to / from other 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 / CORSIA. 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.

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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 host country acknowledgement of use of the emissions reductions by another Party, including for the CORSIA. ACR will report to the project host country's national UNFCCC focal point and the transferee country's UNFCCC focal point the details of any ACR units transferred / retired for use by another Party toward fulfillment of its Paris Agreement targets / pledges and/or canceled by/for an airline toward its CORSIA obligation.

ACR will maintain documentation of the national UNFCCC focal point acknowledgement of transfers / cancelations of emissions reductions, posting these on the registry. ACR will make public all retirements / cancellation of units toward a CORSIA offsetting obligation, and will report such information to host countries as required to confirm that the units are included in national emissions reporting to facilitate GHG accounting reconciliation via corresponding adjustments, as ultimately deemed appropriate under the UNFCCC and the CORSIA.

ACR will adhere to any future requirements established by the UNFCCC and International Civil Aviation Organization to prevent double counting and to ensure the environmental integrity of emissions reductions.

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

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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.

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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 offset 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 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 published by ACR after public consultation and scientific peer review, and methodologies approved for use by the CDM Executive Board, provided they are approved for use by ACR.
Annual Attestation Statement	The statement that a Project Proponent provides annually to ACR relating to the continuance, ownership, and community and environmental impacts of a project. The Attestation is required to continue crediting.
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 quantity 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 Cancellation	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. 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 ₂ e)	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 ₂ e 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. ²⁴ 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 new group of Project Participants, meeting all eligibility, project boundary, baseline, and additionality criteria of an already established Programmatic Development Approach (PDA).
Clean Development Mechanism (CDM)	A mechanism that allows GHG emission reduction and removal projects in non-Annex 1 parties to the UNFCCC to earn certified emission reduction (CER) credits, each equivalent to one metric ton of CO ₂ , which can be sold and used by Annex 1 countries to meet a part of their emission reduction targets under the Kyoto Protocol. The CDM is intended to stimulate sustainable development and emission reductions while giving industrialized countries flexibility in how they meet their emission reduction targets. ²⁵

²⁴ Adapted from Pew Center on Global Climate Change. Climate Change 101: Cap and Trade. <http://www.pewclimate.org/docUploads/Cap&Trade.pdf>.

²⁵ <http://cdm.unfccc.int/about/index.html>.

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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. ²⁶
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.

²⁶ Climate, Community, and Biodiversity Standards – Project Design Standards. Second Edition (2008). Climate, Community & Biodiversity Alliance.

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 ₂ e 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

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	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)	Any gaseous compound that absorbs infrared radiation in the atmosphere and contributes to the warming of the atmosphere. The primary GHGs regulated under the Kyoto Protocol are carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄), HFCs, perfluorocarbons (PFCs), and sulfur hexafluoride (SF ₆). The IPCC lists and periodically updates GHGs in its assessment reports. ACR's scope includes all GHGs (including ODS) listed in the IPCC Fourth Assessment Report, Working Group 1, Chapter 2, Table 2.14. ²⁷
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.

²⁷ See http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html.

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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 ₂ e 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 Fourth Assessment Report, Working Group 1, Chapter 2, Table 2.14.
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	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.
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.” ²⁸
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.

²⁸ <http://www.ipcc.ch/organization/organization.htm>.

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.
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 a 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.
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, ²⁹ many of which are also potent GHGs. The Montreal Protocol controls the consumption, production, and international trade of ODS, but not

²⁹ See http://ozone.unep.org/Publications/MP_Handbook.

emissions; therefore, the destruction of ODS in existing facilities and equipment worldwide has the potential to prevent significant GHG emissions.

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 ₂ e 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. ³⁰
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.

³⁰ Adapted from Clean Development Mechanism Rulebook at <http://cdmrulebook.org/452>.

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 Period	The period of time covering a GHG assertion that is submitted for a single verification and subsequent request for ERT issuance.
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 ₂ e 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 ₂ e for which carbon offsets (ERTs) were issued.
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.
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	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.
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.

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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/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)³¹

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.

Forest (for projects in Kyoto Protocol signatory countries)

The Kyoto Protocol defines forest as follows but allows each country's DNA to define minimum land area, crown cover, and tree height within the bracketed ranges: A minimum area of land of (0.05–1.0 hectares) with a minimum tree crown cover (or equivalent stocking level) of (10–30%) with trees, and with the potential to reach a minimum height of (2–5 meters) at maturity in situ. A forest may consist either of closed forest formations, where trees of various heights and undergrowth cover a large portion of the ground, or open forest. The definition includes young natural stands and all plantations that have yet to reach a crown density of (10–30%) or tree height of (2–5 meters), as well as areas that usually form part of the forest area but that are temporarily unstocked because of human intervention (e.g., harvesting) or natural causes, but likely will revert to forest.³²

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.

³¹ 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.

³² DNA selections for minimum land area, crown cover, and tree height are at <http://cdm.un-fccc.int/DNA/allCountriesARIInfos.html>. If the project is in a country that has not yet designated a DNA or whose DNA has not yet made selections, the Proponent may propose another nationally approved forest definition.

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 range-lands. 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 wind-breaks, assuming the stand or woodlot does not meet the criteria for forest land.³³

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.³⁴

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

CRITERION	DEFINITION	REQUIREMENT
Start Date	<p>For AR or Wetland restoration/re-vegetation projects, the Start Date is when the Project Proponent began planting or site preparation.</p> <p>For IFM, the Start Date may be denoted by one of the following:</p>	See requirements in Chapter 3, Table 2, of the ACR Standard.

³³ <http://www.epa.gov/climatechange/Downloads/ghgemissions/US---GHG---Inventory---2011---Chapter---7---LULUCF.pdf>.

³⁴ A template for GHG Project Plans is available at <http://www.americancarbonregistry.org/carbon-accounting/tools-templates>.

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CRITERION	DEFINITION	REQUIREMENT
	<p>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.</p> <p>2. The date that the Project Proponent initiated a forest carbon inventory.</p> <p>3. The date that the Project Proponent entered into a contractual relationship to implement a carbon project.</p> <p>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.</p> <p>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.</p> <p>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.</p>	
Minimum Project Term	<p>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</p>	<p>See requirements in Chapter 3, Table 2, of the ACR Standard.</p>

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CRITERION	DEFINITION	REQUIREMENT
	claimed only avoided emissions are not subject to this requirement.	
Crediting Period	<p>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.</p> <p>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. This is important because once a project has demonstrated its additionality, it is not required to do so again until applying to renew the Crediting Period.</p>	<p>All AR projects shall have a Crediting Period of 40 years.</p> <p>All IFM projects shall have a Crediting Period of 20 years.</p> <p>Avoided Conversion projects on both forest and non-forest land with land conservation agreements in place³⁵ shall have a Crediting Period of 40 years, unless otherwise specified in chosen methodologies.</p> <p>Wetland Restoration/Revegetation projects shall have a Crediting Period of 40 years.</p> <p>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.</p> <p>Unless otherwise specified in the methodology, a Project Proponent may apply to renew the Crediting Period by complying with all then-current ACR requirements, re-evaluating the baseline scenario, re-confirming 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.</p> <p>Projects that are deemed to meet ACR additionality criteria are considered additional for the duration</p>

³⁵ All land conservation agreements must be employed with a specified duration longer than a project's minimum project term.

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CRITERION	DEFINITION	REQUIREMENT
		<p>of their Crediting Period. If regulations or common practice change during the Crediting Period, this may make the project non-additional and thus ineligible for renewal, but does not affect its additionality during the current Crediting Period.</p> <p>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.</p>
Land Eligibility	<p>Land eligibility restrictions may apply to certain types of offset projects.</p>	<p>For AR projects, Project Proposers 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.</p> <p>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 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</p>

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CRITERION	DEFINITION	REQUIREMENT
		Project Plan if they exceed the de minimis threshold.
Land Title	<p>Land title is a legal term representing rights and interests in project lands.</p>	<p>For U.S. projects with GHG emissions reductions resulting from terrestrial sequestration, Project Proponents 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.</p> <p>Land title may be held by a person or entity other than the Project Proponent, provided the Project Proponent has clear, unique, and uncontested offsets title.</p> <p>AFOLU projects that result only in the crediting of avoided emissions with no risk of reversal may not require demonstration of land title.</p>
Natural Management Requirements	<p>New plantations of forests and re-vegetation of wetlands will be carbon sinks regardless of the species planted. However, ACR requires that project plantations are designed within a minimum threshold for facilitating regrowth of species that contribute to an ecosystem with broad environmental benefits and avoid potential negative impacts.</p>	<p>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).</p> <p>Exceptions to the native species requirement may be granted if the following can be demonstrated:</p> <ul style="list-style-type: none"> ● 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

CRITERION	DEFINITION	REQUIREMENT
		(including water, fertilizer, pesticides), invasiveness, competition, etc.
Permanent	<p>Permanence refers to the longevity of removal enhancements and the risk of reversal (i.e., the risk that atmospheric benefit will not be permanent).</p> <p>Reversals may be unintentional or intentional. All AFOLU projects with emissions reductions derived from sequestration have a risk of reversal.</p>	See requirements in Chapter 3, Table 2, and Chapter 5 of the ACR Standard.

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.

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

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 in order not to avoid a confidence deduction.

As noted in Chapter 2, ACR requires a 90% statistical confidence interval of sampling of no more than $\pm 10\%$ 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.

For aggregated or PDA projects, the $\pm 10\%$ 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 may be approved for use under ACR-approved AFOLU methodologies to quantify emissions. The correct application of process-based biogeochemical models shall be specified in the approved methodology. To be applicable, the model shall have been accepted in peer reviewed scientific publications and have the potential to model emissions from the relevant practice change(s) with consideration of the following, where relevant:

- Atmospheric factors (e.g., atmospheric background concentrations of ammonia and CO₂, and nitrogen concentration in rainfall);
- Daily meteorology;
- Edaphic factors (e.g., clay content; bulk density; soil pH; SOC at surface soil³⁶; 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 Guidelines³⁷ or the agroecological zone (AEZ) in which the project is situated using one of the following options:³⁸

³⁶ Depth as required by the process model.

³⁷ http://www.ipcc-nppgip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_03_Ch3_Representation.pdf.

³⁸ 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-nppgip.iges.or.jp/public/2006gl/index.html>.

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 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, 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. 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 $\pm 5\%$). It should also include an updated assessment of the risk of reversal and an updated buffer contribution (if applicable).

Contingent upon Annual Attestations and desk-based audits, projects continue to be credited until the end of the fifth calendar year following the year in which the field 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 Annual Attestations 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: BUFFER POOL TERMS AND CONDITIONS

THESE BUFFER POOL TERMS AND CONDITIONS (the “Buffer Pool Terms”) govern the use of the American Carbon Registry® Buffer Pool (the “ACR Buffer Pool”) by a Project Proponent in and apply to the ACR AFOLU Carbon Project Reversal Risk Mitigation Agreement.

B.1 CONDITIONS TO PARTICIPATION IN ACR BUFFER POOL

To use the ACR Buffer Pool in connection with a project, a Project Proponent must first satisfy the following conditions:

- I. The Project Proponent must have entered into the American Carbon Registry® AFOLU Carbon Project Reversal Risk Mitigation Agreement for the project (as amended from time to time, the “Reversal Risk Mitigation Agreement”).
- II. There must be a GHG Project Plan for the project which, among other things, includes a risk assessment conducted in accordance with the ACR Tool for Risk Analysis and Buffer Determination, a risk category and an approved buffer contribution amount equal to a minimum percentage of the offsets issued by ACR in connection with the project (as amended from time to time due to updated ACR-approved risk assessments, the “Minimum Buffer Percentage”).

B.2 DEFINITIONS

Terms capitalized in these Buffer Pool Terms but not defined herein shall have the meanings given such terms in the Reversal Risk Mitigation Agreement or, if not defined therein, shall have the meanings given such terms in the Definitions section of this ACR Standard (as in effect as of the execution date of the Reversal Risk Mitigation Agreement, the “ACR Standard”).

B.3 BUFFER POOL ACCOUNT

ACR will establish an American Carbon Registry® Buffer Pool Account (the “Buffer Pool”), over which it has sole operational and management control, to hold the Buffer Contribution from the Project (as defined below). ACR shall have the right to hold buffer contributions from all agriculture, forest and other land use (AFOLU) carbon projects registered with ACR in one or more commingled accounts. As long as offsets deposited by a Project Proponent are retained in the Buffer Pool Account, the Project Proponent may not transfer, sell, pledge, retire, or otherwise dispose of such offsets.

In the event that ACR is no longer operational or able to manage the Buffer Pool Account, the account will be managed by ACR's parent organization, Winrock International ("Winrock") or a comparable, qualified organization of Winrock's election.

B.4 BUFFER POOL CONTRIBUTION

- I. **ASSESSMENT OF RISK.** For AFOLU projects that have risk of Reversal, Project Proponent shall conduct a risk assessment addressing both general and project-specific risk factors 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 will be deposited in the ACR Buffer Pool Account to mitigate the risk of reversals at the time of each issuance, the Minimum Buffer Percentage. The risk assessment, overall risk category and Minimum Buffer Percentage, and calculated buffer contribution amount shall be included in the GHG Project Plan. ACR evaluates the overall risk category and corresponding buffer contribution, and the VVB evaluates whether the risk assessment has been conducted correctly. If no Reversals occur, the project's risk category and Minimum Buffer Percentage shall remain unchanged for five years. The risk analysis must be re-evaluated every five years, coincident with the interval of required site visit verification except in the event of a Reversal, in which case the risk category and Minimum Buffer Contribution shall be re-assessed and re-verified immediately.
- II. **BUFFER CONTRIBUTION REQUIREMENT AND TIMING.** As set forth herein and in the ACR Standard, concurrent with each issuance of offsets to the project, Project Proponent shall contribute offsets to the Buffer Pool Account equal to the number of offsets being issued multiplied by the Minimum Buffer Percentage. Project Proponent may, at its option, contribute a number of offsets greater than the number required by application of the Minimum Buffer Percentage. The number of offsets contributed to the Buffer Pool Account shall be referred to as the "Buffer Contribution." In the event of an increase in the Minimum Buffer Percentage due to an updated risk assessment, Project Proponent shall make the required additional Buffer Contribution within ten (10) days following ACR's approval of the updated risk assessment.
- III. **COMPOSITION OF BUFFER CONTRIBUTION.** The Buffer Contribution shall consist of offsets generated by the Project, offsets of any other type or vintage held in an ACR registry account by the Project Proponent, or any combination thereof.

B.5 REVERSAL

- I. **NOTICE OF REVERSAL.** Project Proponent shall provide written notice to ACR immediately upon becoming aware of any Unintentional or Intentional Reversal or Early Project Termination decision. Such notice shall include the number of offsets affected by the Reversal (the "Estimated Lost Offset Amount"), a description of how the Estimated Lost Offset Amount was determined, a description of the nature and cause of the Reversal and all other relevant facts. Project Proponent shall, at its expense, promptly and fully comply with all ACR requests for additional information or analyses relating to the Reversal. ACR

requires the quantification of carbon stocks after the Reversal as verified by a VVB, at the Project Proponent's expense, to be reported to and confirmed by ACR (the "Verified Lost Offset Amount") within six months of the Reversal.

II. LOSS MITIGATION FOR AN UNINTENTIONAL REVERSAL. ACR mitigates the loss from an Unintentional Reversal by canceling from the Buffer Pool the Estimated Loss Amount at Project Proponent's expense (including payment of then-applicable offset activated and cancellation fees). If the Lost Offset Amount is less than the Project Proponent's net Buffer Contributions up to that time, then the Buffer Contributions cover the Reversal. If the Lost Offset Amount from the Reversal exceeds the Proponent's Buffer Contributions to date, the Project Proponent shall pay a "deductible" of 10% of the Lost Offset Amount, depositing this additional offset amount in the ACR Buffer Pool within thirty (30) days of the cancellation, and the Buffer Pool covers the remainder. The deductible contribution may be of ACR offsets of any type and vintage. Following unintentional reversals, the Proponent is not required to replenish the buffer unless the Minimum Buffer Percentage increases based on the risk assessment update. The Verified Offset Amount must be submitted to ACR within six months of Reversal unless additional time is granted by ACR in writing. If the Verified Lost Amount is greater than the Estimated Lost Amount, ACR will cancel from the Buffer Pool the difference.

III. LOSS MITIGATION FOR AN INTENTIONAL REVERSAL. ACR mitigates the loss from an Intentional Reversal, which is assumed as all affected carbon stocks, by canceling the associated volume of credits from the Project Proponent's account and/or canceling from the Buffer Pool the Estimated Loss Amount (as applicable) at Project Proponent's expense (including payment of then-applicable offset activation and cancellation fees) upon notification by the Project Proponent. Cancelation of all non-transacted offsets will occur for a project that has terminated early. The Project Proponent shall, at the Project Proponent's expense, contribute the Estimated Lost Offset Amount to the Buffer Pool Account within thirty (30) days of the Reversal. This Buffer Contribution may be made using ACR offsets of any type or vintage. If the Project Proponent does not make this Buffer Contribution within thirty (30) days, ACR retains the right to freeze the account and use any existing offsets to compensate for the Reversal.

The Verified Offset Amount must be submitted to ACR within six months of Reversal unless additional time is granted by ACR in writing. If the Verified Lost Amount is greater than the Estimated Lost Amount, Project Proponent shall contribute an additional amount for the difference, which will be canceled by ACR.

IV. EARLY PROJECT TERMINATION DUE TO REVERSAL. Sequestration projects will terminate automatically if a Reversal, Intentional or Unintentional, causes project stocks to decrease below baseline levels prior to the end of the Minimum Project Term. In cases where this decrease is caused by intentional reductions to stocks (e.g., forest conversion or over-harvesting), which is considered an Intentional Reversal, the Project Proponent shall compensate for all issued offsets to that project following the process in III above.

V. EARLY PROJECT TERMINATION. If a Project Proponent opts to terminate the project at any time prior to the end of the Minimum Project Term by discontinuing required project monitoring, verification and reporting activities for the Project (or subset of the project in an aggregated or PDA project) or leaves the carbon program, ACR conservatively consid-

ers the cumulative sequestration of the project to be lost (i.e., all offsets issued to the project). Project Proponents must compensate for the full amount of all offsets issued cumulatively to the project upon termination. If only a portion of the project land owners (i.e., in the case of an aggregated or POA project) chooses to terminate, the remaining land owners may continue project activities if the area which was terminated is compensated. The Project Proponent shall have the responsibility to compensate for project termination following the process in III above.

In the case of Early Project Termination in order to re-enroll the project in another voluntary, state or federal program, the Project Proponent must compensate for all offsets issued to the Project following the process in III above. This is because ACR does not have the ability to enforce the actions of a Project Proponent on a project that is no longer registered on ACR.

- VI. RISK ASSESSMENT UPDATE.** Project Proponent shall comply with the risk assessment update requirements pursuant to the Reversal Risk Mitigation Agreement upon occurrence of a Reversal. Frequent recurring reversals will lead to a higher assessed risk and accordingly increased Minimum Buffer Percentage.

B.6 END-OF-TERM BUFFER POOL ACCOUNT BALANCE TRANSFER TO ACR

To the extent required under the ACR Standard, ACR shall, following the termination of the Project Term, decide to continue to hold or to retire any remaining offsets contributed to the Buffer Pool Account with respect to the Project. For purposes hereof, "Project Term" shall mean the period ending at the termination of the later of (i) the Minimum Project Term (including any renewals or extensions) and (ii) any additional period in which, pursuant to the ACR Standard, Project Proponent has agreed to document project continuance.

B.7 EVENTS OF DEFAULT; REMEDIES

The following events and circumstances shall constitute an Event of Default under these Buffer Pool Terms: (i) Project Proponent's failure to notify ACR within ten (10) days after becoming aware of a reversal or Early Project Termination decision; (ii) Project Proponent's failure to cure a breach of these Buffer Pool Terms within ten (10) days following notice of such breach by ACR to Project Proponent; (iii) the occurrence of an Event of Default under the Reversal Risk Mitigation Agreement; and (iv) a bankruptcy, receivership or other insolvency proceeding by or against Project Proponent and not dismissed within sixty (60) days of the making of a general assignment for the benefit of creditors, insolvency, or the institution of bankruptcy, reorganization, liquidation or receivership proceedings, by or against Project Proponent.

Upon the occurrence of an Event of Default, ACR may, in its sole discretion and without limitation of ACR's right to pursue other available legal or equitable remedies, pursue any of the remedies set forth in the Reversal Risk Mitigation Agreement.

B.8 LIMITATION OF LIABILITY; INDEMNIFICATION

I. LIMITATION OF LIABILITY. In no event shall ACR, its owners, affiliates or subsidiaries, and their respective officers, directors, independent contractors, employees, agents, or donors (the “ACR Parties”) be liable for damages arising out of or in connection with these Buffer Pool Terms, except to the extent caused by the ACR’s negligence or willful misconduct.

UNDER NO CIRCUMSTANCES SHALL ANY ACR PARTY BE LIABLE FOR LOST PROFITS OR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH THESE BUFFER POOL TERMS. NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THIS AGREEMENT, IN NO EVENT SHALL THE AGGREGATE LIABILITY OF THE ACR PARTIES TO PROJECT PROONENT OR ANY THIRD PARTIES UNDER OR IN CONNECTION WITH THESE BUFFER POOL TERMS EXCEED THE AMOUNT OF FEES PAID BY PROJECT PROONENT TO THE REGISTRY UNDER THE ACR MEMBER AGREEMENT.

Project Proponent acknowledges and agrees that the foregoing limitations are independent of any remedy and will remain in full force and effect notwithstanding the failure of the essential purposes of any such remedy. The provisions of this section shall apply regardless of the form of action, damage, claim, liability, cost, expense, or loss, whether in contract, statute, tort (including, without limitation, negligence), or otherwise.

II. INDEMNIFICATION. Project Proponent agrees to indemnify and hold the ACR Parties harmless from any losses, damages, liabilities, judgments, settlements, fines, taxes, liens, impositions, encumbrances, penalties, claims, suits, costs and expenses, including reasonable attorneys’ fees, arising out of or related to: (i) Project Proponent’s breach of these Buffer Pool Terms; or (ii) violation by Project Proponent of any law or regulation, or the rights of a third party.

B.9 MODIFICATIONS

ACR reserves the right, in its sole discretion, to augment, segment, reformat, reconfigure, delete elements of, or otherwise modify at any time these Buffer Pool Terms or create new types or versions thereof. ACR shall provide Project Proponent with at least thirty (30) days’ prior notice of material modifications to the Buffer Pool Terms. Such modifications shall be effective upon the date set forth in the notice. Continued use of the American Carbon Registry® by Project Proponent after the effective date set forth in the notice shall constitute acceptance of such modifications.

B.10 NOTICE

All notices and other communications required, made or permitted hereunder shall be made in the manner set forth in the Reversal Risk Mitigation Agreement. ACR also may provide notices of changes to the ACR Standard, the Buffer Pool Terms or other matters by displaying notices or links to notices to Project Proponents generally on the American Carbon Registry® website.

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)	<ul style="list-style-type: none"> ● 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)	<ul style="list-style-type: none"> ● Guidelines for National GHG Inventories ● Good Practice Guidance ● Fourth 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

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AUTHORING BODY	DOCUMENT OR STANDARD	RELATIONSHIP TO ACR
Clean Development Mechanism (CDM)	<ul style="list-style-type: none">● Project-level baseline and monitoring tools and methodologies● Tool for the Demonstration and Assessment of Additionality● GHG sources and sinks significance test	ACR generally accepts approved CDM methodologies for baselines and monitoring. 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/pdfccb_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. https://www.ipcc-nccc.iges.or.jp/public/gpglulucf/gpglulucf_contents.html

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.ipccngip.iges.or.jp/public/2006gl/vol4.html>.

Intergovernmental Panel on Climate Change (IPCC) 2007. Fourth Assessment Report. http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

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>.

United States Environmental Protection Agency (USEPA) Climate Leaders Program, GHG Inventory Protocol (May 2005). <http://www.epa.gov/climateleaders/resources/inventory-guidance.html>.

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World Bank. 2012. Safeguard Policies. <http://go.worldbank.org/WTA1ODE7T0>.

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

CALIFORNIA NATURAL RESOURCES AGENCY



FINAL STATEMENT OF REASONS FOR REGULATORY ACTION

**Amendments to the State CEQA Guidelines
Addressing Analysis and Mitigation of Greenhouse Gas
Emissions Pursuant to SB97**

December 2009

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beginning to address GHG emissions at a planning level. (OPR, Book of Lists, at pp. 92-100.) Some of those GHG reduction plans include specific measures that may be applied on a project-by-project basis. (*Ibid*; see also Scoping Plan, Appendix C, at p. C-49.) Proposed subdivision (c)(1), therefore, would encourage lead agencies to look to adopted plans for sources of mitigation measures that could be applied to specific projects.

Project Design Features

The second type of measure that a lead agency should consider is project design features that will reduce project emissions. Various project design features could be used to reduce GHG emissions from a wide variety of projects. The CAPCOA White Paper provides examples of various project design features that may reduce emissions from commercial and residential buildings. (CAPCOA White Paper, at pp. B-13 to B-18.) For example, according to the California Energy Commission, “[r]esearch shows that increasing a community’s density and its accessibility to jobs centers are the two most significant factors for reducing vehicle miles traveled,” which is an important component of reducing statewide emissions. (California Energy Commission 2007, *2007 Integrated Energy Policy Report*, CEC-100-2007-008-CMF (“2007 IEPR”), at p. 12; see also CEC, *The Role of Land Use in Meeting California’s Energy and Climate Goals* (2007) at p. 20.) This subdivision also refers specifically to measures identified in Appendix F, which include a variety of measures designed to reduce energy use. By encouraging lead agencies to consider changes to the project itself, this subdivision further encourages the realization of co-benefits such as reduced energy costs for project occupants, increased amenities for non-vehicular transportation, and others. Thus, project design can reduce GHG emissions directly through efficiency and indirectly through resource conservation and recycling. (Green Building Sector Subgroup of the Climate Action Team, Scoping Plan Measure Development and Cost Analysis (2008) at p. 6 to 9.)

Off-Site Measures

The third type of measures addressing GHG emissions is off-site measures including offsets. Proposed subdivision (c)(3) recognizes the availability of various off-site mitigation measures. Such measures could include, among others, the purchase of carbon offsets, community energy conservation projects, and off-site forestry projects. (See, e.g., South Coast Air Quality Management District, SoCal Climate Solutions Exchange (June 2008), at pp.1; Rodeo Refinery Settlement Agreement, BAAQMD Carbon Offset Fund; Recommendations of the ETAAC, Final Report (February 2008) at pp. 9-5; ARB, Staff Report: Proposed Adoption of California Climate Action Registry Forestry Greenhouse Gas Protocols for Voluntary Purposes (October 17, 2007), at p. 15 (“[t]he three protocols together – the sector, project, and certification protocols – are a cohesive and comprehensive set of methodologies for forest carbon accounting, and furthermore contain all the elements necessary to generate high quality carbon credits”); see also Scoping Plan, Appendix C, at pp. C-21 to C-23.) Off-site mitigation may be appropriate under various circumstances. For example, such mitigation may be

appropriate where a project is incapable of design modifications that would sufficiently reduce GHG emissions within the project boundaries. In that case, a lead agency could consider whether emissions reductions may be achieved through such measures as energy-efficiency upgrades within the community or reforestation programs.

The reference to “offsets” in subdivision(c)(3) generated several comments during the public review period. The offsets concept is familiar in other aspects of air quality regulation. The Federal Clean Air Act, for example, provides that increases in emissions from new or modified sources in a nonattainment area must be offset by reductions in existing emissions within the nonattainment area. (See, e.g., 42 U.S.C. § 7503(a)(1)(A).) California laws also apply to offsets and emissions credits. (See, e.g., Health & Saf. Code, § 39607.5.) Those other laws generally require that emissions offsets must be “surplus” or “additional”. Comments on the proposed amendments suggested that to be used for CEQA mitigation purposes, offsets should also be “additional.” Thus, the Natural Resources Agency further refined the revisions it publicized on October 23, 2009, by deleting the lead-in sentence stating that “Reductions in emissions that are not otherwise required may constitute mitigation pursuant to this subdivision,” and amending subdivision (c)(3) to state that mitigation may include “Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions[.]”

Moving this concept from the general provisions on mitigation of greenhouse gas emissions to the provision on offsets does not materially alter the rights or conditions in the originally proposed text because the “not otherwise required” concept would only make sense in the context of offsets. Because this revision clarifies section 15126.4(c)(3), consistent with the Public Resources Code and cases interpreting it, and does not alter the requirements, rights, responsibilities, conditions, or prescriptions contained in the originally proposed text, this revision is nonsubstantial and need not be circulated for additional public review. (Government Code, § 11346.8(c); Cal. Code Regs., tit. 1, § 40.)

Sequestration

The fourth type of GHG emissions mitigation measure is sequestration. Indeed, one way to reduce a project’s GHG emissions is to sequester project-related GHG emissions and thereby prevent them from being released into the atmosphere. At present, the most readily available, and accountable, way to sequester GHGs is forest management. California forests have a “unique capacity to remove [carbon dioxide, a GHG,] from the air and store it long-term as carbon.” (Scoping Plan, Appendix C, at p. C-165.) Forest sequestration functions are, therefore, a key part of the ARB’s Scoping Plan and reduction effort. (Scoping Plan, at pp. 64-65.)

The California Climate Action Team has also identified several forest-related sequestration strategies, including, reforestation, conservation forest management, conservation (i.e., avoided development), urban forestry, and fuels management and biomass. (ARB, Staff Report: Proposed Adoption of California Climate Action Registry

Forestry Greenhouse Gas Protocols for Voluntary Purposes (October 17, 2007), at pp. 6-7.) ARB has adopted Forest Protocols for large forestry projects. (ARB, Resolution 07-44 (adopting California Climate Action Registry Forestry Sector Protocol (September 2007), Forest Project Protocol (September 2007) and Forest Verification Protocol (May 2007).) ARB has also adopted Urban Forest Protocols for urban forestry projects. (California Climate Action Registry, Urban Forest Project Reporting Protocol and Verification Protocol (August 2008) (ARB adopted on September 25, 2008).) Such projects could be located on the project site or off-site. (Urban Forest Project Reporting Protocol, at pp. 4-5.) The protocols include methods of measuring the ability of various forestry projects to store capture and store carbon.

Consistent with section 15126.4(a), a lead agency must support its choice of, and its determination of the effectiveness of, any reduction measures with substantial evidence. Substantial evidence in the record must demonstrate that any mitigation program or measure is will result in actual emissions reductions. As a practical matter, where a mitigation program or measure is consistent with protocols adopted or approved by an agency with regulatory authority to develop such a program, a lead agency will more easily be able to demonstrate that off-site mitigation will actually result in emissions reductions. Examples of such protocols include the forestry protocols described above. Where a mitigation proposal cannot be verified with an existing protocol, a greater evidentiary showing may be required.

Measures to be Implemented on a Project-by-Project Basis

Finally, the fifth type of measure that could reduce GHG emissions at a planning level is the development of binding measures to be implemented on a project-specific basis. As explained in greater detail in the discussion of proposed section 15183.5, below, ARB's Scoping Plan strongly encourages local agencies to develop plans to reduce GHG emissions throughout the community. In addition, the CEC's Power Plant Siting Committee is assessing the impacts of GHG emission from proposed new power plants and how they can be mitigated. Comments received during the CEC's informational proceedings warranted a lengthy discussion on the practical application of a programmatic approach to mitigating GHG emissions from new power plants. (CEC, *Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications* (2009) at p. 26 to 28.) Existing State CEQA Guidelines sections 15168(b)(4) and 15168(c)(3) recognize that programmatic documents provide an opportunity to develop mitigation plans that will apply on a project-specific basis. Proposed subdivision (c)(5) recognizes that, for a planning level decision, appropriate mitigation of GHG emissions may include the development of a program to be implemented on a project-by-project basis. (State CEQA Guidelines, § 15126.4(a)(2) ("[i]n the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation or project design").)

This type of mitigation is subject to the limits of existing law, however. Thus, proposed subdivision (c)(5) should not be interpreted to allow deferral of mitigation.

Additionally, public agencies are directed to adopt their own implementing procedures, consistent with CEQA and the State CEQA Guidelines, which could set forth the types of mitigation that a particular agency finds to be most appropriate for projects subject to its approval. (State CEQA Guidelines, § 15022.) The Natural Resources Agency cannot, however, state in the State CEQA Guidelines that all lead agencies have the authority to prioritize types of mitigation measures, or to establish any particular priority order for them. Each lead agency must determine the scope of its own authority based on its own statutory or constitutional authorization.

Reliability and Effectiveness of Mitigation

Some comments expressed concern about the reliability and efficacy of some mitigation strategies. In response to such comments, the Natural Resources Agency further revised section 15126.4(c) to expressly require that any measures, in addition to being feasible, must be supported with substantial evidence and be capable of monitoring or reporting. (See Revised Section 15126.4(c) (October 23, 2009).) This addition reflects the requirements in Public Resources Code section 21081.5 that findings regarding mitigation be supported with substantial evidence and the monitoring or reporting requirement in section 21081.6.

The text of proposed section 15126.4(c), addressing mitigation of greenhouse gas emissions, also requires that mitigation measures be effective. The first sentence of that section requires that mitigation be “feasible.” Further, the statute defines “feasible” to mean “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” (Public Resources Code, § 21061.1 (emphasis added); see also State CEQA Guidelines § 15364 (adding “legal” factors to the definition of feasibility.) A recent decision of the Third District Court of Appeal confronting questions regarding the effectiveness of a mitigation measure explained: “concerns about whether a specific mitigation measure ‘will actually work as advertised,’ whether it ‘can ... be carried out,’ and whether its ‘success ... is uncertain’ go to the feasibility of the mitigation measure[.]” (*California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal. App. 4th 603, 622-623.) Thus, by requiring that lead agencies consider feasible mitigation of greenhouse gas emissions, section 15126.4(c) already requires that such measures be effective.

Off-site Mitigation and Offsets

Relatively little authority addresses the question of how close of a causal connection must exist between off-site emissions reductions and project implementation in order to be adequate mitigation under CEQA. CEQA requires lead agencies to mitigate or avoid the significant effects of proposed projects where it is feasible to do so. While the CEQA statute does not define mitigation, the State CEQA Guidelines define mitigation to include:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

(State CEQA Guidelines, § 15370.) As subdivision (e) implies, off-site measures may constitute mitigation under CEQA, and such measures have been upheld as adequate mitigation in CEQA case law. (See, e.g., *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal. App. 4th 603, 619-626.)

Whether on-site or off-site, to be considered mitigation, the measure must be tied to impacts resulting from the project. Section 21002 of the Public Resources Code, the source of the requirement to mitigate, states that “public agencies should not approve projects as proposed if there are … feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects[.]” Similarly, section 21081(a)(1) specifies a finding by the lead agency in adopting a project that “[c]hanges or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.” Both statutory provisions expressly link the changes to be made (i.e., the “mitigation measures”) to the significant effects of the project. Courts have similarly required a link between the mitigation measure and the adverse impacts of the project. (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal. App. 4th 99, 128-131 (EIR must discuss “the history of water pumping on [the off-site mitigation] property and its feasibility for providing an actual offset for increased pumping on the [project] property”.) The text of sections 21002 and 21081, and case law requiring a “nexus” between a measure and a project impact, together indicate that “but for” causation is a necessary element of mitigation. In other words, mitigation should normally be an activity that occurs in order to minimize a particular significant effect. Or, stated another way and in the context of greenhouse gas emissions, emissions reductions that would occur without a project would not normally qualify as mitigation.

Notably, this interpretation of the CEQA statute and case law is consistent with the Legislature’s directive in AB32 that reductions relied on as part of a market-based compliance mechanism must be “in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission

reduction that otherwise would occur.” (Health and Safety Code, § 38562(d)(2).) While AB32 and CEQA are separate statutes, the additionality concept may be applied analytically in the latter as follows: greenhouse gas emission reductions that are otherwise required by law or regulation would appropriately be considered part of the existing baseline. Pursuant to section 15064.4(b)(1), a new project’s emissions should be compared against that existing baseline.

Thus, in light of the above, and in response to concerns raised in the comments, the Natural Resources Agency has revised section 15126.4(c)(3) to state that mitigation includes: “Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions[.]” This provision is intended to be read in conjunction with the statutory mandate in Public Resources Code sections 21002 and 21081 that mitigation be tied to the effects of a project.

This provision would not limit the ability of a lead agency to create, or rely on the creation of, a mechanism, such as an offset bank, created prospectively in anticipation of future projects that will later rely on offsets created by those emissions reductions. The Initial Statement of Reasons referred, for example, to community energy conservation projects. (Initial Statement of Reasons, at p. 38.) Such a program could, for example, identify voluntary energy efficiency retrofits that would not occur absent implementation of the program, and then fund the retrofits through the sale of offsets that would occur as a result of the retrofit. Emissions reductions that occur as a result of a regulation requiring such reduction, on the other hand, would not constitute mitigation.

Some comments opined that offsets are highly uncertain and of questionable legitimacy. The Initial Statement of Reasons, however, cites several sources discussing examples of offsets being used in a CEQA context. Further, the ARB Scoping Plan describes offsets as way to “provide regulated entities a source of low-cost emission reductions, and … encourage the spread of clean, efficient technology within and outside California.” (Scoping Plan, Appendix C, at p. C-21.) The Natural Resources Agency finds that the offset concept is consistent with the existing CEQA Guidelines’ definition of “mitigation,” which includes “[r]ectifying the impact by repairing, rehabilitating, or restoring the impacted environment” and “[c]ompensating for the impact by replacing or providing substitute resources or environments.” (State CEQA Guidelines, §§ 15370(c), (e).)

While the proposed amendments recognize offsets as a potential mitigation strategy, they do not imply that offsets are appropriate in every instance. The efficacy of any proposed mitigation measure is a matter for the lead agency to determine based on the substantial evidence before it. Use of the word “feasible” in proposed Section 15126.4(c) requires the lead agency to find that any measure, including offsets, would be “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” (State CEQA Guidelines, § 15364.)

Thus, the Natural Resources Agency finds that by expressly requiring that any mitigation measure be feasible, supported with substantial evidence, and capable of monitoring or reporting, section 15126.4(c) adequately addresses the concern stated in the comment that offsets may be of questionable legitimacy.

Use of Plans for the Reduction of Greenhouse Gas Emissions in a Cumulative Impacts Analysis

Section 15183.5 was developed to address tiering and streamlining the analysis of greenhouse gas emissions. Subdivision (a) highlights existing tiering and streamlining mechanisms in CEQA that may be used to address the analysis and mitigation of greenhouse gas emissions. Those mechanisms are often used for general plans and other long range planning documents. Subdivision (a) therefore recognizes that lead agencies may choose to include a programmatic analysis of greenhouse gas emissions in those long range plans. That subdivision did not create any new tiering or streamlining provisions; rather, it cross-references existing mechanisms. Each mechanism has its own benefits and drawbacks, and the use of any analysis of greenhouse gas emissions contained in such a document would be governed by the specific provisions cited in subdivision (a).

Subdivision (b), on the other hand, acknowledges that, in addition to the long range documents mentioned in subdivision (a), some agencies are voluntarily developing stand-alone plans focused specifically on the reduction of greenhouse gas emissions. Subdivision (b) is not a tiering mechanism. Tiering is governed by section 15152 of the existing CEQA Guidelines. The purpose of section 15183.5(b) is much narrower. Because climate action plans and greenhouse gas reduction plans are voluntary, and not subject to any legislative criteria or requirements, subdivision (b) was developed “to assist lead agencies in determining whether an existing greenhouse gas reduction plan is an appropriate document to use in a cumulative impacts analysis under CEQA.” (Initial Statement of Reasons, at p. 54.) Specifically, a project that is consistent with a plan that satisfies the criteria in subdivision (b) may benefit from the presumption created in sections 15064(h)(3) and 15130(d) that the project’s cumulative impacts are less than significant due to compliance with the plan. Subdivision (b) does not create or authorize any plans; rather, it provides a tool to determine whether a plan for the reduction of greenhouse gas emissions may be used in a cumulative impacts analysis as provided in section 15064(h)(3) or 15130(d). Section 15183.5(b) does not require that public agencies develop plans for the reduction of greenhouse gas emissions, nor does it prohibit public agencies from developing individual ordinances and regulations to address individual sources of greenhouse gas emissions.

As an example, if a general plan EIR analyzed and mitigated greenhouse gas emissions, a lead agency would likely use the specific streamlining provision applicable to general plan EIRs in section 15183, and not the more general provision in 15183.5(b). A stand alone “climate action plan” that was not analyzed in a program EIR, master EIR, or other mechanism identified in 15183.5(a) may still be used in a



Air Resources Board



Matthew Rodriguez
Secretary for
Environmental Protection

Mary D. Nichols, Chairman
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Edmund G. Brown Jr.
Governor

November 3, 2016

Chuck Bonham, Director
California Department of Fish and Wildlife
1416 9th Street, 12th Floor
Sacramento, California 95814

Dear Mr. Bonham:

As you requested, California Air Resources Board (ARB) staff reviewed the technical basis for the net zero greenhouse gas (GHG) determination in the Additional Environmental Analysis prepared for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan.

ARB staff consulted with Department of Fish and Wildlife staff and technical experts at Ascent Environmental, the principal consultant assisting the Department. In doing so, ARB staff reviewed the technical documentation provided for the evaluation of the project's total estimated GHG emissions and the reductions in emissions to be achieved through the mitigation measures. Based on staff's review, ARB finds the documentation provides an adequate technical basis to determine that the project would not result in any net additional GHG emissions after the mitigation measures are fully implemented.

If you have any questions regarding staff's analysis, please contact Mr. Kurt Karperos by email at kurt.karperos@arb.ca.gov or by phone at (916) 322-2739.

Sincerely,

Richard W. Corey
Executive Officer

cc: Kurt Karperos
Deputy Executive Officer

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency



Air Resources Board



Matthew Rodriguez
Secretary for
Environmental Protection

Mary D. Nichols, Chairman
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Edmund G. Brown Jr.
Governor

June 7, 2017

Chuck Bonham, Director
California Department of Fish and Wildlife
1416 9th Street, 12th Floor
Sacramento, California 95814

RE: CALIFORNIA AIR RESOURCES BOARD REVIEW OF THE GREENHOUSE GAS ANALYSIS IN THE FINAL ADDITIONAL ENVIRONMENTAL ANALYSIS FOR THE NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN AND SPINEFLOWER CONSERVATION PLAN (SCH NO. 2000011025)

Dear Mr. Bonham:

In follow-up to earlier efforts culminating in our letter to you dated November 3, 2016, California Air Resources Board (CARB) staff have since reviewed the Final Additional Environmental Analysis (AEA) prepared by your agency for the Newhall Ranch Project in northern Los Angeles County. This includes text revisions to the Draft AEA originally released by the California Department of Fish and Wildlife (CDFW) for public review this past November, as well as written responses to related public comments and revisions to the proposed Greenhouse Gas Reduction Plan.

CARB's view remains that the Final AEA, including responses to public comments and the final Greenhouse Gas Reduction Plan, provide an adequate technical basis for CDFW to find, in its lead agency discretion under the California Environmental Quality Act (CEQA), that the project as currently proposed will not result in any net additional greenhouse gas emissions after the identified mitigation measures are fully implemented.

If you have any questions regarding staff's analysis, please contact Mr. Kurt Karperos by email at kurt.karperos@arb.ca.gov or by phone at (916) 322-2739.

Sincerely,

Richard W. Corey
Executive Officer

cc: Kurt Karperos
Deputy Executive Officer

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption.
For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.*

California Environmental Protection Agency

CLIMATE FORWARD



About

Climate Forward accelerates action on climate change by encouraging companies and organizations to proactively invest today in projects that mitigate future greenhouse gas (GHG) emissions. Companies and organizations are encouraged to invest proactively in the development of a wide array of GHG mitigation projects. The intent of this program is to encourage a wide variety of innovative, creative investments in projects that will mitigate emissions from new types of economic activity (e.g., a new manufacturing facility, distribution center, housing development, construction project, etc.).

Under Climate Forward, the Climate Action Reserve approves standardized and conservative quantification methodologies for assessing the forecasted (ex-ante) emissions reductions of GHG reduction projects and issues credits for the mitigation measures. These forward-looking credits can then be used to mitigate the GHG emissions impact of future projects that a company or organization might undertake. Administration of the program reflects the integrity, transparency and rigor that the Reserve is globally recognized for.

Why It's Needed

Urgency and magnitude of the need for climate action

The world is out of time to address climate change. In the most recent **UN Intergovernmental Panel on Climate Change (IPCC) report**, the world's leading climate scientists underscore the need to transform the world economy at an unprecedented speed and scale in order to keep temperature rise to a maximum of 1.5C and avoid catastrophic environmental breakdown. The report describes a world of worsening food shortages and wildfires, mass die-off of coral reefs, melting ice caps and glaciers, increased coastal flooding, intensifying droughts and poverty, and widespread evacuation of people from the tropics, among many other adverse impacts.

In the **State of California's Fourth Climate Change Assessment**, which details climate-related vulnerabilities throughout the state and provides planning tools for effective and integrated climate action and adaptation, a similar conclusion was reached. The assessment paints an alarming picture for California's future – with severe heat waves, wildfires, and sea level rise projected to become even more devastating and deadly. The report underscores the urgent need for more extensive and expansive climate action now by all countries.

Climate Forward builds upon the Reserve's commitment to integrity and transparency in GHG emissions reduction accounting to expand the GHG mitigation market and achieve additional emissions reductions that are drastically needed to address climate change. The possibilities for innovative, creative mitigation activities under this program are endless. The program is designed to expand the scope of feasible GHG mitigation project types by encouraging third parties to submit their own methodologies for mitigation activities. This is a critical objective of the program—to allow companies and organizations to work with their stakeholders to decide the best approaches for mitigating the GHG impacts of any new investments. Methodologies and projects under the program are encouraged (but not required) to demonstrate that they expand the scope of GHG mitigation options currently available under existing incentive programs, such as existing offset protocols

Invest in flexible emissions reductions aligned with forward-looking climate mitigation needs

Companies, entities, or individuals seeking to address anticipated emissions may find that investing in emissions reductions is best aligned with their sustainability goals. By investing in mitigation

actions that will produce a future stream of emissions reductions, the reductions of its operational emissions and its reductions investment can develop in parallel.

The program also allows for enormous flexibility in emissions reductions project types, scales, and locations. Any participating entity can choose a project type that aligns with its mission and vision, scale it to meet its emissions goals, and in the locations and communities that satisfies its priorities.

- Submit a methodology
- Develop a project
- Purchase mitigation credits
- Methodologies
- Project registry
- Why we must all take urgent action

CONNECT WITH US



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CLIMATE FORWARD



Program and Project Forms

Document	Description	Project/Account Phase	Privilege
Forecast Methodology Screening Form	A form that must be completed for each proposed forecast methodology that describes the project activity and how the methodology intends to meet Climate Forward requirements.	Prior to Forecast Methodology development	Private

Document	Description	Project/Account Phase	Privilege
Forecast Methodology Template	<p>A template that methodology developers must use once the Forecast Methodology Screening Form has been reviewed and approved by the Reserve. The form provides guidance to methodology developers and streamlines the Reserve's review process.</p>	Forecast Methodology development	Public

Document	Description	Project/Account Phase	Privilege
Forecast Methodology Assessment Agreement Form	<p>An agreement that must be completed and signed by the forecast methodology developer and the Reserve.</p> <p>The agreement grants the Reserve title and license to use and amend the methodology once it is submitted to the Reserve.</p> <p>The agreement also indemnifies the Reserve and releases it of all liability.</p>	Prior to Forecast Methodology submittal	Private

Document	Description	Project/Account Phase	Privilege
Project Submittal Form	<p>A form that project proponents must submit under an existing forecast methodology. This form cannot be used if the forecast methodology has not already gone through the review and approval of both the forecast methodology screening form and the forecast methodology template. This form must be submitted for every project.</p>	Project development	Public

Document	Description	Project/Account Phase	Privilege
Notification of Confirmation Activity and Conflict of Interest (NOCA/COI) Form	<p>A form detailing the scope and plan for confirmation activities and the relationship between a confirmation body and project proponent, in order for the Reserve to determine conflict of interest. This form must be submitted by the Confirmation Body to the Reserve at least 10 business days before the start of confirmation activities.</p>	Prior to confirmation	Private

Document	Description	Project/Account Phase	Privilege
Project Implementation Report Form *COMING SOON*	A form prepared by the project proponent that must, at a minimum, include a summary of project information, input data, estimation summaries, continued implementation measures, as well as Project Resilience Measures. The report must be submitted to both the confirmation team, and the Reserve.	Prior to confirmation	Private
Attestation of Title *COMING SOON*	A statement that the project proponent has title to the project reductions. The entity that has signed this form should be the account holder on the Climate Forward registry.	During confirmation	Public

Attestation of Document Regulatory Compliance	This form Description	During Project/Account Phase	Public Privilege
COMING SOON	<p>This form confirms the mitigation project has implemented measures to address the risks of regulatory non-compliance identified in the forecast methodology associated with initial and ongoing project implementation. In addition, the form attests that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting period. The form also confirms that the project proponent has disclosed to their confirmation body in writing any and all instances of non-compliance of the project with any law.</p>		

Document	Description	Project/Account Phase	Privilege
Attestation of Legal Additionality *COMING SOON*	All project proponents must submit a signed Attestation of Legal Additionality form that confirms the mitigation project activity was not required by any law, statute, rule, regulation or other legally binding mandate by any national, regional, state, local or other governmental or regulatory agency having jurisdiction over the project.	During confirmation	Public

Document	Description	Project/Account Phase	Privilege
Confirmation Statement	The official confirmation and final statement of findings, detailing the number of FMUs issued, the vintages (if more than one) and the standard used to confirm FMUs.	Confirmation	Public
Program Manual	A document that summarizes the overarching rules, policies and procedures for registering projects and creating FMUs under Climate Forward.	General	Public

Document	Description	Project/Account Phase	Privilege
Confirmation Manual	A document for confirmation bodies that gives insight into the confirmation process, the requirements for conducting confirmation (like accreditation and training), conflict of interest and confidentiality provisions, and the core confirmation activities expected under Climate Forward.	General	Public
Forecast Methodology Approval Manual	A document that summarizes the overall policies and procedures related to the scoping, development, and review of Forecast Methodologies under Climate Forward.	General	Public

Document	Description	Project/Account Phase	Privilege
Terms of Use	These Terms of Use set out the terms by which the Climate Action Reserve has agreed to provide the User with access to use the Climate Forward Program and registry software.	General	Public

- Submit a methodology
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CLIMATE FORWARD

PROGRAM MANUAL

Version 1.0 | November 2018



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Abbreviations and Acronyms

C	Carbon
CEQA	California Environmental Quality Act
CH ₄	Methane
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
CRT	Climate Reserve Tonne
FMU	Forecasted Mitigation Unit
GHG	Greenhouse gas
lb.	Pound
N ₂ O	Nitrous oxide
Reserve	Climate Action Reserve

1 Introduction

The Climate Action Reserve (Reserve) is an environmental nonprofit organization that promotes and fosters the reduction of greenhouse gas (GHG) emissions through credible market-based policies and solutions. Based in Los Angeles, the Reserve is the foremost carbon offset registry in North America with internationally recognized expertise in project-level GHG accounting.

The Reserve establishes regulatory-quality standards for the development and quantification of GHG emission reduction projects; issues GHG emission reduction credits for use in compliance and voluntary carbon programs; and tracks the transaction of credits over time in transparent, publicly-accessible systems. Adherence to the Reserve's standards ensures that emission reductions associated with projects are real, permanent, and additional, thereby instilling confidence in the environmental benefit, credibility, and efficiency of carbon markets.

1.1 Climate Forward

Climate Forward, a greenhouse gas mitigation program of the Climate Action Reserve, provides a practical solution to companies and organizations seeking cost-effective mitigation of anticipated (i.e., future) operational and/or project-related GHG emissions. Climate Forward (the "Program") facilitates investments in GHG reduction¹ activities that are practical, scientifically-sound, transparent, and aligned with forward-looking mitigation needs such as the California Environmental Quality Act (CEQA). Climate Forward will drive forward-looking investment into actions expected to result in GHG reductions, with a goal of expanding the scope and scale of feasible emission reduction project types.

The Program enables companies and organizations to invest proactively in projects that reduce GHG emissions in order to mitigate forecasted GHG emissions from business-as-usual operations. The Program provides a transparent and trusted resource for users to reduce their GHG footprints in a manner that is responsible, administered in a consistent manner, and ensures accountability. By following standardized and conservative quantification methodologies approved by the Reserve, project proponents are issued high quality credits to reward the mitigation measures identified. The intent of this program is to recognize investments now that will reduce greenhouse gas emissions in order to mitigate emissions that will occur in the future from new types of economic activity (e.g., a new manufacturing facility, distribution center, housing development, construction project, etc.).

A sub-component of Climate Forward, the CEQA Program (CEQA Program), applies to activities requiring permitting by the State of California. The CEQA sub-component of Climate Forward is intended to provide entities subject to CEQA GHG mitigation requirements with a cost effective and environmentally rigorous option for GHG mitigation. The CEQA subcomponent is intended to be consistent with established CEQA mitigation requirements for any new project that will produce greenhouse gases, as approved by relevant lead agencies.

This manual describes the framework, criteria, and process for:

- 1) GHG reduction methodology submission and review,

¹ Throughout this document, the term 'reduction' is intended to address both GHG emission reductions that are the result of activities designed to reduce emissions, and GHG removals, which are those activities aimed at removing atmospheric CO₂ at rates that exceed business as usual sequestration.

- 2) Project submission and implementation,
- 3) Issuance of Forecasted Mitigation Units (FMUs), and
- 4) Retirement of FMUs against anticipated future streams of GHG emissions including, but not limited to, those subject to CEQA GHG mitigation obligations.

Guidance in this manual is limited to the Reserve's Climate Forward Program and does not apply to any other Reserve program.

Offsets vs. FMUs. *The Reserve's Climate Forward program issues Forecasted Mitigation Units (FMUs) on an ex ante basis. It is not to be confused with carbon offsets, which are credits that are established after rigorous, ex post monitoring and verification of project activities. Offsets can be used for compliance and voluntary purposes and are typically applied against past emission-producing activities (e.g., a company's carbon footprint in the previous year). The Program targets mitigation actions now that will produce a future stream of emission reductions, which can be applied against new investments that will create a future stream of greenhouse gas emissions. Climate Forward projects are eligible to transition into the Climate Action Reserve voluntary offset program if there exists an applicable offset protocol, as long as the project meets protocol-specified transition rules at the time of transition (See Section 1.4.2.2 and Section 4.9).*

1.2 Program Objectives

This Program is designed to provide companies, organizations, developers, and other entities with a conservative, robust, and methodologically rigorous option to mitigate an estimate of expected GHG emissions, on a voluntary or compliance basis, using FMUs generated from mitigation projects under this program. This program fundamentally differs from existing carbon credit programs through its focus on projecting and crediting estimated emission reductions on an *ex ante* basis. The Program was developed to meet the following standards and objectives:

Program Standards

- **Real:** Estimated GHG reductions must be real and not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions must be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage"). It is acceptable to use methodologies that are based on predictive *ex ante* approaches so long as probabilities of non-achievement are included in the estimated credit yield.
- **Additional:** GHG-reducing actions must be additional to any that would have been taken in the absence of the Program, or in the absence of a market for GHG reductions generally.
- **Permanent:** In the context of project activities that protect existing carbon reservoirs or sequester new carbon, in order to function as mitigation units, GHG reductions must effectively be "permanent." Permanence under this Program means that the carbon remains out of the atmosphere at least 100 years. Methodologies that cannot reasonably assure the carbon remains out of the atmosphere for the entire 100-year standard may only receive a proportional quantity of mitigation credits relative to the amount of time that storage is likely to be achieved. Appropriate discounts must be built into any methodology to account for the risk that a given GHG reduction will not remain out of the atmosphere for the 100-year permanence period.

For project activities that achieve mitigation through avoided emissions, permanence is enforced through conservative crediting periods and quantification that account for project degradation and anticipated changes to markets and technologies.

- **Confirmable:** *Ex ante* methodologies provide credits based on a conservative estimation of expected emission reductions. Activities must be confirmed by a Climate Action Reserve approved third-party Confirmation Body to ensure that they have been properly implemented per the terms of the forecast methodology and this Program Manual. That is, credits will only be recognized once the funds for any proposed mitigation activity have already been committed and the mitigation activity is operating as proposed. *Ex post* credits may also be issued based on verification of GHG reductions achieved that are in addition to any credits issued on an *ex ante* basis.
- **Enforceable (where applicable):** If an entity's GHG mitigation efforts are legally mandated, enforcement is handled by the lead approving agency. Once a project has been agreed upon by an agency as adequately mitigating an impact and implemented by the relevant entity, the agency may require that the entity seeking mitigation has retired an appropriate quantity of credits on the registry. Each methodology accepted under this program will incorporate clear and enforceable safeguards to ensure project activities are carried out as described in the methodology, and that ownership rights to resulting emission reductions are unambiguous and enforceable in these circumstances.

Program Objectives

- **Integrity:** GHG emission reduction accounting must be based on credible evidence and sound science, and credits must not have been issued for the same GHG emission reductions in any other program, whether voluntary or mandatory.
- **Transparency:** Mitigation activities conducted under this program will be documented on a public registry, available to responsible agencies and stakeholders.
- **Open and scalable:** The Program is open to all stakeholders to allow for voluntary mitigation measures to be taken. Methodologies developed under this program ideally have broad geographic flexibility and demonstrable cost effectiveness to incentivize investment in and development of projects.
- **Expand GHG mitigation market:** There are many creative, innovative mitigation activities that could be considered under this Program. The Program is designed to expand the scope of feasible GHG mitigation project types by encouraging third parties to submit their own methodologies for mitigation activities. Methodologies and projects under the program are encouraged (but not required) to demonstrate that they expand the scope of GHG mitigation options currently available under existing incentive programs (such as existing offset protocols).
- **Consistency with Requisite Regulatory Frameworks:** The use of FMUs must be compatible with existing regulatory frameworks, such as for CEQA mitigation obligations. For end users subject to CEQA mitigation requirements, the Program is designed to be consistent with established CEQA mitigation requirements for a project, as approved by the relevant lead agency.

1.3 Use of Forecasted Mitigation Units

Under this program, estimated GHG reductions from the mitigation project are recognized as Forecasted Mitigation Units (FMUs), which are each equal to one metric ton of carbon dioxide equivalent (CO₂e) expected to be reduced or sequestered. FMUs can be retired for multiple purposes, including for CEQA mitigation or for other voluntary mitigation purposes, as described in Sections 1.3.1 and 1.3.2 below.

1.3.1 For Voluntary Use

Companies, entities, or individuals seeking to address anticipated emissions from future activities may retire FMUs to proactively mitigate those anticipated emissions. The purpose of FMU retirement is publicly disclosed by the retiring entity upon retirement in the registry. The Reserve encourages the use of FMUs for accounting for anticipated, or projected emissions. Companies, entities, and individuals should use Climate Reserve Tonnes (CRTs) issued under the Reserve's voluntary offset program to offset past emissions. As Forecasted Mitigation Units, FMUs are intended to mitigate forecasted emissions from new economic activity.

1.3.2 Under the California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires companies and other entities to identify the environmental impacts of their actions, and California agencies and municipalities may require that those impacts be mitigated. Both FMUs generated through the Climate Forward Program as well as CRTs generated through the voluntary offset program can be used for CEQA GHG mitigation obligations.

The Reserve does not guarantee the use of FMUs or CRTs will be accepted as a means to meet CEQA GHG mitigation obligations where required by an approving agency(ies). It is the responsibility of developers to ensure the lead approving agency(ies) will accept the use of FMUs and/or CRTs to meet relevant CEQA GHG mitigation obligations, and it would be in the developers' best interests to do so prior to securing procurement of FMUs or CRTs.

1.4 Programmatic Concepts and Issuance Options

Under this program, FMUs are issued up front after a project's initial implementation confirmation ("Confirmation") for the project's entire crediting period, with certain deductions applied based on estimated project performance and estimated project abandonment (see Section 3.1.12). Confirmation refers to an independent third party ("Confirmation Body") conducting a site visit and desk audit to confirm the mitigation project has been implemented as described in the relevant approved forecast methodology, this Program Manual, and the Confirmation Manual.

1.4.1 Project Confirmation

The *ex ante* nature of this program necessitates the introduction of different terminology to clearly describe how this program differs from existing *ex post* emissions reporting and carbon crediting programs. Those who are familiar with carbon markets and emissions reporting should note the introduction of the concept of "project confirmation," which is different from "project verification." The term "verification" has an existing and widely understood definition, suggesting *ex post* substantiation of claims made by the project undergoing verification, while "confirmation" refers to the confirmation by an accredited, independent third-party that a project has been implemented in accordance with the requirements established by this Program Manual and the relevant approved forecast methodology. A "confirmation" is designed to demonstrate that a proposed mitigation project has been implemented according to an approved methodology and

will generate FMUs to mitigate future greenhouse emissions from new economic activity. Further details regarding project confirmation can be found in the Confirmation Manual.

1.4.2 Crediting Options

If a project proponent believes that their project will generate more GHG emission reductions than credited up front, they may opt to submit periodic monitoring and reporting data to the Reserve in accordance with frequencies described in the relevant forecast methodology. This data will be subject to an *ex post* verification (see Glossary) upon the completion of the crediting period and the project may be issued additional FMUs based on the results of that verification, in accordance with Section 3.1.16. This voluntary option provides the program with greater assurance of the environmental integrity of underlying projects by creating an incentive for ongoing monitoring, reporting, and verification, while also allowing project proponents the opportunity to generate additional downstream credits from their projects.

1.4.2.1 Initial Crediting Period

Within the initial crediting period, a project has two options for FMU issuance. A project may either: (1) receive upfront crediting upon successful project implementation and confirmation, or (2) opt in to the optional voluntary monitoring incentive program. For further explanation, see Figure 1.1 and Figure 1.2 below, as well as Section 3.1.16.

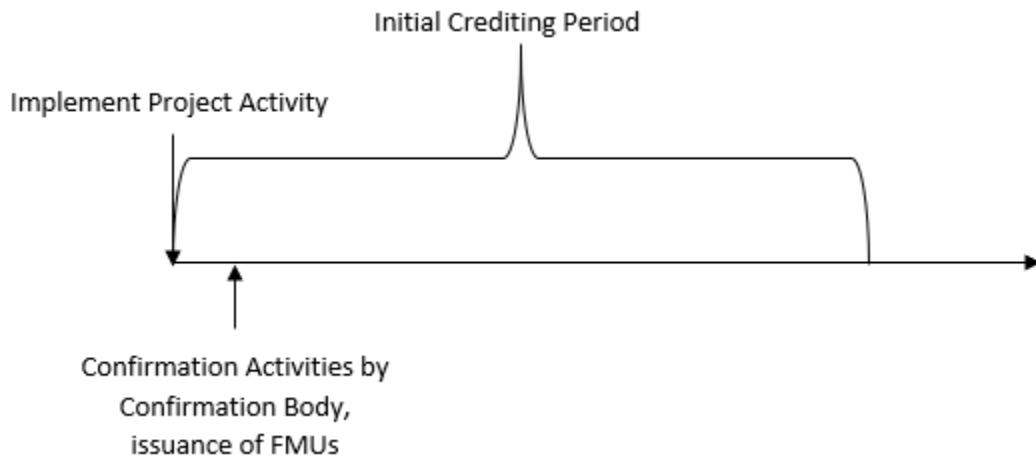


Figure 1.1. Upfront Crediting Upon Successful Confirmation

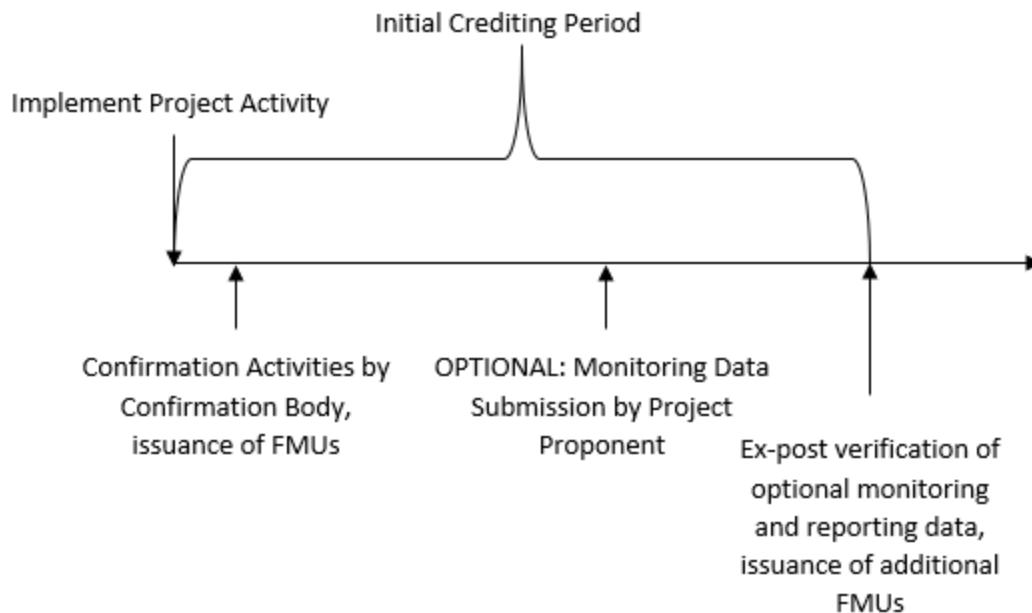


Figure 1.2. Voluntary Opt-In to Ongoing Monitoring and Reporting
(See Section 3.1.16)

1.4.2.2 Crediting Period Renewal

Upon completion of the initial crediting period, a project may cease further crediting, or it may transition the project to periodic *ex post* monitoring, reporting, and verification as established in the relevant forecast methodology. Transitioning to *ex post* monitoring, reporting, and verification may occur under the Climate Forward program for issuance of FMUs (see Figure 1.3), or the project may apply to transition into the voluntary offset program for issuance of CRTs under an applicable offset protocol.

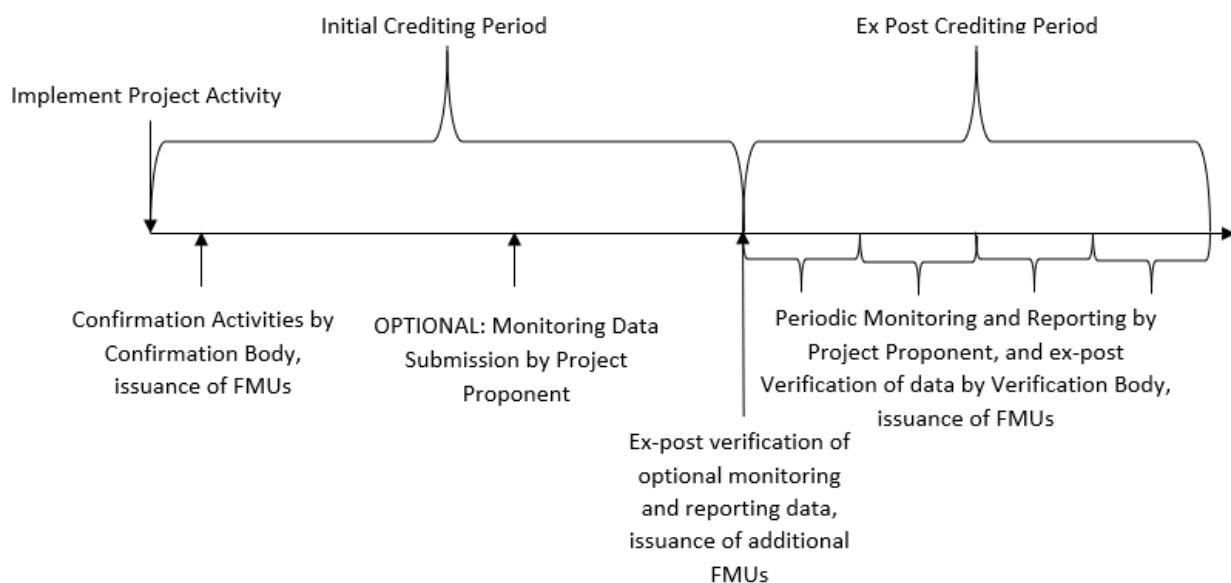


Figure 1.3. Transition to *Ex Post* Monitoring, Reporting, and Verification After Opt-In to Voluntary Monitoring Incentive

1.5 Program Manual

This manual contains details on the Reserve's Climate Forward program, policies, and requirements. Users of this program, including Confirmation Bodies, are subject to the requirements and guidance specified in the most recent version of this document. This manual is considered effective as of the date it is posted on the Reserve website. All account holders and Confirmation Bodies are notified when an update to the manual is released, and the manual is available on the Program webpage at www.climateactionreserve.org.

1.5.1 Revisions to the Program Manual

Between updates, the Reserve may release memos that update or replace guidance in this manual or approved forecast methodologies. These memos are considered effective on the date they are posted on the Reserve website; users of the Program and Confirmation Bodies must follow the guidance specified in the memo from that date forward. All account holders and Confirmation Bodies are notified when a policy memo is released, and memos are posted on the Program webpage at www.climateactionreserve.org. In most cases, the contents of the memos are incorporated into the next update of the Program Manual.

1.6 Pilot Phase

The Program engaged in a “pilot” phase. The purpose of this pilot phase was to allow the Program rules, criteria, and procedures to be developed within a pre-defined “sandbox” to allow for sufficient testing of program procedures before the program launched more broadly. A preliminary set of methodologies and associated projects was identified for inclusion within the pilot phase.

The methodologies approved as part of the pilot phase were only allowed for use with specific, pre-identified projects. Methodologies that were approved as part of the pilot phase were not guaranteed approval when the program exited the pilot phase. All pilot methodologies must be re-assessed for adherence to Program standards and criteria at the time the Program exits the pilot phase.

2 Program Principles and Criteria

This section describes the general criteria and requirements against which mitigation projects and forecast methodologies will be assessed. This includes criteria to assess eligibility, additionality, and the accuracy and conservativeness of the quantification approach.

There is strong international consensus around a core standard set of overarching principles to guide decisions about the accounting, quantification, and reporting of project-based GHG reductions. These consensus principles are listed and defined in both the International Organization for Standardization (ISO) 14064-2: 2006 and The World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting². Definitions of these principles differ slightly between the two standards; for this program, the Reserve interprets the principles as follows:

- **Relevance:** Data, methods, criteria, assumptions, and accounting boundaries should be chosen based on their “intended use.” For this program, this means forecast methodologies are designed around practical, conservative approaches that adhere to core accounting principles and support environmental integrity.
- **Completeness:** All relevant GHG emissions and removals should be accounted for and all relevant information should be considered. Forecast methodologies shall use all relevant information to comprehensively identify the GHG sources, sinks, and reservoirs affected by mitigation projects and account for all significant changes in GHG emissions or removals that may result from a mitigation project.
- **Consistency:** Data, methods, criteria, and assumptions should allow meaningful and valid comparisons of the GHG reductions achieved by different mitigation projects, forecast methodologies, and different activity types.
- **Transparency:** Sufficient information should be disclosed to allow reviewers and stakeholders to make decisions about the credibility and reliability of GHG reduction claims with reasonable confidence. Access to sufficient and appropriate GHG-related information is critical for assuring that a mitigation project’s GHG reduction claims are credible.
- **Accuracy:** Uncertainties and bias should be reduced as far as is practical. Greater accuracy in estimating GHG emissions and reductions will help ensure credibility of GHG reduction claims. Where accuracy is sacrificed, data and assumptions used to estimate GHG reductions should be conservative. Sampled data used to establish forecast methodology parameters or project inputs must achieve a minimum statistical confidence of +/- 5% at 1 Standard Error.
- **Conservativeness:** Conservative assumptions, values, and procedures should be used to ensure that GHG reductions are not over-estimated. Because the GHG reductions

² International Organization for Standardization, 2005. ISO 14064, 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, Geneva, Switzerland; World Resources Institute and World Business Council for Sustainable Development, 2005. The GHG Protocol for Project Accounting, World Resources Institute, Washington, DC.

under this program will be estimated and credited at the point of activity implementation, approved forecast methodologies must employ conservative estimation methods. Where project benefits are based on projections of project activities, the projections of project benefits must be justified through scientific literature or defensible direct analysis.

Forecast methodologies must establish an empirical approach to demonstrating conservative forecasting or apply a methodology specified discount to the total projected quantity of GHG emission reductions. This is required to account for potential performance uncertainties as well as the likelihood of project non-performance and project abandonment. Each proposed forecast methodology must provide summary statistics around each default value or quantitative assumption that goes into the overall FMU issuance estimation.

These principles underpin all aspects of the Program and will guide decisions where the program affords flexibility or discretion, or where the requirements or guidance are ambiguous. These principles should guide the development of the forecast methodologies and will guide the Reserve's review and approval of such methodologies.

3 Forecast Methodologies

Forecast methodologies contain the eligibility rules, quantification methods, documentation requirements, and confirmation requirements that ensure the consistency and rigor of GHG reduction accounting for a specific mitigation project. When the Reserve has not already approved a forecast methodology applicable to a mitigation project a project proponent wants to undertake, the project proponent will need to develop a forecast methodology and submit it to the Reserve for approval. The Reserve will only issue FMUs for forecasted GHG reductions estimated and confirmed, as well as *ex post* reductions that are quantified and verified under an approved forecast methodology.

This section details the specific eligibility criteria, including but not limited to a rigorous additionality evaluation that each proposed forecast methodology will be evaluated against, as well as the principles that a proposed forecast methodology will be required to meet. It is expected that the forecast methodology will be developed at the project level and will consider existing methodologies for that activity type.

3.1 Criteria for Forecast Methodologies

Forecast methodologies shall contain the following sections, each of which are described in more detail below:

1. Definition of the mitigation project
2. Start date
3. Demonstration of additionality
 - a. Meeting the Legal Requirement Test
 - b. Description and discussion of the performance standard test(s)
4. Description of market expansion focus
5. Discussion of environmental and social safeguards (if applicable)
6. Demonstration of *ex ante* suitability
7. Crediting period and rationale
8. Bundling and aggregation of Projects
9. GHG Assessment Boundary
10. Leakage accounting
11. Description and justification of chosen baseline scenario
12. Estimation of GHG reductions, including assumptions to ensure conservativeness
13. *Ex ante* risk pool contribution
14. Ensuring permanence (if applicable)
15. Project implementation and confirmation
16. Voluntary ongoing monitoring incentive
17. Confirmation activities

3.1.1 Definition of Mitigation Project

A GHG mitigation project is a specific activity or set of activities intended to reduce GHG emissions or increase the storage of carbon or enhance GHG removals from the atmosphere.³ Under this program, a mitigation project is the undertaking or funding of activities that directly

³ World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), 2005. *The GHG Protocol for Project Accounting*. World Resources Institute, Washington, D.C.

reduce or sequester GHG emissions (mitigation projects) at a location other than the site of a project with anticipated GHG emissions.

Every forecast methodology shall clearly define the type of activity (or activities) that constitute the proposed mitigation project type. Methodologies shall be designed to be as widely-applicable as possible within the target sector, rather than being limited to the specific characteristics of an individual project. A clear definition ensures that GHG quantification methods prescribed by the forecast methodology are applied only where they are relevant and appropriate (e.g., location, required pre-existing conditions, etc.).

The definition section should also include any specific relevant exclusions where required conditions could not be met, or the forecast methodology would not be applicable. It is also possible for a “project” to be defined in a way that allows for the implementation of the same activity at multiple sites over a finite period of time. Such “batch” projects shall be clearly defined within the applicable forecast methodology.

3.1.2 Start Date

Start dates are often defined by reference to a discrete action undertaken by the project to create reductions. Each methodology must outline what action, or set of actions, defines the start date. Some methodologies will include some flexibility, in the form of a staged and finite start-up period, allowing projects to test out equipment and processes, intermittently or at a small scale, before being considered operational. For other project types, the start of a project may be defined by the entering into force of a particular legal agreement, such as a contract to initiate project activities or the recordation of an easement.

Projects are only eligible if the project is submitted to the Reserve no more than one year after the mitigation project start date.⁴ Projects may always be submitted prior to the start date. Specific requirements for what denotes a project start date are detailed in each Reserve approved methodology.

3.1.3 Demonstration of Additionality

The Reserve requires a standardized approach to determining additionality for this program, where methodology developers will propose in the forecast methodology a set of criteria designed to exclude non-additional mitigation projects and include additional ones on a sector-wide basis.⁵

All forecast methodologies should incorporate standardized additionality tests, rather than providing rationale for additionality based only on project-specific implementation barriers and/or expected benefits. Two elements must be included in the forecast methodology: demonstration that the mitigation project is not mandated by law (the Legal Requirement Test) and the development of an appropriate performance standard test(s) that demonstrates the mitigation

⁴ A mitigation project is considered “submitted” when all appropriate forms have been completed, and all applicable fees have been paid to the Reserve.

⁵ Within existing carbon offset programs, there are two basic approaches to determining “additionality”: project-specific and standardized. The Reserve has built its reputation and gained prominence by pioneering standardized approaches to crediting GHG reductions. For example, standardized tests could involve determinations that a project: (1) is not mandated by law; (2) exceeds common practice; (3) involves a particular type of high-performing technology relative to the common practice; and/or (4) has an emission rate lower than most others in its class (e.g., relative to a performance standard).

project would not have been implemented under a conservative business-as-usual baseline scenario. These are described in more detail below, in Section 3.1.3.

Two elements must be included in the forecast methodology: demonstration that the mitigation project is not mandated by law (the Legal Requirement Test) and the development of an appropriate performance standard test(s) that demonstrates the mitigation project would not have been implemented under a conservative business-as-usual baseline scenario.

3.1.3.1 Legal Requirement Test

Mitigation projects are very likely to be considered non-additional if their implementation is required by law. The Legal Requirement Test ensures that eligible mitigation projects would not have occurred anyway in order to comply with national, regional, state, local, or other relevant regulations, or other legally binding mandates. For the purposes of the Program, a mitigation project passes the Legal Requirement Test when there are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions, or other legally binding mandates requiring its implementation.

Under this program, the specific provisions of the Legal Requirement Test may differ depending on the mitigation project. The Reserve expects the project proponent to perform a review of existing and pending regulations to identify any specific regulatory requirements that would mandate the implementation of mitigation projects covered by the methodology, including local agency ordinances or rulings. In evaluating a proposed forecast methodology, the Reserve will consider any adopted, but not yet effective, law, regulation, order, or other legal requirements legally mandating implementation of the proposed mitigation activity.

Depending on the location of the mitigation project, there may be insufficient compliance and/or enforcement of national, regional, state, local, or other regulations. The level of compliance and enforcement of relevant regulations is something that can be explored and assessed within each proposed forecast methodology. It may be possible for a mitigation project to pass the Legal Requirement Test even if there is a law that requires its implementation given the reality of the lack of compliance and enforcement on the ground. Forecast methodologies must describe how the proposed project type meets the legal requirement test.

3.1.3.2 Performance Standard Test

Mitigation projects that are not legally required may still be non-additional if they would have been implemented for other reasons, including, for example, because they are economically-attractive investments irrespective of the value of their GHG reductions (and don't face other significant barriers). Performance standard tests are intended to screen out this type of mitigation project. In developing performance standards, project proponents must consider financial, economic, social, technical, and technological drivers and barriers that may affect decisions to undertake a mitigation project. Standards are specified such that, to the maximum extent feasible, mitigation projects that meet the standard would not have been implemented due to these other drivers. In other words, incentives created by the GHG mitigation market are highly likely to have played a critical role in decisions to implement mitigation projects that meet the performance standard.

Although performance standard tests do not require individual assessments of financial returns and implementation barriers, they are designed to reflect these factors in determining which mitigation projects are additional. Mitigation projects that pass a performance standard test

should be those that – in the absence of their GHG reduction value – would have insufficient financial returns or would face other types of insurmountable implementation barriers.

Performance standard tests are developed through analysis of standard practices and technology deployment in industry sectors related to a specific mitigation project. They may also be based on an assessment of “typical” financial, implementation, and operating conditions facing a certain type of mitigation project.

Under this program, performance standards may be specified in several ways – for example:

- **Emission rate thresholds.** For some mitigation projects, a performance standard may be specified in terms of a rate of GHG emissions (usually per unit of production of some product or service, e.g., metric tons of CO₂ per megawatt-hour). Generally, the threshold rate would be based on a level of performance that is significantly better than average for the industry or sector. Mitigation projects that have lower emission rates than the threshold, for example, would be considered additional.
- **Practice- or technology-based thresholds.** Performance standards may also be specified in terms of a specific practice or technology that is rarely or never implemented in the absence of a carbon market. Such standards are generally based on surveys of the market penetration rates of candidate practices or technologies. Mitigation projects employing a qualifying technology or practice are typically considered additional.
- **Other qualifying conditions or criteria.** Performance standards may also incorporate, or be based on, other specific qualifying conditions that a mitigation project must meet in order to be considered eligible. Conditions may include characteristics related to the mitigation project site, specifications for a particular eligible technology or practice, or other contextual factors. Mitigation projects meeting the conditions would be considered additional.

Several specifications may be combined in a single performance standard test. For example, a forecast methodology may define a performance standard in terms of a specific type of technology that has an emission rate below a certain threshold and is implemented at an eligible location.

This program has no predefined threshold for determining an acceptable performance standard. Rather, establishing performance standards involves balancing the need to prohibit eligibility for non-additional mitigation projects with the goal of allowing additional (and otherwise eligible) mitigation projects to participate. Setting a threshold always involves making tradeoffs between these two goals and may also involve considerations about the size of the market for mitigation credits and the potential supply of reductions available from certain mitigation project types. See Box 3.1 for further discussion and a hypothetical example.

Box 3.1. Determining Acceptable Performance Standard Thresholds

A common rule of thumb for establishing performance standards is that they should make eligible only technologies or practices that are not “common practice.” However, “common practice” is often difficult to define. Instead of adopting a simple rule for defining “common practice” (for example, a threshold market penetration rate) the Reserve requires setting performance standards based on an overall assessment of the market for GHG reductions and the risk of crediting non-additional reductions.

For example, suppose a particular emission-reducing technology has a market penetration rate of five percent, and there is no indication that it is increasing in any appreciable way. In most instances, such a technology would not be considered “common practice.” However, if a threshold were established allowing all instances of this technology to be eligible for crediting, we could expect existing users of the technology to apply for credit even though they were employing it already, without any incentives from the value of the GHG reduction. This will have adverse consequences for the integrity of the Program. Whether such consequences are serious depends on the potential supply of reductions from this technology compared to overall demand for reductions. If five percent of the market would result in hundreds of millions of metric tons of GHG reductions, for example, then a simple technology-based threshold would be too lenient, and the Reserve would explore using additional criteria that could further exclude “business-as-usual” instances of the technology despite its relative rarity. If five percent of the market would result in only a few thousand metric tons of GHG reductions, then the Reserve may consider a simple technology-based threshold acceptable. In addition, the performance standard works in concert with other additionality criteria, such as the acceptability of certain project start dates.

3.1.4 Market Expansion Objective

All submitted projects under an approved forecast methodology are encouraged to demonstrate how the methodology encourages actions leading to GHG reductions that are generally not feasible under existing GHG crediting or incentive programs (See Section 3.2.4). Forecast methodologies may provide a general overview of project characteristics that would make projects under the proposed forecast methodology meet this concept, as well as guidance for how projects can demonstrate that they have those characteristics. See Box 3.2 for an illustrative example.

Box 3.2. Example of Market Expansion Objective

Mitigation projects under this Program are developed with the intent of expanding the scope of GHG mitigation project types through innovative methodologies that expand the breadth of activities occurring under current programs, such as the offset market. To that end, forecast methodologies for project types that have been adopted on a wide scale in existing offset programs should provide a general description of characteristics that outline how the activities expand opportunities for GHG mitigation.

For example, livestock dairy digester projects have been adopted on a large scale in existing offset programs. However, there may be practical size limitations that prevent all dairies from participating in these programs. The forecast methodology should provide a brief description of the general size that a dairy farm must exceed before a dairy digester project would be feasible under an offset program, such that specific projects that are submitted to this Program can demonstrate that they are smaller than the described size threshold. Forecast methodologies should endeavor to describe a comprehensive set of criteria that a given individual project can use to demonstrate market expansion beyond existing programs.

3.1.5 Discussion of Environmental and Social Safeguards

The Reserve requires project proponents to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice. When registering a project, the project proponent must attest that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting period. Methodologies and/or projects that can demonstrate quantifiable, direct social and environmental co-benefits resulting from project implementation may be granted discounted fees on a case by case basis.

The project proponent must provide a list of all applicable laws related to initial and ongoing implementation of the project and provide a narrative of measures enacted to comply with each as part of the Project Implementation Report (see Section 3.1.15). Implementation of these measures are subject to confirmation by the Confirmation Body. Determination of whether the measures are sufficient to reasonably mitigate the risk of regulatory non-compliance is at the sole and final discretion of the Reserve. Individual forecast methodologies may be required to include measures for projects designed to ensure specific environmental and social safeguards are in place.

All forecast methodologies that involve local communities and indigenous peoples must ensure their values and rights are recognized and respected throughout the project life, and that project design, implementation, and any ensuing confirmation or verification is established and executed in accordance to the spirit of Free, Prior and Informed Consent, in an inclusive and transparent manner sensitive to all concerned stakeholders, and in particular all marginalized and vulnerable groups.

3.1.5.1 Criteria Applied for Environmental and Social Safeguards

In determining whether environmental and social harms are likely to occur, the Reserve will use the following criteria:

Legal Obligation

The Reserve will rely first and foremost on legal requirements within the jurisdiction(s) where the project is implemented.

“Do No Harm” Beyond Legal Requirements

In some cases, the Reserve may determine that existing legal requirements are insufficient to guarantee protection against important environmental and social harms. In these cases, the Reserve may require additional criteria in forecast methodologies to ensure that projects will not give rise to these harms or may screen out certain project types or activities from eligibility altogether.

The forecast methodology shall contain a narrative describing an evaluation of any potential adverse environmental, social, or economic impacts that may be caused by the mitigation project, and actions that must or should be taken to avoid adverse impacts.

In some cases, the Reserve may determine, in consultation with experts, that additional safeguards are needed to protect against important environmental and social harms. In these cases, the project proponent may be required to include additional criteria in the forecast methodology to ensure that mitigation projects will not give rise to these harms or may screen out certain activity types from eligibility under a forecast methodology altogether.

3.1.6 Demonstration of *Ex Ante* Suitability

To ensure that any issued FMUs have a reasonable expectation of being realized over time, methodologies must demonstrate that the type of project activity described in the methodology is suited for *ex ante* crediting. To do this, the methodology must provide guidance for establishing cost estimates for the initial implementation of the mitigation project, and cost estimates for ongoing maintenance, upkeep, and operation to maximize the likelihood that the mitigation project is operational for the lifetime of its crediting period. Further, all submitted forecast methodologies must provide justification showing that the proposed project type, once implemented, is likely to continue, and continue at the levels forecast. Project types that are unlikely to continue without sufficient ongoing incentives to the project proponents are not suitable for an *ex ante* crediting framework. As a general principle, project types that have relatively high initial implementation costs and relatively low ongoing maintenance, upkeep, and operation costs are better suited for *ex ante* crediting. Mitigation activities that provide additional co-benefits beyond greenhouse gas emission reductions may provide increased incentive for continued implementation through the entire crediting period.

3.1.7 Crediting Period and Rationale

The mitigation project “crediting period” defines the period of time over which GHG reductions from a mitigation project are estimated and eligible to be confirmed as mitigation credits. Because of the *ex ante* nature of crediting under this program, the forecast methodology must set criteria for project proponents to define and justify the proposed crediting period. Reference to any analysis and supporting datasets shall be included in this section of the forecast methodology, and such analysis will generally be included as an appendix. The default crediting period for sequestration-based project types is set at 25 years with the option to renew the crediting period up to 100 years in cases where sequestration can be demonstrated to be sufficiently secured to the Reserve’s discretion. Under no circumstances will the combined total of crediting periods for sequestration-based project types exceed 100 years. Mitigation projects that are implemented in batches may quantify crediting periods on a batch-specific basis, such that the overarching mitigation project generates credits for a period of time greater than 25 years, but no single project installation is credited with *ex ante* crediting for greater than 25 years.

Forecast methodologies must establish the rules and requirements for *ex ante* crediting period renewal. If desired, the methodology must also establish rules and requirements for *ex post* monitoring, reporting, and verification if it can be determined that the project type is suitable for transitioning to *ex post* monitoring, reporting, and verification upon the conclusion of the initial *ex ante* crediting period. If a project pursues further crediting beyond the crediting period through *ex post* monitoring, reporting, and verification, verification must be conducted in accordance with the procedures and frequencies established by the forecast methodology. If a given forecast methodology is silent on verification procedures for *ex post* crediting, the Reserve shall work with the interested project proponent to develop appropriate verification guidelines.

3.1.8 Bundling/Aggregation of Projects

Aggregation of multiple projects of the same type together for reporting purposes is allowed for only certain project types, with bundling and aggregation rules described within specific methodologies. Generally, each mitigation project, as defined by the project definition and/or project boundary (described in each forecast methodology), must register separately with the Reserve. However, forecast methodologies for certain project types may allow project boundaries to span multiple activities or locations. A single mitigation project may be defined as

a pre-determined batch of discrete installations (e.g., a batch of solar PV panel installations may constitute one mitigation project).

Proponents of mitigation projects should check specific forecast methodologies and associated guidance documents for direction on whether and how aggregation is allowed.

3.1.9 GHG Assessment Boundary

The GHG Assessment Boundary⁶ delineates the GHG sources, sinks, and reservoirs (SSRs)⁷ that must be quantified by the methodology to determine the total net change in GHG emissions caused by a mitigation project.

The GHG Assessment Boundary is not necessarily a boundary related to a mitigation project's physical location. Instead, it encompasses all SSRs that could be significantly affected by a mitigation project, regardless of where such SSRs are located or who owns or controls them. A comprehensive and clearly-defined GHG Assessment Boundary is required to provide a complete accounting of the net GHG reductions achieved by a mitigation project.

SSRs are only included in the GHG Assessment Boundary if a mitigation project will have a *significant* effect on their associated GHG emissions or removals. The project proponent shall propose significance based on an assessment of the range of possible outcomes for a relevant SSR. Inclusion or exclusion of SSRs is determined for each forecast methodology based on the principles of completeness, accuracy, and conservativeness, and the need for practicality (e.g., related to measurement costs). In general, relevant SSRs should only be excluded from the GHG Assessment Boundary if:

1. Mitigation projects are likely to reduce GHG emissions (or increase removals) at a SSR, so that excluding the SSR would be conservative (i.e., doing so would result in an underestimation of total net GHG reductions for the mitigation project); or
2. The total increase in GHG emissions from *all* excluded SSRs is likely to be less than five percent of the total GHG reductions achieved by a mitigation project.

If excluding SSRs is unavoidable for practical reasons, then calculation and estimation methods related to included SSRs must be made suitably conservative to avoid overestimating total net GHG reductions or removals. All SSRs determined to be within the GHG Assessment Boundary shall be identified in the calculation of GHG reductions.

The forecast methodology shall:

- List all SSRs potentially affected by a mitigation project
- Explain or describe the SSR
- Identify whether the SSR is present in the baseline, project case, or both
- Indicate whether each SSR is included in the GHG Assessment Boundary
- Justify instances where a SSR is excluded from the GHG Assessment Boundary

⁶ See World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

⁷ Terminology is from International Organization for Standardization, 2005. ISO 14064, 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, Geneva, Switzerland.

- Identify whether and how GHG emissions, removals, or storage from the SSR will be estimated
- If GHG emissions, removals or storage will be estimated, justify why values will be estimated rather than measured (or calculated from other measurements) and how measures will be taken to ensure estimates are conservative

This Program does not restrict the GHGs that may be considered within the GHG Assessment Boundary. Any gas that has been determined by the IPCC to have a radiative forcing effect on the atmosphere may be considered for inclusion in a protocol. Forecast methodologies may address gases other than the six GHGs regulated under the Kyoto Protocol (i.e., CO₂, CH₄, N₂O, SF₆, HFCs, and PFCs). All non-CO₂ GHGs will be normalized into tonnes of CO₂e through the use of 100-year global warming potential (GWP) values published by the IPCC. Projects shall apply the same GWP values as specified for the Reserve's offset program (the IPCC 4th Assessment Report, as of this writing), unless otherwise specified in the forecast methodology or public communications from the Reserve.

3.1.9.1 Physical Project Boundary

For some types of mitigation projects, it is necessary to define a physical boundary for the mitigation project in addition to a GHG Assessment Boundary. Physical boundaries are defined in terms of the physical area affected by a mitigation project and possibly specific equipment or facilities involved. Forecast methodologies will only require identification of a physical boundary where a physical boundary is necessary to estimate the magnitude of GHG emissions, removals, or storage associated with one or more SSRs included in the GHG Assessment Boundary. An example of this would be a land-use-based carbon sequestration project, where the amount of carbon stored depends on the area of land on which the mitigation project takes place.

3.1.10 Leakage Accounting

The term “leakage” is often used to refer to unintended increases in GHG emissions that may result from a mitigation project. Generally, leakage occurs at SSRs that are physically distant from the mitigation project itself or otherwise outside the mitigation project’s physical boundaries. To the extent that any proposed methodology may introduce leakage of claimed environmental benefits, i.e., directly result in emissions sources increasing outside of the project boundary, proper accounting of any leakage impacts shall be included in the methodology.

3.1.11 Description and Justification of Chosen Baseline Scenario

Baseline emissions are always subject to uncertainty because they are counterfactual, i.e., they are an estimate of GHG emissions or removals that would have occurred in the absence of the mitigation project. This notion is especially true in the context of *ex ante* mitigation. Depending on the mitigation project type and SSRs involved, many methods can be used to try to estimate baseline emissions. The Reserve requests that project proponents use standardized baselines in forecast methodologies to the extent possible, meaning that the same conservative assumptions, emission factors, and calculation methods would be applied to all registered projects within a mitigation project type. Standardized baseline approaches seek to avoid case-by-case analysis of individual mitigation projects while maintaining overall levels of estimation accuracy and environmental integrity. Project-specific calculations and emission factors may be used wherever necessary to ensure accuracy, or where standardized methods would result in estimates that are overly conservative in many cases. It is common for methodologies to utilize both standardized assumptions and project specific calculations and factors.

Standardized baselines are developed by considering broad trends (economic, technological, regulatory, and policy) in the industry or sector relevant to a mitigation project type and determining what future “business-as-usual” alternative activities are likely to be. To develop standardized baselines, the methodology developer should determine the most likely alternative technologies or practices. In many cases, a single practice, activity, or technology is assumed to be the common baseline alternative for a class of mitigation projects. In some cases, the performance threshold developed for additionality may also be used as an emissions baseline.

The narrative describing and defending the chosen baseline scenario should address if the baseline represents a fixed baseline over the duration of the crediting period, or if it considers projected changes in baseline conditions over time. A dynamic baseline may be necessary to ensure conservativeness of the baseline over time. For example, if a project type is related to implementation of an energy efficiency measure, baseline quantification should account for anticipated changes to the underlying marginal grid emission factors.

3.1.12 Conservative Estimation of GHG Reductions

GHG reductions are calculated by comparing the forecasted baseline to the forecasted mitigation project performance over a certain time period. GHG reductions are achieved when the mitigation project results in lower GHG emissions to the atmosphere over a certain time period compared to what would have happened absent the mitigation project. The general formula for calculating GHG reductions is:

$$\text{GHG Reductions} = (\text{Forecasted Baseline Emissions} - \text{Forecasted Mitigation Project Emissions})$$

For biological carbon sequestration mitigation projects, GHG removals are achieved when the forecasted mitigation project performance results in more carbon sequestered in biological carbon stocks over a certain time period than would have been in the absence of the mitigation project. The general formula for calculating GHG removals is:

$$\text{GHG Removals} = [(\text{Incremental Forecasted Mitigation Project Sequestration} - \text{Incremental Forecasted Baseline Sequestration}) + (\text{Forecasted Baseline Emissions} - \text{Forecasted Mitigation Project Emissions})]$$

The forecast methodology shall contain a detailed quantification methodology for both baseline and project emissions in order to calculate the estimated emission reductions associated with all SSRs for the mitigation project. The forecast methodology must account for the risk that the emission reductions might not be achieved as forecasted. As a result, the methodology will be conservative in terms of estimating total GHG reductions achieved.

Where default values are proposed, the source/reference for the default value must be included. Examples of evidence that may satisfy this requirement include independent studies conducted in the past 10 years, literature reviews, independent expert testimony, or values utilized in active projects issuing carbon credits under reputable carbon crediting programs such as the Clean Development Mechanism (CDM) or similar programs in the region or country concerned. All assumptions should be clearly described and defended, and references provided for any relevant datasets, studies, or methodologies to be used.

If any proposed default values are independently developed and do not meet the standards as described above, the following general principles apply. If the proposed default value is independently developed and has a positive correlation with FMU issuance, that value should

be no greater than the 25th percentile of the sampled data points. If the default value is independently developed and has a negative correlation with FMU issuance, that value should be no less than the 75th percentile of the sampled data points. These guidelines are to be followed unless statistical justification is provided that there is sufficient certainty regarding variable estimation. To demonstrate that a default value should be greater than the 25th percentile or less than the 75th percentile, respectively, analysis must be provided showing that variance does not exceed 10% of the proposed value. See Box 3.3 for further discussion and a hypothetical example.

Box 3.3. Acceptable Parameters for Default Values

Where default value inputs to the overall GHG Estimation quantification for a mitigation project are required, and no reputable values are available for use in developing the relevant forecast methodology, the methodology developer may propose their own default values for GHG reduction estimation. To do this, the methodology developer must engage with an independent third party to conduct an independent study to propose an evidence-based default value for use in the methodology. For example, if the forecast methodology in development is for methane destruction at a dairy farm, and the methodology does not have a reputable source for modeling the methane generated by the average population of livestock at the dairy, the methodology developer must engage with a third party to conduct an independent survey that establishes a formula for estimating methane generated per head of livestock. This formula must be calibrated to the 25th percentile, as an increase in the assumed methane generated per head of livestock would also lead to an increase in estimated FMU generation (positive correlation with FMU issuance).

3.1.12.1 Estimating Performance Decline

The quantification approach must explicitly describe how mitigation project efficiency is expected to change over the crediting period, and what assumptions are built into the calculations to account for any decreasing performance over time (e.g., declining conversion efficiency of PV panels over time). Performance decline assumptions built into the forecast methodology must be supported by current peer reviewed academic literature or other similar sources.

3.1.12.2 Estimating Abandonment Rates

The quantification approach must explicitly describe and account for any expected mitigation project abandonment over the crediting period (e.g., rate of abandonment of energy efficient lighting over time). Project abandonment rates built into the forecast methodology must be supported by current peer reviewed academic literature or other similar sources.

3.1.13 Ex Ante Risk Pool Contribution

All forecast methodologies must propose a standard contribution of FMUs to a risk pool. This contribution is to be inclusive of FMU discounts applied to account for performance decline and abandonment rates. This risk pool will ensure that the FMUs issued to the project are conservative beyond the estimation calculations as described in Section 3.1.12, mostly to address potential concerns over project performance falling below the levels assumed using conservative assumptions (e.g., catastrophic project failure such as a forest fire or complete shutdown of a project). *Ex post* issuance of FMUs that have been deposited to the risk pool is possible if the project proponent engages in ongoing monitoring and reporting, with periodic verification. The frequency of verification is established on a methodology-specific basis and must be followed if the project wishes to be issued any amount of FMUs from the risk pool at a later date. There must be at least one verification conducted upon the conclusion of the

crediting period to ensure ongoing project implementation through the entire duration of the crediting period. The option for issuance of FMUs from the project specific risk pool, as well as details regarding verification is described in further detail in Section 3.1.16.

3.1.14 Ensuring Permanence

Because CO₂ and other GHG emissions remain in the atmosphere for long periods of time, reductions in GHG emissions must effectively be permanent. However, some types of mitigation projects cause GHG reductions by removing CO₂ from the atmosphere and storing it in a reservoir (e.g., in trees or other organic materials, or in geologic formations). In these cases, there is a risk that CO₂ may be re-emitted to the atmosphere, leading to a “reversal” of GHG removals. A reversal occurs when the total amount of CO₂ stored by a mitigation project becomes less than the total number of mitigation credits issued to the mitigation project. This can happen, for example, if some or all the trees associated with a forest mitigation project are destroyed by fire, disease, or intentional harvesting in excess of growth.

If a mitigation project type has a risk for reversal, it must be described and addressed in the forecast methodology. This will most likely be in the form of a discount on mitigation credits issued depending on the assumed risk of reversal for a given mitigation project or mitigation project type. Discounts due to the risk of reversal are not eligible to be issued through the Voluntary Ongoing Monitoring Incentive described in Section 3.1.16.

3.1.15 Project Implementation and Confirmation

Summary project information, input data, estimation summaries, and continued implementation measures should be submitted in the form of a Project Implementation Report prepared by the project proponent. The forecast methodology must detail what information should be included in such a Project Implementation Report.

Beyond criteria for the confirmation of initial implementation, the forecast methodology shall describe and address any Project Resilience Measures that will be undertaken to continue the implementation of the mitigation project for the duration of its crediting period. All proposed methodologies must thoroughly identify risk factors that negatively affect project performance or cause project abandonment and describe Project Resilience Measures. Such measures will need to be methodology-specific for a proposed project type. For example, a forecast methodology might include a funding mechanism to ensure the mitigation project is managed appropriately into the future or require a conservation easement to ensure land conservation in perpetuity.

3.1.16 Voluntary Ongoing Monitoring Incentive

As described in Section 3.1.13, all projects are required to contribute a methodology specific percentage of anticipated GHG reductions to the *ex ante* risk pool. The Reserve recognizes that project proponents may believe that submitted projects can exceed the FMU issuance granted upon initial registration due to this contribution. To the extent that projects can demonstrate that actual GHG reductions have exceeded the original quantity of FMUs recognized by the project, this program is structured to allow project proponents to receive credit for additional reductions beyond the initial *ex ante* crediting by submitting documentation verifying the additional quantity of GHG reductions produced.

Forecast methodologies must specify the monitoring information and data required for submittal to the Reserve on an ongoing basis to be eligible for crediting from the project’s contribution to the risk pool. All submitted monitoring information and data must be verifiable and will require

periodic third-party verification to confirm the veracity of reported data and continued operation of the project, the frequency of which is set by the relevant methodology. The project proponent must also provide a final data report, subject to verification, describing how the monitoring information demonstrates that project performance exceeded anticipated GHG reductions to justify issuance of some portion of a project's contribution to the risk pool.

All monitoring and reporting, inclusive of the final data report, are subject to verification. As this ongoing monitoring is voluntary in nature, the project proponent may decide to cease ongoing monitoring and reporting to the Reserve at any point in time prior to the conclusion of the crediting period without penalty but would then forfeit the right to be issued any credits from the risk pool.

3.1.16.1 Voluntary Monitoring Incentive for Sequestration Based Projects

Sequestration based projects (or other project types that can accurately quantify total GHG emission reductions at a given point in time) may be issued the full quantity of FMUs warranted upon successfully completing an *ex post* verification. The verification must be conducted in accordance with verification rules established within the relative methodology.

See Box 3.4 for further discussion and a hypothetical example.

Box 3.4. Rationale and Example of Ongoing Monitoring Incentive

Recognizing that mitigation projects under this Program are developed with the intent of generating credits on an *ex ante* basis, the inclusion of a voluntary incentive for ongoing monitoring of project data creates greater assurance of environmental integrity of underlying GHG reduction claims. All projects must contribute a pre-determined percentage of anticipated FMU issuance to a risk pool. Projects that wish to recover any amount of the contributed FMUs must submit monitoring information and data related to the project on an ongoing basis to the Reserve, as specified by the relevant forecast methodology.

For example, suppose a forecast methodology is related to reforestation projects with a 25-year crediting period. In year 1, after confirmation, the project is issued 80,000 FMUs. In year 25, the project proponent hires a third-party verifier to conduct a full site inventory using inventory methods from the approved methodology, and the verifier concludes that the project area has sequestered 120,000 MT CO₂e (after accounting for permanence). The project proponent would then be issued an additional 40,000 FMUs.

3.1.16.2 Voluntary Monitoring Incentive for Non-Sequestration Based Projects

For project types where GHG reductions are not generated through biological sequestration, the opportunity for additional issuance of FMUs is limited to the amount contributed to the *ex ante* risk pool. This is because the standard of reporting to satisfy the voluntary ongoing monitoring incentive is not meant to ensure an accurate ton for ton accounting of GHG reductions, but rather to ensure that project performance is better than estimated by the applicable methodology, as well as to ensure that the overall program maintains an overall buffer of emission reductions.

3.1.17 Confirmation Activities

There is no requirement for ongoing verification of the mitigation project under this program. This program requires a one-time implementation confirmation by an independent third party to confirm the mitigation project has been implemented as described in the forecast methodology.

The confirmation incorporates both a desktop documentation review and a site visit assessment of the mitigation project. The forecast methodology shall describe what type of documentation and data the independent third party should expect to review as part of the confirmation activities, and what criteria/activities the independent third party shall confirm when on site after mitigation project implementation. Confirmation bodies should also consult the Climate Forward Confirmation Manual for further requirements related to project confirmation and Confirmation Body rules and requirements.

3.2 Criteria for Mitigation Projects

Eligibility criteria specify essential characteristics that a GHG mitigation project must have to register under this program. These criteria must be detailed in each forecast methodology and any subsequent project submittal. To be eligible, the project proponent must demonstrate that the mitigation project will:

1. Be additional, i.e., it would not have happened in a conservative business-as-usual scenario.
2. Be unique, i.e., not be listed, registered, or credited through another GHG reduction scheme.
3. Be conservatively estimated.
4. Have characteristics that expand the accessibility of actions available under existing GHG reduction incentive programs (such as existing offset protocols).
5. Not cause adverse environmental, social, or economic impacts.

Each of these criteria is discussed further below.

3.2.1 Additionality

It is important to credit only GHG reductions from mitigation projects that are additional to their business-as-usual baseline scenarios. Baselines represent counterfactual scenarios in which the Program does not exist to provide incentives to implement the mitigation project. Ensuring that the activity would not have taken place in the absence of the Program ensures that FMUs issued for the mitigation activities are additional. Additionality is critical to the success and integrity of Programs that recognize project-based GHG reductions. The Reserve requires a standardized approach to determining additionality under this program, where performance standards and other conditions or criteria that mitigation projects must meet will be assessed by a Confirmation Body and ultimately approved by the Reserve.

3.2.1.1 Project Submission Deadline

To be eligible as a mitigation project, the project must be submitted to the Reserve no more than one year after the mitigation project start date, as defined in the relevant approved forecast methodology. Projects may always be submitted prior to the mitigation project start date.

3.2.2 Double Counting

To ensure the integrity of the mitigation credits issued and avoid any issues of double counting, the mitigation project must not be concurrently listed, registered, or earning credits under any other GHG reduction scheme. It may be possible for a mitigation project that has previously been credited under another scheme to transfer into this program, but no previously credited reductions will be recognized by this program.

3.2.3 Conservative Quantification

This Program is premised on the idea that mitigation activities, including CEQA mitigation, often allow for the forecast of GHG emissions from certain development projects and activities and allows emitters to quantify and address the impact of those emissions on an *ex ante* basis. The program is designed to mirror this forward-looking approach. The program aims to provide documentation that will demonstrate to a high degree of transparency that a quantity of forecasted emission reductions from a mitigation project (*i.e.*, FMUs) have been issued and retired which the developer can then balance against the mitigation of forecasted emissions associated with a specific project approval.

3.2.4 Market Expansion Objective

Mitigation projects submitted to the Program are required to describe, in accordance with the guidance set forth in the relevant forecast methodology, how the project supports the Program's objective of market expansion. This description may be qualitative in nature.

3.2.5 Regulatory Compliance and Environmental and Social Safeguards

The Reserve requires project proponents to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice. When registering a project, the project proponent must attest that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting period. Moreover, preference will be given to methodologies and/or projects that deliver other direct social and environmental benefits.

The project proponent must provide a list of all applicable laws related to initial and ongoing implementation of the project and provide a narrative of measures enacted to comply with each as part of the Project Implementation Report (see Section 3.1.15). Implementation of these measures are subject to confirmation by the Confirmation Body. Determination of whether the measures are sufficient to reasonably mitigate the risk of regulatory non-compliance is at the sole and final discretion of the Reserve. Individual forecast methodologies may be required to include measures for projects designed specifically to ensure environmental and social safeguards.

3.3 Methodology Approval

When the Reserve has not already approved a forecast methodology applicable to a mitigation project, the project proponent will need to propose a forecast methodology for approval. The Reserve will only issue mitigation credits for forecasted GHG reductions estimated and confirmed under an approved forecast methodology. The Reserve reserves the right to reject any submitted methodology that does not meet the standards for high environmental integrity described in this manual. The decision to approve or reject a methodology is solely at the discretion of the Reserve.

Proposed forecast methodologies are reviewed by the Reserve and by third party technical experts (peer reviewers), if necessary, and will also undergo a public comment review process (see Figure 3.1). The process for third party technical expert review is to be initiated as soon as the Reserve determines that third party technical expert review is warranted. The Reserve will work with the project proponent to revise the forecast methodology to meet the principles of the Program (see Section 1.6). Once a forecast methodology has been approved by the Reserve, mitigation projects may be submitted and issued mitigation credits using that approved

methodology. See below for an overview of the forecast methodology approval process. For a more detailed description of the forecast methodology approval process, please see the Forecast Methodology Approval Manual.

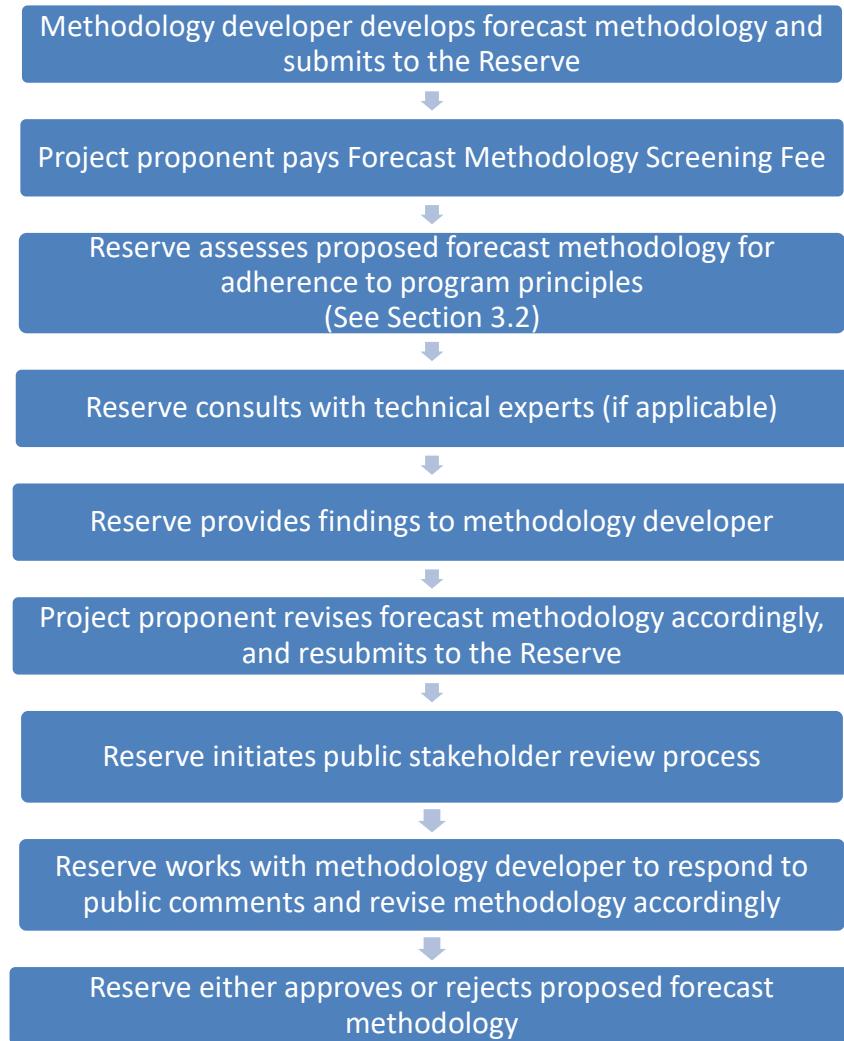


Figure 3.1. Summary Overview of the Forecast Methodology Approval Process

For more details regarding the process, please see the Forecast Methodology Approval Manual.

3.3.1 Methodology Approval Costs

The cost of the methodology approval process consists of a screening fee and a variable peer review fee for the technical expert review of the forecast methodology. The forecast methodology proponent is responsible for all fees associated with methodology review, and all fees must be paid before the review process begins. Payment of all fees is final and is not contingent on whether or not the methodology is ultimately accepted by the Reserve. Please refer to the Climate Forward Fee Schedule for specific fees.

3.3.2 Reserve Review

Once a forecast methodology has been submitted to the Reserve and the appropriate fees have been paid, the Reserve will conduct a review of the forecast methodology for adherence to methodology requirements detailed in the Section 3.1.

The Reserve will provide its findings to the project proponent. The project proponent must respond to all findings, which may require amendment of the forecast methodology.

In recognition that the Reserve may not have sufficient experience or expertise regarding the submitted forecast methodology, the Reserve may engage with one (or more) third party technical expert(s) to assist in assessing forecast methodologies for their adherence to Program requirements. Technical experts will document their assessment of the proposed forecast methodology to the Reserve. This assessment will address each of the sections listed above and the technical expert's opinion on whether the forecast methodology presents an approach to estimating emission reductions from the mitigation projects that is in line with this Program's principles and reflects the latest scientific understanding and sector-based best practices.

4 Project Cycle

This section summarizes the administrative steps a project proponent must follow to register a mitigation project under this Program. Each phase of the cycle denotes a milestone that the mitigation project has reached on the pathway to mitigation credit issuance. The project cycle can be summarized into the following steps:

- **Account registration:** Entities or individuals that wish to undertake a mitigation project (a project proponent) request an account on the Program.
- **Submittal:** The project proponent submits the mitigation project to the Reserve, using a previously approved forecast methodology (see Section 3.3).
- **Listing:** The mitigation project is publicly posted on the Program. This means that the project has passed an initial review for completeness and consistency with the Program and the forecast methodology requirements.
- **Project implementation:** The project proponent implements the mitigation project and estimates the forecasted emission reductions according to the requirements of the approved forecast methodology.
- **Implementation confirmation:** Subject to approval by the Reserve, the project proponent retains an accredited independent third-party to confirm that the mitigation project has been implemented, the forecasted emission reductions have been estimated appropriately, and that the project has met all requirements of the applicable forecast methodology. Confirmation activities may not commence prior to one year following the project start date, unless otherwise specified by the forecast methodology.
- **Project verification (Optional):** For projects seeking additional crediting beyond the initial FMU issuance, project verification is required. Subject to approval by the Reserve, the project proponent retains an accredited independent third-party to review documentation, monitoring data, and procedures used to estimate GHG emission reductions. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of FMUs that can be issued to the project in addition to the FMUs issued after implementation confirmation.
- **Registration:** The Reserve reviews the third-party evaluation and, if appropriate, approves the project for registration and issuance of a specific quantity of forward-looking mitigation credits.
- **FMU issuance:** The Reserve issues the forward-looking mitigation credits into the account of the project proponent.
- **Mitigation credit transfer (*optional*):** The project proponent may sell or purchase mitigation credits after issuance; the Reserve records transfers of mitigation credits on the Program.
- **Mitigation credit retirement:** The credit holder requests the permanent retirement of mitigation credits to mitigate specific development activities.

Project proponents, accredited independent third-parties, and the Reserve each have varying roles and degrees of responsibility throughout the project cycle. See Figure 4.1 for a representation of the project cycle steps and relevant parties. See the sections below for more detail on each step of the project cycle.

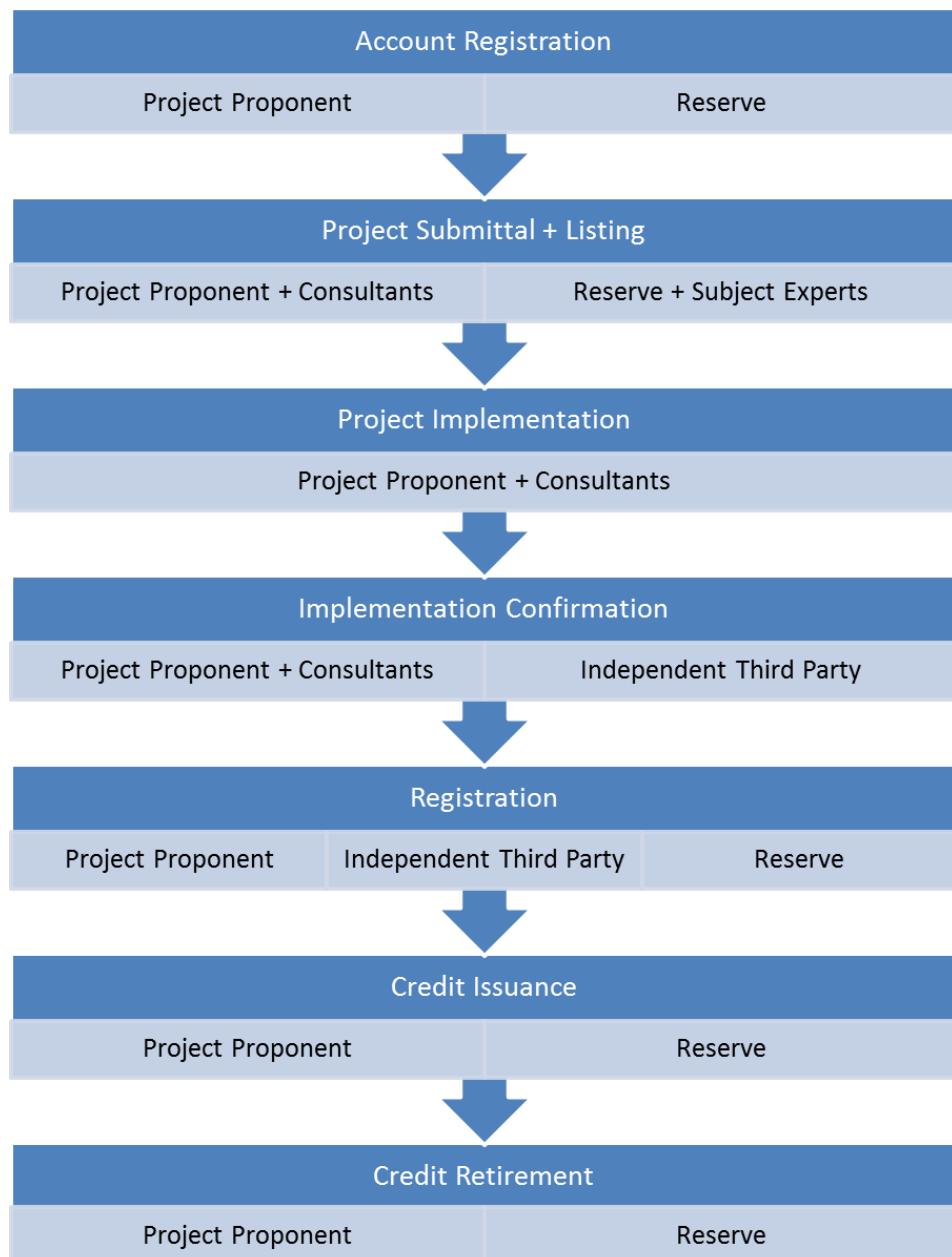


Figure 4.1. Program Flowchart and Relevant Parties

4.1 Account Registration

As a first step, an individual or entity wishing to pursue issuance of mitigation credits for a mitigation project must set up an account with the Reserve. Account registration occurs once; any number of mitigation projects can be registered under the same account.

The Reserve conducts due diligence on all individuals or entities that wish to hold an account on the Program through a rigorous “know your client” (KYC) process to ensure that entities with accounts are legitimate organizations. This will safeguard against fraud. The Reserve KYC process requires the submittal of the following documentation and information:

1. Copy of account manager’s (individual managing the account) government issued identification (e.g., driver’s license, passport, etc.), as well as a copy of the government issued identification of the individual authorized to sign the Terms of Use (TOU), if that individual is not the account manager.
2. A copy of a bank statement of the account holder (organization).
3. A copy of one of the following:
 - a. The account holder’s certificate of incorporation, certificate of formation, certificate of partnership or equivalent formation document, certified by an official of the account holder’s jurisdiction of formation;
 - b. A certificate of good standing issued by the account holder’s jurisdiction of formation; or
 - c. With respect to a partnership for which no certificate as described above is available, a copy of the executed partnership agreement.
4. A copy of the organization’s Articles of Incorporation and any amendments or corrections hereto.
5. Documentation (Board resolution or similar evidence) showing that the account holder has been authorized to become an account holder on the Program.
6. Documentation (Board resolution or similar evidence) showing that the account manager has been authorized to act on behalf of the account holder in connection with the application to become an account holder on the Program.
7. A copy of the organization’s corporate structure or organization chart, which includes the names of the account manager’s immediate supervisors, if applicable.
8. A brief summary of experience and the mitigation project types that are intended to be developed.

Along with reviewing this documentation, the Reserve also performs the following checks:

1. Verification of entity’s legal existence by conducting business search in relevant Secretary of State website;
2. Internet search to confirm accuracy of management team, personnel, contact information represented in application; and
3. Internet search to confirm entity is not a bad actor or a fraudulent account.

In addition to completing the application and undergoing the Reserve’s KYC process, each applicant must agree to the Terms of Use for the Program. It sets out the terms by which the Reserve has agreed to provide account holders with access to use the Program and participate in the Program.

Once the KYC process has been satisfactorily completed and the Terms of Use has been signed, the Reserve will approve and open the account.

4.1.1 Types of Accounts

There are two types of accounts in the Program:

1. **Project proponent.** An account type for organizations that wish to register mitigation projects that generate GHG reductions. This account type can also be used to transfer and manage FMUs.
2. **Confirmation Body.** An account type for accredited Confirmation Bodies that have been trained and authorized by the Reserve to confirm the proper implementation of mitigation projects. There is no annual account fee for Confirmation Bodies.

The public also can view information on the Program registry, but an account is not needed to view publicly available information.

4.2 Project Submittal

Project proponents must submit to the Reserve the appropriate submittal documentation for the mitigation project type and pay a mitigation project submittal fee to the Reserve (see Section 3.3.1). Submittal documentation is specified in each approved forecast methodology and includes mitigation project descriptions and preliminary information used to assess the project's eligibility. A mitigation project is considered "submitted" when all appropriate documentation has been completed and submitted to the Reserve and the submittal fee has been paid.

4.3 Project Listing

Once the mitigation project is submitted, the Reserve reviews the documentation to determine whether it is complete and conducts a preliminary assessment of the project's eligibility according to the eligibility criteria set forth within the relevant approved forecast methodology. Once this review is satisfactorily completed, the mitigation project is "listed" and made publicly available on the Program registry. Confirmation activities cannot begin until a mitigation project is listed.

Listing a mitigation project does not constitute a validation or confirmation of the mitigation project; it is a preliminary review of information provided to the Reserve by the project proponent. It is not a final determination of the eligibility of the mitigation project, nor does it guarantee mitigation credit issuance or mitigation credit ownership.

4.4 Project Confirmation

There is a requirement for an accredited Confirmation Body to perform a one-time confirmation that the mitigation project has been implemented as described in the forecast methodology, and that the estimated emission reductions have been calculated accurately. The confirmation incorporates both a desktop documentation review and a site visit assessment of the mitigation project. Confirmation activities may not commence prior to one year following the project start date in order to establish an observable level of project performance, unless otherwise specified by the forecast methodology. The Confirmation Body submits a Confirmation Statement and Confirmation Report that provide the basis for determining the quantity of FMUs that can be issued to the project. The Reserve makes these documents publicly available. Project Experts (someone who has completed the Confirmation Body's internal training processes and procedures to achieve this designation and passed the Reserve training course(s) on Program

Implementation Confirmation) conducting confirmation activities for projects listed or registered on the Program must be trained by the Reserve.

Confirmation bodies follow guidelines set forth in the Reserve's Climate Forward Program Manual and Climate Forward Confirmation Manual, as well as rules and procedures described in the specific confirmation guidance that is included in each approved forecast methodology.

Beyond criteria for the confirmation of mitigation project implementation, the Confirmation Body also confirms Project Resilience Measures as specified in the forecast methodology that are to be undertaken to ensure the continued implementation of the mitigation project for the duration of its crediting period. The Confirmation Body assesses whether such measures have been appropriately implemented during the site visit.

Registration and mitigation credit issuance are contingent upon successful confirmation by an accredited confirmation body and the submission and approval of all required forms and documents, including, but not limited to:

- Attestation of Title
- Attestation of Legal Additionality
- Attestation of Regulatory Compliance
- Project Implementation Report
- Confirmation Report, Confirmation Statement, and List of Findings (see Climate Forward Confirmation Manual)

4.4.1 Attestation of Title

All project proponents must submit a signed Attestation of Title form indicating that they have exclusive ownership rights to the emission reductions resulting from the mitigation project.

This form shall be signed and submitted prior to confirmation activities. Note that the entity/individual signing the Attestation of Title must be the account holder who submitted the mitigation project. Mitigation projects will not be registered unless the account holder and signatory to the attestation forms match.

4.4.2 Attestation of Legal Additionality

All project proponents must submit a signed Attestation of Legal Additionality form that confirms the mitigation project activity was not required by any law, statute, rule, regulation or other legally binding mandate by any national, regional, state, local or other governmental or regulatory agency having jurisdiction over the project. The project proponent attests that at no time was the mitigation project required to be enacted by.

This form is signed and submitted prior to confirmation activities. The Attestation of Legal Additionality is one of the primary mechanisms by which the mitigation project passes the Legal Requirement Test, as specified in each forecast methodology.

4.4.3 Attestation of Regulatory Compliance

All project proponents must sign and submit an Attestation of Regulatory Compliance form that confirms the mitigation project has implemented measures to address the risks of regulatory non-compliance identified in the forecast methodology associated with initial and ongoing project implementation. In addition, the form attests that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting

period. The Attestation of Regulatory Compliance form is signed and submitted prior to confirmation activities.

4.4.4 Project Verification

If a project opts to seek additional FMU issuance through either the Voluntary Ongoing Monitoring Incentive or by seeking an *ex post* crediting period renewal, the Reserve requires periodic third-party verification, as specified in each approved forecast methodology. This provides an independent review of data and information used to register additional FMUs beyond the initial issuance. For every project, a third-party verification body reviews documentation, monitoring data, and procedures used to estimate GHG reductions or removals. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of FMUs that can be issued to the project. The Reserve makes these documents publicly available. Verifiers conducting verification activities for projects listed or registered on the Reserve must be trained by the Reserve. Any entity accredited as a Confirmation Body by the Reserve is also accredited as a Verification Body. Any individual accredited to perform confirmations by the Reserve is also accredited as a Verifier for the purpose of performing verifications.

4.5 Registration

Once the Confirmation Body completes the Confirmation Statement, Confirmation Report, and List of Findings, the project proponent reviews the Confirmation Body's documents and then submits them to the Reserve to seek project registration. The Reserve reviews the documents and either registers the project or requests a re-submittal of one or more components. It is possible that a project could be rejected if insufficient and/or unsatisfactory information is submitted to the Reserve. Upon registration, the status of the mitigation project changes from listed to registered in the Program.

4.6 Credit Issuance

Once a mitigation project is registered by the Reserve, FMUs are issued as "pending" into the project proponent's account. The project proponent then receives an invoice for the issuance of FMUs generated by the mitigation project. Once the invoice is paid, the FMUs are activated and can be transferred to another account holder or retired. An account holder can only hold or retire FMUs in its account for which it is the sole holder of legal title, except as permitted under Section 9 of the Program Terms of Use.

To ensure proper tracking and accounting, each FMU has a unique serial number with embedded information that discloses various project specific details. The unique serial number persists indefinitely. Information on the number of FMUs that have been issued to each registered mitigation project is publicly available information.

4.7 Credit Transfers

In order to transfer FMUs to another party, that party must have an approved account on the Program. There is a transfer fee per FMU charged to the transferor. Once the credit transfer invoice has been paid, the FMUs are transferred from one account to the other.

Note that the Program does not function as a trading system or commodity exchange. The sale or purchase of FMUs takes place outside of the Program. Account holders may record sales by using the Program to move FMUs from one account to another. However, the Reserve makes

no warranties concerning, and has no control over, the legal ownership of FMUs that may be held in individual accounts.

4.8 Credit Retirement

FMUs may be retired to indicate that the forecasted GHG emissions reductions they represent have been used to satisfy a mitigation claim. To support such a claim, FMUs are taken out of circulation so that they cannot be used to support any further claims. The Reserve retires FMUs by transferring them to a locked retirement account where they remain in perpetuity, precluding further use or transfer to other parties. Information about retired FMUs is publicly available and includes details regarding the underlying mitigation project as well as the reason for retirement.

In order to retire FMUs, an account holder must request the retirement of a specific quantity of FMUs in writing and the Reserve confirms the account has sufficient FMUs to support the retirement request. There is no retirement fee per FMU charged to the account holder. Once the retirement transaction has been approved, the Reserve transfers the requested quantity of FMUs to the locked retirement account and issues a certificate to the account holder detailing the quantity and serial numbers of FMUs that have been retired. The account holder can present this retirement certificate to any entity, including the regulating body with its permit application, as evidence of approved GHG mitigation activity.

4.9 Transferring Projects from Climate Forward

Projects may be transferred from Climate Forward to other GHG registries and offset programs. To transfer a project, the Project Proponent shall provide a signed Project Transfer Letter to the Reserve specifying the effective date of transfer and confirming that no further reporting will be done under the Climate Forward program.

Once a project is transferred, no future reductions or removals from that project will be registered as FMUs. Project information and previously issued FMUs will remain in the Climate Forward system under their given serial numbers.

4.10 Publicly Available Information

This Program is intended to serve both project proponents and the interested public. To this end, information about each mitigation project and account holder is accessible to the public. This openness and transparency provides interested parties with valuable information and enhances the credibility of the issued FMUs. The public and all account holders can access the following information online:

- **Participating entities.** Organizations/individuals that have an active account (address or contact information is not disclosed).
- **Mitigation projects.** Mitigation projects that are listed or registered with the Reserve. Rejected mitigation project submittals and mitigation projects that are de-listed prior to registration and/or FMU issuance are not displayed; however, information will be made publicly available indefinitely for any mitigation project to which FMUs have been issued.
- **Approved forecast methodologies.** All approved forecast methodologies are available on the Reserve's website and are available for uses by other project proponents.

- **FMUs issued.** The quantity of FMUs issued to each mitigation project will be publicly accessible, and each FMU will be serialized. FMU balances in individual accounts are not disclosed.
- **Retired FMUs.** Displays the FMUs that have been retired by account holders for use against anticipated emissions.

Information that is never shared with the public includes:

- Company street addresses
- Company phone, fax or email addresses
- Internal company information, like billing addresses
- Any person's contact information

5 Glossary

Business day	Any day except Saturday, Sunday, or an observed Federal Reserve Bank holiday. A business day shall open at 8:00 a.m. and close at 5:00 p.m. Pacific Prevailing Time.
Confirmation	The process used to ensure that a given project proponent's projected GHG emissions reductions have met a minimum quality standard and complied with the Reserve's procedures and approved forecast methodologies
Confirmation Body	An organization or company that has been ISO-accredited and approved by the Reserve to perform GHG confirmation activities for specific forecast methodologies.
Confirmed	A mitigation project is considered "confirmed" when the mitigation project confirmation body has submitted the mitigation project's Confirmation Statement and the Confirmation Report in the Reserve system and it has been accepted by the Reserve.
Mitigation project	A mitigation project is the undertaking or funding of activities that directly reduce or sequester GHG emissions at a location other than the site of a project with anticipated GHG emissions.
Forecast methodology	A document that contains the eligibility rules, GHG assessment boundary, quantification methodologies, monitoring and reporting parameters, confirmation requirements, etc. for a specific mitigation project type.
Forecasted Mitigation Unit (FMU)	The unit of mitigation credits used by the Climate Action Reserve's Program. One FMU represents one metric ton of carbon dioxide equivalent (CO ₂ e) expected to be reduced or sequestered.
GHG emission reduction (Reduction)	A reduction of GHG emissions to the atmosphere or removal of carbon dioxide from the atmosphere that is used to compensate for an equivalent amount of emissions from another GHG emitting activity occurring elsewhere as the result of a mitigation project. For the purposes of the Climate Forward program, an FMU becomes a mitigation credit when it is retired.
Listed	A mitigation project is considered "listed" once the Reserve has satisfactorily reviewed all mitigation project submittal forms. The mitigation project will then appear in the public interface of the Reserve system.
Project proponent	An organization or individual that registers mitigation projects for generating emission reductions or removals. In the Reserve software system, Activity proponents may be issued FMUs for the verified emission reductions or

removals that their mitigation projects achieve. They can also transfer and manage FMUs.

Project Implementation Report	A report provided by the project proponent detailing all data sources, estimations, and implementation of project resilience measures.
Project Resilience Measure	A measure required to be implemented by the project to address the risks of project abandonment, underperformance, or failure.
Registered	A mitigation project is considered “registered” when the mitigation project has been confirmed by an approved third-party confirmation body, submitted by the activity proponent to the Reserve for approval, and accepted by the Reserve.
Retired	When FMUs are transferred to a retirement account in the Reserve system, they are considered retired. Retirement accounts are permanent and locked, so that a retired FMU cannot be transferred again. FMUs are retired when they have been used to mitigate an equivalent tonne of emissions or have been removed from further transactions on behalf of the environment.
Submitted	A mitigation project is considered “submitted” when all the appropriate forms have been completed, uploaded, and submitted to the Reserve.
Verification	The process used to ensure that a given project proponent’s historic, reported GHG emissions reductions have met a minimum quality standard and complied with the Reserve’s procedures and forecast methodologies.

CLIMATE FORWARD

FORECAST METHODOLOGY APPROVAL MANUAL

Version 1.0 | November 2018



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1 Introduction

The Climate Action Reserve's Climate Forward program provides a practical solution to companies and organizations seeking cost-effective mitigation of anticipated operational and/or project-related GHG emissions through investments in GHG reduction activities that are practical, scientifically-sound, transparent, and aligned with forward looking mitigation requirements such as the California Environmental Quality Act (CEQA). The program will drive forward looking investment into actions expected to result in GHG reductions.

The GHG Mitigation Registry Program (Program) enables companies and organizations to invest proactively in projects that will reduce greenhouse gas emissions forecasted to occur from business-as-usual operations. The Program provides a transparent and trusted resource for users to reduce their carbon footprints in a responsible, consistent, and accountable manner. By following standardized and conservative quantification methodologies approved by the Climate Action Reserve, project proponents can be issued high quality credits to reflect the mitigation measure implemented. This program incentivizes companies and organizations to invest in mitigation projects now, in exchange for credits based on anticipated future reductions.

This manual describes the framework, criteria and process that forecast methodologies must meet in order to be recognized by the Reserve as an approved forecast methodology.¹ The forecast methodology approval process is the process by which proposed forecast methodologies are approved for use under the Reserve's GHG Mitigation Registry program. Forecast methodologies are submitted for Reserve review and reviewed by the Reserve and by external technical experts, if necessary. The Reserve will work with the forecast methodology's submitting entity to revise the forecast methodology to meet the principles of the program (see Section 2). Once a forecast methodology has been approved by the Reserve, mitigation projects may be submitted and issued FMUs using that approved methodology.

¹ This manual does not describe the process for submittal, confirmation, and registration of specific projects utilizing an approved forecast methodology. To learn more about the project registration process, please see the Climate Forward Program Manual.

2 Program Principles and Criteria

This section describes the general criteria and requirements against which the mitigation projects and forecast methodologies will be assessed. This includes criteria to assess eligibility, additionality, and the accuracy and conservativeness of the quantification approach.

There is strong international consensus around a core standard set of overarching principles to guide decisions about the accounting, quantification, and reporting of project-based GHG reductions or removals. These consensus principles are listed and defined in both the International Organization for Standardization (ISO) 14064-2: 2006 and The World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting. Definitions of these principles differ slightly between the two standards; for this program, the Reserve interprets the principles as follows:

- **Relevance:** Data, methods, criteria, assumptions, and accounting boundaries should be chosen based on their “intended use.” For this program, this means forecast methodologies are designed around practical, conservative approaches that adhere to core accounting principles and support environmental integrity.
- **Completeness:** All relevant GHG emissions and removals should be accounted for and all relevant information should be considered. Forecast methodologies shall use all relevant information to comprehensively identify the GHG sources, sinks, and reservoirs affected by mitigation projects and account for all significant changes in GHG emissions or removals that may result from a mitigation project.
- **Consistency:** Data, methods, criteria, and assumptions should allow meaningful and valid comparisons of the GHG reductions achieved by different mitigation projects, forecast methodologies, and different activity types.
- **Transparency:** Sufficient information should be disclosed to allow reviewers and stakeholders to make decisions about the credibility and reliability of GHG reduction claims with reasonable confidence. Access to sufficient and appropriate GHG-related information is critical for assuring that a mitigation project’s GHG reduction claims are credible.
- **Accuracy:** Uncertainties and bias should be reduced as far as is practical. Greater accuracy in estimating GHG emissions and reductions will help ensure credibility of GHG reduction claims. Where accuracy is sacrificed, data and assumptions used to estimate GHG reductions should be conservative. Sampled data used to establish forecast methodology parameters or project inputs must achieve a minimum statistical confidence of +/- 5% at 1 Standard Error.
- **Conservativeness:** Conservative assumptions, values, and procedures should be used to ensure that GHG reductions are not over-estimated. Because the GHG reductions under this program will be estimated and credited at the point of activity implementation, approved forecast methodologies must employ conservative estimation methods. Where project benefits are based on projections of project activities, the projections of project benefits must be justified through scientific literature or defensible direct analysis.

Forecast methodologies must establish an empirical approach to demonstrating conservative forecasting or apply a methodology specified discount to the total projected quantity of GHG emission reductions. This is required to account for potential performance uncertainties as well as the likelihood of project non-performance and project abandonment. Each proposed forecast methodology must provide summary statistics around each default value or quantitative assumption that affects the overall estimation of credits.

3 Forecast Methodology Approval Process

Forecast methodologies contain the eligibility rules, quantification methods, and confirmation requirements that ensure the consistency and rigor of GHG reduction/removal accounting for a specific mitigation project. When the Reserve has not already approved a forecast methodology applicable to a mitigation project a developer wants to undertake, the developer will need to propose a forecast methodology. The Reserve will only issue FMUs for forecasted GHG reductions or removals quantified and confirmed under an approved forecast methodology.



Figure 3.1. Overview of the Forecast Methodology Approval Process

3.1 Methodology Approval Process Fees

Methodology Approval Fees	
Screening fee for new methodologies and modifications to Reserve-approved methodologies ²	\$7,500
Peer review fee for new methodologies and methodology revisions ³	Variable

3.2 Reserve Review

Once a forecast methodology has been submitted to the Reserve and the appropriate fees have been paid, the Reserve will conduct a review of the forecast methodology for adherence to forecast methodology requirements detailed in Section 3 of the Climate Forward Program Manual. Specifically, the Reserve will assess each of the following items:

1. Definition of the mitigation project
2. Start date
3. Demonstration of additionality
 - a. Meeting the Legal Requirement Test
 - b. Description and discussion of the performance standard test(s)
4. Description of market expansion focus
5. Discussion of environmental and social safeguards (if applicable)
6. Demonstration of ex ante suitability
7. Crediting period and rationale
8. Bundling and aggregation of Projects
9. GHG Assessment Boundary
10. Leakage accounting
11. Description and justification of chosen baseline scenario
12. Estimation of GHG reductions, including assumptions to ensure conservativeness
13. Ex Ante Risk Pool Contribution
14. Ensuring permanence (if applicable)
15. Project implementation and confirmation
16. Voluntary ongoing monitoring incentive
17. Confirmation activities

The Reserve will provide findings to the forecast methodology developer. The developer must respond to all findings, which may require amendment of the forecast methodology.

In recognition that the Reserve will not have sufficient experience or expertise regarding all of the types of forecast methodologies that could be submitted, the Reserve may engage with one (or more) third party technical experts to assist in assessing forecast methodologies for their adherence to program requirements.

² The methodology screening fee includes two rounds of internal review by the Reserve. The methodology screening fee may be increased for additional reviews, if necessary.

³ The cost for peer review is based on the cost of external third-party experts to participate in the evaluation of the methodology. These costs will be based on the complexity of the methodology and resulting time and expertise required for peer review.

3.2.1 Evaluation Criteria

The Reserve uses an internal evaluation process to evaluate submitted methodologies. The Reserve takes into consideration a number of issues when assessing a submitted methodology for use in the Climate Forward Program.

- How amenable is the methodology type to standardized additionality and baseline determinations? For some types of methodologies, it is difficult to credibly and accurately determine additionality and estimate baseline emissions on a standardized basis. In general, the Reserve encourages methodologies that can be widely applied and discourages methodologies for project types difficult to apply elsewhere. Alternatively, the Reserve may consider methodologies that incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of methodologies to address only activities and conditions for which standardized approaches are feasible.
- What are the total potential GHG reductions that could result from this type of methodology? As it takes significant effort and resources to produce a standardized forecast methodology, there should be a large and geographically diverse pool of potential reduction opportunities. Individual projects could vary in size, but the market potential for the methodology should be significant.
- Are there potential positive or negative environmental or social impacts from this type of methodology or the operations, facilities or sectors with which this type of methodology may be associated? Negative effects should be avoided. All else being equal, the Reserve will prioritize methodologies that can create significant co-benefits for the ecosystems and communities where projects take place. Where necessary, the Reserve will also consider developing additional criteria for ensuring environmental and social safeguards.
- Are there existing methodologies or protocols that could serve as a starting point? If so, have they been reviewed and/or approved by any regulatory (or other relevant) agencies? Standardized protocols are more easily developed where sound scientific methods already exist to determine baselines and quantify emission reductions. Methodologies that have been vetted by regulatory (or other relevant) agencies may be better suited for approval as mitigation measures.
- Are there high quality datasets to evaluate “business as usual” activities for the sector in which the methodology activity occurs? Are there high quality datasets to evaluate estimated GHG emission reductions/removal enhancements, abandonment rates, and project/equipment efficiency decay rates? Setting performance thresholds and other standardized tests for additionality requires defensible data on the current state of the sector. Additionally, crediting on an ex ante basis requires defensible data regarding projected performance for any given methodology.
- Does the methodology type create direct or indirect emission reductions? All else equal, the Reserve will focus on methodology types that result in direct reductions. Direct emission reductions are generally easier to quantify because the sites where they occur can be directly monitored. When emission reductions occur at sites or sources owned by the project proponent, there is also less risk that an entity other than the project proponent will claim ownership of the project activity. Thus, these types of

methodologies are less likely to be at risk for double counting, uncertainty in indirect emission factors, or ownership issues.

- What is the likelihood that the GHG reductions or enhancements resulting from the project type will be permanent? Permanence under an ex-ante crediting framework is a critical issue. All else equal, the Reserve will prioritize methodologies that demonstrate a greater likelihood of GHG reductions/enhancements being permanent.
- Does the methodology have characteristics that make it unsuitable for traditional offset programs? This Program is intended to expand the scope of GHG mitigation projects that are feasible beyond the opportunities offered by the existing carbon market. All else equal, the Reserve will prioritize methodologies that demonstrate a need for new incentives and programs beyond the existing carbon market.
- Does the methodology type require ongoing management decisions for success (e.g., reduced nitrogen application on cropland)? If so, are the barriers to those ongoing operating decisions low or high? Priority will be given to methodologies that can be expected to continue through the entire crediting period without additional incentive or intervention.

4 Technical Expert Forecast Methodology Review

4.1 Technical Expert Qualifications

The Reserve may seek additional technical expertise for the evaluation of some methodologies. To serve as a technical expert, the candidate must submit a comprehensive curriculum vitae demonstrating that they possess at least five years combined of relevant work and academic experience in the following:

- Developing or verifying projects and/or validating methodologies for the forecast methodology sector
- Developing methodologies/protocols for the forecast methodology sector
- Evaluating additionality, baselines, secondary effects (environmental and social impacts), leakage, permanence, GHG assessment boundaries, GHG emissions quantification, modeling, project operation risks, and monitoring for forecast methodology sector
- Demonstrating a working command of current standards and best practices as they relate to carbon projects developed within the forecast methodology sector

The Reserve retains full and exclusive rights to determine whether an individual meets the aforementioned requirements to serve as a technical expert.

4.2 Conflict of Interest

When conducting technical expert forecast methodology review for the Reserve, individuals must work in a credible, independent, nondiscriminatory and transparent manner. A conflict of interest (COI) is defined as any situation that compromises an individual's ability to perform a wholly independent review of the forecast methodology. In order to ensure the credibility of the GHG Mitigation Program, it is crucial that the forecast methodology review process be completely independent. Conflict of interest is a difficult and dynamic issue and is therefore assessed by Reserve staff on a case-by-case basis. The technical expert must submit a *Technical Expert Conflict of Interest Review Form* for Reserve review and approval.

4.3 Expectations of Technical Expert Review

Once the Reserve has determined that a technical expert is required for the review of a given proposed forecast methodology and selected an appropriate expert, the technical expert must fulfill each of the following requirements:

4.3.1 Definition of Mitigation Project

The technical expert shall review the description provided in the proposed forecast methodology of the type of activity (or activities) that constitute a proposed mitigation project. The technical expert shall assess whether the definition is sufficiently specific regarding eligibility criteria (such as location, pre-existing conditions, etc.) and any exclusionary conditions that would preclude a mitigation project from being eligible.

4.3.2 Mitigation Project Start Date

The technical expert shall review the definition provided in the proposed forecast methodology for appropriate actions that constitute a mitigation project's start date. The expert shall assess

whether the action(s) delineating a specific mitigation project being implemented are appropriate to begin quantifying GHG emission reductions associated with the mitigation project from that point on.

4.3.3 Crediting Period

The technical expert shall review the proposed crediting period. The crediting period is the period of time during which the mitigation project's GHG emission reductions are quantified and eligible to be confirmed and issued FMUs. This crediting period must be supported with analysis and data, which the technical expert shall review to assess whether the proposed crediting period is appropriate.

4.3.4 Baseline Scenario

The technical expert shall review the proposed forecast methodology's description of the baseline scenario for appropriateness and accuracy. The technical expert shall assess whether the baseline scenario accurately describes the current standard practice in the applicable geographic region for the applicable sector.

4.3.5 Performance Standard Test

The technical expert shall review the proposed forecast methodology's description of the performance standard test, as well as the forecast methodology's background and justification on the development of the specified performance standard test. The technical expert shall assess whether the performance standard test in the forecast methodology satisfies the requirements described in the GHG Mitigation Registry Program Manual. Specifically, the technical expert shall assess whether the performance standard test accurately and comprehensively screens out activities that would have been implemented irrespective of the incentive provided by the GHG Mitigation Registry program.

4.3.6 Legal Requirement Test

Forecast methodologies must describe the legal environment affecting the proposed forecast methodology sector. The technical expert shall review this description to assess (to the best of their knowledge) that the evaluation of federal, state, jurisdictional, local regulations or other legally binding mandates is comprehensive and accurate, and that these legally binding mandates do not require the proposed activity.

4.3.7 GHG Assessment Boundary

The technical expert shall review the GHG assessment boundary for comprehensiveness and accuracy. The technical expert shall assess whether all material GHG emission sources, sinks, and reservoirs (SSRs) have been included, and whether the explanation of excluded SSRs is reasonable.

4.3.8 Environmental and Social Safeguards

Forecast methodologies under this program must not cause material adverse environmental, social, or economic impacts. In their review, the technical expert shall assess whether the narrative provided in the forecast methodology provides a comprehensive description of the potential adverse environmental, social, or economic impacts. The technical expert shall also assess whether the actions required to avoid those identified impacts by mitigation projects being implemented in accordance with the forecast methodology are sufficient.

4.3.9 Quantification Methodology

The technical expert shall review the proposed quantification methodologies for both baseline and project GHG emissions. The expert shall assess the appropriateness of the forecast methodology's calculation models, default factors (if any), and data sources being used. The technical expert shall review and confirm the appropriateness of project performance efficiency and project abandonment rate assumptions.

4.3.10 Permanence

Some types of mitigation projects cause GHG emission reductions by removing CO₂ from the atmosphere and storing it in a reservoir (i.e., carbon sequestration). In these cases, the forecast methodology must describe the risk for reversal associated with the Mitigation project type, and address risk mitigation efforts through a discount on quantified GHG emission reductions. The technical expert shall review this description of risk and determine whether the risks are comprehensively and accurately described, and whether the approach for mitigating those risks is appropriate.

4.3.11 Project Resilience Measures

Forecast methodologies are required to identify risk factors that negatively affect project performance or cause project abandonment, and describe Project Resilience Measures that, when implemented, mitigate those risks. The technical expert must review the identified project risk factors for comprehensiveness and appropriate risk characterization. The technical expert shall also assess whether proposed Project Resilience Measures sufficiently and comprehensively address the identified risks to the project.

4.3.12 Project Implementation Report and Project Documentation

Forecast methodologies must describe the information and data required for projects to submit as part of the Project Implementation Report as well as any other documentation and data required for project confirmation. The technical expert is required to assess whether the Project Implementation Report and other project documentation and data required for reporting is appropriate.

4.3.13 Implementation Confirmation Activities

Proposed forecast methodologies must describe the criteria and activities that should be undertaken by an accredited Confirmation Body to confirm that mitigation projects have been implemented as described by the forecast methodology. The technical expert shall review the description provided in the forecast methodology of the types of data and documentation the Confirmation Body shall review, as well as what criteria and activities the Confirmation Body shall confirm while on site. The technical expert shall assess whether these criteria, data, and activities are sufficient to confirm that the mitigation project has been implemented in accordance with the requirements of the forecast methodology and the Confirmation Manual.

4.4 Technical Expert Report

Technical experts shall document their assessment of the proposed forecast methodology in a written report. This report shall address each of the sections listed above and the technical expert's opinion on whether the forecast methodology presents an approach to estimating emission reductions from the mitigation projects that is in line with this program's principles and reflects the latest scientific understanding and sector-based best practices.



“When is it Defensible to Mitigate CEQA GHG Emissions Impacts with GHG Credits?”

Craig Ebert, President

AEP Annual Conference | March 26, 2019

CLIMATE FORWARD ➤

ALWAYS!!!!

Climate Action Reserve: a nonprofit dedicated to market based solutions to climate change

CLIMATE FORWARD ➤

GHG Accounting Experts

- Pioneered standardized GHG accounting, leading to robust, reliable, and transparent compliance and voluntary carbon markets
- 78% of North American offset credits used by companies and individual in 2017 in the voluntary market* are issued by the Reserve
- Design innovative GHG accounting frameworks that are user-friendly, and financially feasible

Beyond Carbon Offsets

- Climate Forward
 - Climate Impact Score
 - GHG policy consulting
 - Mexico
 - Ontario
 - Quebec
 - World Bank, USDA, USAID
 - California agencies, and more



CLIMATE
ACTION
RESERVE

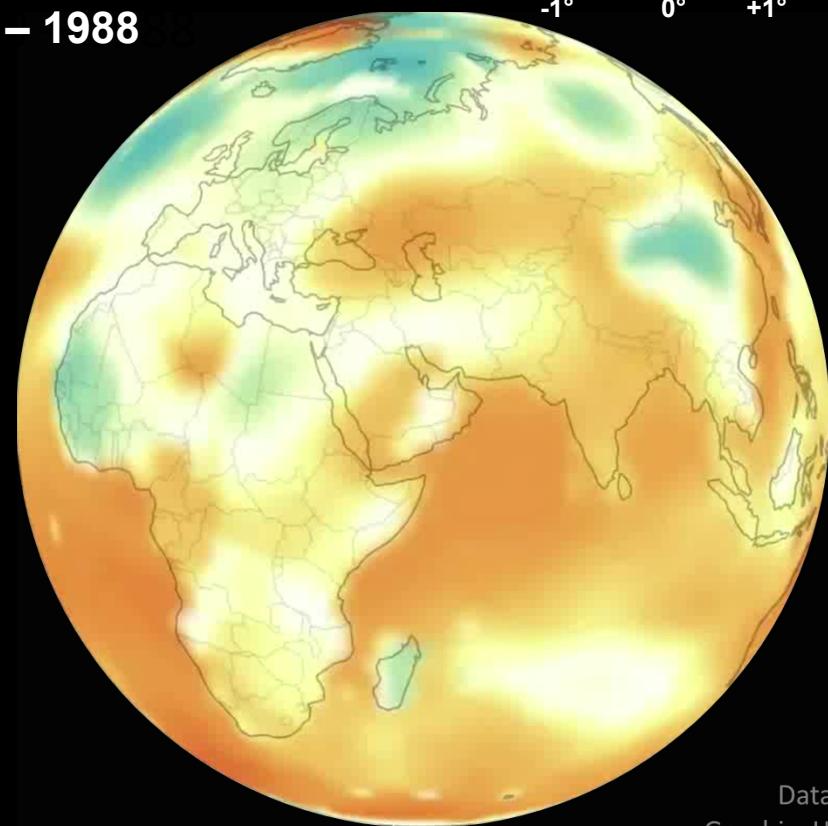
*Ecosystem Marketplace 2018 data

Global Temperature Anomaly

1901 – 2000 baseline (°F)



1959 – 1988



1988 – 2017

Data: NASA/GISS
Graphic: Harry Stevens/Axios

Strategies for reducing GHGs

- Maximize reductions onsite
- Offsite options include:
 - Offset credits
 - LCFS credits
 - Ex ante credits—Climate Forward

CLIMATE FORWARD ➤

A new market option to
accelerate climate action

Basic rationale for Climate Forward

You created the GHG emissions, you should be
responsible for mitigating those GHG emissions!

Accelerating climate mitigation solutions: Climate Forward

CLIMATE FORWARD ➤



Enables companies to invest now in emissions reduction projects with high environmental integrity to mitigate future emissions

- **Credits recognized today to address future impacts**



Expands the scope and scale of feasible climate action across the economy

- **Enormous potential for diverse, creative climate solutions**



Issues Forecasted Mitigation Units (FMU) to projects that follow Reserve-approved methodologies

- **1 FMU = one metric ton of anticipated CO₂e reduction, to counter anticipated GHG emissions**



Tracks FMUs and project activities in a publicly accessible database

- **A registry of forward-looking GHG reductions to balance against forward-looking GHG impacts**

Climate Forward audience

CLIMATE FORWARD ➤

Companies and organizations mitigating future emissions

- Companies seeking CEQA compliance
- Any new investment creating GHGs
- Not appropriate for addressing current emissions in a compliance program
 - e.g., cap-and-trade
- Not appropriate for any company or organization mitigating historical emissions
 - Cannot mitigate past emissions with future actions

Examples of future mitigation needs

- New manufacturing facility
- New data center
- New retail complex
- New residential/commercial developments
- New transportation projects

How does it work?

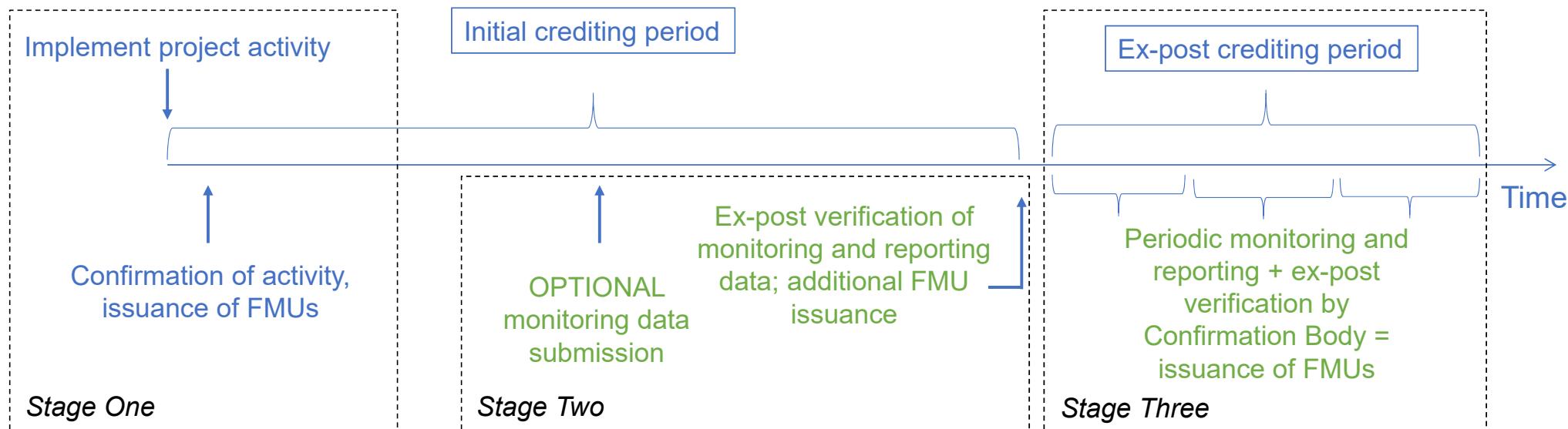
- Methodologies are proposed by a third party
 - Any credible mitigation concept is acceptable
 - CAR evaluates to ensure conservative recognition of credits and approves methodology
- Project proponent (company) invests in project consistent with approved methodology
- Once project is up and running, CAR requires a confirmation body to confirm whether the project is performing according to methodology
- Initial credits (Forecasted Mitigation Units, or FMUs) are issued, typically within first year or so of operation

How does it work (continued)?

- Project proponent does not have to continue to monitor
 - CEQA often does not require it
- Ongoing monitoring is encouraged, however, to earn back additional FMUs
 - Additional credits may be available given initial conservative issuance of FMUs
 - After initial issuance, Monitoring and Verification (M&V) approach is similar to offsets, i.e., ex post recognition
- Crediting period is methodology specific
- Public registry tracks transaction of credits in a transparent, accessible system

Voluntary transition to ex-post credit issuance

- After completion of ex-ante crediting period, **projects may opt to receive ex-post FMUs** upon project renewal and ongoing monitoring, reporting, and verification
- Projects that opt-in to the voluntary incentive program are eligible for this option



Key objectives of Climate Forward

- Help unlock local investment opportunities
- Encourage projects with co-benefits, including health benefits
- Generate additional carbon credits not readily accessible through existing programs
- Seek methodologies with broad geographic applicability

ACCELERATE CLIMATE ACTION NOW—WE ARE OUT OF TIME!

How to take Climate Forward action

- 1) **DECIDE** to mitigate your future emissions
- 2) **VIEW** program documents available online at
<http://www.climateactionreserve.org/climate-forward/>
- 3) **DEVELOP & SUBMIT** innovative methodologies across multiple sectors
- 4) **INVEST** in projects now. Contact the Reserve to explore and be connected with project opportunities
- 5) **SIGN UP** for our monthly newsletter to stay up to date on program news by emailing info@climateforward.org

Thank you!

CLIMATE FORWARD ➤

Contact us any time at:
info@climateforward.org



A New Market Option to Accelerate Climate Action

June 18, 2019

GHG Accounting Experts

- Pioneered standardized GHG accounting, leading to robust, reliable, and transparent compliance and voluntary carbon markets
- 78% of North American offset credits used by companies and individuals in 2017 in the voluntary market* are issued by the Reserve
- Design innovative GHG accounting frameworks that are user-friendly, and financially feasible

Beyond Carbon Offsets

- Climate Forward
 - Climate Impact Score
 - GHG policy consulting
 - Mexico
 - Ontario
 - Quebec
 - World Bank, USDA, USAID
 - California agencies, and more



CLIMATE
ACTION
RESERVE

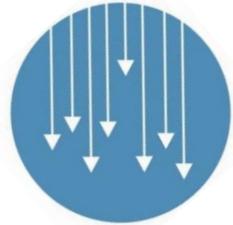


**WE ARE RUNNING OUT OF
TIME**

**MORE STRATEGIES AND
INVESTMENTS IN CLIMATE
MITIGATION IS NEEDED**

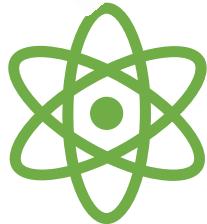
**ALL FUTURE PROJECTS THAT
INCREASE GREENHOUSE GASES
SHOULD BE
*CARBON NEUTRAL***

Climate Forward



Invest now in emissions reduction projects to mitigate future emissions

- **Credits recognized today to address future impacts**



Expands the scope and scale of feasible climate action across the economy

- **Enormous potential for diverse, creative climate solutions**



Issues Forecasted Mitigation Units (FMU) to projects that follow Reserve-approved methodologies

- **1 FMU = one metric ton of anticipated CO₂e reduction, to counter anticipated GHG emissions**



Tracks FMUs and project activities in a publicly accessible database

- **A registry of forward-looking GHG reductions to balance against forward-looking GHG impacts**

Who should use Climate Forward?

Companies and organizations mitigating future emissions

- Any new investment creating additional GHGs
- Not appropriate for addressing current emissions in a compliance program
 - e.g., cap-and-trade
- Not appropriate for mitigating historical emissions
- Companies seeking CEQA compliance

Examples of future mitigation needs

- New manufacturing facility
- New transportation projects
- New data center
- New retail complex
- New residential/commercial developments
- Future needs from current investments

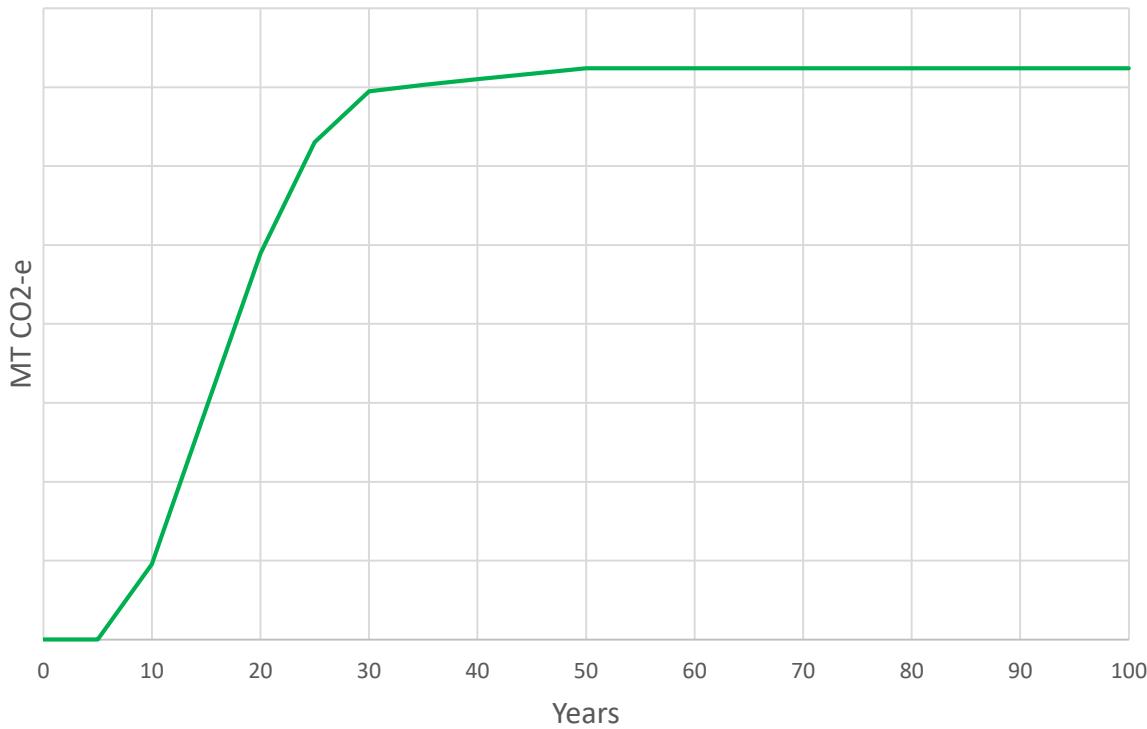
Why forward crediting?

A new paradigm, reducing barriers to entry for innovative, targeted climate solutions that can also achieve sustainability goals beyond climate impacts

- Customized climate projects with specific *co-benefits* tailored to align with organizational goals and values
 - *Local* projects in communities directly affected by operations
 - New opportunities: demonstrate climate *leadership*

Case Study: Reforestation

Reforestation Carbon Accrual



High upfront costs due to labor intensive tree planting and site preparation

+

Many years before significant carbon recognition

=

Project type is not financially feasible

Case Study: Reforestation

Project Cost Assumptions	
Project Area (acres)	20
Trees Per Acre	\$300
Cost for Planting per Tree	\$1
Planting per Acre Costs	\$300
Site Preparation	\$150
Ex Post Buffer Pool Contribution	20%

Project Revenue Assumptions	
CRT Price	\$10
FMU Price	\$10
Discount Rate	5%
Net Present Value	Offsets: \$(48,821.99)
	Climate Forward: \$655.24
Net Present Value per Acre	Offsets: \$(2,441.10)
	Climate Forward: \$32.76

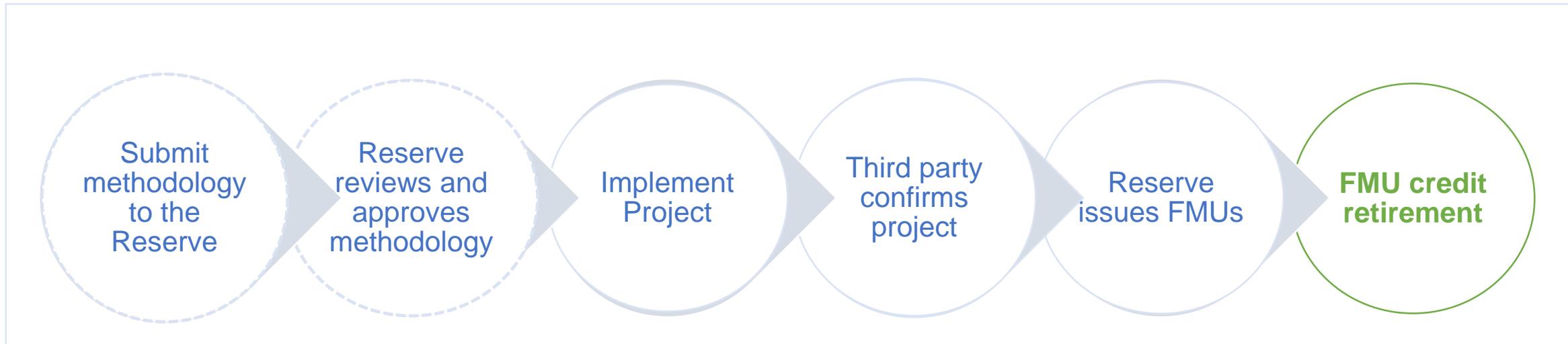
Unlike existing offset frameworks, reforestation projects under Climate Forward can be financially feasible

Program Details

Pilot Phase

- Started in early 2017
- Began with a diverse batch of project ideas
 - Cook Stoves
 - Solar PV
 - Dairy Digester
 - Forestry
 - Pool Covers
- Informed design of critical program elements
- Current “Version 1.0” methodologies out for public comment based on methodologies developed in pilot phase

Process Overview



- Project proponents can develop projects using existing methodologies
- Methodologies provide standardization across project type and can be customized to enable unique place based projects
- 1 FMU = one metric ton of anticipated CO₂e reduction, to counter anticipated GHG emissions

Environmental Integrity

Program Level	<ul style="list-style-type: none">• Methodology Suitability Screening• Programmatic Risk Pool• Guidance on Appropriate Use of FMUs
Methodology Level	<ul style="list-style-type: none">• Conservative Quantification Assumptions• Conservative Crediting Period• Performance Decline Deduction• Abandonment Deduction
Project Level	<ul style="list-style-type: none">• Project Resilience Measures• Project Confirmation Timing

Project Monitoring and Confirmation

CLIMATE FORWARD ➤

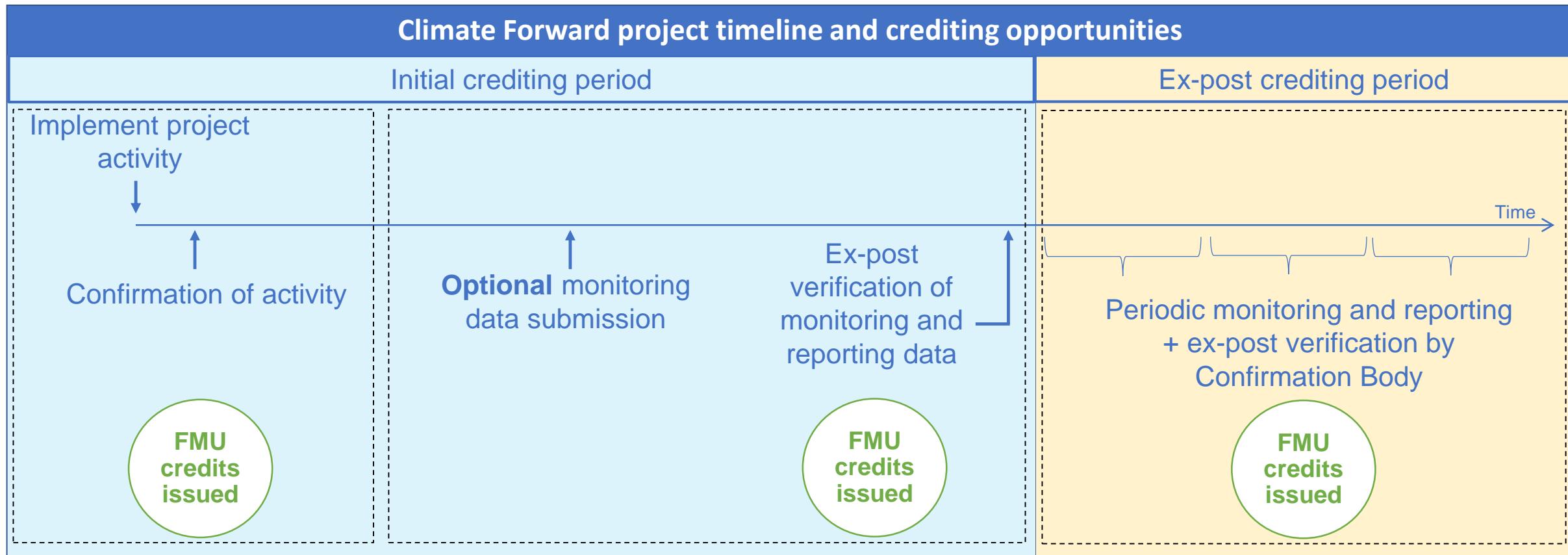
- No ongoing monitoring requirement
 - Voluntary monitoring incentive
- One time “Project Implementation Report”
 - Project inputs, project information, and quantification
- One time project “Confirmation”
 - Confirmation Bodies: ISO14065 accredited VVBs + additional Reserve requirements
 - Confirmation against approved methodology and program rules



Voluntary Transition to Ex Post Credit Issuance

CLIMATE FORWARD ➤

- After completion of ex-ante crediting period, **projects may opt to receive ex-post FMUs** upon project renewal and ongoing monitoring, reporting, and verification
- Projects that opt-in to the voluntary incentive program are eligible for this option



How to take Climate Forward action

1. **COMMIT** to mitigating your future emissions
2. **VIEW** program documents available online at
<http://www.climateactionreserve.org/climate-forward/>
3. **DEVELOP & SUBMIT** innovative methodologies
4. **INVEST** in projects now. Contact the Reserve to explore and be connected with project opportunities
5. **SIGN UP** for our program newsletter at <https://climateforward.org/sign-up/>

Thank you!

Contact us: info@climateforward.org

Upcoming methodology webinars

- **Improved Cook Stove Forecast Methodology v1.0 Public Webinar**
Thursday, June 20, 2019
9:30 am - 11:00 am PT
- **Dairy Digester Forecast Methodology v1.0 Public Webinar**
Wednesday, June 26, 2019
9:30 am - 11:00 am PT
- **Solar PV Forecast Methodology v1.0 Public Webinar**
Thursday, June 27, 2019
9:30 am - 11:00 am PT

All webinars will be recorded and posted on <https://climateforward.org/resources/presentations/>

U.S. Forest Offset Projects



May 30, 2019

Overview of the Compliance Offset Program

- Small part of Cap-and-Trade Program that incentivizes reductions or sequestration of greenhouse gases in sectors not covered by the cap
- Distinct and separate from voluntary offset programs
- Per AB 32, all offset credits must be real, permanent, quantifiable, verifiable, enforceable, and additional
- Results in multiple co-benefits, including cost-containment
- Current Board-Approved Compliance Offset Protocols
 - U.S. Forest Projects
 - Ozone Depleting Substances Projects
 - Livestock Projects
 - Mine Methane Capture Projects
 - Rice Cultivation Projects
 - Urban Forest Projects

Overview of the U.S. Forest Protocol

- Requirements for estimating increased sequestration of carbon in trees
- Requirements for natural forest management and sustainable harvesting practices
- Requirements for calculating reversal risk rating and forest buffer pool contribution
- Requirements for long-term monitoring, reporting, and verification
- Project types:
 - Improved Forest Management
 - Avoided Conversion
 - Reforestation

U.S. Forest Projects

- A forest offset project is a planned set of activities that increases carbon storage in trees or prevents the loss of carbon stored in trees, compared to what would have occurred in the forest absent project activities
- For an Improved Forest Management project, these activities would include:
 - Increasing rotation ages (timing between harvest)
 - Increasing productivity by thinning diseased and suppressed trees
 - Increasing productivity by managing brush and short-lived forest species
 - Increasing stocking on understocked areas (planting more trees)

Quantification of Stored Carbon

- Offset credits are awarded to forest projects for the difference between the carbon in trees using a conservative business-as-usual baseline and the actual carbon in trees
- This requires rigorous:
 - Estimates of the amount of carbon in trees
 - Development of a project baseline
 - Estimates of harvest volumes
 - Estimates of long-term storage in wood products
 - Estimates of leakage
 - Verification of increased sequestration of carbon in trees

Quantifying the Carbon in Trees

- Projects must estimate total amount of carbon stored in trees in the project area
- It is not physically possible to weigh or measure every tree
- Statistical methods help assure an accurate carbon inventory
 - Plots – a subset of trees are selected systematically or randomly for sampling
 - Volumes – measured diameters and heights are used with Board-approved equations to calculate the volume of all trees in the plots
 - Carbon – derived from equations used to convert volumes into carbon
 - Expansion Factor – since only a subset of trees were measured, each tree represents numerous other trees
- Confidence deduction to account for measurement uncertainty

Determining the Project Baseline

- Baseline establishes a conservative business-as-usual scenario
- Must incorporate all legal constraints that could affect growth and harvesting scenarios (e.g., Endangered Species Act protections, stream protection requirements, other timber retention requirements)
- Must demonstrate the baseline growth and harvesting regime is financially feasible
- Must be higher than carbon storage in trees on neighboring properties (determined using U.S. Forest Service data)
- Modeled over 100 years using growth and yield models included in the Protocol



Accounting for Harvests

- Annual inventory must account for harvesting
 - Identify project areas that were harvested and update carbon measurements
 - Subtract harvest volumes from inventory
- Provide documentation of actual harvest volumes annually
- Estimate the amount of carbon that will remain stored in wood products over 100 years
 - Conservative estimates to account for uncertainties

Accounting for Leakage

- Leakage is a quantification of emissions (harvesting) that move to other properties as a direct result of implementing the Protocol
- If fewer trees are cut in the project, demand for wood products will likely cause increased harvest on other properties
- Protocol accounts for this in two ways:
 - Activity-shifting leakage – the shifting of harvest activities from within the project boundaries to areas outside the project boundaries
 - Market-shifting leakage – the increase of harvest activities outside the project's boundaries as a result of the project's effects on market demand (wood products)

Leakage Equations in the Protocol

- Equation 5.10 Secondary Effects (2015 Forest Protocol)
 - Activity-shifting leakage
 - If actual harvests are less than baseline harvests, then leakage equal to 20% of the difference is subtracted from the offset credits issued
- Equation 5.1 (2015 Forest Protocol)
 - Market-shifting leakage
 - Leakage equal to 80% of the reductions in wood products is subtracted from the offset credits issued
- Leakage factors were determined through a robust public process based on best information available

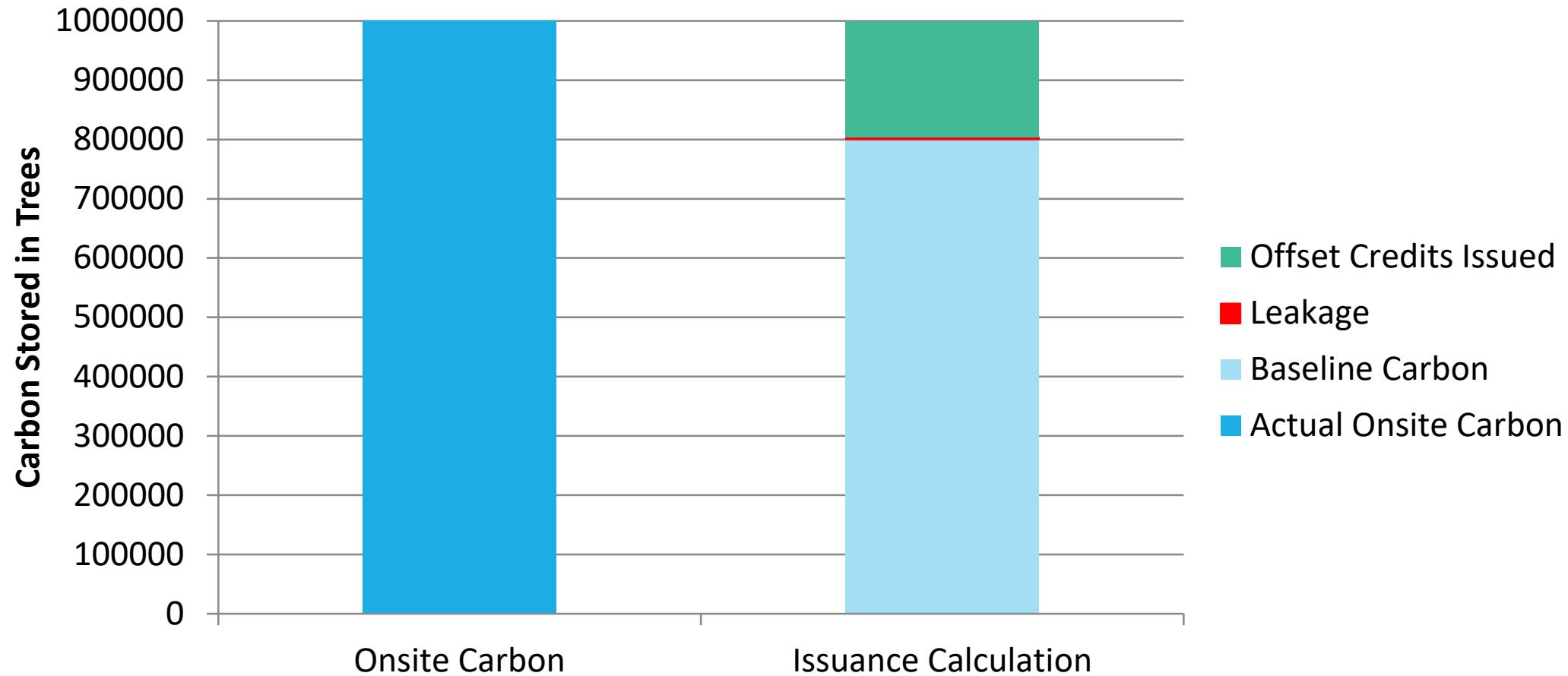
First Year Offset Credit Calculation

- Offset credits = (Actual stored carbon – Baseline stored carbon) – Market-shifting leakage – Activity-shifting leakage
- Baseline stored carbon = conservative 100-year averaged baseline value for carbon stored in trees (without project)
- Actual stored carbon = inventoried carbon in trees – harvest volumes
- Market-shifting leakage = emissions moving outside the project area as a result of wood products being supplied by another source (80% leakage rate)
- Activity-shifting leakage = emissions moving outside the project area as a result of harvests occurring on other forest lands (20% leakage rate)
- Difference between actual and baseline carbon stored on the project area is creditable because it is additional to business-as-usual and a direct result of better forest management practices
- After the first year, offset crediting is based on tree growth during the previous year minus harvest and leakage

Example: First Year Offset Credit Calculation

- Offset credits = (Actual stored carbon – Baseline stored carbon) – Market-shifting leakage – Activity-shifting leakage
- Baseline for the project:
 - Average carbon stored in trees on neighboring properties is 800,000 tons
 - 20,000 tons of carbon in trees would have been harvested
 - 4,500 tons of wood products would have been supplied
- Actual inventory shows project has 1,000,000 tons of carbon in trees
 - During the year, 10,000 tons of carbon in trees were actually harvested
 - Project actually supplied 2,000 tons of wood products
- Offset credits = $(1,000,000 - 800,000) - (80\% \times (4,500 - 2,000)) - (20\% \times (20,000 - 10,000))$
- Offset credits = 196,000 additional tons of carbon stored in trees

Can you explain first year offset crediting using a graph?



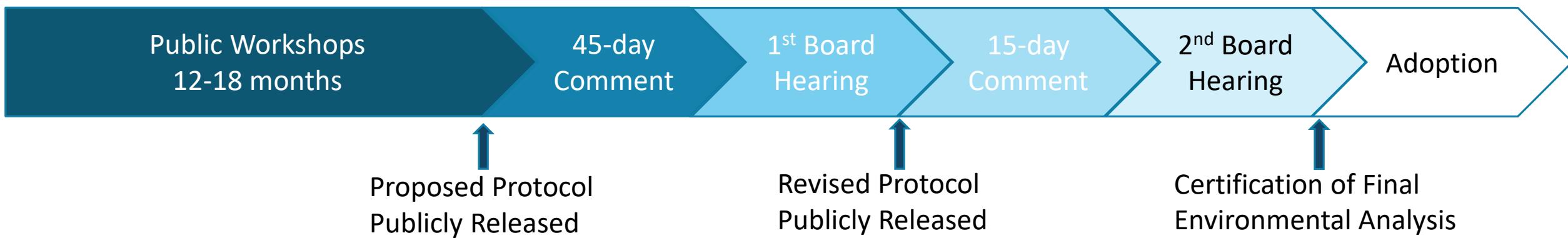
Offset Project Verification

- Every project must be verified by an ARB-accredited third-party verifier
 - Verifier accreditation requires training on the Regulation and Protocol as well as extensive forestry experience
 - Verification team required to have extensive technical expertise
 - After first verification, additional verifications required at least once every six years during project lifetime
- Prescriptive verification standards in the Protocol and Regulation
- Requires site visit for confirmation of inventory accuracy through sample remeasurement



Periodic Amendments to Reflect Latest Science

- Protocol has been amended twice since initial adoption
- This is done through a formal public process, which ensures all interested stakeholders are involved, that the most recent and relevant information and science is incorporated into the discussion, and that final adoption is conducted transparently in accordance with legal requirements
- The process is as follows:



Ensuring Permanence and Enforceability

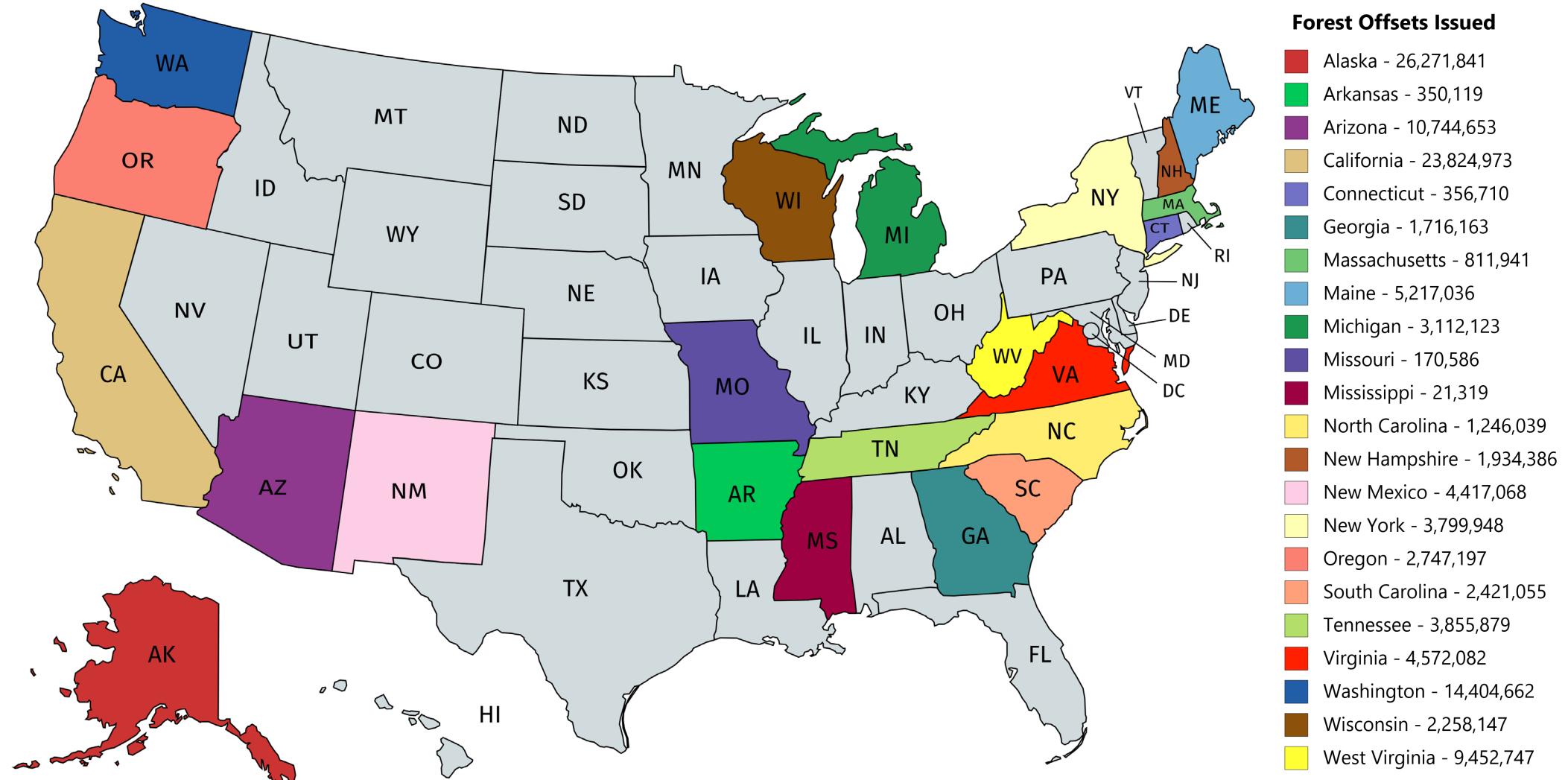
- Program requirements assure carbon will remain stored in trees for at least 100 years using three mechanisms:
 - Required monitoring reporting and verification for 100 years after credit issuance
 - Contribution to a buffer pool to compensate for unintentional reversals
 - Requirements for offset credit replacement by forest owners for intentional reversals
- All projects are subject to CARB regulatory oversight and enforcement actions
 - Subject to the jurisdiction of the State of California, including civil penalties
 - If an offset project is found to be out of regulatory conformance, CARB may invalidate any offset credits issued to the project and require them to be replaced

Courts have upheld the design of the Compliance Offset Program

- In 2012, CARB was challenged in a lawsuit contending the design of the Cap-and-Trade Regulation and Compliance Offset Protocols did not conform to statutory and regulatory requirements, particularly related to permanence and additionality
- **Results**
 - Trial court found CARB's design and implementation met AB 32
 - Appellate court found CARB's design and implementation met AB 32
 - California Supreme Court denied petition for review

Our Children's Earth Foundation v. California Air Resources Board (1st Dist. 2015) 234 Cal.App.4th 870 (upholding *Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board* (2012) Case No. CGC-12-519554; 2013 WL 861396) (petition for review by California Supreme Court denied June 10, 2015)

Forest Projects Across US



Does UC Berkeley policy brief accurately portray Forest Protocol leakage considerations?

No, the policy brief* misrepresents how leakage is accounted for in the Protocol

- Policy brief only identifies the 20% activity-shifting leakage in the Protocol, and asserts it should be 80% based on inapplicable studies
- Policy brief neglects to mention the 80% market-shifting leakage included in the Protocol
- These two mechanisms of assessing activity-shifting and market-shifting leakage ensure the Protocol conservatively accounts for leakage

*Dr. Barbara Haya, Policy Brief: [The California Air Resources Board's U.S. Forest Projects offset protocol underestimates leakage](#). Berkeley Carbon Trading Project Policy Brief, Center for Environmental Public Policy, Goldman School of Public Policy, UC Berkeley (May 2019)

Are cited leakage studies in the policy brief applicable to the Forest Protocol?

No, comparing the cited studies to the activities included in the Forest Protocol results in an apples-to-oranges comparison

- Both studies look at leakage effects as a result of conservation forestry
- Forest Protocol does not include conservation projects
- Conservation forestry severely restricts or eliminates harvesting, meaning any unmet demand for timber or wood products must come from other forests
- Forest Protocol requires an increase in carbon storage in trees, but places no additional restrictions on harvest volumes beyond what is already legally permissible
- This means that forest projects may continue to include harvesting (as long as carbon storage in trees increases). Allowing harvesting results in less leakage

Do leakage factors have a major impact on first year crediting?

No, contrary to the statements in the policy brief, the conservative leakage accounting does not have a major impact on crediting

- For the majority of projects, leakage has an insignificant impact on first year offset crediting, reducing crediting on the order of 2%
- Even using the overestimates of leakage proposed in the policy brief, leakage would still only reduce first year offset crediting on the order of 4%
- Leakage monitored for each year of a project's lifetime and will vary over time
- In addition, it is possible that over a project's lifetime, harvesting could equal or exceed baseline harvesting estimates
 - With better long-term management of the forest resources, actual harvesting may increase while maintaining or increasing carbon stock in trees
 - Would result in no leakage over the project lifetime

Should carbon stored above baseline in first year be considered “greenhouse gas debt”?

No, crediting is based on activities to date, not future performance

- Additional carbon stored in trees above the baseline is a result of actual good forest management and is not dependent on future actions
 - Does not represent an avoided harvest subject to leakage
 - Does not create a “greenhouse gas debt” as erroneously stated in the policy brief
- AB 32 requires CARB to recognize early actions taken to reduce GHGs
- Appropriate to issue offset credits for verified performance resulting in additional carbon sequestration
- If the policy brief were correct, there would be a massive increase in emissions outside the project area simply as a result of implementing a carbon project
 - If that were true, this would mean that areas outside the project spontaneously increased their harvest without any supply or demand signal. This simply does not occur

Is leakage only monitored for 25 years?

No. The policy brief misunderstands how leakage is monitored

- The Protocol is clear that projects must continue to monitor, report, and verify for 100 years after the last offset credits have been issued, so this is a minimum 125-year commitment
- Section 3.5(b)(1) of 2015 Forest Protocol:
 - *The requirement for all offset projects to monitor onsite carbon stocks, submit annual Offset Project Data Reports, and undergo third-party verification of those reports with site visits at least every six years for the duration of the project life;*
 - Moreover, this question is not relevant to the leakage issue since projects do not begin in “greenhouse gas debt” (see previous slide)

Does the policy brief merit Protocol changes?

No, the policy brief continues to make the same inaccurate assertions that were ruled on by the courts, and is premised on an incorrect analysis of leakage and of how the Protocol actually works

- Policy brief asserts the overall leakage rate should be 80%, but cites to two studies that are not applicable to the activities of the Protocol. This assertion does not accurately characterize the leakage considerations in the Protocol, leading the policy brief to overstate the impact of leakage on project crediting
- Policy brief asserts the Protocol's mechanism for crediting should result in a "greenhouse gas debt," but misunderstands how the first year of crediting is actually conducted based on activities undertaken by forest owners
- Policy brief misunderstands that leakage is monitored over the entire project lifetime

Next Steps

- Continued implementation of the Compliance Offset Program pursuant to existing statutory and regulatory requirements, including taking oversight and enforcement actions when necessary
- Commitment to conduct periodic reviews of Forest Protocol and other Protocols to reflect latest science and other information, including any updates in leakage values
- Any updates to the Forest Protocol, or any other Protocol, will undergo robust, transparent, open public process