

Attachment GR.R1.1

PREFACE

This Preface describes the contents of Attachment GR.R1.1, which contains supporting materials for the information and analysis presented in the Village 13 Project EIR's Global Response R1: Carbon Offsets. The Preface is followed by a hyperlinked Table of Contents, which organizes Attachment GR.R1.1's supporting materials in alphabetical order.

As shown in the Table of Contents, Attachment GR.R1.1 contains documentation associated with the American Carbon Registry, Climate Action Reserve and Verra, the three carbon offset registries recognized by the Village 13 Project EIR's mitigation framework for the reduction of greenhouse gas emissions. The registry-sourced materials include, but are not limited to, information relating to the permanence and verification of carbon offsets. As to the Climate Action Reserve, the Attachment also contains relevant information regarding its Climate Forward program.

Two County-prepared white papers also are included in Attachment GR.R1.1. These white papers address: (1) the use of "buffer pools" by each carbon offset registry to help ensure the permanence of greenhouse gas reductions affiliated with carbon offsets (see "Registry-Administered Buffer Pools and Similar Programs" in the Table of Contents); and, (2) the processes utilized by each registry to develop and update carbon offset protocols and methodologies, which include public and expert outreach and consultation (see "Registry-Administered Protocol/Methodology Development Processes" in the Table of Contents).

Further, Attachment GR.R1.1 contains pertinent judicial decisions, including the Fourth District Court of Appeal's *Sierra Club v. County of San Diego* decision (Case No. D075478), and an article recently published by the Association of Environmental Professional's Climate Change Committee addressing the use of carbon offsets as effective CEQA mitigation. The Attachment also contains pertinent background information published by the California Air Resources Board and the California Natural Resources Agency.

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American Carbon Registry,

“ACR Validation and Verification Standard,”
Version 1.1 (May 2018)

“Buffer Pool Account Balance” Webpage

Verification Statement and Report for the Bluesource – Hawk Mountain
Improved Forest Management Project (2020)

Association of Environmental Professionals

“Open the Golden Door to International Carbon Credits!” (2020)

AEP Climate Change Committee Member Biographies

California Air Resources Board

Excerpts from “Proposed Regulation to Implement the California Cap-and
Trade Program, Part I, Volume I, Staff Report: Initial Statement of Reasons”
(2010)

Letters to California Department of Fish and Wildlife regarding the
Newhall Ranch Project (2016 & 2017)

“U.S. Forest Offset Projects” Presentation (May 30, 2019)

California Natural Resources Agency, Excerpts from “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)

Climate Action Reserve,

“About Us” Webpage

“Project Verification Statement” Template

“Reserve FAQs” Webpage

“Verification Policies Acknowledgement and Agreement” Template

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Verification Statement and Report for the Alder Stream Preserve Project
(2014)

Climate Forward,

“About” Webpage

“A New Market Option to Accelerate Climate Change” Presentation (June
18, 2019)

“Climate Forward Confirmation Manual,” Version 1.0 (November 2018)

“Forecast Methodology Approval Manual,” Version 1.0 (November 2018)

“Program and Project Forms” Webpage

“Project Confirmation Statement” Template

“When is Defensible to Mitigate CEQA GHG Emissions Impacts with GHG
Credits?” Presentation (March 26, 2019)

Friends of the Santa Clara River v. County of Los Angeles (Case No. BS 170568)
(December 19, 2018)

Registry-Administered Buffer Pools and Similar Programs

Registry-Administered Protocol/Methodology Development Processes

Sierra Club v. County of San Diego (Case No. D075478) (June 12, 2020)

Verra,

“Methodology Approval Process,” Version 4.0 (September 19, 2019)

“Not the Full Story” Webpage

“Registration and Issuance Process,” Version 4.0 (September 19, 2019)

“The VCS Program” Webpage

“VCS Joint Validation & Verification Report Template”

“VCS Verification Report Template”

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Verification Report for the Bethlehem Authority Improved Forest Management Project (2016)

ACR VALIDATION AND VERIFICATION STANDARD

VERSION 1.1

May 2018

ACR VALIDATION AND VERIFICATION STANDARD

VERSION 1.1

May 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®
AFOLU	Agriculture, Forestry, and Other Land Use
ANSI	American National Standards Institute
ARB	Air Resources Board (California)
CH ₄	Methane
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
ERT	Emission Reduction Ton
GHG	greenhouse gas
GIS	Geographic Information System
ISO	International Organization for Standardization
OPR	Offset Project Registry
IPCC	Intergovernmental Panel on Climate Change
IAF	International Accreditation Forum
N ₂ O	nitrous oxide
PDA	Programmatic Development Approach
PFC	Perfluorocarbon
QA/QC	quality assurance/quality control
SSRs	sources, sinks, and reservoirs
VVB	Validation/Verification Body

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INTRODUCTION

The American Carbon Registry® (ACR) is a leading carbon offset program with 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 (ARB) 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 ARB.¹ The ACR Standard and the ACR Validation and Verification Standard govern only the registration of projects under ACR-approved methodologies.

THE ACR VALIDATION AND VERIFICATION STANDARD

This document details the required validation and verification requirements that every GHG project must undergo in order for ACR to register its GHG emission reductions/removal enhancements as serialized Emission Reduction Tons (ERTs). ACR requires both validation and verification by a competent, independent, International Organization for Standardization (ISO) 14065-accredited third party that it has approved, at intervals as specified in the ACR Standard or the ACR approved methodology. This document is intended to guide validation and verification bodies (VVBs), and may also be used by Project Proponents to inform their understanding of what validation and verification will entail.

This document addresses only the validation and verification requirements for project-based GHG emission reductions and removals. It is meant to be applicable across a range of different eligible project types, rather than providing specific guidance for every type of project for which ACR has an approved methodology. Additional validation and verification guidance for specific

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>.

project types is given in the relevant methodologies and guidance documents (if applicable). Definitions of terms used in this document can be found in the ACR Standard.

Last, please note that this document does not address requirements for verification of projects developed using the ARB compliance offset protocols and submitted for OPR listing on ACR. Requirements for verification of compliance offset projects are given in the Final Regulation Order: California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (Subchapter 10, “Climate Change,” Article 5, Sections 95801 to 96022, Title 17, California Code of Regulations) and in the relevant ARB Compliance Offset Protocols.² Verifiers of California compliance offset projects must be accredited by ARB.

APPLICABILITY

ACR-approved VVBs conducting validations and/or verifications on behalf of ACR shall include this document in addition to the ACR Standard and an ACR-approved methodology as audit criteria.

The ACR Validation and Verification Standard Version 1.1 supersedes the ACR Validation and Verification Standard, Version 1.0 (February 2018), and must be used as criteria for any project validation or verification commencing after August 1, 2018.

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** Objectives and scoping elements for validation
- Chapter 2** How to validate project boundaries
- Chapter 3** How to validate project baselines
- Chapter 4** How to validate additionality
- Chapter 5** How to validate quantification methods
- Chapter 6** How to validate other eligibility criteria, such as start dates and Crediting Periods
- Chapter 7** Requirements for developing and submitting a validation report
- Chapter 8** Objectives and scoping elements for verification

² See <https://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm>.

- Chapter 9** Activities to be performed while conducting a verification
- Chapter 10** Verification of aggregated or programmatic develop approach projects
- Chapter 11** Requirements for quality assurance and quality control
- Chapter 12** Requirements for developing and submitting Verification Statements and reports.
- Chapter 13** Requirements for VVBs operating on behalf of ACR
- Appendix A** A list of normative references on which the ACR Validation and Verification Standard is based

CITATION

The appropriate citation for this document is American Carbon Registry (2018). The American Carbon Registry Validation and Verification Standard, version 1.1., Winrock International, Little Rock, Arkansas.

CHAPTER 1: VALIDATION OVERVIEW

This chapter summarizes the objectives and scoping elements of validation necessary to list a GHG Project Plan. ACR's validation requirements are built on the foundation of *ISO 14064-3:2006, Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions*.

1.A DEFINITION

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

1.B OBJECTIVES OF VALIDATION

The overall goal of third-party validation is to review impartially and objectively a GHG Project Plan against the requirements laid out in the ACR Standard and relevant methodology. The VVB must independently evaluate the project design and planning information, based on supporting documentation and GHG validation best practices.

The objectives of validation are to evaluate:

- Conformance to the ACR Standard;
- GHG emissions reduction project planning information and documentation in accordance with the applicable ACR-approved methodology, including the project description, baseline, eligibility criteria, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures;
- Reported GHG baseline, ex ante estimated project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

The VVB shall review any relevant additional documentation provided by the Project Proponent to confirm the project's eligibility for registration on ACR.

1.C SCOPE OF VALIDATION

Validation shall include examination of all of the following elements of a GHG Project Plan:

- Project boundary and procedures for establishing the project boundary;

- Physical infrastructure, activities, technologies, and processes of the project;
- GHGs, sources, and sinks within the project boundary;
- Temporal boundary;
- Description of and justification for the baseline scenario;
- Methodologies, algorithms, and calculations that will be used to generate estimates of emissions and emission reductions/removal enhancements;
- Process information, source identification/counts, and operational details;
- Data management systems;
- QA/QC procedures;
- Processes for uncertainty assessments; and
- Project-specific conformance to ACR eligibility criteria.

1.D INTERVAL OF VALIDATION

The ACR Standard requires validation of the GHG Project Plan once per Crediting Period, because the Project Plan remains valid for the duration of the Crediting Period. The length of the Crediting Period for different eligible project types is given in the ACR Standard or applicable methodology.

If using a programmatic development approach, new sites will need to undergo validation prior to issuance of ERTs. Validations for new sites shall occur during full verifications that include a site visit.

Agriculture, Forestry, and Other Land Use (AFOLU) projects that are a result of avoided emissions (e.g., fertilizer management) and that register less than 500 metric tons of ERTs annually are not required to conduct site visits if a VVB can reach a reasonable level of assurance through alternative methods. If the VVB cannot reach a reasonable level of assurance without visiting the project site(s), then it shall conduct a site visit as deemed necessary.

Renewal for another Crediting Period and/or updating the GHG Project Plan to apply a revised version of the applicable methodology requires re-validation.

If a Project Proponent aborts a validation after validation services have begun but before the VVB is able to reach a conclusion with a reasonable level of assurance, the VVB shall inform ACR in writing of the status of the validation and reasons why the validation has been aborted.

CHAPTER 2: VALIDATING PROJECT BOUNDARIES

The assessment of GHG project boundaries is a critical component of validation. Project boundaries must be clearly defined and transparently delineated in the GHG Project Plan. ACR defines GHG project boundaries to include the project's geographical implementation area, the types of GHG sources and sinks considered, the carbon pools considered (if applicable), and the project duration. For more information on determining and memorializing project boundaries, please refer to Chapter 2 of the ACR Standard.

2.A PHYSICAL OR GEOGRAPHIC BOUNDARY

To validate project boundaries, the VVB shall confirm through a field visit, visual and/or photographic evidence, maps, Geographic Information System (GIS) files, operating logs, and/or interviews with site operations personnel the accuracy of the project boundaries as defined in the GHG Project Plan.

2.B GHG ASSESSMENT BOUNDARY

Because the project boundary includes the types of GHG sources and sinks considered and the carbon pools considered (if applicable), the VVB must evaluate the rationale presented in the GHG Project Plan for the correct inclusion/exclusion of relevant GHG sources, sinks, and reservoirs (SSRs), including the justification given for excluding particular SSRs as de minimis or conservative, and confirm that this is consistent with the GHG assessment boundary section of the chosen methodology. The VVB shall confirm that the guidance in the ACR Standard and the chosen methodology have been applied regarding significance testing, de minimis exclusions, and a priori exclusions of particular SSRs.

2.C TEMPORAL BOUNDARY

Because the project boundary includes the project duration, the VVB must evaluate whether the Start Date, Crediting Period, and project term proposed in the GHG Project Plan are consistent with the ACR Standard, chosen methodology and evidence presented by the Project Proponent.

CHAPTER 3: VALIDATING PROJECT BASELINES

The project baseline scenario is a counterfactual scenario³ that forecasts the likely stream of emissions expected to occur if the Project Proponent does not implement the project (i.e., the “business as usual” case).

3.A TYPES OF BASELINES

Conventionally, three distinct approaches have been taken for establishing GHG project baselines.⁴ First, existing actual or historical emissions may be assumed to continue over the project lifetime or Crediting Period. This is termed the “retrofit” baseline, in which pre-retrofit measurements of actual emissions determine the project baseline. A retrofit project may involve the replacement of GHG emissions equipment/fuels with lower-emitting equipment/fuels, or the installation of GHG emissions reduction equipment. Baseline emissions are equal to historical actual GHG emissions prior to the installation of the GHG-reducing technology or change in practice.

Second, the baseline may reflect emissions and removals from a technology or practice that represents an economically attractive course of action, taking into account barriers to investment. This is termed a “project-specific” baseline approach. To determine a project-specific baseline, the Project Proponent evaluates barriers and net benefits associated with feasible alternative baseline scenarios, including the continuation of current activities, and identifies the baseline scenario with the lowest barriers and greatest benefits. The emissions/removals associated with this alternative become the baseline scenario against which emission reductions/removal enhancements in the project scenario are measured.

Third, baseline emissions may be assumed to be the average emissions of similar project activities undertaken in the recent past in similar social, economic, environmental, and technological circumstances, and whose performance is among the top specified percentage in their category. This is termed the “performance standard” approach. Project actions that, with respect to emission reductions or removal enhancements, or technologies or practices, achieve significantly better performance (e.g., lower emissions or higher removals per unit output) than the pre-established performance standard benchmark are considered additional or beyond that which

³ If applied to the project area, the option also exists of monitored baselines on proxy areas.

⁴ See, for example World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol Initiative: The GHG Protocol for Project Accounting (November 2005). http://www.ghgprotocol.org/files/ghg_project_protocol.pdf.

would be expected under a business-as-usual scenario.⁵ Provided the project action is also surplus to regulations, all emission reductions/removal enhancements relative to the baseline are creditable under this approach.

The VVB will confirm that the type of baseline used in the GHG Project Plan correctly applies the guidance in the chosen methodology.

3.B VALIDATING PROJECT BASELINES

Project Proponents shall use appropriate methodologies and tools to estimate and update project baselines. The baseline scenario remains valid for the duration of the approved Crediting Period for that project type, and must be re-assessed in order to renew the Crediting Period.

The objective of baseline validation is to check that technically sound baseline emissions have been established and subsequently applied. To establish baseline emissions, data representative of the operations and activities must be used, either from a single year or a multi-year average.

The VVB must ensure that the selected baseline scenario is one for which verifiable data are available. Documentation should include the baseline scenario selection rationale and justification, the guidance followed for baseline emissions estimation, and consistency across post-base year project emissions calculations (to provide accurate comparisons).

Validation of the project baseline should include:

- The explanation provided for how the baseline scenario was selected, including assessment of alternative baseline scenarios and their associated barriers and benefits; and
- Data associated with the base year chosen, and consistency in implementation of emissions estimating guidance for the baseline and project emissions.

Baseline validation may include the following activities, data, and evidence sources (as informed by the VVB's professional judgment); however not all of these are required:

- Interviews with the Project Proponent to determine how baseline emissions have been quantified;
- Review of sufficient documentation for any baseline emissions sources that contribute to total emissions by more than 3% to confirm that estimates have been addressed per stated measurement and monitoring plans, and that the estimations have been applied consistently and uniformly; and
- Check consistency with the appropriate guidance, as well as consistency in applying the guidance across baseline and project activity reporting periods.

⁵ Adapted from EPA Climate Leaders (2009): Using Offsets to Help Climate Leaders Achieve Their GHG Reduction Goals: Climate Leaders Offset Module Overview. See <http://www.epa.gov/stateply/documents/resources/OffsetProgramOverview.pdf>.

CHAPTER 4: VALIDATING ADDITIONALITY

Additionality is a test 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. Project Proponents must demonstrate that the GHG emission reductions and removals associated with an offset project are above and beyond the “business as usual” scenario. To qualify as additional, ACR requires every project to pass either an approved performance standard and a regulatory additionality test, or a three-pronged test of additionality in which projects demonstrate that the activity exceeds currently effective regulations, exceeds common practice in the relevant industry sector and geographic region, and faces at least one of three implementation barriers: financial, technological, or institutional. See the ACR Standard, Chapter 4, and relevant sector-specific requirements and methodologies. Some methodologies recommend, and some require, application of an additionality tool.

The VVB should evaluate each component of the additionality demonstration as required by the ACR Standard and chosen methodology.

4.A REGULATORY SURPLUS TEST

The regulatory surplus test involves existing laws, regulations, statutes, legal rulings, or any other regulatory frameworks that directly or indirectly affect GHG emissions associated with a project action or its baseline candidates, and that require technical, performance, or management actions. Project Proponents must provide clear evidence in the GHG Project Plan that the GHG reduction/removal activity is not required by any applicable federal, Tribal, state, or local laws, regulations, ordinances, consent decrees, or other legal arrangements. Only mandatory regulations, not voluntary guidelines, are considered in the regulatory surplus test.

To validate the results of the regulatory surplus test, the VVB shall review applicable regulations identified by the Project Proponent in the GHG Project Plan. If there are significant uncertainties associated with the regulatory requirements, the VVB shall conduct additional research and, if needed, contact the appropriate federal, state, Tribal, or local environmental compliance officer to collect additional documentation (e.g., notices of violation, consent decrees, and settlement agreements) and testimonial evidence.

Some project types may require that regulatory surplus be confirmed during every reporting period, which will be specified in the ACR approved methodology.

4.B COMMON PRACTICE TEST

The common practice test requires Project Proponents to evaluate the predominant technologies implemented or industry practices undertaken in a particular industry sector and/or geographic region, as determined by the degree to which those technologies/practices have penetrated the market, and demonstrate that the proposed project will reduce GHG emissions below levels produced by common technologies or practices within a comparable environment (e.g., geographic area, regulatory framework, investment climate, and access to technology/financing).

To validate the results of the common practice test, the VVB shall review the documentation provided by the Project Proponent to demonstrate that the GHG project is not common practice. In addition to this documentation, the VVB should review all original reference sources cited in the Project Proponent's documentation, such as independent consultants' reports designed to describe common practice technologies/practices, to confirm the raw data and conclusions drawn thereupon.

4.C IMPLEMENTATION BARRIERS TEST

An implementation barrier represents any factor or consideration that would prevent the adoption of the project activity. Under the implementation barriers test, Project Proponents choose at least one of three barrier assessments: financial, technological, or institutional. Project Proponents may demonstrate that their project faces more than one implementation barrier, but ACR does not require more than one barrier.

4.C.1 Financial Barriers Test

Financial barriers can 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 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. Carbon revenues can potentially address capital constraints, incentivize project implementation, or help to maintain the project's ongoing economic viability. If electing the financial implementation barrier test, Project Proponents shall provide solid quantitative evidence such as such as net present value and internal rate of return calculations. Use of an ACR-approved additionality tool is recommended.

The VVB shall review internal financial pro formas and historic/projected cash flow analyses prepared by the Project Proponent and/or an external party to confirm the validity of the financial barrier claim. The VVB should assess to what extent the assumptions used in the financial barriers analysis are defensible, how a variation on those assumptions (sensitivity analysis) could affect the outcome of the financial barriers test, and how likely such variations are during the project life.

4.C.2 Technological Barriers Test

Technological barriers can include R&D deployment risk, uncorrected market failures, lack of trained personnel and supporting infrastructure for technology implementation, and lack of knowledge on the practice/activity. Project Proponents electing the technological implementation barrier test should provide evidence that carbon market incentives are a key element in overcoming these barriers.

The VVB shall review documentation provided by the Project Proponent to demonstrate significant carbon credit creation activities occurring either before or no later than 2 years after the project start date. In addition, the VVB shall review all documentation provided by the Project Proponent regarding the development status of the technology being implemented by the project activity, supplementing those materials as needed with publicly available demographic and characteristic information on the industry sector and technology type.

4.C.3 Institutional Barriers Test

Institutional barriers can 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. If electing the institutional implementation barrier test, Project Proponents shall provide documentation of the Project Proponent or project participant, management policies or guidelines that corroborate the claim of an organizational or institutional barrier, and should provide evidence that carbon market incentives are a key element in overcoming these barriers.

To validate these claims, the VVB shall collect testimonial evidence from the appropriate management personnel with purview over the GHG project's approval and implementation.

4.D PERFORMANCE STANDARD TEST

In lieu of the three-prong test to demonstrate project-level additionality, ACR also recognizes the "performance standard" approach, in which additionality is demonstrated by showing that a proposed project activity is surplus to all applicable regulations, and either is characterized by very low adoption rates in the relevant industry and geographic region, or results in lower emissions (or higher sequestration) than a benchmark established for the relevant region, industry/sector, and practice.

Performance standards vary by project type but generally include the above two components. The Project Proponent must first demonstrate in the GHG Project Plan that the project activity is not required by any applicable federal, Tribal, state, or local laws, regulations, ordinances, consent decrees, or other legal arrangements. Only mandatory regulations, not voluntary guidelines, are considered in the regulatory surplus test. The VVB shall review applicable regulations identified by the Project Proponent in the GHG Project Plan. If there are significant uncertainties associated with the regulatory requirements, the VVB shall conduct additional research and, if needed, contact the appropriate federal, state, Tribal, or local environmental compliance officer

to collect additional documentation (e.g., notices of violation, consent decrees, and settlement agreements) and testimonial evidence.

Second, the Project Proponent must demonstrate in the GHG Project Plan that the project activity achieves a level of performance with respect to emission reductions and/or removals that is significantly better than business as usual. This is done by comparing the project activity to a performance threshold specific to each project type and established by examining data from similar recently undertaken practices in the same geographic region and industry/sector. In some cases, the performance standard will establish that common practice adoption rates of a particular GHG-reducing practice or technology are very low and, therefore, the practice or technology is deemed additional. In other cases, the performance standard benchmark represents a level of emissions or sequestration per unit output to which Project Proponents compare the measured performance of their project, demonstrating that the project activity achieves lower emissions or higher sequestration per unit output than the benchmark.

Validation of the performance standard will vary somewhat depending on the project type. For performance standards in which additionality is demonstrated by comparison to common practice adoption rates of a particular GHG-reducing practice or technology, the VVB need only check that an approved methodology was applied. For performance standards in which actual project performance (e.g., emissions or sequestration per unit output) is monitored and compared to a benchmark, the VVB will review measurement and monitoring methods as described elsewhere in this Guideline, but the performance benchmark itself will be as established in the ACR-approved methodology and need not be validated.

CHAPTER 5: VALIDATING QUANTIFICATION METHODS

ACR requires every project submitted for registration to use an ACR-approved methodology or secure ACR approval of a new methodology or methodology modification prior to validation.

This chapter addresses validation of GHG quantification methods for estimating emission reductions and removal enhancements. It includes brief descriptions of commonly used quantification methods and examples of their applicability and validation issues.

When validating quantification methods, the objective is to collect and test sufficient evidence to ensure that the methods are appropriately selected and applied to develop accurate and conservative estimates of emission reductions and removals.

Validating quantification methods requires review of four elements:

- The quantification method for each data parameter is clearly defined, and supporting documentation provided is adequate to support the level of assurance required.
- The methods are appropriate for accurately quantifying each data parameter based on the required level of assurance.
- The methods are applied consistently to develop estimates of emission reductions and removal enhancements.
- The ISO principle of conservativeness is applied (i.e., the choice of assumptions, calculation methods, parameters, data sources, and emission factors is more likely to lead to an underestimation than overestimation of net GHG emission reductions and removal enhancements).

5.A EMISSIONS DATA

Emissions data can be measured directly (e.g., with continuous emissions monitoring equipment) or indirectly estimated (e.g., by monitoring a surrogate parameter or using a predictive model). Emissions data may also be derived from activity data and emission factors, as described in later sections.

For direct emissions monitoring or process monitoring methodologies for quantifying GHG emissions, validation activities should consider the following:

- Operation and calibration of equipment;
- Existence and appropriateness of operation and maintenance standard operating procedures;
- Consistent and accurate data management;
- Representativeness of sampling for operating parameters;

- Robustness of test data to substantiate use of process parameters as “surrogates” or to substantiate use of predictive algorithms;
- Accuracy of material and energy input and output estimates;
- Appropriate operation and maintenance of instrumentation; and
- Review of calibration records, equipment manufacturer documentation, and service records.

5.B ACTIVITY DATA

The accurate and conservative estimation of GHG emission reductions/removal enhancements is the key goal of quantification methodologies. Project Proponents will often estimate emissions based on activity data, which is the information that provides the magnitude of the activities that cause the emissions, emission reductions or enhancements (e.g., the amount of diesel consumed by a vehicle or pounds of nitrogen fertilizer applied to a field during a specified reporting period.)

The objective of validation is to confirm that the activity data used in the emission calculations (1) meet the requirements of the approved methodology and are appropriate for the emission sources; (2) have been correctly applied from the original documentation; and (3) is the most accurate data readily available. The VVB should confirm that the methodology accounts for all variations in activity data over the relevant Crediting Period.

5.C EMISSION FACTORS

Estimating GHG emissions using activity data requires the application of an emission factor. Emission factors are usually expressed as the ratio of the mass of GHG emitted to the unit weight, volume, distance, or duration of the activity emitting the GHG. In general, emission factors are either default or site-specific:

- **DEFAULT** emission factors taken from an external source such as the Revised 1996 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories, U.S. Energy Information Administration, or U.S. Environmental Protection Agency publications. They are specific to a given parameter, such as fuel type, electricity prime mover, production method, and geographic area. Default emission factors are readily available for many sources, and their use may reduce the time and cost of estimating emissions. However, because they are not based on the emission characteristics of specific facilities, they may produce less accurate results than site-specific factors.
- **SITE-SPECIFIC** emission factors are specific to a facility, plant, or unit, and must be developed for the facility based on historical data. They will tend to provide more facility-specific or operationally appropriate emission estimates, but their derivation and use will be more complex than default factors. The use of site-specific factors is warranted when feasible, as they are usually more accurate than default factors. They should be used in cases where specialized equipment has been developed to fit the specific needs of the facility or project, where the pattern of use of equipment varies significantly from the

manufacturer's specifications, or where operating conditions may reduce the accuracy of default factors.

The objectives of validating emission factors are to:

- Confirm that the emission factors used meet the requirements of the approved methodology and are appropriate to activity;
- Confirm that the emission factors have been correctly applied from the original documentation to the relevant activity data, and that the most appropriate factors readily available have been selected;
- Where there is a choice among equally defensible emission factors, confirm that the principle of conservativeness has informed the choice of emission factors; and
- Where site-specific emission factors have been used, examine the sampling methods and calculations used to derive them, and compare them to known and accepted default factors (when available) from independent sources to assess accuracy. The VVB should evaluate both the source data and the methodology used to derive site-specific emission factors.

CHAPTER 6: VALIDATING OTHER PROJECT CRITERIA

The VVB shall review the elements of the GHG Project Plan discussed below.

6.A START DATE

ACR defines the Start Date for all projects other than AFOLU as the date on which the project began to reduce GHG emissions against its baseline. ACR defines the Start Date for AFOLU projects as the date on which the Project Proponent began the activity on project sites, with more specific guidance in Appendix A of the ACR Standard and the applicable methodology.

To validate the Start Date, the VVB shall review documentary evidence that confirms the project Start Date as described in the GHG Project Plan. Evidence may include documentation such as construction and operating permits, contracts, lease agreements, historical operational records, and third-party reports.

For projects developed using an aggregated or programmatic development approach, the Start Date will be the first date that a project activity or technology was implemented at the first site in the entire project. Individual project participants and/or sites will have site-specific implementation dates, which cannot occur prior to the Start Date.

6.B CREDITING PERIOD

Crediting Period is the finite length of time during which the project's GHG Project Plan is valid, and during which a project can generate offsets for registration on ACR against its baseline. The Crediting Period is defined in the ACR Standard or approved methodology. It is 10 years for non-AFOLU projects, unless otherwise specified in the relevant approved methodology. Longer Crediting Periods are allowed for some project types (e.g., some AFOLU activities), while other types have shorter Crediting Periods due to triggers that make the activity no longer surplus to regulations after a certain number of years (e.g., some types of landfill gas collection).

The VVB shall confirm that the temporal boundaries of the GHG project are entirely within the approved Crediting Period timeframe.

6.C MINIMUM PROJECT TERM

The Minimum Project Term is the length of time for which a Project Proponent commits to project continuance, monitoring, and verification. Minimum Project Term for different project types is specified in the ACR Standard or the approved methodology. Some project types do not have

a minimum term; for those that do, the Project Proponent (not necessarily the landowner) commits to continue project implementation, monitoring, and verification for the minimum term and signs agreements with ACR to this effect.⁶

The VVB shall confirm whether a Minimum Project Term commitment is required for the project type. If one is required, it shall confirm that this minimum term is documented in the GHG Project Plan and the agreement between the Project Proponent and ACR. If no Minimum Project Term is required, the VVB shall confirm that the GHG Project Plan does not incorrectly indicate a Minimum Project Term.

6.D OFFSET TITLE

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.

The VVB shall review the Project Proponent's ownership attestation and supporting documentation that specifies ownership of offsets title and, if applicable, ownership of the emissions sources within the project assessment boundary. Examples of such documentation may include incorporation/joint venture agreements; financial/Securities and Exchange Commission reports; contracts; lease agreements; purchase orders, invoices, and receipts; and agreements with the landowner specifying ownership of offsets.

For some project types (e.g. AFOLU), the Project Proponent and project participant will often be different entities. The Project Proponent need not own the project lands or the GHG sources and sinks thereon, but is required to demonstrate that title to the offsets is clear, unique, and uncontested.

6.E IMPERMANENCE AND RISK MITIGATION

GHG reductions/removals from terrestrial sequestration or carbon storage activities are impermanent in the sense that they may be subject to some risk of future reversal, including unintentional reversals (e.g., fire, flood, and insect infestation for terrestrial projects) and intentional reversals (e.g., landowners or project participants choosing to discontinue project activities).

For projects with a risk of reversal of GHG emission reductions/removals, Project Proponents must assess risk using an ACR-approved risk assessment tool and enter into a legally binding Reversal Risk Mitigation Agreement with ACR. Project Proponents must then mitigate reversal risk by contributing offsets to the ACR Buffer Pool (either from the project itself, or ERTs of any other type and vintage); by providing evidence of sufficient insurance coverage with an ACR-

⁶ For example, ACR AFOLU Carbon Project Reversal Risk Mitigation Agreement and ACR Buffer Pool Terms and Conditions – AFOLU Carbon Projects.

approved insurance product to recover any future reversal; or by using another ACR-approved risk management mechanism.

The VVB shall review the Project Proponent's project-specific risk assessment, which must be conducted using the ACR Tool for Risk Analysis and Buffer Determination, and its chosen risk mitigation mechanism, supporting documentation, and analytics. The VVB shall also review the risk reversal mitigation measures implemented to ensure they are consistent with the terms set forth in the ACR AFOLU Carbon Project Reversal Risk Mitigation Agreement.

Note that ACR requires that the risk analysis and corresponding buffer contribution (if applicable) be evaluated in the GHG Project Plan. This will be included in ACR's eligibility screening report. The VVB shall independently evaluate whether the risk assessment has been conducted correctly.

6.F LEAKAGE

Leakage is an increase in GHG emissions or decrease in sequestration outside the project boundaries that occurs because of the project action. ACR requires Project Proponents to assess, account for, and mitigate leakage, and provide documentation to support mitigation assertions if the ACR Standard or approved methodology requires it. Project Proponents must deduct leakage that significantly reduces the GHG emissions reduction and/or removal benefit of the project. Specific leakage guidance is given in the ACR Standard, sector-specific standards, and approved methodologies.

The VVB shall confirm whether a leakage assessment is required. If one is required, it shall confirm that the leakage analysis and leakage deduction in the GHG Project Plan conforms to the requirements of the chosen methodology and the ACR Standard.

6.G ENVIRONMENTAL AND COMMUNITY IMPACTS

GHG projects have the potential to generate both positive and negative community and environmental impacts. ACR requires that all projects develop and disclose an impact assessment to ensure compliance with environmental and community safeguards best practices. Projects' environmental and community impacts should be net positive, and projects must "do no harm" in terms of being in violation of local, national, or international laws or regulations.

Project Proponents must identify a project's community and environmental impacts. 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. For more information on what the assessment should include, please refer to Section 8.A of the ACR Standard.

To examine a Project Proponent's claims of net positive community and environmental impacts, the VVB shall review publicly available information regarding the GHG project against the GHG Project Plan undergoing validation and the environmental community impact assessment; records of stakeholder consultations, if any; and results from methodologies and tools used for community and environmental impact analysis.

Net positive impacts, and the adequacy of community impact analysis and/or stakeholder consultations, are subjective criteria that are difficult to validate and verify. Therefore, the VVB is not required to provide a judgment on the adequacy of these processes or their qualitative results. However, it must confirm that the Project Proponent has evaluated community and environmental impacts, documented a mitigation plan for any foreseen negative community or environmental impacts, and disclosed any prior negative environmental or community impacts or claims of thereof.

6.H DOUBLE ISSUANCE, DOUBLE SELLING, AND DOUBLE USE OF OFFSETS

The VVB shall confirm that projects undergoing validation are not claiming emission reductions for the same project and reporting period on any other GHG registry or platform. This shall be confirmed during every reporting period throughout the project's Crediting Period. For more information on ACR's policies regarding double issuance, double selling, and double use, please refer to Chapter 10 of the ACR Standard.

6.I PROJECTS PARTICIPATING IN OTHER ASSET PROGRAMS

The VVB shall confirm if projects undergoing validation are enrolled in other asset programs (e.g., water quality trading). The VVB shall ensure that projects claiming other environmental assets have done so in accordance with the ACR Standard and the chosen methodology, and that the attributes quantified are for non-carbon benefits. This shall be confirmed during every reporting period throughout the project's Crediting Period. For more information on ACR's policies regarding participation in other asset programs, please refer to Chapter 2 of the ACR Standard.

CHAPTER 7: VALIDATION REPORT

The product of validation is a Validation Report, which is posted publicly by ACR. The Validation Report is a detailed description of the validation activities and conclusions. This report shall:

- Provide the name, address, and contact information of the VVB;
- Identify the GHG project by name and Crediting Period covered;
- Reference the ACR Standard, and approved methodology against which validation was conducted;
- Describe the validation objectives, scope, and activities, including but not limited to evaluation of:
 - ◆ Project boundary and procedures for establishing it;
 - ◆ Physical infrastructure, activities, technologies, and processes of the GHG project;
 - ◆ GHGs, sources, and sinks within the project boundary;
 - ◆ Temporal boundary;
 - ◆ Description of and justification for the baseline scenario;
 - ◆ Methods, algorithms, and calculations that will be used to generate estimates of emissions and emission reductions/removal enhancements;
 - ◆ Process information, source identification/counts, and operational details;
 - ◆ Data management systems;
 - ◆ QA/QC) procedures;
 - ◆ Processes for uncertainty assessments; and
 - ◆ Project-specific conformance to ACR eligibility criteria, including additionality.
- Describe any findings, including opportunities for improvement raised during the validation and their resolutions, including issues that required consultation with ACR and ACR's determinations on these issues, citing the specific communication and date;
- State the VVB's conclusion on the conformance of the GHG Project Plan to the ACR Standard and methodology chosen; and
- Be signed and dated by the lead validator and internal reviewer.

Note that validation and the first verification may be conducted simultaneously, and may be conducted by the same approved VVB. Therefore, it is acceptable to combine the Validation Report and Verification Report (see Chapter 12 for contents) into a single report which should also include the above information.

CHAPTER 8: VERIFICATION OVERVIEW

This chapter summarizes the objectives and scoping elements of verification necessary to register GHG project net emissions reductions/removals as ERTs. ACR's verification requirements are built on the foundation of the ISO 14064-3:2006, *Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions*.

8.A DEFINITION

Verification is the systematic, independent, and documented process for the evaluation of a GHG assertion against specific criteria. The verification process is intended to assess the degree to which a project has correctly quantified net GHG reductions or removals per the validated GHG Project Plan and correctly utilizes ACR methodologies and tools. A successful verification provides reasonable assurance that the GHG assertion is without material misstatement.

8.B OBJECTIVES OF VERIFICATION

The overall goal of third-party verification is to review impartially and objectively a Project Proponent's claimed GHG emission reductions/removal enhancements against relevant ACR standards and the approved methodology. The VVB must independently evaluate the GHG assertion, based on supporting evidence and GHG verification best practice.

The objectives of verification are to evaluate the following:

- Reported GHG baseline, project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable);
- Any significant changes to the project procedures or criteria since the last verification; and
- Any significant changes in the GHG project's baseline emissions and emission reductions/removal enhancements since the last verification.

The VVB shall review the GHG Project Plan, GHG assertion, and any additional relevant documentation provided by the Project Proponent to determine:

- That the reported emissions reductions and/or removal enhancements are real;
- Degree of confidence in and completeness of the GHG assertion;
- That project implementation is consistent with the GHG Project Plan;
- Eligibility for registration on ACR; and
- Sources and magnitude of potential errors, omissions, and misrepresentations, including:

- ◆ Inherent risk of material misstatement; and
- ◆ Risk that the existing controls of the GHG project will not prevent or detect a material misstatement.

8.C SCOPE OF VERIFICATION

Verification shall include examination of some or all of the following elements of a GHG Project Plan:

- Physical infrastructure, activities, technologies, and processes of the GHG project;
- GHG SSRs within the project boundary;
- Temporal boundary;
- Baseline scenarios;
- Methods and calculations used to generate estimates of emissions and emission reductions/removal enhancements;
- Original underlying data and documentation as relevant and required to evaluate the GHG assertion;
- Process information, source identification/counts, and operational details;
- Data management systems;
- Roles and responsibilities of project participants or project proponent staff;
- QA/QC procedures and results;
- Processes for and results from uncertainty assessments; and
- Project-specific conformance to ACR eligibility criteria.

The VVB shall examine the reported data, quantification methodologies, calculation spreadsheets or databases, source data, project data management systems, data quality controls in place, measurement and monitoring systems, and records pertaining to emissions quantification. Calculation and error checks, site inspections, interviews with project participants, an iterative risk assessment, sampling plan, and audit checklist shall be performed to the extent necessary for the VVB to develop an understanding of how data are collected, handled, and stored for a specific project.

8.D INTERVAL OF VERIFICATION

The ACR Standard generally requires:

- A desk-based verification audit at each request for issuance of new ERTs. This is usually conducted annually, but may be more or less frequent at the discretion of the Project Proponent.
- A full verification including a field visit at the first verification and again at least every 5 years. Field verifications may be conducted more frequently (e.g., in the case of changes in

monitoring and data management practices, or for particular project types with material parameters that can only be verified on site). Generally, for most project types, field verification is required at minimum every 5 years.⁷

- Following any reversal of sequestration that requires updating the project baseline.

If the Project Proponent selects a different VVB in the interval between field verifications, the new VVB shall continue desk audits until the next required field verification.

Please note that some ACR methodologies may not require additional site visits during a full verification after the initial verification if no significant changes have occurred to the project since successfully undergoing validation. If no additional site visits are necessary, it shall be specified in the methodology, along with what constitutes a significant change and how to fulfill the requirements of a remote full verification. All other projects must meet the full site visit requirement specified in the ACR Standard.

8.E LEVEL OF ASSURANCE

ACR considers verification to be a risk-based process in which the VVB conducts an iterative risk assessment that shall inform the sampling plan, allowing the VVB to provide a reasonable level of assurance that the GHG assertion is free of material misstatement and provides a true and fair representation of the project's net GHG emission reductions/removal enhancements.

ACR requires all Verification Statements to provide a reasonable (as opposed to absolute or limited) level of assurance. Chapter 11 includes the required wording of Verification Statements. Under this level of assurance, a GHG assertion is deemed materially correct, and a fair representation of the GHG data and information. This also indicates that the GHG assertion is prepared in accordance with the ACR Standard and the ACR-approved methodology.

8.F MATERIALITY

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 $\pm 5\%$).

⁷ Subject to the clarification that verification is required only prior to issuance of ERTs. If the Project Proponent (e.g., of an afforestation/reforestation project) does not seek ERT issuance for longer than 5 years after the Start Date, it is not required to verify until the first request for ERT issuance. Once this first verification takes place, subsequent field verifications must occur at least every 5 years. Additional rules regarding the field visits during a full verification is provided in Section 9.C and Appendix A of the ACR Standard

Individual or aggregation of errors or omissions greater than the ACR materiality threshold of $\pm 5\%$ require restating before a Verification Statements will be accepted. Individual and aggregation of errors or omissions greater than $\pm 1\%$ but less than $\pm 5\%$ must be qualified in the Verification Statement but do not require restating.

8.G MATERIALITY VS. PRECISION

The precision of GHG estimates is distinct from the concept of materiality. Materiality dictates that the individual or aggregation of errors and omissions exceeding the $\pm 5\%$ materiality threshold requires restatement (i.e., correcting of material errors) prior to ERT issuance.

For precision, ACR prescribes a target for the final calculation of GHG emission reductions/removal enhancements, and requires an uncertainty deduction if this target is not achieved. This is to provide flexibility to the Project Proponent, in the case that the costs of additional sampling to achieve the precision target outweigh the benefits of not having to take a deduction. The relevant text is:⁸

ACR sets a precision target of $\pm 10\%$ of the mean at 90% confidence, applied to the final calculation of emission reductions/sequestration. If the Project Proponent cannot achieve precision of $\pm 10\%$ of the mean at 90% confidence, 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.

The conservativeness principle dictates that if projects cannot achieve the precision target, then:

- For activities reducing emissions, proponents should report the lower bound of the confidence interval on baseline emissions and the upper bound of the confidence interval on project emissions.
- For activities enhancing terrestrial sequestration, proponents should report the upper bound of the confidence interval on baseline sequestration and the lower bound of confidence interval on project sequestration.

This approach will minimize the potential that measurement uncertainty causes an overestimation of net emission reductions/removals.

Thus, uncertainty may be greater than $\pm 5\%$, and may not be possible to reduce in a cost-effective manner. In such cases, provided there are no material errors or misstatements exceeding the ACR materiality threshold, the project may be registered but with the uncertainty deduction applied.

Because ACR requires all projects to use an approved methodology and meet the requirements of the ACR Standard, all projects must adhere to these uncertainty requirements (achieve precision of $\pm 10\%$ of the mean at 90% confidence, or else report the mean minus the lower bound of

⁸ See the ACR Standard.

the 90% confidence interval). Any required uncertainty calculations or deductions will be outlined in the applicable approved methodology.

8.H PROCEDURE FOR VERIFICATION DISCREPANCIES

If the verification requirements are not met, then a project will not be eligible to generate ERTs during that reporting period. However, if a Project Proponent believes that the verification requirements were adequately met and the VVB does not agree, the Project Participant may choose to initiate ACR's Complaints and Appeals Procedure. For more information on this process, please refer to Chapter 11 of the ACR Standard.

If a Project Proponent aborts a verification after verification services have begun but before the VVB is able to reach a conclusion with a reasonable level of assurance, the VVB shall inform ACR in writing of the status of the verification and reasons why the verification has been aborted.

CHAPTER 9: VERIFICATION ACTIVITIES

This chapter provides an overview of the activities the VVB shall perform, and the information and documentation it shall review.

9.A INFORMATION/RECORDS TO BE REVIEWED

The GHG information and records the VVB shall review include, but are not limited to:

- GHG Project Plan;
- GHG assertion;
- Previous Verification Statements;
- Operational and control procedures and records for ensuring GHG data quality;
- Documentation of GHG SSRs;
- Documentation of quantification methodologies; and
- Documentation of monitoring and measurement systems.

Verification of source-level data and records shall include the following activities:

- Determine whether the data used are appropriate and sufficient to allow for the accurate calculation or estimation of GHG emission reductions and/or removals;
- Confirm that appropriate calculation methodology was used for data that were estimated as indicated in the GHG Project Plan;
- Confirm that the units of measure used are correct, appropriate, internally consistent, and consistent with the ACR Standard, including raw data recorded in the data collection process and data stored in the project spreadsheet or database/management system and used in calculations;
- Confirm that any unit conversions have been made correctly; and
- Confirm that there are no missing data unaccounted for and that all data have been entered properly.

9.B DATA ASSESSMENT AND MANAGEMENT SYSTEMS

It is important for the VVB to develop an understanding of the GHG project data collection and management system and processes. The VVB should examine the process flow for collecting

and processing activity or monitoring data. This will enable the tracing of data or references from their original root source to the final emissions data entered into the GHG assertion.

The VVB shall assess the project GHG data management system and its controls for sources of potential errors and omissions, including the following:

- Selection and management of GHG data and information;
- Processes for collecting, processing, aggregating, and reporting;
- Systems and processes to ensure accuracy; and
- Design and maintenance of the GHG data management system, including systems and processes that support it.

The VVB shall use the results of this GHG data management system assessment and its controls to modify the sampling plan, as needed.

The VVB shall review data management system documentation that describes the process of data collection, entry, calculation, and management. This will allow evaluation and cross-checking of factors, activity data, calculations, and estimates in the data system. Such data management system elements to review may include:

- Competency of data managers or employees responsible for collecting data;
- Emissions source type;
- Units of measure;
- Periodicity of data monitoring/collection;
- Data granularity and degree of aggregation;
- File type/format;
- Method of transfer;
- Assumptions; and
- Calibration records.

The VVB should assess the effectiveness of methods for data collection and processing, identify likely areas for data corruption or potential errors, and characterize GHG data collection and management system integration weaknesses.

9.C COLLECTION OF EVIDENCE

Verification of GHG projects shall involve collecting the following types of evidence:

- Physical evidence: direct observation of equipment or processes to demonstrate that the Project Proponent is collecting relevant data;
- Documentary evidence: paper or electronic records, which may include procedures, logs, invoices, and analytical results;
- Testimonial evidence: interviews with key personnel (e.g., technical, operations, managerial).

9.D DATA SAMPLING PLANS; RISK-BASED APPROACH

Because it is generally impractical to assess in detail all GHG information the Project Proponent collects, especially when the project assessment boundary may include many different sites, only a subset of the operations will be under the VVB's scrutiny. Thus, a key element of a successful verification is the sampling and examination of the sites/operations and sources that are chosen to undergo only a desktop review and not a full field audit.⁹

A risk-based approach, based on considerations of inherent, control, and detection risks, should be used to determine the intensity of sampling needed to collect adequate evidence to support the required level of assurance. Sampling plans shall take into account the following:

- Level of assurance targeted;
- Verification scope and criteria;
- Amount and type of evidence necessary to achieve the required level of assurance;
- Availability of evidence;
- Materiality threshold;
- Complexity of quantification methodologies;
- Quality and completeness of emissions factors and activity data;
- Method for determining representative data samples; and
- Risks of material errors, omissions, or other discrepancies.

The implementation of a verification plan should be treated as an iterative process, as the sampling plan or other aspects may need to be modified when weaknesses in controls, GHG information, and materiality issues are identified during the verification. Revisions to the verification plan should consider the sufficiency and appropriateness of evidence from testing whether any errors or inconsistencies are systematic or anomalous, together with any control evidence to support the project's GHG assertions.

Regardless of the type of verification to be performed, in nearly all cases the VVB will examine only a subset of the entire population of project data. The total amount of data available will often be too large to allow for a complete and comprehensive examination of all data. An exhaustive review of all supporting data may also be unnecessary for verification. For example, a Project Proponent may utilize summary data that have been aggregated, in which case the review of data management procedures and systems may be more important than the examination of all of the original unprocessed data. These concerns are particularly significant in the case of

⁹ Even at intervals when verification includes a field visit, it may be impractical to review all sites, land-holdings, operations, and data. In all cases, a risk-based approach as described in this section should be applied. Additional guidance is provided in sector-specific requirements for cases in which the VVB may visit only a subset of project sites (e.g., in the ACR AFOLU Appendix, with regard to verification of aggregated land-based projects).

activity data, which may encompass hundreds or thousands of records for a wide range of sources over multiple years.

The design of a sampling plan typically involves three steps: (1) the selection of risk parameters that present a higher risk of misstatement and should be reviewed in further detail; (2) the selection of an appropriate subset of data or sites to be visited, and issues to be examined during the field audit; and (3) the selection of issues and data to examine from sites that are not selected for a focused field audit.

The proper selection of the sample of data to be examined is a crucial step in preparing a verification plan. The amount and types of data selected for examination is ultimately at the professional judgment of the VVB. Sufficient information must be examined for the VVB to make a credible statement about the quality of the project's data, data collection and management procedures, quantification methods, and related processes, balanced with considerations of time and cost. It is important for the VVB to prioritize and carefully select sample data and other issues with a medium to high risk of misstatement to investigate further. This can be done through data sampling, a process that allows the VVB to form an opinion on the data as a whole. To draw reasonable conclusions, the sample data must be representative of the total data.

9.E FIELD AND DESKTOP DATA AUDITS

During the verification planning process, the VVB must identify the key variables with the potential to cause a material misstatement in the GHG assertion. The VVB should seek to understand what types of emission SSRs are present, what types of data management systems are used, and what types of management structures are present in the Project Proponent's company and at the project site/facility. The purpose of this profile analysis is to identify and characterize individual sources of emissions project-wide, and to categorize emissions at the facility level according to the key verification parameters. After the emission sources have been characterized, the VVB shall assess the types of data management systems and management systems the Project Proponent uses.

The selection of data to be reviewed in a desktop audit shall be based upon the following:

- The assigned risk rating;
- The number of data points or facilities within the database;
- The degree of data variability; and
- The degree of missing/estimated data.

VVBs should not be limited to these criteria when selecting different parameters for field and desktop audits. Expert judgment should be exercised to ensure that a representative sample of data sets is selected and reviewed.

9.F ERROR CHECKING/TESTING

Methods for checking for potential errors associated with GHG information can be categorized into input, transformation, and output controls. Each is described below, with the applicable error checking tests to be used by the VVB.

INPUT CONTROLS. Procedures for checking the data from the measured or quantified values to a project database, and to original records. Tests for accuracy include:

- Record count: ensuring the number of data entries matches the number of units/sites reported in the GHG Project Plan;
- Valid character tests: ensuring the data entered are in a relevant format and checking for improperly entered data;
- Missing data tests: scanning for empty cells in the GHG database that are not accounted for; and
- Limits and reasonableness tests: comparing the data with predetermined limits as a reasonable test.

TRANSFORMATION CONTROLS. Checking for errors during the process of collating, transferring, processing, calculating, estimating, aggregating, disaggregating, or adjusting input data. Tests for accuracy include:

- Consistency tests: ensuring the methodologies and data handling process are consistent throughout project reporting;
- Re-computation tests: recalculating conversions, estimations, etc. using the same data and methodology provided in the database output; and
- Cross-checking tests: comparing reported results with other known results and alternative quantification methodologies.

OUTPUT CONTROLS. Controls surrounding the distribution of GHG information and comparisons between input and output information. Tests for accuracy include:

- Matching input with output: verifying that the data entered into the GHG database match the results in the GHG report.

Where applicable and available, the following types of cross-checking procedures will provide greater assurance that the reported GHG information is within the expected range. Significant departures should be investigated fully so the VVB can obtain a reasonable level of assurance.

- Internal checks within a process: compare current-year emission reductions with previous years, noting any changes to the size or usage capacity of the site;
- Checks within a sector/national grid (e.g., check if the sites' emission rates are comparable with the regional average emission rates published by the applicable regional grid authority); and

- Checks against international information (e.g., IPCC's typical emission intensity figures for different technologies in different countries).

9.G VERIFICATION OF QUANTIFICATION METHODS AND DATA SOURCES

The objectives for verification of quantification methods are to:

- Identify quantification errors in overall GHG project emissions, identify any outliers in facility-level and temporal boundaries results, and detect any methodological inconsistencies;
- Ensure the appropriateness of the estimation methods applied to the GHG project-specific situation, based on size of the sources, data availability, and associated levels of uncertainties;
- Review calculations and quantification methods used in the GHG Project Plan and/or GHG assertion to determine if results reported reflect emission estimation approach and supporting data;
- Examine quantification method documentation at the facility/source level, reviewing key facility-specific results, calculations, emission factors, and assumptions to determine validity of the quantification method;
- Examine the reported levels of accuracy and uncertainty of the emission estimates;
- Verify application of the quantification methodology by examining supporting evidence for key selected sites and major sources;
- Review methods, underlying data/assumptions, reference citations, and data management systems, from project roll-up to individual source root data, with field audits and use of external data and third-party records to confirm reported GHG emissions and reductions results;
- Determine accuracy of quantification data and whether metering and monitoring equipment operate within acceptable limits; and
- Conduct desk audits of data and calculations for a select number of sites or landholdings not included in field verification.

The process for verification of quantification methods may include the following activities, data, and, evidence (as informed by the VVB's professional judgment; not all are required):

- Review spreadsheets and aggregated data used to create estimates of GHG emission reductions and removal enhancements.
- Review raw or source data and emission factors to evaluate whether the data used are appropriate for the associated activities and sufficient to provide a reasonable estimate of the emissions from the source category.
- Identify any missing or incomplete data. In cases where a large number of data records exist and have been aggregated, the VVB should review data management practices used to compile final aggregated data.

- Evaluate trends in calculated GHG emissions over multiple data collection and reporting periods, including comparison against relevant production data at the facility-, field-, forest- or parcel- level.
- Evaluate how data are collected and aggregated, including desktop data reviews of some key individual source data at select sites, comparing against aggregated totals.
- Perform field audit verification activities, potentially including:
 - ◆ Key personnel interviews (e.g., data management specialists, process engineers, and monitoring maintenance personnel);
 - ◆ Raw data recording, daily/monthly rollups, and data transfer practices;
 - ◆ Meter calibration, maintenance records, and frequency; and
 - ◆ Root data, quantification methods, and analytical results.
- Review key meter/instrument calibration and maintenance logs to determine adherence to QA/QC procedures.
- Perform re-computation checks for accuracy of calculations and algorithms.
- Check validity of detailed calculations, assumptions, and emission factors.
- Check spreadsheet and database calculations.
- Cross-check monitoring data with site-specific emission factors, fuel use data, and material/energy balance engineering calculations. Databases, reports, and other information systems should be checked, and manually recorded data logs, hand calculations, and spreadsheets checked in the field and compared against inventory data.
- Review original data records, identify errors and omissions in reported GHG data, and ensure accurate reporting (e.g., energy use verified by energy supplier data such as fuel shipment bills of lading, invoices, utility bills, and fuel analysis reports).
- In cases where data values can be expected to vary or be updated over the project Crediting Period, confirm that data have been adjusted accordingly.
- In cases where a single category of a data parameter has been estimated using several different sources, confirm that double counting or omission has been avoided.
- When data calculations incorporate several interrelated parameters, review to ensure that they have been calculated appropriately.
- Evaluate whether the most accurate and appropriate data parameters readily available were used, which may be affected by factors such as facility location, ambient operating conditions, and choice of measure (e.g., default vs. specific factors); identify and evaluate notable outlier data.
- Compare data to known and accepted external sources to assess accuracy and appropriateness.
- Evaluate whether the ISO principle of conservativeness has been applied in the choice of assumptions, calculation methods, emission factors, etc.

9.H VERIFICATION OF LEAKAGE ASSESSMENTS

Leakage is a decrease in sequestration or increase in emissions outside project boundaries as a result of project implementation. Leakage may be caused by shifting of the activities of people 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.

Some ACR-eligible project types require leakage to be assessed and, if deemed significant, deducted from the calculation of net emission reductions. Requirements to assess and deduct leakage will be included in the ACR-approved methodology.

Verification of estimates of leakage as part of a GHG project verification is integrally related to the validation of project assessment boundaries per Chapter 3. The VVB shall use the results of the project assessment boundaries validation, the Project Proponent's estimation of the GHG project leakage, leakage guidance in the approved methodology, and the VVB's sectoral knowledge to make an independent assessment of leakage. If there is a material discrepancy between the leakage assessment and deduction included in the GHG Project Plan or GHG assertion and the VVB's independent assessment, this discrepancy must be resolved with the Project Proponent and corrected prior to ERT issuance.

9.I VERIFICATION OF PERMANENCE AND RISK REVERSALS

GHG reductions/removals from terrestrial sequestration or carbon storage activities are impermanent in the sense that they are subject to some risk of future reversal, including unintentional reversals (e.g., fire, flood, and insect infestation for terrestrial projects) and intentional reversals (e.g., landowners or project participants choosing to discontinue project activities).

For sequestration or carbon storage projects, the VVB shall confirm that the project has conformed with the monitoring requirements for reversals and whether any reversals have occurred during the reporting period. If a reversal has occurred, the VVB shall confirm that the reversal was reported in accordance with the Reversal Risk Mitigation Agreement, the ACR Standard, and the ACR approved methodology.

CHAPTER 10: VERIFYING AGGREGATED PROJECTS

Aggregation — the pooling of activities at more than one project site into a single GHG project — is an important mechanism to make it feasible for smaller project participants to participate in carbon markets. Aggregation may provide transaction cost efficiencies for initial inventory, monitoring, and verification, and may also diversify risk. ACR does not require aggregation or discourage any project participants from bringing a project to ACR directly; however, recognizing the increasing prevalence of aggregated projects, ACR provides guidelines to Project Proponents aggregating multiple project participants.

Additional requirements for aggregated projects are provided in ACR program documents. This chapter reiterates the portions relevant to verifying aggregated carbon offset projects. Other aggregated projects may be treated similarly from a verification perspective.

10.A VERIFICATION OF AGGREGATED PROJECTS

ACR applies its requirements for initial baseline assessments, monitoring, and verification at the level of the overall project, whether it is a single large project participant or an aggregated group of smaller project participants.

Aggregated projects require that all project participants and sites be identified in the GHG Project Plan at the time of validation, as well as a single Start Date, Crediting Period, and verification schedule.

The field verification every 5 years should include such measurements as the VVB requires to provide a reasonable level of assurance that the GHG assertion is without material discrepancy as defined by ACR. ACR expects the VVB to conduct a risk-based assessment of the probability that verified GHG reductions/removals will be materially different from those reported by the Project Proponent. For aggregated projects, an initial random sample may be sufficient to detect whether more intensive sampling is required to verify the GHG assertion at the ACR materiality threshold. The VVB may randomly select a subset of the project for field verification; if any discrepancies are discovered in the initial selection, the VVB shall visit additional sites to investigate further. ACR does not require the VVB to visit every site or to conduct a minimum number of measurements, provided the GHG assertion for the overall project can be verified at a reasonable level of assurance and the Verification Statement worded accordingly.

10.B PROGRAMMATIC DEVELOPMENT APPROACH

Related to but distinct from aggregation is the concept of a Programmatic Development Approach (PDA) to project development. While an aggregated project may include a variety of sites all with the same overall baseline and Start Date, a programmatic approach adds the further nuance of incrementally adding sites into the project over time through the use of cohorts. This is important for flexibility but makes project design, baseline definition, Start Date, Crediting Period, monitoring, and verification more complex.

A PDA project is treated as a single project with an overall baseline and monitoring/verification plan. The methodology for such projects will need to establish applicability conditions and procedures for the addition of new cohorts to the project, so that it does not become necessary to redefine the baseline each time a new site is added. Individual sites within the programmatic project may have different dates of initial implementation but maintain a single start date. This will require the Project Proponent to design a clear plan and schedule for project accounting, monitoring, and verification. Practical and cost considerations may dictate that each cohort be limited to a single geographic region and relatively similar land types, and that new cohorts be added at the required verification interval every 5 years.

For verification purposes, programmatic projects are treated like an aggregated project with the Start Date corresponding to the 5-year full verification interval. A field verification should occur no less frequently than 5 years after the Start Date, as defined in the validated GHG Project Plan, and will need to occur for each cohort's validation.

The VVB should conduct such measurements as it requires to provide a reasonable level of assurance that the GHG assertion is without material discrepancy. The VVB may randomly select a subset of the project for field verification; if any discrepancies are discovered in the initial selection, the VVB shall visit additional sites to investigate further. Sites in new cohorts that have yet to be validated must be included in the VVB sampling plan during full verifications. ACR does not require the VVB to visit every site or to conduct any minimum number of measurements, provided the GHG assertion for the overall project can be verified at a reasonable level of assurance and the Verification Statement worded accordingly.

During verification of a PDA project, the VVB shall:

- Ensure that the project meets the requirements for a PDA project as specified in the ACR Standard.
- Select a subset of sites for in-depth review and site visits in lieu of 100% sampling of all sites, at the VVB's discretion. The VVB is not required to visit each site during a full verification, but site visits should include a mix of new sites and sites from previously validated cohorts.
- Review any revisions to previously validated cohort design documents, monitoring reports, and any other supporting documentation that memorializes project updates from all participating sites. This information can be compiled and presented in a single document at the project proponents discretion.

- Provide to ACR its opinion on inclusion of the cohort, prior to registration or issuance of ERTs by way of a validation assessment that can be included in the relevant Verification Report.

CHAPTER 11: QUALITY ASSURANCE AND QUALITY CONTROL

The Project Proponent shall establish and apply QA/QC procedures to manage data and information, including the assessment of uncertainty, relevant to the baseline and project scenarios. QA/QC procedures and the minimization of overall uncertainty are integrally related to the level of assurance required for verification, the materiality of sources included in the GHG assessment boundary, and the risk of material misstatements.

11.A SOURCES OF UNCERTAINTY

Assessment of uncertainty is a key element of a GHG emission reduction project QA/QC program. Significant sources with the largest uncertainty in their emission estimates should be targeted for improvements. The goal of this iterative QA/QC process is to minimize overall uncertainty in the reported GHG information.

Uncertainty is defined as a statistical parameter associated with the result of a direct measurement or indirect quantitative estimate that characterizes the dispersion of the values that could be reasonably attributed to the measured/estimated quantity (e.g., the sample variance or coefficient of variation). For GHG emissions and reductions estimates, it refers to the lack of certainty in emissions-related data resulting from factors such as:

- Application of non-representative or inaccurate quantification methodologies or emission factors;
- Incomplete data on, or omission of, material sources;
- Lack of transparency;
- Measurement accuracy or error; and
- Weaknesses in data management systems in place to control data quality.

Reported uncertainty typically specifies a quantitative estimate of the likely difference between or dispersion among reported values, and a qualitative description of the likely causes of said differences. Quantitative uncertainty estimates performed according to the “Guide to the Expression of Uncertainty in Measurement (GUM)” (ISO 1995; updated 2008) or a similar methodology are recommended for those GHG emission reductions/removal enhancements whose estimation methodologies do not include multiple measurements that allow quantification of confidence intervals. These quantitative uncertainty estimates are an integral component of the ACR verification process.

The major sources of uncertainty associated with GHG emissions estimates include:

- Estimation or model: quantification methods and mathematical equations;
- Parameter: quantifying parameters in method (emission factor, activity data);
- Systematic: estimation bias (e.g., non-representative data, faulty equipment);
- Statistical: random variability of sample data; and
- Project baseline: associated with assumptions used in development of baseline scenarios, projecting a set of circumstances possibly not likely to occur (e.g., technology, performance, timing, equivalent services uncertainties).

If adequate data are not available to quantify these uncertainties, expert judgment is often used to estimate them. GHG data uncertainties should be addressed in the QA/QC procedures and assessed by the VVB for adequacy and implementation results. Methods for estimating GHG emissions uncertainty to be assessed by the VVB may include:

- Qualitative discussion: sources listed and relative magnitude of uncertainties discussed;
- Subjective data quality rankings: rankings based on professional judgment assigned to each key emission factor and activity parameter;
- Data attribute ranking system: relative uncertainty numerical value criteria;
- Expert estimation used to estimate uncertainty;
- Propagation of errors: statistical techniques applied to expert estimates; and
- Direct simulation: Monte Carlo or other numerical modeling methods.

It is the VVB's role to assess which GHG uncertainty analysis method was utilized in the project's QA/QC program, its appropriateness for data quality objectives and end use, and its results. In all cases, the VVB should confirm that the appropriate uncertainty assessment procedures have been used.

11.B QA/QC PROCEDURES

QA/QC procedures are critical to estimating GHG reductions over time. The nature and extent of QA/QC activities, and whether the Project Proponent implements a formal QA/QC plan, will vary depending on the end uses of the reported GHG data. It is not the VVB's role to develop a GHG emissions reductions QA/QC plan as part of the verification, but rather to verify:

- The existence of QA/QC procedures for each of the major data gathering and processing steps, and general areas of conformance and non-conformance with said QA/QC procedures;
- The appropriateness of the QA/QC procedures or plan, with respect to its design and elements, and their relationship to the GHG project applications for the reported GHG emissions data;
- The existence of a QA/QC plan and/or documented QA/QC procedures, either developed specifically for the GHG project or developed for more general environmental or financial programs and applied to the GHG project; and

- The actual application of QA/QC procedures as part of the GHG project emissions reduction activities, and availability of QA/QC results for review by the VVB.

A primary objective of QA/QC procedures is to identify the sources of error or uncertainty in both the data and data management system(s), and to reduce uncertainty and improve data quality. Verification activities should take advantage of any available results from the Project Proponent's ongoing QA/QC program, as it relates to emission reductions/removal data. QA/QC activities performed by the Project Proponent should provide reference data against which the VVB can check results of the verification and use as input to help plan for and guide execution of the verification activities.

QA/QC activities should be designed to address emissions estimation uncertainty and data quality. The uncertainty associated with the VVB's assessment of risk is reflected in the degree of confidence stated in its assertion: the greater the uncertainty, the lower degree of confidence in the reported results and, hence, a higher concern about risk.

QA/QC procedures for GHG projects will vary, ranging from institutional knowledge of the Project Proponent and documented general QA/QC procedures to a formal written QA/QC plan. Elements of a reporting party's QA/QC program that may be assessed include (as informed by the VVB's professional judgment; not all are required):

- Identify whether definitions of data quality objectives exist and are consistent with end uses of the reported GHG data;
- Determine if major sources of uncertainty have been identified, and whether an approach to reduce uncertainty and improve the quality of reported results has been developed and implemented;
- Confirm that applicable QC and independent QA activities have been performed;
- Confirm that data collection and management processes, and QA/QC procedures have been properly implemented;
- Confirm that QA/QC results and resolution of problems have been adequately documented, and results communicated to the GHG project team;
- Determine the degree to which any existing data quality objectives have been met, including assessments of accuracy (or uncertainty) of estimates, data completeness, representativeness, aggregation/disaggregation, comparability/consistency, and documentation; and
- Ensure the reasonableness of data and emissions estimates, validity of assumptions, methodology, and data used, and algorithmic correctness.

The QA/QC methods and results the VVB assesses may include (as informed by the VVB's professional judgment; not all are required):

- Reality checks: compare data or estimates to a standard reference value, estimates for similar sources, and expert judgment on reasonableness of value;
- Peer review: checklist of elements covered by peer review and written reviewer comments identifying issues;

- Sample calculations: replication of a complete calculation set, hand replication of the most complex calculations, and recalculation using a different method;
- Computerized checks: review built-in QA/QC functions, variable type and value range checks, lookup tables, cell dependency, cell precedence, and error identification;
- Sensitivity analysis: focus on key variables and effects on results of emissions models and previous inventories/sensitivity analyses;
- Statistical checks: descriptive statistics and outlier detection for range checks;
- Independent internal reviews: evaluation to determine data quality, confidence in accuracy and completeness of results, and QC effectiveness; and
- Emission estimation comparisons: comparison of estimated emissions to real-world measurements (or their surrogates).

CHAPTER 12: VERIFICATION STATEMENT AND VERIFICATION REPORT

The end products of verification are a Verification Statement and Verification Report. ACR posts both publicly.

The Verification Statement is a brief statement of the VVB's opinion of the GHG assertion. This statement shall:

- Be addressed to ACR.
- Provide the VVB's name, address, and other contact information.
- Include an introductory paragraph that:
 - ◆ Identifies the project name and the project proponent;
 - ◆ Describes the level of assurance, objectives, and scope;
 - ◆ Identifies the reporting period covered by the verification; and
 - ◆ References the ACR Standard and approved methodology against which the verification was conducted.
- State the quantity of GHG emission reductions or removal enhancements in the GHG assertion for the reporting period.
- State the VVB's conclusion on the GHG assertion, including any qualifications or limitations. For acceptance by ACR, the Verification Statement shall confirm that the GHG assertion is without material discrepancy, as defined by ACR, and that the verification activities provide a reasonable level of assurance.
- Be signed by the lead verifier and internal reviewer.

The Verification Report is a more detailed description of the verification activities, corrective actions, and conclusions. This report shall:

- Provide the VVB's name, address, and other contact information.
- Include the date of report issue.
- Identify the GHG assertion verified and reporting period covered.
- Reference the ACR Standard and approved methodology against which the verification was conducted.
- Describe the verification objectives, scope, and activities, including:
 - ◆ GHG information or performance data verified (e.g., baseline GHG emissions, project GHG emissions, GHG emissions reductions and/or removal enhancements);
 - ◆ Project personnel interviewed;

- ◆ Techniques and processes used to test the GHG information and associated GHG assertion;
 - ◆ The results of quantitative uncertainty assessment and analysis of the quantification methodologies and applicable data sets and sources;
 - ◆ Whether the data and information supporting the GHG assertion were based on assumptions and industry defaults, future projections, and/or actual historical records;
 - ◆ Describe the leakage assessment, if required; and
 - ◆ Describe any findings, including opportunities for improvement raised during the verification and their resolutions, including issues that required consultation with ACR and ACR's determinations on these issues, citing the specific communication and date.
- Include dates for any site visits, which sites were visited, and any onsite activities conducted.
 - For projects requiring Project Proponents to assess risk of reversal and apply an ACR-approved risk reversal mechanism, include the VVB's opinion on the risk assessment.
 - Describe the level of assurance.
 - State the VVB's conclusion on the GHG assertion, including any qualifications or limitations. For acceptance by ACR, the Verification Statement shall confirm that the GHG assertion is without material discrepancy, as defined by ACR, and that the verification activities provide a reasonable level of assurance.
 - Be signed and dated by the lead verifier and internal reviewer.

Note that validation and the first verification may be conducted simultaneously, and may be conducted by the same approved VVB. Therefore, it is acceptable to combine the Validation Report (see Chapter 7 for contents) and Verification Report into a single report.

CHAPTER 13: REQUIREMENTS FOR VVBs

This chapter reiterates information about current requirements for ACR-approved validators and verifiers provided on www.americancarbonregistry.org. The information on the ACR Web site — the current list of approved VVBs, accreditation and other requirements of VVBs, VVB application process and fees, and conflict of interest requirements — supersedes the information in this chapter in the case of any conflicts.

13.A REQUIREMENTS OF PROJECT VALIDATORS AND VERIFIERS

VVBs shall be accredited for project validation and verification in the scope of the applicable methodology, and VVB teams shall meet the competence requirements as set out in ISO 14065:2013. All ACR validators and verifiers must be accredited, by an accreditation body that is a member of the IAF and with which ACR has a Memorandum of Understanding (MoU), to ISO 14065:2013 (or the latest version of the standard) in the applicable sectoral scope to conduct validation(s) and/or verification(s)¹⁰¹¹. All entities must submit required documentation and evidence of accreditation for ACR approval prior to conducting work for any project registered or seeking registration on ACR.

ANSI accredits VVBs separately for validation and verification of assertions related to GHG emission reductions and removals at the project level.

ACR requires that all VVBs submit an application and verifier attestation, which defines the VVB role and responsibilities, ensuring technical capabilities and no conflicts of interest. Validation and verification activities may not be conducted until the VVB has received approval from ACR. Once approved, it is the VVB's responsibility to update ACR immediately about any changes in accreditation status or scope, enforcement activities, investigations, revocations or suspensions of the body itself, or any verifiers working on the VVB's behalf.

VVBs must also complete a project-specific conflict of interest form prior to initiating any validation or verification work. VVBs must complete the conflict of interest form for each reporting period, regardless of prior approval.

The VVB application process is detailed at www.americancarbonregistry.org.

¹⁰ ACR will consider, on a case-by-case basis, VVBs pursuing accreditation to perform validations or verifications on behalf of ACR.

¹¹ As of May 2018, ACR has an MoU with the ANSI. ACR may, in the future, enter into MoUs with other IAF member accreditation bodies.

13.B APPROVED VVBs

See www.americancarbonregistry.org.

13.C ROTATION REQUIREMENT FOR VVBs

Projects may elect to contract with the same VVB for both validation and the first verification. ACR requires that Project Proponents utilize a different VVB at a minimum of every 5 years or five verifications, whichever comes first. For Crediting Period renewals, a different VVB than conducted the initial project validation must be chosen.

13.D VVB OVERSIGHT

In addition to the accreditation processes to which all VVBs must adhere, ACR reserves the right to conduct oversight activities during validation and/or verification performance by the VVBs 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 Reports, Verification Reports, and Verification Statements; and
- Participation during project-level audits.

13.D.1 Oversight of IAF Member-Accredited VVBs

Should ACR select an IAF member-accredited VVB for a project-level audit, the VVB must include ACR on communications with the Project Proponent, include ACR in substantive meetings with the Project Proponent, and make project-level data and information subject to validation and/or verification available to ACR for review. During a project-level audit, ACR may choose to send, at its own expense, a representative to the validation and/or verification site visit to observe on-site verification activities. After a project-level audit is complete, ACR will communicate its observations via written report directly to the VVB, which may also be made available to the accreditation body. The report will document, as applicable, any items of concern noted during validation and/or verification performance, including areas for improvement and nonconformities with ACR validation and verification procedures.

APPENDIX A: REFERENCES

- American Carbon Registry. 2018. The American Carbon Registry Standard, version 5.0. Winrock International, Little Rock, Arkansas.
- Environmental Resources Trust (ERT). 2005. Corporate Greenhouse Gas Verification Guideline, prepared for the U.S. Environmental Protection Agency's Climate Leaders Program, Washington, DC.
- International Standards Organization (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 Standards Organization (ISO) 14064-3:2006(E) - Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.
- International Standards Organization (ISO) 14065:2013(E) - Greenhouse gases — Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition.
- International Standards Organization (ISO) 14066:2011(E) - Greenhouse gases — Competence requirements for greenhouse gas validation teams and verification teams.
- International Standards Organization (ISO). Guide 98-3:2008 Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement.
- United States Environmental Protection Agency (USEPA) Climate Leaders Program, GHG Inventory Protocol (May 2005). <http://www.epa.gov/climateleaders/resources/inventory-guidance.html>.
- United States Environmental Protection Agency (USEPA). 2009. Using Offsets to Help Climate Leaders Achieve Their GHG Reduction Goals: Climate Leaders Offset Module Overview. EPA-430-F-09-046. <http://www.epa.gov/stateply/documents/resources/OffsetProgramOverview.pdf>.
- World Resources Institute and World Business Council for Sustainable Development (WRI/WBCSD). 2005. Greenhouse Gas Protocol Initiative, The GHG protocol for project accounting. <http://www.ghgprotocol.org/standards/project-standard>.



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Buffer Pool Account Balance



Year	Credits Deposited	Credits Retired	Credits Canceled
2010	45,834	0	0
2011	8,794	0	0
2012	1,107,293	0	0
2013	52,171	0	0
2014	491,280	0	349,621
2015	824,850	0	900,819
2016	3,891,539	0	782,205
2017	7,392,354	0	4,396,848
2018	1,781,463	0	6,716,458
2019	1,784,952	0	1,899,553
2020	2,633,337	0	737,347
Total	20,013,867	0	15,782,851

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American Carbon Registry - Powered by APX Technology

6 July 2020

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Dear American Carbon Registry,

We provide here a brief statement on the conclusion SCS Global Services (SCS) has reached regarding the GHG assertion as documented in the monitoring report describing the GHG emission reductions or removal enhancements attributed to the Bluesource – Hawk Mountain Improved Forest Management project for the 17 March 2019 to 16 March 2020 reporting period. The overall goal of the third-party verification was to review impartially and objectively the claimed GHG emission reductions/removal enhancements claimed by the project proponent, the Hawk Mountain Sanctuary Associations, against relevant ACR standards and the approved methodology. The verification was carried out against Version 5.0 of the ACR Standard and Version 1.3 of the Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands.

SCS concludes, with no qualifications or limitations and with a reasonable level of assurance, that the GHG assertion conforms to the verification criteria and is without material discrepancy, as defined by the American Carbon Registry. The quantity of GHG emission reductions/removal enhancements thus verified by SCS is set out below.

Annual Emission Reduction in Metric Tons (tCO ₂ e)					
Reporting Period	Vintage	Start Date	End Date	Net GHG Emission Reductions (tCO ₂ e)	Quantity of Buffer Credits (tCO ₂ e)
3	2019	17 March 2019	31 December 2019	29,717	6,970
3	2020	1 January 2020	16 March 2020	7,685	1,803
Total				37,402	8,773



<p>Lead Auditor Approval</p>	<p> Alexa Dugan, 6 July 2020</p>
<p>Internal Reviewer Approval</p>	<p> Michael Hoe, 6 July 2020</p>

VERIFICATION REPORT

American Carbon Registry

ACR375: Bluesource – Hawk Mountain Improved Forest Management Project

Reporting Period:
17 March 2019 to 16 March 2020

Prepared for:
Bluesource LLC

6 July 2020



AMERICAN CARBON REGISTRY

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Audit Team	Lead Auditor: Alexa Dugan, Verification Forester Auditor: James Cwiklik, Verification Forester Internal Reviewer: Michael Hoe, Verification Forester

Executive Summary

This report describes the verification services provided for the Bluesource – Hawk Mountain project (“the project”), an Improved Forest Management (IFM) project located in eastern Pennsylvania, USA, that was conducted by SCS Global Services. The overall goal of the verification engagement was to review impartially and objectively the claimed GHG emission reductions/removal enhancements for the reporting period from 17 March 2019 to 16 March 2020 against relevant ACR standards and the approved methodology. The verification engagement was carried out through a combination of document review and interviews with relevant personnel. As part of the verification engagement 2 findings were raised: 0 Non-Conformity Reports, 2 New Information Request and 0 Observations. These findings are described in Appendix A of this report. The project complies with the verification criteria, and SCS holds no restrictions or uncertainties with respect to the compliance of the project with the verification criteria.

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1 Introduction

1.1 About SCS Global Services

SCS Global Services (SCS) is a global leader in third-party certification, auditing, testing services, and standards. Established as an independent third-party certification firm in 1984, our goal is to recognize the highest levels of performance in environmental protection and social responsibility in the private and public sectors, and to stimulate continuous improvement in sustainable development. In 2012, Scientific Certification Systems, Inc. began doing business as SCS Global Services, communicating its global position with offices and representatives in over 20 countries.

SCS' Greenhouse Gas (GHG) Verification Program has been verifying carbon offsets since 2008 and to date has verified over 250 million tonnes of CO₂e, providing GHG verification services to a wide array of industries including manufacturing, transportation, municipalities, and non-profit organizations. The GHG Verification Program draws upon SCS's established expertise to serve the global carbon market.

1.2 Objectives

The overall goal of third-party verification was to review impartially and objectively the claimed GHG emission reductions/removal enhancements against relevant ACR standards and the approved methodology. SCS independently evaluated the GHG assertion, based on supporting evidence and GHG verification best practice. The objectives of the verification were to evaluate:

- Reported project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).
- Any significant changes to the project procedures or criteria since the last verification.
- Any significant changes in the GHG project's emission reductions/removal enhancements since the last verification.

SCS reviewed the monitoring report, GHG assertion, and any additional relevant documentation provided by the client to determine

- That the reported emissions reductions and/or removal enhancements are real.
- Degree of confidence in and completeness of the GHG assertion.
- That project implementation was consistent with the GHG project plan.
- Eligibility for registration on ACR.
- Sources and magnitude of potential errors, omissions, and misrepresentations, including the
 - Inherent risk of material misstatement.
 - Risk that the existing controls of the GHG project would not have prevented or detected a material misstatement.

1.3 Scope

Verification included examination of some or all of the following elements of the monitoring report:

- Physical infrastructure, activities, technologies, and processes of the GHG project
- GHG SSRs within the project boundary
- Temporal boundary
- Methods and calculations used to generate estimates of emissions and emission reductions/removal enhancements
- Original underlying data and documentation as relevant and required to evaluate the GHG assertion
- Process information, source identification/counts, and operational details
- Data management systems
- Roles and responsibilities of project participants or client staff
- QA/QC procedures and results
- Processes for and results from uncertainty assessments
- Project-specific conformance to ACR eligibility criteria

SCS examined the reported data, quantification methodologies, calculation spread-sheets or databases, source data, project data management systems, data quality controls in place, measurement and monitoring systems, and records pertaining to emissions quantification. Calculation and error checks, interviews with project participants, an iterative risk assessment, sampling plan, and audit checklist were performed to the extent necessary for SCS to develop an understanding of how data are collected, handled, and stored for a specific project.

1.4 Verification Criteria

The verification criteria were comprised of the following:

- ACR Standard, Version 5.0
- Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (“the methodology”)

1.5 Level of Assurance

The level of assurance was reasonable.

1.6 Treatment of Materiality

For verification purposes, it was required that discrepancies between the emission reductions/removal enhancements claimed by the project team and estimated by SCS to be immaterial, i.e. be less than ACR's materiality threshold of $\pm 5\%$, as calculated according to the equation in the ACR Standard.

1.7 Summary Description of the Project

The project is located across Berks and Schuylkill counties in eastern Pennsylvania and is aimed at ensuring the long-term conservation and sustainable management of the forest, promoting healthy wildlife habitat, and preventing future compromise of the forest carbon stocks on the forestlands owned by the Hawk Mountain Sanctuary Associations, the project proponent. The project is in partnership with The Nature Conservancy and a conservation easement has been put in place to ensure its permanence.

2 Assessment Process

2.1 Method and Criteria

The verification services were provided through a combination of document review and interviews with relevant personnel, as discussed in Sections 2.2 through 2.4 of this report. At all times, an assessment was made for conformance to the criteria described in Section 1.4 of this report. As discussed in Section 2.5 of this report, findings were issued to ensure conformance to all requirements.

The audit team created a sampling plan following a proprietary sampling plan template developed by SCS. The audit team identified areas of "residual risk"—those areas where there existed risk of a material misstatement (see Section 1.6 above) that was not prevented or detected by the controls of the project. Sampling and data testing activities were planned to address areas of residual risk. The audit team then created a verification plan that took the sampling plan into account.

2.2 Document Review

The monitoring report (version 2.0 dated 6 May 2020; "MR") was carefully reviewed for conformance to the verification criteria. The following provides a list of additional documentation, provided by project personnel in support of the aforementioned documents, that was reviewed by the audit team.

Documentation Reviewed During the Course of Verification Activities		
Document	File Name	Ref.
Attestation	acr-terms-of-use-june-2015_corporate signature Signed by HMS.pdf	1
Attestation	Annual-Project-Attestation_2020 Signed by HMS.pdf	2
Attestation	Hawk_Regulatory_Compliance_Attestation_2020 Signed by HMS.pdf	3
Calculations workbook	HawkMountain_RP_ERT_HWP_03_30_2020.xlsx	4

GHG Project Plan	HawkMountain_GHG_Plan_11_06_18.pdf	5
Inventory plots shapefile	HawkMountainPlots_5_3_18.shp	6
Project area shapefile	HMS_Boundary_5_1_18.shp	7

2.3 Interviews

2.3.1 Interviews of Project Personnel

The process used in interviewing project personnel was a process wherein the audit team elicited information from project personnel regarding (1) the work products provided to the audit team in support of the MR; (2) actions undertaken to ensure conformance with various requirements and (3) implementation status of the project activities. The following provides a list of personnel associated with the project who were interviewed.

Interview Log: Individuals Associated with Project Team			
Individual	Affiliation	Role	Date(s) Interviewed
Cakey Worthington	Bluesource	Director of Implementation	Throughout audit
Megan McKinley	Bluesource	Analyst – Forest carbon projects	Throughout audit

2.3.2 Interviews of Other Individuals

The process used in interviewing individuals other than project personnel was a process wherein the audit team made inquiries to confirm the validity of the information provided to the audit team. The following personnel are not associated with the project team. The following provides a list of individuals not associated with the project proponent who were interviewed.

Interview Log: Individuals Not Associated with Project Proponent			
Individual	Affiliation	Role	Date(s) Interviewed
Steven Ziegler	Pennsylvania Department of Forests, Parks and Recreation	Schuylkill County Forester	10 April 2020

2.4 Site Inspections

No on-site inspections were conducted as part of the verification services.

2.5 Resolution of Findings

Any potential or actual discrepancies identified during the audit process were resolved through the issuance of findings. The types of findings typically issued by SCS during this type of verification engagement are characterized as follows:

- Non-Conformity Report (NCR): An NCR signified a discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a verification statement.
- New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an NIR did not necessarily indicate that the project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a verification statement.
- Observation (OBS): An OBS indicates an area where immaterial discrepancies exist between the observations, data testing results or professional judgment of the audit team and the information reported or utilized (or the methods used to acquire such information) within the GHG assertion. A root cause analysis and corrective action plan are not required, but highly recommended. Observations are considered by the audit team to be closed upon issuance, and a response to this type of finding is not necessary.

As part of the audit process, 0 NCRs, 2 NIR and 0 OBS were issued. All findings issued by the audit team during the audit process have been closed. All findings issued during the audit process, and the impetus for the closure of each such finding, are described in Appendix A of this report.

2.6 Techniques and Processes Used to Test the GHG Information and GHG Assertion

The audit team applied various techniques and processes to test the GHG information and the GHG assertion over the course of the audit, listed below:

- Review of project documentation including the MR, attestations (Refs. 1-3) spatial information (Ref. 6-7), and calculation workbook (Ref. 4) to check for project-specific conformance to ACR standard and methodology, appropriateness of methodologies and tools applied, accuracy of GHG information and assertion.
- Assessment of any disturbances or forest management activities that took place in the project area during the reporting period.
- Review of project scenarios.
- Review of the sources, sinks and reservoirs of GHG emissions within the project boundary (Ref. 4).
- Assessment of eligibility, additionality, GHG emission reduction assertion and underlying monitoring data to determine if either contained material or immaterial misstatements.
- Assessment of the emission reduction calculation inputs and procedures was performed to review the quantitative analyses undertaken by Bluesource to convert the raw inventory data into emission reduction estimates during the reporting period. This included a re-calculation of

project emissions, ERTs, and uncertainty using inventory data as described below in section 3.1 and 3.2 (Ref. 4).

- Communicate with project personnel and other individuals via interviews, emails, and meetings to gain a better understanding of the project team’s methodologies and activities in the project area.
- Examine the data management and quality control processes and its controls for sources of potential errors and omissions.
- Review of project documentation including risk assessment and regulatory compliance (Ref. 3).

3 Verification Findings

3.1 Results of Quantitative Uncertainty Assessment

SCS devoted a portion of the verification assessment to the review of the manner and propriety by which the project personnel quantified uncertainty associated with the individual GHGs in the project, in addition to the uncertainty of the calculation of GHG emission reductions and removals. The project uncertainty was verified within independent re-quantification. The audit team also calculated the total materiality of the GHG reduction and removal assertion. See below.

3.1.1 Project Uncertainty

The reported total Project Uncertainty (UNC_t) was independently re-quantified by SCS using equation 19 in the methodology. No issues were found (see table below). The audit team found this difference reasonable and immaterial.

	SCS Values	Client Values	Difference
Year	UNC_t	UNC_t	
2020	7.77%	7.89%	0.12%

Materiality

$$\% \text{ Error} = \frac{(\text{Project Emission Reduction Assertion} - \text{Verifier Emission Reduction Recalculation})}{\text{Verifier Emission Reduction Recalculation}} * 100$$

$$\% \text{ Error} = \frac{(37,402 - 37,424)}{37,424} * 100 = \frac{-22}{37,424} * 100 = -0.06\%$$

3.2 Analysis of the Quantification Methodologies and Applicable Data Sets and Sources

The audit team re-quantified project emissions, emissions reductions, and project uncertainty from the raw inventory data provided by the client. This process entailed verifying that the methods detailed in the MR were applied as indicated. The team confirmed the emissions reduction by conducting the following analysis:

- Re-model in the Forest Vegetation Simulator (FVS) the project scenario for a sample plot(s) and prescription to estimate the live tree and dead tree carbon annual (Ref. 4).
- Recalculate the live above ground, live below ground, and standing dead carbon pools by adding the annual carbon increment (per acre) to the previous reporting period stocks and expanding by the project area (Ref. 4).
- Calculate the change in project carbon stock stored in above and below ground live trees using equation 11 in the methodology (Ref. 4).
- Calculate the change in project carbon stock stored in above ground dead trees using equation 12 in the methodology.
- Calculate any greenhouse gas emission resulting from the implementation of the project in the reporting period using equation 13 in the methodology (Ref. 4).
- Calculate the change in the project carbon stock and GHG emissions during the reporting period using equation 14 in the methodology.
- Calculate the percentage uncertainty in the combined carbon stocks in the project during the reporting period using equation 18 in the methodology.
- Calculate the total project uncertainty (percentage) during the reporting period using equation 19 in the methodology.
- Calculate the net greenhouse gas emission reductions (in metric tons CO₂e) during the reporting period and during each annual vintage using equation 20 in the methodology.

Emission Reductions

The audit team verified that the project personnel used the appropriate emissions factors and GWP's to calculate total emission reductions, which is adherent to the ACR Methodology. The team recalculated the final emission reductions and confirmed that they are without material discrepancy.

The ERT's associated with the second reporting period are reported in the ERT workbook and are verified by the verification team are as follows:

- 46,175 tCO₂e (Emissions reductions at the end of the current reporting period without risk buffer deductions)
- 37,402 tCO₂e (Emissions reductions at the end of the current reporting period including risk buffer deductions)
- 8,773 t CO₂e Risk buffer contribution
- 30,783 t CO₂e Leakage deduction

Variances or Deviations

For this reporting period, there were no variances or deviations.

Uncertainty

See section 3.1.1 above.

3.3 Basis of Data and Information Supporting the GHG Assertion

The following table indicates whether the data and information supporting the GHG assertion were based on assumptions and industry defaults, future projections, and/or actual historical records.

Assumptions and Industry Defaults	<input checked="" type="checkbox"/>
Future Projections	<input type="checkbox"/>
Actual Historical Records	<input checked="" type="checkbox"/>

3.4 Leakage Assessment

Section VI.3 of the MR states: “Quantification of leakage is limited to market leakage, as no activity-shifting leakage is allowed by the methodology beyond de minimis levels. All forestlands owned by Hawk Mountain Sanctuary Association are FSC certified and included in the carbon project, therefore there is no activity-shifting leakage.”

SCS confirmed that the applicable market leakage factor of 0.4 was applied.

3.5 Risk Assessment

The reported value of the total risk score, as determined based on the risk analysis documented in the MR was 19%. The audit team performed a complete review of the risk assessment against the requirements of the ACR Tool for Risk Analysis and Buffer Determination. The audit team concludes that the assignment of risk scores is appropriate and in conformance to the ACR Tool for Risk Analysis and Buffer Determination. A more detailed review of the audit team’s conclusions may be found below.

Actions Undertaken to Evaluate Whether the Risk Assessment Has Been Conducted Correctly		
Risk Category	Value Selected	Verification Activities

A	4%	Confirmation, through independent review of documentation, that project is not located on public or tribal lands
B	4%	Confirmation, through independent review of documentation, that project is not located on public or tribal lands
C	2%	Confirmation, through independent review of documentation, that the project is not located outside the United States
D	-3%	Confirmation, through independent review of documentation, that there is regular onsite monitoring of activities related to carbon-specific conservation activities
E	2%	Confirmation, through independent review of documentation, that project is located in low fire risk region.
F	8%	Confirmation, through independent review of documentation, that epidemic disease or infestation is present within the project areas, or within a 30 mile radius of the project area.
G	0%	Confirmation, through independent review of documentation, that project is not a wetland project or a forest project where more than 60% of the project area is not a forested wetland.
H	2%	Confirmation that default value has been applied in the risk assessment calculation.

4 Conclusion

The audit team asserts, with no qualifications or limitations, that the quantification of GHG emission reductions and/or removal enhancements, as reported in the MR, conforms to the verification criteria and is without material discrepancy.

On the basis of the information made available to SCS and the analyses completed during the verification, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the emission reductions represented by the Project Proponent during the monitoring period of 17 March 2019 to 16 March 2020 are free from material misstatement and in conformance with the assessment criteria.

The following provides a summary of the verification results:

Reporting Period	Baseline Emissions tCO ₂ e	Project Emissions tCO ₂ e	Net GHG Emission Reductions tCO ₂ e
17 March 2019 to 16 March 2020	-72,180	4,779	37,402

The following provides a summary of the ERT issuance for the current Reporting Period with the Buffer excluded:

Annual Emission Reduction in Metric Tons (tCO ₂ e)				
Reporting Period	Vintage	Start Date	End Date	Net GHG Emission Reductions (tCO ₂ e)
3	2019	17 March 2019	31 December 2019	36,687
3	2020	1 January 2020	16 March 2020	9,488
Total				46,175

The following provides a summary of the ERT issuance for the current Reporting Period with the Buffer deduction included (Buffer credits shown separately):

Annual Emission Reduction in Metric Tons (tCO ₂ e)					
Reporting Period	Vintage	Start Date	End Date	Net GHG Emission Reductions (tCO ₂ e)	Quantity of Buffer Credits (tCO ₂ e)
3	2019	17 March 2019	31 December 2019	29,717	6,970
3	2020	1 January 2020	16 March 2020	7,685	1,803
Total				37,402	8,773

Note: final numbers are rounded for simplicity.

Lead Auditor Approval	 Alexa Dugan, 6 July 2020
Internal Reviewer Approval	 Michael Hoe, 6 July 2020

Appendix A: List of Findings

Please see Section 2.5 above for a description of the findings issuance process and the categories of findings issued. It should be noted that all language under “Project Personnel Response” is a verbatim transcription of responses provided to the findings by project personnel.

NIR 1 Dated 16 Apr 2020

Standard Reference: ACR Standard v5.0

Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands V1.3

Document Reference: HawkMountain_RP_ERT_HWP_03_30_2020.xlsx

Hawk_RP3_MonitoringReport_03_30_2020.pdf

Finding: The ACR core GHG Accounting principle of transparency states that "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." Likewise the IFM methodology states that "Biomass for each tree is calculated from its merchantable volume using a component ratio method."

The monitoring report states that "2. For each live tree (ascribed a unique identifier), annual diameter growth was derived assuming linear growth during the 10-year projection interval (i.e. for dbh, annual growth calculated as dbh at end of 10-year interval minus dbh at beginning of 10-year interval, reported in the FVS Treelist output, divided by 10). 3. For each live tree, diameter data from the April 2017 inventory were grown referencing the annual rates derived in step 2 above, adding three years of annual growth (i.e. three growing seasons) from the Mar 2017 measurement value. 4. Carbon stocks were recalculated using the grown data."

The audit team requests tree-level carbon stock calculations for RP3 in order to verify that the tree diameters were grown forward and carbon stocks were recalculated according to the methods outlined in the monitoring report and those required by the methodology.

Project Personnel Response: The monitoring report Section VI.2. has been updated to reflect RP3 calculation methods of the project emissions. Biomass was calculated for each tree from its merchantable volume using a component ratio method at the project start date. The incremental growth rate (5-year cycle) was developed from individual tree biomass and applied across the entire project area for RP3, abiding by the IFM methodology.

Auditor Response: The audit team confirmed that the updated methodology in section VI.2 of the Monitoring Report accurately reflects the approach that the client applied to calculate live and dead tree carbon stocks during the third reporting period. This finding is closed.

Bearing on Material Misstatement or Conformance (M/C/NA): NA

NIR 2 Dated 6 May 2020**Standard Reference:** ACR Standard v5.0**Document Reference:** Hawk_RP3_MonitoringReport_04_23_2020.pdf

HawkMountain_RP_ERT_HWP_03_30_2020.xlsx

Finding: The ACR core GHG Accounting principle of consistency states "Enable meaningful comparisons in GHG-related information. Use consistent methodologies for meaningful comparisons of emissions over time."

Section VI.2 of the Monitoring Report "Modeled results for above- and belowground (live) tree biomass for the 16 May 2018 verification date are presented in the table below." A value of 159.2 tCO₂e is then reported in the table. This value is not consistent with the values reported in the ERT workbook, nor is the date (month and year) reflective of the current or previous reporting periods. The audit team requests additional information regarding the origin of this value and the date reported.

Project Personnel Response: Section VI.2. of the monitoring report has been updated to reflect the value used in the HawkMountain_RP_ERT_HWP_03_03_2020.xlsx for the March 2018 verification date. The value of 159.2 tCO₂e was erroneously reported in RP1 within Section VI.2. of the monitoring report and has been carried forward throughout the following reporting years. However, the reported Net GHG Emission Reductions/Removals to follow in Section VI.5., which were used to determine credit issuance in RP1, are based on the true value of 158.9 tCO₂e for the March 2018 verification. The value of 159.2 tCO₂e was from an outdated workbook. The date of May 16, 2018 verification is reflective of the site visit date for the first reporting period. Since it is inconsistent with the dates used in the rest of the Hawk_RP3_MonitoringReport that refer to the actual reporting period verification and not the site visit verification, the date has been changed to March 2018.

Auditor Response: The audit team confirmed that the Monitoring Report has been correctly updated. This finding is closed.

Bearing on Material Misstatement or Conformance (M/C/NA): NA

ENVIRONMENTAL MONITOR

SUMMER 2020

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Open the Golden Door to International Carbon Credits!

Authors: AEP Climate Change Committee

Brian Schuster, Rich Walter, Jennifer Reed, Nicole Vermilion, Michael Hendrix, Haseeb Qureshi, Poonam Boparai, Dave Mitchell, and Pierre Glaize

On June 12, 2020, the California Fourth District Court of Appeal in *Golden Door Properties, LLC, v. County of San Diego* filed a behemoth 137-page opinion, finding that the Supplemental EIR for the San Diego County's 2018 Climate Action Plan (CAP), in part, was not supported by substantial evidence and that it violated CEQA for several reasons. Notably, the court determined that the SEIR violated CEQA because it relied on mitigation measure M-GHG-1 to reduce greenhouse gas (GHG) emissions of general plan amendment projects to net zero (or no net increase over baseline) that the court determined contained unenforceable performance standards and improperly deferred and improperly delegated mitigation. The court seemed particularly concerned that M-GHG-1 would permit carbon offset credits created through carbon registries *not* approved by the California Air Resources Board (CARB); that the carbon credits could originate out-of-county, out-of-state and internationally and may therefore lack rigor or enforceability; that M-GHG-1 lacked objective performance standards; and that the validity and availability of the carbon offsets would be determined based on the subjective discretion of the County of San Diego's Director of Planning & Development Services.

The decision is expansive, is both legally and factually complex, and arises out of a lengthy administrative and legal process that has occurred over nearly a decade. We do not intend to address all issues in the ruling. Instead, we focus on GHG offset credits, how they can constitute valid CEQA mitigation and why the location of valid GHG offset credits does not matter scientifically and should not matter under CEQA.

What is a GHG credit?

It is common for people to use the term "offset" to refer to all forms of GHG credits, but certain protocols, guidance, and practitioners use "offset" to only refer to credits from projects completed in the past. Thus, for this article, the following definitions are used for clarity:^{1,2}

- **GHG credit:** a reduction in GHG emissions of one metric ton of carbon dioxide equivalent (i.e. one MTCO₂e).
- **GHG offset credit:** a GHG credit resulting from an action or project that *has occurred* in the past, subject to rigorous monitoring and verification, and would not have existed without a credit market.
- **Forecasted mitigation unit (FMU):** a GHG credit resulting from an action or project that *will occur in the future*, subject to rigorous monitoring and verification, and would not have existed without a credit market.
- **Registry:** a body which oversees the registration and verification of carbon credits following approved carbon accounting protocols. Registries maintain the protocols for credit generation and govern the generation and retirement of credits to ensure integrity in the systems.
- **Protocol:** a set of standards and calculation methods which ensure emissions reductions associated with projects are real, permanent, and additional.

A credit protocol represents an accepted, technically sound method for quantifying and verifying the emission reductions associated with a particular project type and assuring that the credits result in real GHG reductions. Accredited registries develop high-standard GHG reduction project protocols to provide guidelines for project development, provide transparency, and develop a platform for exchanges. There are many credit proto-

1 Climate Action Reserve, 2019, *Reserve Offset Program Manual*, November 12. Available at <https://www.climateactionreserve.org/how/program/program-manual/>. Accessed July 2020.

2 Offset Quality Initiative, 2018, *Ensuring Offset Quality: Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy*, July. Available at: <http://www.offsetqualityinitiative.org/>. Accessed July 2020.

cols and more continue to be developed. Each accredited registry uses a protocol which requires credits to meet the following five criteria:

- 1. Real:** GHG reductions are estimated using conservative, comprehensive, and scientifically valid accounting. Unintended effects, known as “leakage,” must be accounted for.
- 2. Additional:** GHG reductions must be additional to any that would have occurred in the absence of the offset market, and are not a result of existing laws or regulations.
- 3. Permanent:** GHG reductions must persist for a defined length of time (often 40 to 100 years) and account for expected reversals.
- 4. Verifiable:** For GHG offsets, GHG reductions must result from activities that have been verified on an “ex-post” basis – they have already occurred. FMUs are verified on an “ex ante” basis. Verification requires third-party review of monitoring data for a project to ensure the data are complete and accurate.
- 5. Enforceable:** GHG reductions must be owned by a single entity and be backed by a legal instrument or contract that defines exclusive ownership.

These five criteria are also defined in 17 California Code of Regulations §95802 for offsets used in the California Cap and Trade System, which also adds the term “quantifiable” which is covered by the definition of “real” above. The Climate Action Reserve Offset Program Manual also defines these terms.

These criteria ensure that each offset credit already achieved GHG emission reductions in the past, and that it is a valid offset, or for a FMU, assures that GHG emissions will occur in the future. Therefore, a GHG credit is just as real and reliable a means of reducing GHG emissions as any other action or mitigation measure, including “onsite” measures such as EV charging stations, rooftop solar panels, and electrifying fossil fuel infrastructure. In fact, in many cases GHG offset credits are *more* reliable in reducing emissions than onsite actions since they have already occurred in the past, were created through rigorous accounting criteria, have been verified by an independent third-party, and are subject to continued monitoring and legal enforcement through a binding contract. Many onsite GHG reduction design features and mitigation measures have far less stringent quantitative requirements and monitoring / enforcement mechanisms. FMUs, although they would be in the future, can have as strong a rationale supporting real GHG reductions as any on-site measures, provided they follow a sufficiently rigorous protocol that meets the five criteria.

GHG credits are created through a six-step process as follows:

Step 1, Project Identification: Applicant identifies a project that would result in additional emissions reductions not required as part of the project or other law / regulatory action.

Step 2, Project Preparation: Applicant implements the project.

Step 3, Undertake Emissions Reductions: The project produces (or will produce for FMUs) additional emissions reductions that would not have otherwise occurred without the project to meet regulatory requirements.

Step 4, Submit Project for Verification: Applicant submits the project to registries for verification; the registry ensures that their GHG accounting protocols were used properly and comprehensively.

Step 5, Verification: An independent third party verifies that the project achieves (or will achieve for FMUs) the additional GHG emission reductions as claimed.

Step 6, Creation of Credit: The GHG credits now become “registered” and banked until they are purchased and retired through the voluntary carbon market.

For example, CARB has adopted and published Compliance Offset Protocols for six project types for use in the Cap-and-Trade Program: U.S. Forest Projects, Urban Forest Projects, Livestock Projects, Ozone Depleting Substances Projects, Mine Methane Capture Projects, and Rice Cultivation Projects.³

CARB has approved three registries to date to handle GHG offsets for the Cap-and Trade System: The Climate Action Reserve (CAR), American Carbon Registry (ACR) and Verra (which uses the Verified Carbon Standard [VCS] protocol). These registries handle California Cap & Trade system offsets created through CARB protocols, along with other offsets created through non-CARB protocols. But there is nothing special about CARB approved registries or CARB-approved protocols; these are just the specific protocols that CARB has adopted for use in the Cap & Trade system. There are many other protocols that are just as rigorous and enforceable as Cap & Trade protocols. For example, the Gold Standard (GS) is a fourth well-established and accredited registry.

³ California Air Resources Board, *Compliance Offset Protocols*, 2020. Available at <https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/compliance-offset-protocols>.

Can we use GHG credits as CEQA mitigation?

Yes! (Emphatically). As explained above, GHG credits that are done in compliance with rigorous protocols with third-party verification are valid, real, and additional reductions in GHG emissions. They meet all the standards that CEQA demands of valid mitigation measures. In fact, the CEQA guidelines expressly permit the use of offsite actions and credits to mitigate GHG impacts:

- Section 15126.4 (c)(3) states that mitigation measures for GHG emissions may include “offsite measures, including offsets that are not otherwise required, to mitigate a project’s emissions”
- Section 151370 (e) states that mitigation includes “Compensating for the impact by replacing or providing substitute resources or environments”
- Section 21168.6.5 (i)(1) states that “Offset credits shall be employed by the applicant only after feasible local emission reduction measures have been implemented.”
- Section 15364 states that as feasible mitigation, offsets must 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.”

The California Natural Resources Agency’s Final Statement Of Reasons For Regulatory Action for the CEQA Guidelines Amendments (2009) also supports the use of GHG credits:

- “Proposed subdivision (c)(3) recognizes the availability of various offsite mitigation measures. Such measures could include, among others, the purchase of carbon offsets, community energy conservation projects, and off-site forestry projects”
- Referring to CEQA Guidelines section 15730, “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” and “The efficacy of any proposed mitigation measure is a matter for the lead agency to determine based on the substantial evidence before it.”

Further, even CARB’s 2017 Scoping Plan (which many CEQA practitioners use to develop significance thresholds for GHG impacts) encourages the use of GHG credits⁴ as CEQA mitigation to ensure that development projects do their fair share to contribute toward the state’s 2030 GHG target:

- “Local direct investments in actions to reduce GHG emissions should be supported by quantification methodologies that show the reductions are real, verifiable, quantifiable, permanent, and enforceable. 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 through purchasing and retiring carbon credits.” (p. 102)
- “CAPCOA has developed the GHG Reduction Exchange (GHG Rx) for CEQA mitigation, which could provide credits to achieve additional reductions. It may also be appropriate to utilize credits issued by a recognized and reputable voluntary carbon registry.” (p. 102)
- In Appendix B, which lists potential actions “that could be undertaken at a local level to support the State’s climate goals,” CARB suggests that projects should require “an off-site mitigation project which should generate carbon credits equivalent to the anticipated GHG emission reductions. This would be implemented via an approved protocol for carbon credits from California Air Pollution Control Officers Association (CAPCOA), the California Air Resources Board, or other similar entities determined acceptable by the local air district” and further that projects should “purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registry determined to be acceptable by the local air district.” (p. 10)

To round out the case for GHG credits as valid CEQA mitigation, CARB permits such credits for “environmental leadership” projects through Assembly Bill 900 for judicial streamlining. Nineteen projects so far have submitted AB 900 applications. AB 900 requires that these projects achieve “no net additional” GHG emissions. Many AB 900 projects have relied heavily on purchasing carbon credits to achieve carbon neutrality. For example, the Oakland Athletics Oakland Sports and Mixed-Use Project at Howard Terminal will purchase nearly 40,000 credits annually for 30 years,⁵ and the Downtown West Mixed Use Plan will need to purchase as many as 1.6 million credits over its 30-year life.⁶

5 AB 734 Application: Oakland Athletics Oakland Sports and Mixed-Use Project at Howard Terminal, March 2019. Available at <https://opr.ca.gov/ceqa/california-jobs.html>.

6 Downtown West Mixed Use Plan AB 900 Application and Supporting Documentation, August 2019. Available at <https://opr.ca.gov/ceqa/california-jobs.html>.

4 It should be noted that the 2017 Scoping Plan establishes a clear preference for onsite and local measures that achieve co-benefits before turning to off-site measures and credits.

This is evidence enough that valid GHG credits, created through robust accounting protocols, subject to third-party review and verification, and contingent upon ongoing monitoring and enforcement (to prohibit emission reduction reversals), can be used as valid CEQA mitigation to reduce GHG impacts.

Does the location of the GHG credit matter?

No! (*More emphatically*). Climate change is global. Our atmosphere is global. GHG emissions are well-mixed in the atmosphere and have a lifetime of 100 years or more.⁷ Reducing GHG emissions in your city has the same effect on global climate change as reducing GHG emissions on another continent.

The GHG credit protocol requirements apply regardless of the credit's location. In fact, the three CARB-approved registries (CAR, ACR, and Verra) have approved GHG credits around the world.⁸

And let's not forget, even Cap & Trade offsets occur outside of California! The Cap & Trade regulation expressly permits the use of out-of-state offsets as compliance instruments for in-state entities. [This map from CARB](#) shows the location of many Cap & Trade offsets.⁹

CEQA only requires that a project mitigate its direct and indirect impacts. The GHG impact created by a CEQA project is a global, cumulative impact. Therefore, the location of the mitigation measure *does not matter*, so long as it is valid under CEQA. CEQA cannot require a specific location. It is true that there may be local co-benefits of onsite project design features and local mitigation measures, such as air quality improvements, public health gains, local job creation, and can help address issues of environmental justice. But for addressing a project's specific impact on GHG emissions under CEQA, the other co-benefits related to the location of GHG credits are not relevant to the determination as to whether the mitigation effectively reduces GHG emissions.

In *Golden Door Properties, LLC, v. County of San Diego*, the court expressed skepticism about out-of-state and international GHG credits. They speculate that “[i]n a developing country where one relies upon records that may not exist, and testing technology that may be inadequate or fraudulent, it can be difficult if

not impossible’ to verify GHG reductions.” They worry that in the “climate [of a developing country] how does one distinguish between an emission reduction that would have happened anyway and one that is happening only or in part because of the encouragement of the offset program and the potential to sell a credit for a profit?” And further that “Corruption also presents challenges,” and claim that because countries such as Ethiopia, Nicaragua, and Venezuela rank high on Transparency International’s “corruption index,” we cannot rely on credits created in these countries.

Does corruption in these countries exist? Yes. Does corruption in the United States exist? Yes. Does that mean that GHG credits created in the U.S. are therefore invalid? No. The U.S. is not the only country in the world that knows how to do GHG reductions projects and reliably reduce GHG emissions. It could even be argued that there are many other countries that have a strong record in reducing GHG emissions and combating climate change and in implementing GHG credit systems, including some that are reducing emissions faster than the U.S.¹⁰

The court's reasoning in regards to the location of GHG credits is biased and unscientific. California does a good job creating valid GHG offset credits. But so do plenty of other states and countries. Take the following analogy. California has roadway designs and traffic laws designed to make road travel safe. Germany does not use California design standards or traffic laws, they use German ones. But German roads are also safe. German roadway travel is not unsafe because they don't use California standards and laws. In fact, driving on German roads is objectively safer than driving on California roads.¹¹ If the goal of traffic laws is to save lives by having safe roadway travel, then clearly there is more than one way to do that. The same principal applies to GHG credits outside of California (and the U.S.).

The court also states that the “fundamental problem” in San Diego County's offset mitigation measure is that “the County has no enforcement authority in another state, much less in a foreign country.” However, CEQA Guidelines section 15097(a) allows lead

7 Intergovernmental Panel on Climate Change, 2013, *Climate Change 2013: The Physical Science Basis*. Chapter 2 Observations: Atmosphere and Surface. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available at <https://www.ipcc.ch/report/ar5/wg1/>.

8 A map of CAR offset projects is here: <https://www.climateactionreserve.org/how/projects/>; a list of ACR offset projects is here: <https://acr2.apx.com/myModule/rpt/myrpt.asp?r=111>; information for Verra offset projects is here: <https://verra.org/datainsights/july-2020/>.

9 See <https://webmaps.arb.ca.gov/ARBOCSSuanceMap/>

10 See <https://www.nationalgeographic.com/environment/2019/09/climate-change-report-card-co2-emissions/#close> and <https://climateactiontracker.org/countries/>

11 In 2018, California had 3,563 fatalities associated with 348,796 vehicle miles travelled which translates to 6.3 fatalities per billion vehicle kilometers. This is approximately 45% greater than the 2018 rate in Germany which was 4.3 fatalities per billion vehicle kilometers (Insurance Institute for Highway Safety, 2019, *Fatality Facts 2018, State by State*. December. Available at: <https://www.iihs.org/topics/fatality-statistics/detail/state-by-state>. Last Accessed July 26, 2020. Organization for Economic Cooperation and Development /International Transport Forum, 2019. *Road Safety Annual Report 2019 – Germany*. Available: <https://www.itf-oecd.org/sites/default/files/germany-road-safety.pdf>. Accessed July 26, 2020.).

agencies to delegate mitigation monitoring: “A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.” A GHG credit registry serves as the delegated entity. GHG offset credits recognized by a registry represent GHG emission reductions that *have already occurred in the past*; therefore, by purchasing an offset credit, the reduction in GHG emissions has been completed, and the impact has been mitigated. FMUs may be GHG credits created in the future, but provided that the reductions due to FMUs occur at the same time as a project’s GHG emissions, then the impact will be mitigated as it occurs. Therefore, the fact that the County has no enforcement authority over the specific location where the offset was created is not relevant.

So what should I do?

As a CEQA practitioner, sustainability planner, CAP writer, or other environmental professional using GHG credits for the purpose of reducing GHG emissions, there are a number of strategies that you can use to defend their use. We recommend that you address the following four points:

- 1. Accredited Registries.** Ensure that the GHG credits allowed in your document are created through accredited carbon registries. A CARB-approved registry is advised (given the legal state of things) though not required from a scientific or regulatory standpoint.
- 2. Objective Criteria.** Although the carbon registries utilize robust accounting protocols for all GHG credits created for their platforms, and these protocols require the five objective criteria listed above, we advise that you identify and define each criteria. These criteria are defined in 17 CCR §95802 and also by the individual offset registries.
- 3. Performance Standards.** Provide clear, well-defined, and objective performance standards for determining the number and scope of GHG credits. Make it abundantly clear how many credits are needed and when. For a CEQA project, this may be based on achieving a specific significance threshold or thresholds for different milestone years.

4. Discuss Location. As we’ve made lavishly clear above, the location of GHG credits is irrelevant from a scientific standpoint, provided that the credits are created and purchased through an accredited carbon registry which uses stringent protocols. However, if as *Golden Door Properties, LLC, v. County of San Diego* and the long line of preceding litigation against San Diego County has taught us anything, it is that there is much controversy over the location issue. We therefore advise that you prioritize all onsite project design features, onsite mitigation measures, and local GHG emission reduction programs before using GHG credits. Your strategy will necessarily be unique to your local conditions, lead agency priorities, and area policy preferences.

A valid GHG credit is one that meets the fundamental criteria of valid protocols. The success of prior GHG credit creation and use and the validation protocols is are your “substantial” evidence under CEQA that GHG credits, done correctly, are valid CEQA mitigation.

Happy carbon credit hunting!

Glossary

AB – Assembly Bill

ACR – American Climate Registry

CAP – Climate Action Plan

CAPCOA – California Air Pollution Control Officers Association

CAR – Climate Action Reserve

CARB – California Air Resources Board

CCR – California Code of Regulations

CEQA – California Environmental Quality Act

FMU – forecasted mitigation unit

GHG – greenhouse gas

GS – Gold Standard

MTCO_{2e} – metric ton of carbon dioxide equivalent

VCS – Verified Carbon Standard

AEP Climate Change Committee Member Biographies

Brian Schuster, ESA

Brain Schuster has 12 years of project management and technical air quality and greenhouse gas experience. He develops, plans, and implements Climate Action Plans (CAP) for public and private agencies throughout California. In his CAP work, he designs comprehensive GHG emissions inventories, evaluates GHG emission reductions from a wide variety of measures, authors planning documents, and engages stakeholders through outreach. As a project manager, he has led CAP projects for the counties of San Bernardino, Sonoma, Marin and Los Angeles, and for the City of Ontario.

Mr. Schuster has also authored dozens of environmental impact reports for CEQA and NEPA compliance. His experience includes conducting pollutant dispersion modeling using AERMOD/AERSCREEN and CALINE and modeling emissions using CalEEMod, EMFAC, OFFROAD, WARM, and the ICLEI SEEC ClearPath tool. He has also designed a number of interactive excel models for clients, including GHG inventorying tools, a lifecycle GHG waste tool, a health risk assessment screening tool, GHG reduction measure planning tools, and GHG reduction measure implementation monitoring and tracking tools. Mr. Schuster also is familiar with protocols for GHG inventorying including the ICLEI U.S. Community Protocol, the WRI GPC protocol, the Climate Action Registry protocol, the Local Governmental Operations Protocol, the AEP Inventory Protocol, and the IPCC protocols for GHG inventorying.

Rich Walter, ICF

Rich Walter has 24 years of experience in environmental planning, compliance strategy, permitting, and mitigation development and implementation and climate action planning. He has worked on numerous controversial and complex environmental planning and compliance projects involving both state and federal environmental review and regulatory permitting.

Mr. Walter has directed and participated in environmental impact assessment, alternatives analysis, and environmental permitting processes for a variety of proposed developments, including high-speed rail; commuter rail; residential, commercial, and industrial development; park and recreation facilities and resorts; general plans and specific plans, flood control; water supply; wetland restoration; solar and wind energy; marine oil terminals and oil pipelines; natural gas power plants and pipelines; roads, highways, and bike paths; vineyards; telecommunications; and mining ventures. He also leads ICF's California Municipal Climate Action Planning practice which focuses on greenhouse gas inventories and greenhouse gas reduction planning for cities, counties, and regional governments in California.

Jennifer Reed, Dudek

Jennifer Reed leads Dudek's air quality services team and has over 13 years of experience. Ms. Reed specializes in air quality, GHG emissions, health risk assessment, and energy technical analyses, and continues to be on the forefront of evolving science, emissions modeling computer programs, and regulatory framework issues. She has been responsible for the management,

analysis, and technical leadership of numerous public and private development projects subject to compliance with CEQA and NEPA. In addition, Ms. Reed teaches an air quality and GHG emissions course for UC Davis Extension and has demonstrated success in relaying technical analyses in a way that is easy to understand.

Nicole Vermilion, Placeworks

As Director of Air Quality, GHG & Noise Services, Ms. Vermilion oversees project staffing and timing for the air quality, GHG, and noise technical team's impact evaluations under CEQA. She is responsible for expanding and fine-tuning the team based on changes in technology, legislation, and client needs and for ensuring that PlaceWorks air quality and GHG studies are defensible and consistent with recent case law. She closely follows the rapid changes in requirements and the latest information on CEQA thresholds and analysis methodology. She has performed numerous greenhouse gas emissions inventories for individual projects as well as citywide emissions inventories for general plans.

Ms. Vermilion frequently presents at conferences, including the APA California State Conference and the AEP California State Conference. She participated in the San Joaquin Valley Air Pollution Control District's CEQA GHG significance thresholds working group for development projects and beta-tested the South Coast Air Quality Management District's new CalEEMod program. As a member of AEP's Climate Change Committee, she has contributed to white papers addressing GHG emissions inventories for climate action plans and general plans, and she is working with the committee on a new white paper about post-2020 GHG thresholds.

Michael Hendrix, LSA

Michael Hendrix is one of California's leading climate change and air quality scientists. He is a recipient of the AEP "Professional Achievement Award" where he was recognized for his commitment to balancing the need for industrial, commercial and residential development projects in California with the reduction of greenhouse gas emissions and air pollution is evident through his dedication to air quality evaluations and mitigation that significantly reduce air pollution generated by the expansion of these markets. Mr. Hendrix is the current Chairperson for the AEP Climate Change Committee. In that capacity, he provides leadership within AEP on the issue of climate change and analysis of greenhouse gas emissions.

Mr. Hendrix has experience with the WHO air quality guidelines, IPCC guidance and protocols, U.S. Ambient Air Quality Standards, NEPA guidelines, and CEQA guidelines. He has worked on projects such as the California High-Speed Rail Project: San Francisco to San Jose Segment, the Exposition Light Rail Line for the Exposition Authority in Los Angeles, and the Sustainability and Climate Change Analysis of the Land Use and Circulation Elements (LUCE) Update to the General Plan for Santa Monica.

Haseeb Qureshi, Urban Crossroads

Haseeb Qureshi has been working in the field of air quality and climate change analysis since 2006. In this time, he has authored numerous air quality, health risk, greenhouse gas, and

malodorous impact analysis studies for projects ranging from small development projects to citywide General Plan updates and large scale specific plans. Recent activities include efforts to inventory greenhouse gas emissions for various projects and provide recommendations to reduce carbon impacts through innovative mitigation strategies.

Poonam Boparai, Ascent

Poonam Boparai is an Ascent principal and the firm's San Diego office director. She has over 12 years of experience in the public and private sectors conducting air quality and GHG analyses and climate action planning. She possesses a unique skill set that combines technical expertise with a keen understanding of planning and environmental policy. She has successfully applied her expertise in assisting agencies such as the Bay Area Air Quality Management District, Sacramento Metropolitan Air Quality Management District, San Diego Association of Governments, San Diego Unified Port District, and County of San Diego with air quality and climate change policy development, analysis methodologies, GHG reduction strategies, and development of GHG thresholds of significance. A long-time resident of San Diego, Poonam has in-depth knowledge of the local planning and environmental landscape and has helped multiple clients navigate the dynamic regulatory framework in CEQA and climate action planning.

Dave Mitchell, Mitchell Air Quality Consulting

Dave Mitchell is the sole proprietor of his consulting company and specializes in preparing air quality and greenhouse gas analysis reports for development projects throughout California to comply with CEQA. He has worked for the last 9 years as an environmental consultant for Michael Brandman Associates/First Carbon Solutions. Prior to that, Mr. Mitchell was a Planning Manager for the San Joaquin Valley Air Pollution Control District where he managed air quality plans, CEQA review, indirect source review, grant programs, air monitoring and other functions. He also has prepared numerous air impact assessment applications to comply with SJVAPCD Rule 9510 – Indirect Source Review and climate action plans and greenhouse gas emission inventories for cities and counties.

Pierre Glaize, Michael Baker International

Mr. Glaize is an environmental analyst, with a specialty in acoustics, air quality, health risk assessments, and climate science. He has experience in the research, preparation, and analysis consistent with CEQA for a variety of environmental planning projects involving redevelopment, infrastructure, residential, mixed use, institutional, and commercial uses. He also has prior experience with air quality compliance and Federal Department of Defense contracts. Mr. Glaize's skills include air dispersion modeling (AERMOD), health risk assessment (HRA) analysis, noise, air quality, greenhouse gas technical studies, Caltrans noise study reports, and Caltrans air quality conformity analysis.

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**

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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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 as 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 MMTCO_{2e} 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-blowing 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/remository/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. Invalidation 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-nggip.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 established and incorporated 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 established 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-nggip.iges.or.jp/public/gpplulucf/gpplulucf_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.



Air Resources Board



Matthew Rodriguez
Secretary for
Environmental Protection

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

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,

A handwritten signature in blue ink, appearing to read "R. W. Corey".

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

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

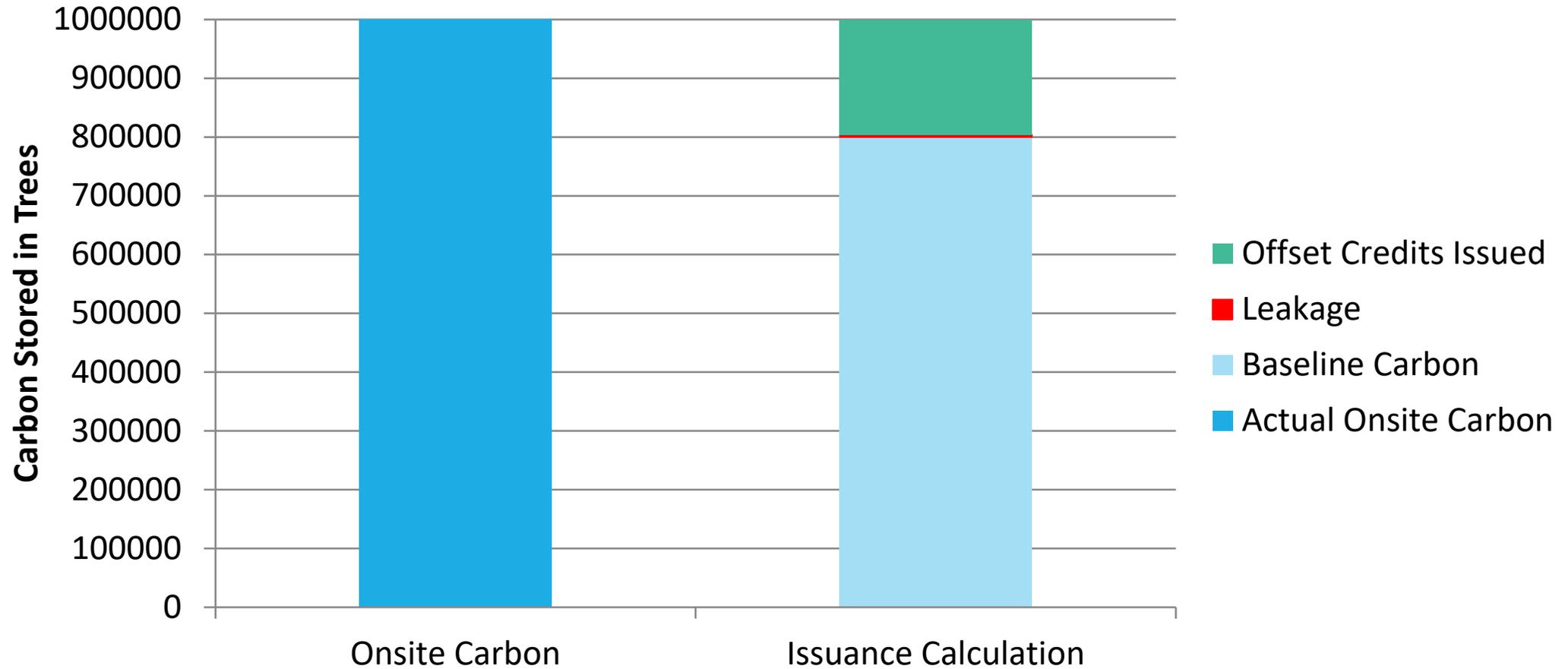
First Year Offset Credit Calculation

- 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

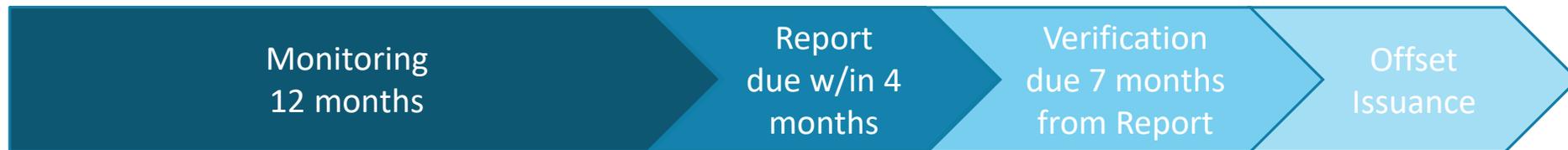
- Offset credits = (Actual stored carbon – Baseline stored carbon) – Market-shifting leakage – Activity-shifting leakage
- Baseline for the project:
 - Average carbon stored in trees on neighboring properties is 800,000 tons
 - 20,000 tons of carbon in trees would have been harvested
 - 4,500 tons of 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

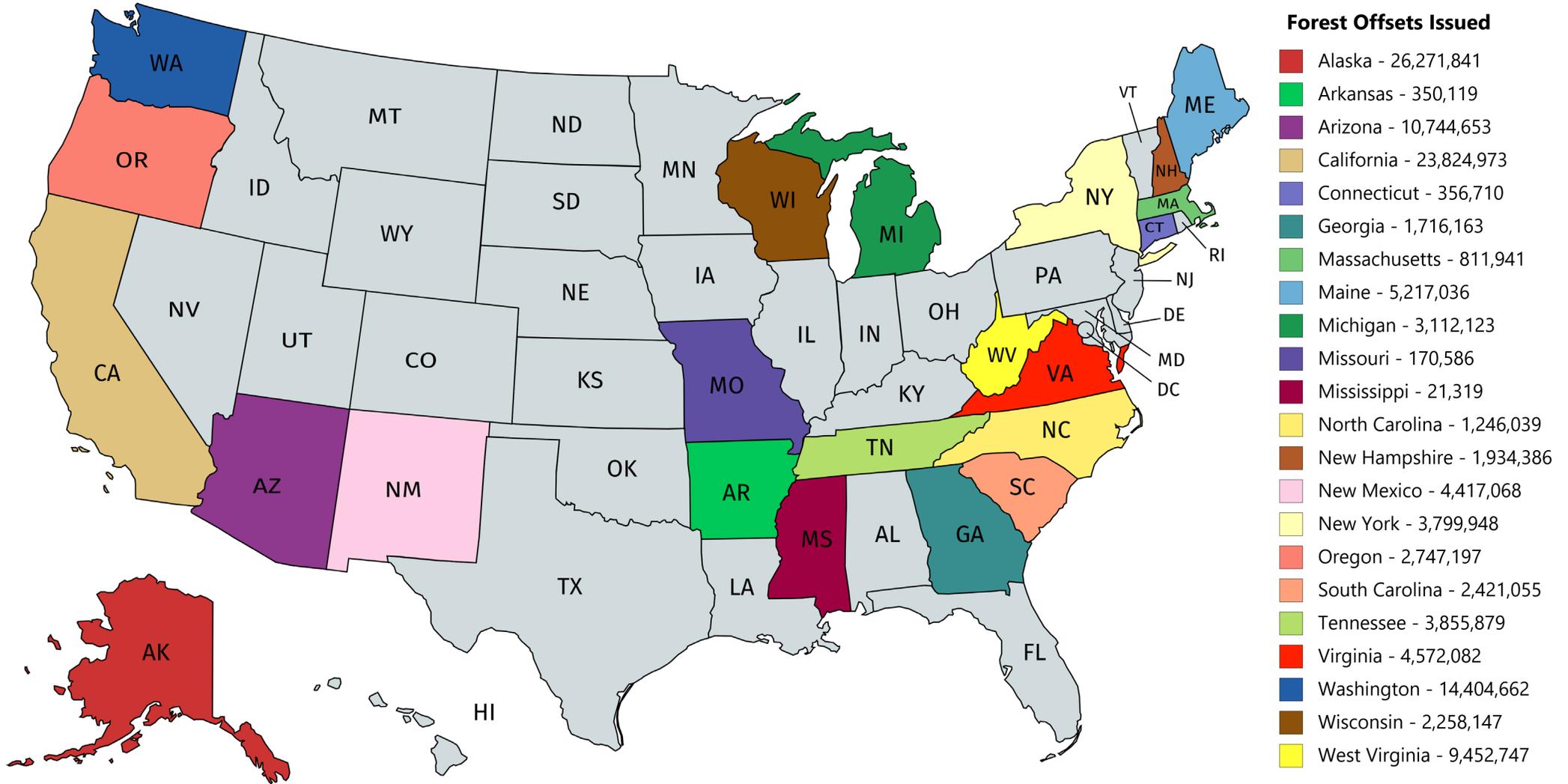
- Program requirements assure carbon will remain stored in trees for at least 100 years using three mechanisms:
 - Required monitoring reporting and verification for 100 years after credit issuance
 - Contribution to a buffer pool to compensate for unintentional reversals
 - Requirements for offset credit 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

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.

Rather, it is subject to the rule in existing section 15126.4(a)(1)(B) that such measures “may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.” (See also *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal. App. 4th 645, 670-71.)

Suggestions Rejected

During its public involvement process, OPR received comments on its preliminary draft of the proposed amendments related to mitigation. Some comments suggested provisions that were not included in these Proposed Amendments. 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. (State CEQA Guidelines, § 15126.4(a)(1)(B); see also *San Franciscans Upholding the Downtown Plan v. City & Co. of San Francisco* (2002) 102 Cal. App. 4th 656, 697.)

Several comments also suggested that mitigation for GHG emissions must be “real, permanent, quantifiable, verifiable, and enforceable.” The Proposed Amendments do not include such standards, however, for several reasons. The proposed standard appears to have been derived from section 38562(d) of the Health and Safety Code, which prescribes requirements for regulations to be promulgated to implement AB32. AB32 is a separate statutory scheme, and, as noted above, there is no indication that the legislature intended to alter standards for mitigation under CEQA. Similarly, standards for mitigation under CEQA already exist and are set out in section 15126.4(a). Specifically, mitigation must be fully enforceable, which implies that the measure is also real and verifiable. Additionally, substantial evidence in the record must support an agency’s conclusion that mitigation will be effective, and in the context of an EIR, courts will defer to an agency’s determination of a measure’s effectiveness. (*Environmental Council of Sacramento v. City of Sacramento* (2006) 147 Cal.App.4th 1018, 1041 (mitigation ratio is supportable even at less than 1:1 given the project’s circumstances); *Ass’n of Irrigated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1398 (lead agency has discretion to resolve dispute regarding the effectiveness of an EIR’s mitigation measures).) No existing law requires CEQA mitigation to be quantifiable. Rather, mitigation need only be “roughly proportional” to the impact being mitigated. (State CEQA Guidelines, § 15126.4(a)(4)(B); see also *id.* at § 15142.)

Necessity

Section 15126.4(c)

The Natural Resources Agency also further revised text related to mitigation that was made publicly available as described in the October 23, 2009, Notice of Proposed Changes in response to comments on that text. The revision clarifies that the qualification that measures to mitigate greenhouse gas emissions must not otherwise be required applies in the context of offsets and is not intended to contradict case law recognizing that changes in a project that are required to comply with existing environmental standards may qualify as mitigation. Thus, section 15126.4(c) was revised as follows:

(c) Mitigation Measures Related to Greenhouse Gas Emissions.

Consistent with section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. ~~Reductions in emissions that are not otherwise required may constitute mitigation pursuant to this subdivision.~~ Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:

(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;

(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;

(3) Off-site measures, including offsets **that are not otherwise required**, to mitigate a project's emissions;

(4) Measures that sequester greenhouse gases;

(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

This change does not alter the rights, responsibilities, conditions, or prescriptions contained in the originally proposed text because the Public Resources Code already provides that to be considered mitigation, a measure must be tied to impacts resulting from the project. Section 21002 of the Public Resources Code, the source of the

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



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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.

The transparent 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.

The 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 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 translated into 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.

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Reserve FAQs

Below are frequently asked questions about the Reserve offsets program and the Reserve's role as an Offset Project Registry under California's cap-and-trade program.

Reserve FAQs	Protocol FAQs
<ul style="list-style-type: none"> • Relationship/Interactions with Other Organizations • Verified Carbon Standard • Interaction with GHG Regulations • Eligible Projects • Protocol Development • Expansion of Protocols to Mexico • Energy Efficiency and Renewable Energy • Verification • Climate Reserve Tonnes (CRTs) • Accounts on the Reserve • Fees • Software 	<ul style="list-style-type: none"> • Coal Mine Methane • Nitric Acid Production • Organic Waste Composting • Organic Waste Digestion • Ozone Depleting Substances • U.S. Landfill • U.S. Livestock

RELATIONSHIP/INTERACTIONS WITH OTHER ORGANIZATIONS

1. **Q: How is the Climate Action Reserve different from the California Climate Action Registry? Is the California Registry also certifying carbon offsets?**
 A: The Climate Action Reserve was previously named the California Climate Action Registry (California Registry). It began as a program of the California Registry and became the parent organization in April 2009. While the California Registry focused on GHG emission inventories, the Reserve is focused on developing standardized GHG reduction project protocols, serving as a registry for GHG reduction projects, and tracking GHG offsets through a publicly accessible database.
2. **Q: How is The Climate Registry different from the Climate Action Reserve?**
 A: The Climate Registry is a sister organization of the Climate Action Reserve that supports entity-wide GHG emissions inventory reporting and verification for all of North America. It does not support the registration or tracking of GHG emission reduction projects. More information is available at www.theclimateregistry.org.

3. Q: What is your relationship with NYSE Blue?

A: NYSE Blue is the software provider for the Reserve. NYSE Blue also handles the billing, transactions and payments that occur through the Reserve.

4. Q: Do you accept CDM methodologies as approved Reserve protocols? Do you recognize Gold Standard projects?

A: No. Only project protocols that are developed by the Climate Action Reserve are accepted for use in our system. The Reserve often looks to CDM methodologies as a starting point for our protocols, but CDM methodologies (on which the Gold Standard relies) do not have the standardized additionality and/or baseline criteria that are built into our protocols. CDM methodologies are also designed for projects in developing countries, which are not always appropriate for use in the United States.

5. Q: What is the difference between the Climate Action Reserve and the Chicago Climate Exchange?

A: The Chicago Climate Exchange (CCX) operated from 2003 to 2010 as a voluntary, for-profit GHG trading system. Under this system, CCX members agreed to legally binding voluntary GHG reduction targets. To comply with those targets, which were set as a percentage of a historical baseline, members had to either reduce their emissions internally or purchase tradable allowances or offset credits from other members who had generated GHG reductions. The CCX developed its own set of protocols for quantifying and certifying emission reductions from offset projects. However, offset credits comprised only a fraction of the total number of tradable emission certificates issued by the CCX (the majority were emission allowances). The CCX now operates as the Chicago Climate Exchange Offsets Registry Program, which more closely resembles the Climate Action Reserve model but is based on CCX protocols. The Reserve is not an exchange, but rather a non-profit registry that serializes and tracks GHG reductions generated in adherence to our protocols and independently verified by accredited verification bodies. Although offset credits may be transferred between accounts in the Reserve registry, credits are not traded through the Reserve system and the Reserve plays no role in setting the price for CRTs.

6. Q: Can the CRTs also be sold on CCX?

A: CRTs cannot be sold on the CCX system. However, CRT futures can be traded on [The Green Exchange](#) and the [Chicago Climate Futures Exchange](#) (CCFE).

7. Q: What is the relationship between the Reserve and CRS's Green-e Climate program?

A: The Climate Action Reserve is an Endorsed Program by Green-e Climate. Green-e Climate is a consumer protection program that provides certification for greenhouse gas (GHG) emission reductions sold to consumers on the retail market. This consumer-protection program strengthens the voluntary market by providing credible oversight of and transparency to retail offset products. Green-e Climate is a program of Center for Resource Solutions (CRS), a nonprofit that creates policy and market solutions to advance sustainable energy. Learn more about Green-e Climate at www.green-e.org/climate.

8. Q: Is it possible to transfer projects to the Reserve from other registries?

A: Eligible projects that have been registered with other registries may be transferred to the Reserve according to the rules and deadlines outlined in the Program Manual. In addition to completing program requirements, such as verification by a Reserve-approved verifier that the project meets the Reserve's project protocol requirements, the project developer must also submit a [Project Transfer Form](#) and provide the Reserve with a signed Project Transfer Letter confirming that no additional emission reductions/removals will be registered for the project under its old registry while it is listed with the Reserve. For example, a livestock or landfill project could be transferred from another registry because the Reserve has protocols established for these kinds of projects. The project would only receive credits from the Reserve for the remainder of its crediting period (measured from the date the project started operation, not from the date of transfer). No credits for prior years issued under another program may be re-issued or transferred to the Reserve.

VERIFIED CARBON STANDARD

9. Q: What is the status of the relationship between the Climate Action Reserve and the Verified Carbon Standard (VCS)? Will Reserve methodologies be applicable under VCS, or will the certifications have any kind of reciprocity in the near future?

A: The Reserve is the first GHG program in the United States to be approved by the VCS. Thus, all of the Reserve's project protocols are approved methodologies under the VCS. This means that all reductions verified under Reserve protocols and registered as CRTs on the Reserve, excluding forestry, are eligible to be converted to Verified Carbon Units (VCUs). VCUs cannot, however, be converted to CRTs.

10. Q: How does a project developer obtain VCS approval for a project using Reserve protocols? In which tracking system are the CRTs/VCUs credited?

A: All projects registered on the Reserve are eligible for approval under the VCS and all CRTs issued by the Reserve, excluding forestry, are eligible for conversion to VCUs and tracking on a VCS-approved registry. No additional verification or approval is needed from VCS. More information on VCS is available at www.v-c-s.org/.

11. Q: How will the Reserve interact with the VCS registries (Markit Environmental Registry, NYSE Blue, Caisse des Dépôts), which also provide for issuance, trading and retirement? How does the Reserve's role as a registry differ?

A: While the Reserve is an approved program under VCS, it is not an approved VCS registry. In order to create VCU's using the Reserve, a project developer would first register a project with the Reserve and have CRTs issued. The project developer would then request the CRTs to be transferred to a VCS-approved registry and re-issued as VCUs. Since the Reserve and the VCS registries use the same software provider, this transfer and re-issuance will be seamless.

12. **Q: Do you plan to automatically recognize a VCS-approved protocol?**

A: No. Although the VCS recognizes the protocols developed and credits issued by the Reserve, this recognition is only one-way. The Reserve does not issue credits for projects verified against protocols developed under other programs, or that use verifiers that have not been accredited by the Reserve.

13. **Q: Would new protocols automatically be VCS-approved as well?**

A: Yes. The Reserve is an approved program under VCS; this means VCS automatically recognizes all projects and protocols allowed by our program, including new protocols we develop in the future.

14. **Q: What kind of fee structure will be involved with transferring CRTs to the VCS registry?**

A: Under VCS Version 3, the conversion fee of GHG credits from approved GHG programs is \$0.05/VCU. On the Reserve side, the \$0.03/CRT transfer fee that is levied when moving CRTs between Reserve accounts also applies when transferring CRTs to a VCS registry.

INTERACTION WITH GHG REGULATIONS

15. **Q: What happens to the Reserve if a federal mandate is established for offsets?**

A: While we cannot predict how or when the federal government will regulate GHG offsets, we are confident that we are developing a program and processes that will ultimately inform their actions. The Reserve has already been recognized as a source of high quality offsets by a number of government bodies. For example, the State of California has recognized four Reserve project protocols under its landmark Global Warming Solutions Act, AB 32, and Pennsylvania has named the Reserve as a recommended source of offsets for businesses operating in the state. We believe the Reserve is also well positioned to be a supplier of offsets for the Western Climate Initiative. All of this leads us to believe that the Reserve will be recognized by a federal offset program.

16. **Q: How do you expect the Reserve to interact with the Western Climate Initiative?**

A: Some of the offset protocols developed for the Reserve apply to project types that have been identified as "a priority for investigation and development" under a possible Western Climate Initiative (WCI) cap-and-trade program. These include manure management, forestry (afforestation/reforestation, forest management, and forest preservation/conservation), urban forestry, and landfill gas management. It is possible these protocols will be considered by WCI program designers. It is unclear right now whether there will be any broader form of interaction between the Reserve and WCI.

17. **Q: Is there any overlap with RGGI offset protocols? Can CRTs be used to meet RGGI requirements?**

A: Both the Reserve and the Regional Greenhouse Gas Initiative (RGGI) have performance-based offset protocols for landfill and livestock operations, and for re-forestation of land that has been out of forest cover for a minimum of 10 years (RGGI refers to this as afforestation). RGGI also has offset protocols for:

- Reduction in emissions of sulfur hexafluoride (SF₆) in the electric power sector
- Reduction or avoidance of CO₂ emissions from natural gas, oil, or propane end-use combustion due to end-use energy efficiency in the building sector

CRTs are not eligible to meet RGGI reduction requirements. More information on RGGI's offset program is available at www.rggi.org/offsets.

ELIGIBLE PROJECTS

18. **Q: What kinds of projects are eligible for registration?**

A: Currently, the Reserve accepts the following project types:

- Coal mine methane capture and destruction
- Forest (reforestation, avoided conversion, improved forest management)
- Landfill gas collection and destruction (U.S. and Mexico)
- Livestock manure management gas capture and destruction (U.S. and Mexico)
- Nitrogen management
- Nitrous oxide abatement at nitric acid plants
- Organic waste composting
- Organic waste digestion (including co-digestion)
- Ozone depleting substances destruction
- Rice cultivation
- Urban forest

On our website you can view the [list of protocols](#) that have been adopted or are actively being developed. Also, we are continually exploring the possible development of protocols addressing other project types. More information about this process is available on the [Future Protocol Development](#) webpage.

19. **Q: Are fuel-switching projects (such as a boiler switching from coal to biomass or natural gas) eligible?**

A: No. Currently, we do not have any fuel-switching project protocols. Boiler efficiency (which includes

some types of fuel switching) has been assessed through development of an issue paper which can be found on the [Future Protocol Development](#) webpage.

20. **Q: Do your protocols apply to projects outside of California?**

A: Yes. All of our project protocols apply to the entire U.S. We have also approved versions of our landfill and livestock protocols for projects located in Mexico. We plan to extend our project protocols to Mexico and Canada in the future.

21. **Q: Can I upgrade to a newer version of the protocol I am reporting under, e.g., from Landfill 3.0 to Landfill 4.0? What is the process?**

A: You may upgrade to a newer protocol with certain restrictions. 1) You must upgrade to the most recent version adopted by our Board and listed on our website. 2) Your project must be in conformance with all monitoring/metering requirements, calculations, and eligibility requirements of the newest version. If you choose to upgrade to the newest version, you do not need to notify the Reserve in advance. You will need to upgrade the monitoring plan and all project activities to be in conformance with the newest version and then notify the lead verifier so that the project may be verified to the correct standards.

22. **Q: Am I required to upgrade if there is a newer version of the protocol available?**

A: No, you may use the protocol version under which your project was listed for the duration of the crediting period. If errata and clarifications are released that correct or codify certain elements of the protocol version you are using, you must incorporate the errata and clarifications posted for that version.

23. **Q: How can I request a project variance?**

A: 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, not eligibility requirements or general methodological approaches specified in the protocol. To submit a project variance, the project developer must complete and submit a [Request for Project Variance](#) and pay a \$1,000 fee. More details on the process can be found in the [Program Manual](#).

PROTOCOL DEVELOPMENT

24. **Q: When will new protocols be developed?**

A: New project types are always welcome for consideration. The Reserve uses an intensive multi-stakeholder process to develop its standardized project protocols. This process generally takes 9 to 12 months from start to finish. You may see what project protocols we are in the process of developing by visiting our [Protocols](#) webpage. Once the development process is initiated with the formation of a workgroup, the protocol in development will have its own webpage with additional information on timeline, workgroups, contact information, background resources, etc.

25. **Q: How would one go about suggesting a new protocol?**

A: The Reserve welcomes your ideas for new project protocols. The project concept submission and review process is described in detail on the [Future Protocol Development](#) webpage. Previously submitted concepts and commissioned issue papers are also listed on that webpage and should be reviewed prior to new concept submission. If a similar concept has not been previously submitted, a completed Project Concept Submission Form can then be emailed to policy staff and the submissions are reviewed monthly.

26. **Q: What decides the future protocols you will create? Is it linked to what types of projects are most prevalent in California?**

A: While the Reserve is located in California, it is international in its scope. We use an internal screening process to identify candidate project types with good potential as carbon offsets across the United States, Mexico, and Canada. The Reserve takes into consideration a number of issues when assessing a project type for development and they are described in detail on the [Future Protocol Development](#) webpage.

27. **Q: If a methodology is created by another entity, can it be submitted to the Reserve for approval?**

A: All protocols that are adopted by the Climate Action Reserve Board need to go through our multi-stakeholder development process, regardless of whether the methodology has been accepted by another program or registry. You can submit methodologies created by other entities through our project concept submission process, described on the [Future Protocol Development](#) webpage. If we decide to move forward with the project type, the methodology would become the starting point for the protocol development process. Having a fully-developed methodology to start with could speed up the development process significantly.

28. **Q: Do your protocols include any type of financial additionality requirement?**

A: Our protocols assess project additionality using a technology or performance threshold (Performance Standard Test) and a regulatory additionality test (Legal Requirement Test). For each of our protocols, a threshold analysis addresses the issue of financial additionality by identifying a class of projects or activities that may be considered "business as usual," taking into account common practice and other variables. Projects that fall within this class are presumed to be financially viable without access to GHG credits, i.e., not additional. Projects outside of this class are presumed to be additional as long as they are not required by law. The development of a performance threshold is a data intensive endeavor, but once the threshold is established it provides a more streamlined and

objective means for determining project additionality than the financial examination of individual projects.

29. **Q: Who is the "public" that reviews protocols?**

A: There are no restrictions on who may comment during review periods. We hold a 30-day public review and comment period during the development process for each of our protocols. We distribute the notice of the public review period to the Reserve newsletter mailing list and to Reserve account holders. During the public review period we also hold an in-person public workshop with conference call and webcast capabilities. [Click here](#) to add your e-mail address to our mailing list.

30. **Q: How does one get on your stakeholder workgroup, or outside expert review group? What criteria do you use to select "outside experts"?**

A: The Reserve's protocol development process is stakeholder-driven; we rely on outside experts and interested parties from business, government, the non-profit sector, industry, and academia to guide the development of protocols. Each protocol development effort begins with either a scoping meeting or a kick-off meeting, where we ask attendees to express their interest in participating as a workgroup member or an expert reviewer. We also send announcements to our mailing list to solicit interest when we begin the protocol development process. Workgroups are then formed by invitation to ensure a well-balanced mix of representatives, selected based on their relevant experience and expertise in the protocol subject matter and their knowledge of the GHG market, financing, technology, research, standard practices and GHG accounting related to the project type.

31. **Q: Do the protocols include criteria for social or other environmental impacts of the projects?**

A: Positive social and environmental impacts are not quantified in the Reserve protocols. However, these positive "co-benefits" are considered during the protocol scoping process. The Reserve strives to develop protocols for project types which have the potential to improve not only the climate system, but other environmental issues as well. The Reserve's protocols do not require additional social or environmental benefits from a project, but steps are taken to ensure that GHG projects do not exacerbate or cause other environmental problems, or conflict with existing environmental regulations. All project protocols contain provisions for verifying that projects registered with the Reserve comply with all local, state, and national environmental regulations. Individual protocols may also encourage GHG project developers to consider and report on potential environmental co-benefits of GHG projects, such as reductions in other air pollutants, improvements in water quality, enhancement of wildlife habitat, etc.

EXPANSION OF PROTOCOLS TO MEXICO

32. **Q: What is the timeline to make some of the existing protocols applicable in Mexico?**

A: We are taking a phased approach to adapting protocols for use in Mexico. Our first priority was to adapt the Landfill Project Protocol and the Livestock Project Protocol for use in Mexico, both of which were adopted on July 1, 2009. Currently, we are adapting the Forest Project Protocol for use in Mexico.

33. **Q: In the future, will the Reserve accept projects located in other countries aside from Mexico, such as Colombia, Brazil, Chile, etc.?**

A: We are concentrating our efforts on expanding the Reserve and its protocols to cover projects throughout North America. As of yet, there are no plans to expand to other countries beyond Mexico, except in the case of the destruction of ozone depleting substances (ODS) sourced in Article 5 countries and imported to the U.S. for destruction.

ENERGY EFFICIENCY AND RENEWABLE ENERGY

34. **Q: Will the Reserve be developing protocols for energy efficiency projects?**

A: We will not be developing protocols for energy efficiency projects that reduce consumption of grid electricity. The majority of the reductions would occur at facilities (i.e., power plants) not owned or controlled by project developers. Because of this, it can be difficult to establish ownership for the reductions, and the reductions may be prone to double-counting. This would be particularly true if a regulatory cap-and-trade program is imposed on the power sector. The Reserve has chosen to focus on project types for which ownership to reductions is relatively easy to establish and where double counting – now and in the future – is unlikely.

35. **Q: The Gold Standard only accepts renewable energy and energy efficiency projects, and is viewed as a high-quality offset standard. Why does the Reserve's position on renewable energy and energy efficiency differ so sharply from the Gold Standard?**

A: The Gold Standard was originally developed as a high-quality overlay to officially registered Clean Development Mechanism (CDM) projects, and its provisions and requirements are therefore largely tailored to a developing country context. The Reserve focuses on offsets primarily in the United States and eventually all of North America. Although we believe that U.S. investment in renewable energy and energy efficiency will be critical to mitigating climate change, there are several reasons why we are not focusing on grid-connected renewable energy and energy efficiency projects as a way to generate carbon offsets. The primary reason is that once an emissions cap is in place for the power sector, it will not be possible to issue offset credits for renewable energy and energy efficiency projects that affect emissions at capped power plants because doing so would result in the double counting of emission reductions. As a policy matter, the Reserve has chosen to focus on project types that affect sources, sinks, and reservoirs of GHG emissions that are unlikely to be covered under U.S. cap-and-trade

programs in the near term.

36. **Q: You can get renewable energy certificates (RECs) along with CRTs from one project. Some standards require RECs be forgone to qualify as an offset in order to avoid double counting of the destruction. Why does the Reserve allow a project to earn both CRTs and RECs?**

A: You may be able to generate both CRTs and RECs from a methane destruction project because the CRT is created by capturing and destroying the methane (i.e. the GHG reduction that comes from turning CH₄ into biogenic CO₂), while the REC is generated by using the energy from that destruction to create renewable energy. Our livestock and landfill project protocols do not require project developers to generate energy, but rather to destroy the methane. We agree that you should not create both a GHG offset and a REC from the same activity (e.g., the sale of renewable electricity), but methane destruction and electricity generation are two separate activities resulting in separate types of GHG reductions.

VERIFICATION

37. **Q: Can an accredited verification body provide technical assistance to a client on one project and be the verification body on another non-related project with the same client?**A: It depends. For every project it intends to verify, the verification body must complete a Conflict of Interest form that the Reserve reviews. The Reserve makes a case-by-case determination on the potential for conflict of interest between the parties involved. In this scenario, it would depend on the nature of the technical assistance, what staff is proposed to serve as verifier and their past relationship with the client, whether the projects are for the same sector, the size of each contract, etc. For more details please refer to the Verification Program Manual, which can be found [here](#).
38. **Q: Do your protocols require validation and verification (like CDM projects), or only verification?**A: While we do not use the term "validation" in our process, verification activities during the first year of a project include both validation and verification activities. First, the verification body must determine that the project is eligible according to the specific eligibility rules in the relevant project protocol (this is similar to project validation under other programs). Second, the verification body reviews the project monitoring, record-keeping, and quantification methodologies to assure that reported GHG reductions/removals are accurate. Therefore, both validation and verification activities occur under our first-year verification procedures.
39. **Q: What is the average verification cost per project?**A: The cost of verification is highly dependent on a number of factors including: the size and complexity of the project, how well the project documents and records are organized, the number of years being verified, etc. Different project types also require different types of monitoring, which affects the cost of verification. [Here](#) is the current list of accredited verification bodies if you would like to seek out a quote on a particular project.
40. **Q: How is regulatory compliance verified?**A: All project protocols contain provisions for verifying that projects registered with the Reserve comply with all local, state, and national regulations. Project developers are required to 1) sign an Attestation of Regulatory Compliance that states the project is in compliance with all applicable regulations, and 2) disclose specific regulations to which the project is subject. While verification bodies are not required to conduct a full regulatory audit as part of verification, they do use the information provided by the project developer and their professional expertise to assess the project's regulatory compliance.
41. **Q: How soon after a project begins operation can it be verified?**A: Most projects require at least annual verification but the project developer may choose to verify more frequently. A project may be verified as soon as there are reduction tonnes to be verified. Some developers may choose to have their project verified when operations begin, just to make sure everything is being done correctly, but this is not required. The exception to this is forest projects, which may not be verified sub-annually.
42. **Q: As a project developer, do you need to verify the quantity of CRTs each year, or will the Reserve assign a yearly CRT production level for the life of the project?**A: The Reserve will only issue CRTs after a project undergoes a successful verification and the emission reductions reported by the project developer have been checked for accuracy. As most projects require annual verification, we expect new CRTs to be issued for most projects on a yearly basis. However, new CRTs are not automatically issued to a registered project – verification of those tonnes must occur before CRTs are issued. Please refer to the [Verification Program Manual](#) and individual project protocols for guidance on the requirements for each project type.
43. **Q: Are consultants that provide technical assistance on a project also required to be accredited?**A: No. The only part of the process for which you are required to hire an accredited third party is for verification. There are no accreditation requirements for individuals or organizations you hire to provide you with technical assistance.
44. **Q: Do project verification bodies have to be accredited by ANSI?**A: By the end of 2010, all verification bodies had to be accredited under ISO 14065 or enrolled in the American National Standards Institute (ANSI) accreditation program to be eligible to conduct verification activities for the Reserve program in the United States. The Reserve also requires that verification bodies successfully complete sector-specific project protocol training courses to conduct verifications. More details on verification body accreditation can be found [here](#).

Climate Reserve Tonnes (CRTs)

45. **Q: How many CRTs are issued per ton of carbon reduction?**A: One CRT is equal to one metric ton

- (tonne) of carbon dioxide equivalent (CO₂e) emission reductions.
46. **Q: Do you track the price paid for CRTs?**A: No. The Reserve is not an exchange and therefore does not track or report on the price paid for CRTs. Buyers and sellers negotiate a price outside of the Reserve, and then use the Reserve to transfer CRTs from one account to another. We do not require disclosure from our account holders on the price paid per CRT.
 47. **Q: Can you provide an estimate for pricing on CRTs?**A: While the Reserve does not track the price of CRTs, it is also possible to view prices for CRT futures being traded on The Green Exchange and the CCFE.
 48. **Q: How do I sell CRTs once they are in my account? Is there a specific contract template that we should use?**A: All sales happen over-the-counter between buyers and sellers. At the moment there is no template contract for the sale or transfer of CRTs. However, we may develop one in the future.
 49. **Q: Can CRTs generated inside California be traded outside California (e.g. as an offset for a project in a different state)?**A: For voluntary transactions, the answer is yes. If the question is whether CRTs may be recognized for regulatory compliance in another state, that will depend on whether the other state allows and/or recognizes CRTs as offsets in their program. Under California's cap-and-trade program, offsets may be used to meet a portion of an entity's compliance obligations, and offset projects under the four approved compliance protocols may be located outside of California. In addition, Pennsylvania has named the Reserve as a recommended source of offsets for businesses operating in the state.
 50. **Q: What is the lifespan of a CRT? Do they expire?**A: CRTs do not expire – they represent a permanent reduction or removal of GHG emissions from the atmosphere. They can be retired, however, meaning that those CRTs cannot be traded again.
 51. **Q: What does it mean to retire CRTs? Can they be reactivated?**A: Retirement means CRTs have been permanently removed from further transactions after being used to offset an equivalent tonne of emissions. Retirement of CRTs is necessary to ensure that the environmental benefit actually occurs. Because of this, retirement is permanent. Once a CRT is transferred into a retirement account, it cannot be reactivated and transferred again.
 52. **Q: Are there any requirements for when CRTs must be retired?**A: No, the Reserve does not require CRTs to be retired. This is the choice of the account holder. However, buyers who have purchased CRTs for the benefit of the environment or for mitigation purposes can check to see if CRTs have been retired on their behalf through the Reserve's [public reports](#). Please also see the next FAQ section for more information regarding CRT ownership and retirement.
 53. **Q: Can I register *ex ante* credits?**A: No. The Reserve only issues CRTs on an *ex post* basis; that is, the Reserve does not issue CRTs for a project until after the reduction/removal has taken place and has been verified by an accredited third party.
 54. **Q: How do you ensure that CRTs issued are real?**A: Our protocols include numerous mechanisms to ensure that emission reductions from a project are real and credible, including the performance standard and legal requirement tests; rigorous emission reduction quantification methodologies; provisions to address leakage, permanence, and ownership; and the requirement for third-party verification.
 55. **Q: Can CRTs be issued "retroactively" for projects that are already complete or underway?**A: It depends. When a new project protocol is approved, projects with a start date as early as 24 months prior to the effective date of the new protocol are eligible for 12 months to list their project on the Reserve. Projects implemented more than 24 months prior are not eligible for registration on the Reserve. The 12-month eligibility period for existing projects is intended to provide "early actors" (those that implemented a GHG reduction project prior to the existence of an approved protocol for their project activity) enough time to list their project. After this initial 12-month period, only new projects (submitted no more than 6 months after their start date) are eligible. Protocols issued before the adoption of the Reserve's start date policy have slightly different rules. Refer to the language within each specific protocol for the start date requirements for those projects. If you are unsure of your project's eligibility, please contact policy@climateactionreserve.org.
 56. **Q: Is there a minimum amount of CRTs per project? What is a cost effective amount of CRTs for a project?**A: There is not a minimum amount of CRTs required per project. The cost effectiveness of projects varies per project type with the low end being around a few thousand CRTs per year.
 57. **Q: Will CRT transfers on the Reserve be completed before payment of the transfer fee is actually made?**A: Yes. The CRT transfer will be complete once the seller has transferred the CRTs to the buyer's account and the buyer has accepted them. Sellers are invoiced on a monthly basis for all CRT issuance and transfer fees.
 58. **Q: Some registries require registration of the project for the entire project life. Can I register a project for CRTs for only a portion of the project life, and register under another standard for the other periods?**A: Yes. Project developers may transfer a project from the Reserve to another registry by submitting a signed Project Transfer Letter to the Reserve which specifies the effective date of transfer and confirmation that no further emission reductions will be verified or registered with the Reserve. Project information and previously issued CRTs will remain in the Reserve system. See the Reserve [Program Manual](#) for further details and requirements.
 59. **Q: Do you know of any sales taxes that apply to transfers of CRTs?**A: We recommend contacting your tax advisor regarding the tax consequences of transferring CRTs.

60. **Q: Does the Reserve ever take ownership of any CRTs?** A: No, the Reserve does not own CRTs, nor is it involved in project development, financially or otherwise. The Reserve has created a blind trust for the organization and its staff to purchase and retire carbon credits.

ACCOUNTS ON THE RESERVE

61. **Q: Should individuals invest in CRTs?**

It is important that investors understand the risks associated with the purchase of environmental commodities, including voluntary carbon offsets like CRTs. Unlike instruments approved for use in regulatory cap-and-trade programs, CRTs cannot be used for compliance in such programs. There is little ability to accurately forecast future demand and prices in the voluntary carbon offset market. As a result, the Reserve strongly believes that CRTs are not suited for individuals as investments. This view is shared by the [UK Financial Services Authority](#), as well as the [International Carbon Reduction and Offset Alliance](#).

Pursuant to the California cap-and-trade program being implemented by the California Air Resources Board (ARB), certain categories and vintages of CRTs may be eligible as early action offsets for conversion to regulatory offset credits (ARB Offset Credits). Once converted and approved by the ARB, these credits may be used for compliance by regulated entities under California's cap-and trade program. To date, only CRTs issued in connection with the four ARB-approved early action protocols (U.S. Forest, Urban Forest, Ozone Depleting Substances, and Livestock) are eligible to be converted to ARB Offset Credits. Here too, information on future demand and prices is limited, making such offsets unsuitable for individual investors.

Individuals may be interested in purchasing and retiring CRTs and other voluntary carbon offsets for the purpose of balancing out emissions from their activities, such as travel and energy consumption. When doing so, individuals should choose and purchase offsets from a credible offsets provider that ensures the environmental integrity of its emissions reductions. Be sure to choose a provider that discloses full documentation on where the offsets came from and how they were generated. For example, full documentation on projects registered with the Reserve is available online, so buyers and members of the public can be assured the offsets generated are real, permanent, additional, verifiable and enforceable. To contact a trusted source that sells CRTs to individuals for the purpose of offsetting personal emissions, please see our [CRT Marketplace](#).

If you are an individual who has been marketed CRTs as an investment or if you have any other questions, please contact the Reserve at reserve@climateactionreserve.org or by phone at 213-891-1444 and press 2 to reach the Programs team.

62. **Q: Who is allowed to register a project?**

A: In order to register a project on the Reserve, you must have a project developer account. Any person or organization may obtain a project developer account regardless of location or affiliation. To establish an account, visit our [account registration webpage](#). There is a \$500 annual account maintenance fee for project developers.

63. **Q: Can you establish an "observer" account if you are not yet in the market?**

A: No. There is no "observer" account type in the Reserve. Detailed information about registered projects is publicly available for interested parties without an account. Accounts are only needed to register, verify, transfer, and retire CRTs, and having an account does not provide access to additional information about other projects that is not available to the public.

64. **Q: Who can be a project reviewer?**

A: There are different types of accounts in the Reserve software, one of which is a project reviewer. Project reviewers are individuals that have been asked by the Reserve to review a project as part of the Reserve's oversight of project registration and verification. These individuals may be experts in the project sector, representatives from the American National Standards Institute (ANSI), Reserve contractors, etc. Note that a project reviewer has "read only" access to information, and cannot make any changes to information or values within the Reserve. Project reviewers can only access information for the projects it has been granted access to by the Reserve.

65. **Q: If I have a project developer account, do I also need a trader/broker account to buy, sell, and retire on the Reserve?**

A: No. Project developer account holders are able to buy, sell and retire CRTs on the Reserve.

66. **Q: Why is such a high level of transparency and public access necessary to the program?**

A: Transparency is one of the key principles of the Reserve. This transparency provides interested parties with valuable information, helps inspire confidence in our GHG projects, and brings credibility to the Reserve itself. The public can access the following information online:

- **Participating companies:** Lists organizations that have an active Reserve account but does not include address or contact information.
- **Projects:** Displays projects that are listed, verified, and registered with the Reserve. Does not display any cancelled or rejected projects.
- **Project CRTs issued:** Shows projects for which CRTs have been issued and the original CRT issuance quantity. Does not indicate the current status of the project CRT balance.
- **Search serial numbers:** Allows searching for a serial number by batch number or block start or

end numbers. This search feature is designed for someone (for example, a CRT buyer) who wants see details about a given CRT batch. 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.

- **Retired CRTs:** Displays the CRTs that have been retired by account holders.

All of these reports may be accessed [here](#). The Reserve never shares contact or billing information with anyone, or discloses the CRT balance in each account.

67. Q: Can I hold CRTs in my active accounts on behalf of someone else?

A: It depends. This activity is only possible for account holders who qualify as "regulated persons," such as banks. Please refer to the Terms of Use, [available here](#), for more details. For all other account holders, all CRTs in the active account must be owned by the account holder. If you sell a CRT to a buyer, they become the "beneficial owner" of those reductions, even if they are not a Reserve account holder. If CRTs are sold, they must be transferred to the buyer or put into a retirement account.

68. Q: What is a "beneficial owner"?

A: A "beneficial owner" has the benefits of ownership of a security or property even though the title is in another name. For example, when an investor purchases stocks from a brokerage firm, they become the beneficial owner of those stocks, even though the brokerage firm remains the actual official owner in the system-of-record. In the case of CRTs, the beneficial owner has the right to use those reductions to offset their own GHG footprint.

69. Q: Can I retire CRTs in my retirement account on behalf of someone else?

A: Yes, but there are limitations. If an account holder retires 100 or more CRTs for the same individual or organization within a calendar year, they must disclose the buyer's name and contact email address to the Reserve, though this information is kept confidential. If an account holder retires 100,000 or more CRTs for the same individual or organization within a calendar year, the buyer's information is no longer considered confidential and may be made public at the Reserve's discretion. These policies are meant to uphold the integrity and accountability of the system. For more information please refer to the Climate Action Reserve [Terms of Use](#).

FEES

70. Q: What sorts of costs are associated with placing projects on the Reserve?

A: There are two types of costs for registering projects on the Reserve – administrative costs paid to the Reserve and the costs for implementing and annually verifying your project. The cost of implementing and verifying a project can vary depending on the project type, size of project, etc. The current list of accredited verification bodies can be found [here](#).

71. Q: Why are the fees required? What does it support?

A: All of the fees collected based on our [fee schedule](#) cover the operating expenses of the Reserve, including software maintenance and updates, staff time and protocol development. The Climate Action Reserve is a not-for-profit 501(c)(3) registered in the state of California.

72. Q: Do you pay an account fee every year over the life of the project (i.e. for a forest project, do you pay \$500 every year for 100 years)?

A: You must pay an account maintenance fee annually for as long as you are an account holder. The only exception is that there is no account maintenance fee for verification bodies.

73. Q: Why is the seller responsible for paying the \$0.03/CRT trade fee when other registries typically put that on the buyer?

A: Different registries approach this in different ways. Because the seller is receiving the funds from a transaction, we felt it was appropriate to put this fee on the seller.

SOFTWARE

74. Q: How can I set up an account?

A: From the Reserve's homepage, click on the "[Open an Account](#)" tab and choose the account type at the bottom of the page. After agreeing to the [Terms of Use](#), you may submit the account for approval in our system.

75. Q: What if I forget my password?

A: Account holders with an active login may contact the Programs team at (213) 891-1444 ext. 2 or reserve@climateactionreserve.org to reset the password.

76. Q: Can I manage an account on behalf of someone else?

A: When setting up an account, a third party can sometimes be listed as the Account Manager and main point of contact for the account. If this individual or organization is different than the Account Holder name, both parties must sign and submit the standardized [Designation of Authority](#) form to reserve@climateactionreserve.org.

77. Q: How can I set up multiple logins to have other members of my organization access our Reserve account

A: Once you have set up an account, and it has been approved in our system, you should see several modules on your screen when you login, including "Account Management." Under this heading, click on the link titled "Review/Edit/Add Logins." Here you may add other logins with varying levels of access.

78. Q: What if I cannot see the Account Management module when I login to my account?

A: At the top of your home screen, you should see a link that says "Customize Page." Click here to edit

which modules appear on the homepage of your account, including "Account Management."

79. **Q: How can I see the details of an invoice (e.g. service to which fee applies, etc.)?**

A: Login to your account and look for the "My Reports" module on the left hand side. Click on the "My Invoices" link. Here you will see a list of all pending and paid invoices. You may click on the invoice number next to each one for details and a full, printable invoice.

[NEWSLETTER SIGN UP](#) | [CONTACT](#) | [SUPPORT THE RESERVE](#)



Verification Policies Acknowledgement and Agreement

This Verification Policies Acknowledgement and Agreement is executed as of the date first set forth below and delivered to the Climate Action Reserve (the "Reserve") by the undersigned verification body ("Verifier").

Verifier has reviewed and agrees to abide by the terms and requirements set forth in the following documents, which may be amended from time to time, as well as any additional documents that the Reserve may adopt in connection with verification activities : (i) the Climate Action Reserve Program Manual (the "Program Manual"); (ii) the Climate Action Reserve Verification Program Manual (the "Verification Program Manual; (iii) all protocols of the Reserve relating to projects types for which Verifier is accredited, which are accessible at <http://www.climateactionreserve.org/how/protocols>; and (iv) all Reserve Policy Memos. The Program Manual, Verification Program Manual, and Reserve Policy Memos are available at <http://www.climateactionreserve.org/how/program/program-manual>. Collectively, these documents are referred to herein as the "Policy Documents."

All capitalized terms used and not defined herein shall have the meanings contemplated by the Verification Program Manual.

1. Verifier acknowledges and agrees to comply in all respects with all processes and procedures prescribed by, and all other provisions of, the Policy Documents, including without limitation the following obligations of Verifier under the Verification Program Manual, subject to the more detailed provisions contained therein:
 - i) Comply with all guidelines and policies of the Reserve, which shall be provided to Verifier in writing.
 - ii) At a minimum, have two Lead Verifiers on staff to enable the appropriate management of the verification program and the separation of powers and responsibilities between the role of Lead Verifier and the role of independent Senior Internal Reviewer. The Reserve does also allow for the use of subcontractors.
 - iii) Ensure that all of its Lead Verifiers are competent, and have undertaken and successfully completed protocol-specific training, as required by the Reserve.
 - iv) Ensure that a Lead Verifier directs, supervises and leads the undertaking of the verification services, including signing all written reports and statements.
 - v) Ensure that the Senior Internal Reviewer is an active Lead Verifier as defined by the Reserve, has been trained on the relevant protocol and is able to demonstrate continued competence and appropriate continuing professional development.
 - vi) Ensure that all Verifier personnel working on project verification activities are competent, and have agreed to be bound by confidentiality obligations, including that Verifier accepts liability for any breach of confidentiality by its employees and agents.
 - vii) Maintain strict confidentiality with respect to any potentially market-sensitive information encountered while conducting project verification activities (except, with respect to any such

information disclosed in the Verification Report, following the public release of such report by the Reserve).

- viii) Provide the Reserve with a Notification of Verification Activities and Conflict of Interest (NOVA/COI) Form a minimum of **10 business days** before the commencement of work, so that the Reserve has an opportunity to review and address any potential conflicts and to observe any part of the verification activities it chooses.
 - ix) Ensure that Verifier duty of care is to the Reserve, not to the project developer and thus will maintain objectivity and impartiality while providing verification services.
 - x) Not enter into any agreement or participate in any activity that could create a conflict of interest with a verification client without first notifying the Reserve in writing so that it may evaluate and mitigate any potential risks.
 - xi) Maintain professional liability insurance with a reputable insurer to the level of at least \$4 million for each claim and \$4 million annual aggregate. This professional liability insurance must be held separately from general or umbrella liability policies. The policy must provide coverage of damages and defense costs for any actual or alleged error, omission, neglect, misstatement or misleading statement, or breach of duty relating to verification activities undertaken by the verification body and have the Reserve named as an additional insured. The coverage territory for the insurance must include all geographic regions where the verification body operates and does business under the Reserve's program. This insurance must be maintained for three years following the completion of verification services. Proof of insurance shall be provided to the Reserve within one month of the verification body's usual insurance renewal date.
 - xii) Immediately report to the Reserve in writing (i) any material misstatement or omission determined to exist in any Verification Statement, List of Findings or Verification Report submitted to the Reserve and (ii) any material non-compliance with the Policy Documents determined to have occurred in connection with any verification activities performed by Verifier.
 - xiii) Retain records in line with protocol requirements, or for **at least seven years** from the date the Verification Report is accepted, following the end of the crediting period (whichever is longer). Records to be retained shall include all relevant evidence to support that Report.
 - xiv) Provide full and free access to the Reserve to obtain all records, documents, accounting and other information maintained by the verification body in relation to Reserve projects.
2. Verifier shall ensure that each person who performs verification activities on behalf of Verifier is trained on and knowledgeable of all provisions of the Policy Documents applicable to the verification activities performed by such person.
 3. Verifier shall submit to the Reserve a completed and signed copy of the Verification Staff Reporting Form attached hereto as Exhibit A (i) on the date hereof and (ii) annually thereafter and promptly following verification personnel changes in accordance with the instructions set forth on such form.
 4. Verifier authorizes the Reserve to conduct all activities involving or related to Verifier that are contemplated by the Policy Documents, including without limitation oversight of verification activities in accordance with Section 6.1 of the Verification Program Manual.
 5. If the Reserve determines (after completion of any appeal made by Verifier in accordance with the formal appeals process detailed in the Policy Documents) that an error was made by Verifier or that negligence or gross negligence, willful misconduct or fraudulent activity on the part of Verifier has occurred, and resulted in the issuance of any Climate Reserve Tonnes that do not reflect actual greenhouse gas reductions or removals in accordance with the Policy Documents or that were

otherwise issued in violation of the Policy Documents, the Verifier will replace an equal number of Climate Reserve Tonnes, at a cost up to, but not to exceed, the professional liability insurance annual aggregate amount set forth above in Paragraph 1(xi).

6. Verifier authorizes the Reserve to share with the relevant accreditation body any formal or informal correspondence between verifier and the Reserve relating to verification activities under the Reserve program.
7. Verifier acknowledges and agrees as follows:
 - i) This Verification Policies Acknowledgement and Agreement, all Verification Reports, Verification Statements, Lists of Findings submitted by Verifier to the Reserve, and any additional documentation submitted by the Verifier to the Reserve, including but not limited to Verification Staff Reporting Forms (collectively, "Verification Documents"), may be relied upon by the Reserve and its successors and assigns in connection with, but not limited to, the issuance of Climate Reserve Tonnes and shall therefore be free from material errors;
 - ii) In the event of any breach of this Verification Policies Acknowledgement and Agreement (including without limitation any non-compliance with the Policy Documents) or any material misstatement or omission contained in any Verification Document or any Verification Staff Reporting Form, the Reserve shall be entitled to pursue any rights and remedies available at law or in equity in any court of competent jurisdiction, provided, however, the Verifier's total liability, if any, for any such damages related to this Agreement shall not annually exceed the professional liability insurance annual aggregate amount set forth above in Paragraph 1(xi); and
 - iii) If at any time the Reserve determines, in its sole discretion, that any such breach or material misstatement or omission has occurred, the Reserve shall have the right to immediately revoke Verifier's status as an authorized verification services provider and may bar Verifier from providing verification services to the Reserve for as long as the Reserve deems appropriate.

This Verification Policies Acknowledgement and Agreement is executed by Verifier as of the date first set forth below.

VERIFIER

Verification Body:	
Signature of Duly Authorized Representative:	
Name and Title of Signatory:	
Date:	

Exhibit A

**CLIMATE ACTION RESERVE
VERIFICATION STAFF REPORTING FORM**

The purpose of this form is to ensure that all personnel of the undersigned verification body performing verification activities are disclosed to the Climate Action Reserve (the "Reserve"). All personnel undertaking verification activities must be listed on this form and the form must be signed by a duly authorized representative of the verification body. Please include the relevant role that each individual currently performs during verification activities.

This form must be submitted to the Reserve concurrently with the annual delivery of the Verification Policies Acknowledgement and Agreement. In addition, an updated copy of this form must be submitted to the Reserve promptly following any personnel change within the verification staff of the organization that affects the persons required to be disclosed on this form.

Please attach relevant supporting information (e.g., job classifications, experience, education, academic degrees, and professional licenses). Following the initial submission of any such information, the same information need not be submitted again with subsequent submissions of this form. Changes in and additions to previously submitted information, however, should be reported with any submission of this form.

Name of Verification Body:			
Name of Primary Contact:			
Contact Information:	Mailing Address	Email Address	Phone Number
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	

Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:
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Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
--------------	--	--	--

Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

Name:			
Employment Status:	<input type="checkbox"/> Verification Body Employee	<input type="checkbox"/> Subcontractor – Please specify employer:	
Role:	<input type="checkbox"/> Lead Verifier	<input type="checkbox"/> Verifier	<input type="checkbox"/> Other Staff – Please Specify:

This Verification Staff Reporting Form is executed by the undersigned verification body as of the date set forth below.

Verification Body:	
Signature of Duly Authorized Representative:	
Name and Title of Signatory:	
Date:	

**Climate Action Reserve
Project Verification Statement ("Verification Statement")**

Project ID: CAR655
Project Name: Alder Stream Preserve
Name of Verification Body: SCS Global Services
Date Verification Report Issued: 20 October 2014

Emission Reductions Claimed by Project Developer:

Vintage Year	<u>2006</u>	Reductions/Removals (mtCO ₂ e)	<u>31,290</u>
Vintage Year	<u>2007</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	<u>2008</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	<u>2009</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	<u>2010</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	<u>2011</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	<u>2012</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	<u>2013</u>	Reductions/Removals (mtCO ₂ e)	<u>758</u>
Vintage Year	_____	Reductions/Removals (mtCO ₂ e)	_____

Verification Statement:

This is to state that, for the reporting period from December 15, 2006 [beginning Month, Day, Year] to December 31, 2013 [ending Month, Day, Year], Northeast Wilderness Trust's (the "Project Developer") project emission reductions/removals listed above for the aforementioned project:

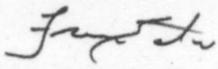
have been verified without qualification

are unable to be verified

with reasonable assurance according to the Reserve's Forest [type of project] Project Protocol Version 3.2, Program Manual, Verification Program Manual and all of the requirements of the Climate Action Reserve program. In the case that the emission/reductions removals have been verified, the Project Developer has signed the applicable Climate Action Reserve attestations for the GHG emission reductions/removals for which Climate Reserve Tonnes are to be issued.

Attestation

Lead Verifier: In signing this Verification Statement, I certify that the information contained herein is true, accurate and complete.

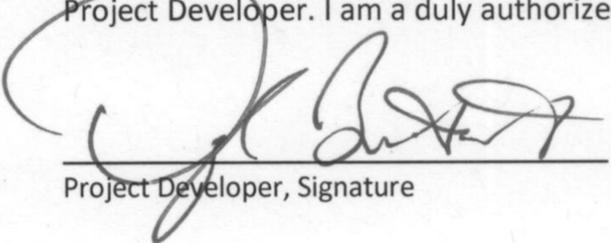
	<u>Francis Eaton</u>	<u>26 November 2014</u>
Lead Verifier, Signature	Print Name	Date

Senior Internal Reviewer: In signing this Verification Statement, I certify that the information contained herein is true, accurate and complete. I attest that I was not involved in the verification services documented in this Verification Statement, but have conducted an independent review of the verification services and findings of the verification team and concur with this Verification Statement.

	<u>Larry Wilson</u>	<u>26 November 2014</u>
Senior Internal Reviewer, Signature	Print Name	Date

Authorization

I authorize the above named verification body to submit this Verification Statement to the Climate Action Reserve on behalf of the Project Developer. I am a duly authorized signatory for my organization and have the legal authority to bind the Project Developer.



Project Developer, Signature

DARYL BURNETT

Print Name

12.3.14

Date

VERIFICATION REPORT FOR THE ALDER STREAM PRESERVE



Document Prepared By Francis Eaton

Project Title:	Alder Stream Preserve (CAR 655)
Report Title:	Verification Report for the Alder Stream Preserve
Reporter/Member:	Northeast Wilderness Trust
Prepared By:	SCS Global Services (SCS)
Date of Issue:	12 December 2014 (Originally submitted on 20 October 2014)
Contact:	2000 Powell Street, Suite 600, Emeryville, CA 94608, USA http://www.scsglobalservices.com Email: CPollet-Young@scsglobalservices.com Telephone: +1 (510) 452-8000
Approved By:	Christie Pollet-Young
Work Carried Out By:	Lead Auditor: Francis Eaton Technical Reviewer: Larry Wilson

Summary:

This report describes the verification audit of Alder Stream Preserve (“the project”), an improved forest management project located in Atkinson, Dover-Foxcroft, and Milo, Maine, which was conducted by SCS Global Services (SCS). The purpose of the verification audit was to assess the conformance of the project with the verification criteria during the reporting period (15 December 2006 to 31 Dec 2013). The verification audit was performed through a combination of document review, interviews with relevant personnel and on-site inspections. The project complies with all of the verification criteria, and the assessment team has no restrictions or uncertainties with respect to the compliance of the project with the verification criteria. The audit team has confirmed, with reasonable assurance, that the project has resulted in a total of 36,596 metric tonnes of CO₂-equivalent over the reporting period, as quantified in accordance with the verification criteria.

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1 INTRODUCTION

1.1 Objective

The purpose of the verification audit activity was to conduct an independent assessment of the Alder Stream Preserve (“the project”) to determine whether the project complies with the verification criteria, as set out in the guidance documents listed in Section 1.2 of this report.

1.2 Scope and Criteria

In accordance with Section 4.3.4 of ISO 14064-3:2006, the scope was defined as follows:

- The project and its baseline scenarios;
- The physical infrastructure, activities, technologies and processes of the project;
- The GHG sources, sinks and/or reservoirs that are applicable to the project;
- The types of GHGs that are applicable to the project; and
- The reporting period, as discussed in Section 3.1.4 of this report.

The criteria for verification were contained within the following guidance documents of the Climate Action Reserve (“the Reserve”):

- Forest Project Protocol Version 3.2 (“Forest Project Protocol”; 31, August 2010)
- Forest Project Protocol v3.2 Errata & Clarifications (28, October 2014).
- Program Manual (26 October 2011)
- Verification Program Manual (20 December 2010)
- FIA Forest Biomass Equations
- CAR Assessment Area Data File

1.3 Level of assurance

The level of assurance of this report is reasonable.

1.4 Treatment of Materiality

In accordance with Section 1.6.4 of the Verification Program Manual, a quantitative materiality threshold of 5% was applied, given the quantity of emission reductions and removals reported for the project. In accordance with Section 1.6.5 of the Verification Program Manual, any instance of non-conformance related to a prescriptive requirement outlined in the Forest Project Protocol was considered a material misstatement.

1.5 Summary Description of the Project

The project is an improved forest management project located in Maine.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through a combination of document review, interviews with relevant personnel and on-site inspections, as discussed in Sections 2.2 through 2.4 of this report. At all times, the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5, findings were issued to ensure that the project was in full conformance to all requirements.

2.2 Document Review

The Project Design Description (PDD) for the project was the major document that was reviewed to ensure conformance of the project to the verification criteria. The most up-to-date version of the PDD, which complies with the verification criteria set out in Section 1.2 of this report, is entitled “Alder Stream Preserve Forest Carbon Project (CAR 655) Project Design Document” and dated 22 September 2014

In addition, the following written documents (e.g., reports, memos, land deeds and titles) were reviewed to ensure conformance of the project to the verification criteria:

Document	Date Reviewed
Additional Ownership Interest Doc Form -AgRefresh-AlderStreamPreserveNWT	Throughout Audit
AgRefresh Alder Stream Preserve NWT- Map	Throughout audit
Alder list property in fee	Throughout audit
Alder listing document submitted 121113_amended	Throughout audit
NWT Project Developer Attestation of Regulatory Compliance_Alder	Throughout audit
NWT Project Developer Attestation of Title_Alder	Throughout audit
NWT Project Developer Attestation of Voluntary Implementation_Alder	Throughout audit
Ownership Interests Documentation_Alder-Stream-Preserve-NWT	Throughout audit
Project-Start-Date-Documentation_Alder-Stream-Preserve-NWT	Throughout audit
Alder Permanent Conservation Easement_2006	Throughout audit
Alder Temporary Conservation Easement_1996	Throughout audit

Document	Date Reviewed
Alder Warranty Deed	Throughout audit
Alder_SiteIndex_SSURGO_FVS	Throughout audit
AlderFIAGRSVOLSNDVOL50miles	Throughout audit
FIA_Site Index_Site_Class_X_walk	Throughout audit
Alder APNs	Throughout audit

Where multiple versions of an above document were provided to the audit team during the course of the audit, only the most recent version is described above.

2.3 Interviews

Interviews constituted an important component of the audit process. The following personnel associated with the project developer and/or implementing partners were interviewed. The phrase “throughout audit” under “Date Interviewed” indicates that the individual in question was interviewed on multiple occasions throughout the audit process.

Individual	Affiliation	Date Interviewed
Emily Warms	New Forests	Throughout audit
Tim Robards	New Forests	Throughout audit
Charles Kerchner	Spatial Informatics Group, LLC	Throughout audit

Other interviews not associated with the Project developers.

Individual	Affiliation and Role	Date Interviewed
Don Manisus	Maine Forest Service Director of Policy and Management	13 September 2014

2.4 Site Inspections

The objectives of the on-site inspections performed were to:

- Ensure that the geographic area of the project, as reported in the project documentation, conforms to Section 2.5.1 of the Program Manual;

- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the project;
- Perform a risk-based review of the project area to ensure that the project is in conformance the eligibility requirements of the verification criteria; and
- Confirm the appropriateness of the methodologies for monitoring and measurement of the quantified GHG emission reductions.

In fulfilment of the above objectives, the audit team performed an on-site inspection of the project area during 25 March 2014. The primary activities undertaken during this visit were as follows:

- Interview project personnel regarding acquisition of the project area, forest inventory protocols employed in the quantification of baseline and project emissions, project management activities, determination of ownership over the project area and eligibility of the project under the Forest Project Protocol; and
- Re-measure a total of 4 forest inventory plots, as required by the Section 10 of the Forest Project Protocol.

In accordance with Section 10 of the Forest Project Verification Protocol, the quantity of inventory plots to be re-measured was determined on the basis of a project area < 2500 acres and a “strong attestation” for all of the verification criteria set out in Table 10.5.

The verification plot selection for the Project was performed using a risk based random selection for the minimum number of plots required by the protocol. Whereas the Protocol requires that the minimum number of plots be selected from the highest 33% of stocking, the audit team used professional judgment to assess risk based on professional experience. The audit team provided an explanation of this rationale to both CAR and the ARB which was accepted as a statistically sound and appropriate methodology in an email dated 5 February 2015.

In addition, a follow-up meeting was held with project personnel on 3 July 2014. The purpose of these meetings was primarily to further discuss the methodologies employed to quantify baseline and project emissions.

2.5 Resolution of Any Material Discrepancy

Any potential or actual material discrepancies identified during the assessment process were resolved through the issuance of findings. The types of findings issued by SCS were characterized as follows:

Non-Conformity Report (NCR): An NCR signified a material discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a verification statement.

New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an

NIR did not necessarily indicate that the project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a verification statement.

Opportunity for Improvement (OFI): An OFI indicated an area that should be monitored or ideally, improved upon. OFI's were considered to be an indication of something that could become a non-conformity if not given proper attention, and were sometimes issued in the case that a non-material discrepancy was identified. OFIs were considered to be closed upon issuance.

All findings issued by the audit team during the verification process have been closed. In accordance with Section 3.6 of the Verification Program Manual, all findings issued during the verification process, and the impetus for their closure, are described in a separate List of Findings that is a private document.

3 VERIFICATION FINDINGS

3.1 Project Design

3.1.1 Project scope, type, technologies and measures implemented, and eligibility of the project

The project is an improved forest management project, as defined within Section 2.1.2 of the Forest Project Protocol. The audit team's findings with respect to the specific eligibility criteria for improved forest management projects, as set out by the Forest Project Protocol, are stated below. Unless otherwise indicated, the audit team can confirm the project's eligibility with respect to each condition.

Criterion	Verification Findings
"The project takes place on land that has greater than 10 percent tree canopy cover."	The audit team can confirm, on the basis of observation of the project area through the Google Earth software and during on-site audit activities, that average canopy cover in the project area is far greater than 10 percent.
"The project employs natural forest management practices, as defined in Section 3 of this protocol."	The project employs natural forest management practices. The adherence of the project to these practices is further discussed in Section 3.1.5 of this report.
"The project does not employ broadcast fertilization."	The audit team verified that Project personnel (Robert Bryan – Maine Certified Forester) confirmed that no broadcast fertilization is employed on the Project, nor is it common practice to do so in the region.
"The project does not take place on land that was part of a previously registered Forest Project, unless the previous Forest Project was terminated due to an Unavoidable Reversal (see Section 7)."	A search on the Climate Action Reserve's website for projects registered in the state of Maine returned evidence that the project is only listed once but not registered. A search conducted of the American Carbon Registry website showed only

Criterion	Verification Findings
	one project in Maine. A similar search of projects registered under VCS returned only one project located in Maine. The audit team confirmed that the projects listed on the VCS and ACR websites are distinct from the Alder Stream Preserve, as neither are forest projects. The audit team considers this adequate evidence upon which to conclude that the project area is not the site of a previously registered Forest Carbon Project.

3.1.2 Project Developer

The project developer is identified, within the Reserve online software, Northeast Wilderness Trust. Through web based investigations the audit team was able to confirm that Northeast Wilderness Trust is a legitimate entity (<http://www.newildernesstrust.org/>).

3.1.3 Project start date

As indicated within Section 2.6 of the PDD, The project start date is 15 December 2006. This is the date of the recording of a conservation easement on the property. Supporting evidence has been supplied to the Climate Action Reserve. The audit team was able to confirm that the date of the recording of the easement, which meets the requirements in section 3.2 of the Forest Project Protocol.

3.1.4 Reporting period

The initial reporting period is 15 December 2006 – 31 December 2013. The reporting period complies with the verification criteria identified in Section 1.2 of this report.

3.1.5 Project activities

The activities to be undertaken by the project are described in document “Alder Stream Preserve Forest Carbon Project PDD” (see Section 2.2 of this report). The audit team agrees that, if management activities are undertaken in accordance with the above document, maintenance or increase in standing live carbon stocks over the project lifetime, as required by Section 3.10.3 of the Forest Project protocol, is likely to result. However, it will be the responsibility of future audit teams to ensure that the requirements of Section 3.10.3 of the Forest Project Protocol are met throughout the project lifetime.

The audit team agrees that, management planned for the project area is adequately defined in the PDD. In addition, the audit team confirmed that at this time no harvesting is planned or taking place in the Project Area, but is still monitored by a state agency, as is the requirement for any timber lands in the state of Maine. The audit team agrees that the Project is in conformance to the requirements of Section 3.10.1 of the Forest Project Protocol with this demonstration.

The project complies with all requirements for natural forest management, as set out in Section 3.10.2. The specific findings of the audit team with respect to each requirement, where not addressed above, are set out below.

Requirement	Verification Findings
<p>“Project consists of at least 95% native species based on the sum of carbon in the standing live pool...”</p>	<p>The audit team can confirm that all species listed within Table 3 of the PDD are native to the region, and the audit team did not encounter any other species in review of the inventory data. In addition, the audit team encountered no non-native woody species during on-site audit activities.</p>
<p>“Where the Project Area naturally consists of a mixed species distribution, no single species’ prevalence, measured as the percent of the basal area of all live trees in the Project Area, exceeds the percentage value of standing live carbon shown under the heading ‘Composition of Native Species’ in Appendix F.”</p>	<p>The audit team examined the calculations undertaken to produce the information presented in Table 4 of the PDD and no errors were detected. The information on Table 4 of the PDD is consistent with the observations of the audit team during the on-site audit activities. The project area is clearly a mixed-species area that is quite diverse. The audit team agrees that the New Brunswick Foothills and Lowlands Spruce-Fir Supersection and the Spruce-Fir and Conifer Bog Assessment Areas are the appropriate assessment areas on which to base the assessment, and the maximum basal area threshold value that is reported within the PDD is consistent with that found by the audit team.</p>
<p>“On a watershed scale up to 10,000 acres (or the project area, whichever is smaller), all projects must maintain, or make progress toward maintaining, no more than 40 percent of their forested acres in ages less than 20 years...”</p>	<p>The analysis reported in Table 2 of the PDD adequately demonstrates conformance with the requirement. The existence of stands within the project area that are younger than 20 years were not encountered while onsite.</p>
<p>“Forest Owners must ensure that lying dead wood is retained in sufficient quantities...”</p>	<p>During on-site audit activities, the audit team observed no evidence that salvage harvesting has been undertaken since the project start date. The audit team also found no evidence that lying dead wood has been actively removed, and it is not likely that such wood would be actively removed. The audit team has reviewed the calculations underlying the analysis reported in Table 5 of the PDD and confirmed that the project area currently contains standing dead wood that is in excess of both one metric ton of carbon per acre and 1% of</p>

Requirement	Verification Findings
	standing live carbon stocks.

3.1.6 Project location

The project area is located on private land within the state of Maine, and thus complies with the requirements for project location as set out in Section 3.8 of the Forest Project Protocol.

3.1.7 Project compliance with applicable laws, statutes and other regulatory frameworks

As stated within the Attestation of Regulatory Compliance, the project was in material compliance with all applicable laws, statutes and other regulatory frameworks throughout the reporting period. Forest management activities in Maine, including all harvesting, road building and site preparation are closely regulated by the Maine Department of Agriculture, Conservation and Forestry (DACF) under the Maine Forest Practices Act. The audit team interviewed Don Manisus, Maine Forest Service Director of Policy and Management. In addition, during the aforementioned interview, the audit team confirmed that no other management activities have taken place during this reporting period. Finally, the audit team performed a web based review to confirm that no other regulatory violations are outstanding or occurred during this reporting period.

Date of Inquiry	Agency	Contact	Compliance
2 September 2014	United States Environmental Protection Agency	http://www2.epa.gov/enforcement/enforcement-annual-results-fy-2012-concluded-cases-map	No violations
2 September 2014	Occupational Health and Safety Administration	https://www.osha.gov/pls/imis/establishment.html?p_message=2&establishment=northeast%20wilderness%20trust&state=ME&office=all&officetype=all&startmonth=07&startday=15&startyear=2006&endmonth=12&endday=31&endyear=2013&p_case=all&p_violations_exist=both	No violations
2 September 2014	US Department of Fish and Wildlife	N/A	Not Applicable; no site disturbing activities conducted

In addition, the audit team confirmed that the Attestation of Regulatory Compliance form, attesting to the material compliance of the project for the duration of the reporting period, has been properly executed by an appropriate representative of the project developer. This form has been executed by Daryl Burnett, Executive Director of Northeast Wilderness Trust.

3.1.8 Ownership review

As discussed in Section 3.1.3 of this report, the audit team confirmed, through review of document "Ownership Interests Documentation" (see Section 2.2 of this report), that the project area is now owned in fee by the project developer. During the on-site audit activities and various follow-up meetings, the audit team discussed the systems were used to accurately determine the project area of 1460 acres, as stated within Section 2.2 of the PDD. The audit team confirmed that the Project acreage is a portion of the APN assessment acreage, area, as contained within document "Ownership Interests Documentation". It should be noted that the Forest Project Protocol is not prescriptive with respect to the system to be used to report the total area of the project. While on site, the audit team reviewed the project area boundaries and confirmed that the on the ground boundaries were consistent with those reported in the APN parcels. Therefore, the audit team agrees that APN Parcel acreage is an appropriate system for such reporting in this case. The audit team confirmed, through an examination of all parcels, that the parcels were appropriately calculated. Finally, the audit team confirmed that the non-forested acreage was appropriately removed from the Project acreage using GIS software, using commonly accepted methods.

The audit team confirmed that the Attestation of Title, attesting that the project developer holds appropriate title over the project area, has been properly executed by an appropriate representative of the project developer. The identity of the signatory to this form is the same as for the Attestation of Regulatory Compliance form, and the credentials of this signatory are stated in Section 3.1.7 of this report. Finally, using a review of the project area deeds, the audit team confirmed that the attestation of title is consistent with what is spelled out in the project area deeds further confirming the ownership of the carbon credits associated with the GHG reductions or removals.

3.1.9 Project Implementation Agreement

The verification team reviewed a Project Implementation Agreement (PIA) identified as "RESTRICTIVE COVENANT AND PROJECT IMPLEMENTATION AGREEMENT", provided by the forest owner. The PIA is dated 25 February, 2015 and is signed by the President of the Reserve and by the Executive Director of the Northeast Wilderness Trust Corporation ("Forest Owner"). Both signatures are witnessed by Notaries Public, whose stamps and signatures are included on the PIA. The PIA covers a term of the agreement between Northeast Wilderness Trust Corporation and the Reserve to the date 100 years from the recording date, 25 February, 2015, as attested by the stamp of the Piscataquis County Registry of Deeds. The legal description of the property included in the PIA matches the legal description included in the Warranty Deed issued to Northeast Wilderness Trust Corporation dated 14 December, 2006.

3.2 Application of Protocol

3.2.1 Title and Reference

The Forest Project Protocol Version 3.2 was used by the project developer.

3.2.2 GHG Assessment Boundary

The sources, sinks and reservoirs included within the project's GHG assessment boundary are set out in Section 3 of the PDD. The determination of the project's GHG assessment boundary is consistent with the requirements for required sources, sinks and reservoirs as set out in Section 5.2 of the Forest Project Protocol. The project does not include an optional sources, sinks or reservoirs.

3.2.3 Baseline Scenario

The identification of the baseline scenario conforms to the requirements of Sections 6.2.1.1 and 6.2.1.2 of the Forest Project Protocol. The identification of this scenario is discussed in detail and reported in the PDD.

The regimes modeled in the baseline scenario are described in Table 19 of the PDD. As indicated within that section, the entirety of the project area was assigned to one silvicultural prescription, uneven aged management.

As discussed with the audit team and as presented in the PDD, the Project is constrained by the Maine Forest Practice Act (MFPA) using the following rules:

- Maximum Clearcut Area (MFPA Chapter 20);
- Harvest Adjacency Restrictions (MFPA Chapter 20);
- Shoreland Zoning Ordinance;
- Endangered Species Act
- Clean Water Act
- Liquidation Harvesting (MFPA Chapter 23)
- Forest Operation Notification (MFPA Chapter 26)
- Unorganized and Deorganized areas (MFPA Chapter 27)
- Atkinson Forest Harvest Ordinance

The audit team reviewed the baseline model criteria during an office meeting on 20 May 2014 and confirmed the following:

In all cases the audit team reviewed the above constraints as to their applicability to the Project area. In addition, the audit team held phone meetings with Donald Manisus who confirmed that the project was not in violation of any of the applicable constraints. The Project was in conformance with the constraints set out above. The audit team reviewed the baseline optimizer design by members of the project team and confirmed that acreage constrained by the project was conservative by being in excess of what is legally required. Furthermore, the audit team reviewed the forest zoning shapefiles and re-calculated the constrained acreage for the project area and found no errors in the project calculations. Finally, the audit

team reviewed the Maine State list of towns imposing their own Shoreland Zoning Ordinances and the Town of Atkinson is not currently listed, therefore the municipality of Atkinson is governed by the State Shoreland zoning Ordinance, therefore the

The audit team reviewed the process for determining the model inputs, prior to running the model for the baseline scenario and confirmed that a that the silvicultural prescriptions were implemented as designed and were not in violation of the rules of the Maine Forest Practice Act applicable to the Project Area.

The conformance of the baseline scenario to Section 6.2.1.3 of the Forest Project Protocol is discussed in Section 4.2 of the PDD. The conformance to these requirements has been satisfied through the second option of Section 6.2.1.3, which requires that the user “Providing evidence that activities similar to the proposed baseline growth and harvesting regime have taken place on other properties within the Forest Project’s Assessment Area within the past 15 years...” The audit team can confirm the validity of all assumptions, analytical procedures and data sources used for the analysis. The audit team also reviewed the area around the Project Area using Google Earth were able to confirm similar harvest activities are common practice in the regions. In addition, during on site verification activities, the audit team was able to confirm that the areas undergoing similar harvest activities, as those described in the baseline scenario do not exceed slopes by more than 10% and therefore have similar access. Whereas, forest harvest results by density and species composition are not made publicly available, the audit team reviewed the vegetation type landFire maps (http://www.landfire.gov/maps_ne.php) and confirmed that vegetation types are consistent with the claims in the PDD. Also, while on site it was obvious that the harvest areas presented in figure 10 of the PDD take place in similar forest types and are more than likely to meet requirement of comparable species composition. The audit team also confirmed such during a phone interview with Don Manisus, providing ample evidence that the project conforms with option two of Section 6.2.1.3 of the Protocol.

3.2.4 Additionality

The GHG reductions occurring as a result of the project activity exceed the GHG reductions that would occur as a result of the baseline scenario discussed in Section 3.2.3 of this report. No timber harvest has occurred since the project start date, and thus the project is already leading to GHG reductions in excess of those that would occur as a result of the baseline scenario. In addition, no harvesting is expected to occur as part of the project, as described in Section 2.7 of the PDD. The project activities are highly likely to result in GHG reductions in excess of those that would occur as a result of the baseline scenario, as demonstrated through the use of forest modeling (see Figure 17 within the PDD for a summary graph). Thus, the project meets the legal requirement test. In addition, as an improved forest management project, the project automatically meets the performance test, as set out in Section 3.1.2.2 of the Forest Project Protocol.

Finally, the audit team confirmed that the Attestation of Voluntary Implementation, attesting that the project has been voluntarily implemented for the duration of the reporting period, has been properly executed by an appropriate representative of the project developer. The identity of the signatory to this form is the same as for the Attestation of Regulatory Compliance form, and the credentials of this signatory are stated in Section 3.1.7 of this report.

3.2.5 Quantification of Project GHG Emission Reductions and Removals

3.2.5.1 Quantification of baseline emissions

Baseline emissions were modeled using the FVS As set out in Appendix B.1 of the Forest Project Protocol, FVS is considered to be an approved model.

The source data for quantification of baseline emissions is derived from a forest inventory installed in the fall of 2013. The audit team can confirm that the inventory design conforms to all requirements of Appendix A of the Forest Project Protocol. In addition, from interviews with personnel responsible for planning and implementation of the inventory, the audit team learned of the process for collecting and compiling data.

It should be noted that, as all inventory plots installed as part of the inventory were permanent plots, the audit team was able to confirm many of the actual inventory measurements by performing a comparative analysis of 4 paired field plots. In addition, the audit team compared a sample of data from the field data sheets provided in the inventory workbook and confirmed that the inventory and data management was performed to a high level of quality.

As described in the PDD, the property used a stratified sampling design for the initial inventory which was also used as the starting inventory for the baseline. Based on this, the initial inventory was imported into the FVS model and grown forward to determine an annual growth increment. The increment was then used to de-grow the initial inventory backwards to the project start date to determine the baseline carbon stocks over a 100 year period.

As discussed in Section 4.3 of the PDD, the FVS model allows for species specific site indices to be input. The model was calibrated using site index data from the SSURGO soils data. The audit team was provided with the SSURGO soils data in order to review the process for determining site indices and found the process to be implemented correctly by the project personnel. In addition, this process was confirmed as common practice for use of the Northeast variant of the FVS model by Don Manisis, Finally, the audit team agrees with correlation to Timber Site Classification system used by the FIA and by the Project.

As discussed in Sections 4.3 of the PDD, growth and yield for the project area was modeled over the 100-year modeling period. Through interviews with project personnel and thorough review of model output, the audit team has reached a reasonable level of assurance that the modeling was performed correctly and in a manner consistent with the baseline scenario discussed in Section 3.2.4 of this report. The audit team can confirm that the output values are within the range of expected growth patterns for the project area.

As required by Section 6.2.1 of the Forest Project Protocol, since the initial carbon stocks (as discussed in Section 3.2.5.2 of this report) are above the common practice value for the project's assessment area, the average live aboveground carbon stocks were not permitted to fall below the common practice value for the project's assessment area. The derivation of the common practice value is described in Section 4.3 of the PDD. The audit team has reviewed the input values and procedures for the derivation analysis and confirmed that they are correct. The audit team has confirmed that average live aboveground carbon stocks do not fall below the common practice statistic.

The audit team reviewed the description of the logical management unit (LMU), as described in the PDD and confirmed the validity of the claims. The audit team reviewed the projections based on current easement requirements that no harvesting take place on the project area, thus meeting the sustainability requirements of section 6.2.1.1 of the Protocol. Additionally, while on site the audit team interviewed managers of both properties owned by the Northeast Wilderness Trust and confirmed that the management objectives are unique to each property. Finally, while performing onsite activities, the audit team confirmed that the Alder stream Preserve is unique in its biological attributes, which are clearly driven by unique geology.

In addition to quantification of CO₂-equivalent mass in trees in the baseline scenario, it was also necessary for the CO₂-equivalent mass in wood products to be quantified. The two input values for the quantification procedure were the sum total gross (including merchantable and non-merchantable species) and net (including merchantable species only) cubic-foot volume harvested, per species, over the 100-year modeling period. The audit team reviewed the quantification procedure and confirmed that it was performed correctly and in conformance with Appendix C of the Forest Project Protocol.

Baseline emissions were first calculated on a per-acre basis and later expanded to the area of the project. As described in Section 4.5 of the PDD, adjustments were made for all of the constrained areas, as described in section 3.2.3 of this report. In addition, all not forested areas were digitally removed from the Project area in the GIS database. Finally, the audit team reviewed the calculations and the expansion to a property wide value which resulted in a reasonable level of assurance that no material or conformance issues exist with respect to the quantification of the baseline.

Finally, in order to confirm that the baseline carbon in harvested wood products was calculated in accordance with section 6.2.3 of the Protocol, the audit team reviewed the harvest scenarios in the baseline modeling. The audit team confirmed that the harvest values used for the wood products calculations were copied directly from the model output file. The audit team also reviewed all wood product calculations provided in the project workbooks, and confirmed that the values were calculated in conformance of the requirements of Appendix C of the protocol and were free from calculation error.

3.2.5.2 Quantification of project emissions

The source data for quantification of project emissions is derived from both the inventory, as described in Section 3.2.5.1 of this report and from review of Section 3 of the PDD. The audit team can confirmed that the inventory design for the inventory conforms to all requirements of Appendix A of the Forest Project Protocol. In addition, as required by Section 10 the Forest Project Protocol, a subset of inventory plots was re-measured by the audit team. As required, a paired t-test (using an alpha-level of 20%) was employed to test the quality of the inventory. The inventory “passed” this t-test. In addition, the audit team observed that the inventory measurements were of generally sound quality.

The quantification of tree-level CO₂-equivalent mass in aboveground live and dead trees is described in Section 4 A of the PDD. The audit team confirmed, through review of the Visual Basic code and calculated biomass values that the calculation of biomass for each tree in the dataset was conducted in accordance with the FIA biomass and volume equations that are available on the Reserve website. (This analysis also included the “verification plot” exercise (as part of the field verification test) required by Section 10 of the Forest Project Protocol.

Quantification of CO₂-equivalent mass in all portions of live trees and the aboveground portion of standing dead trees was calculated, at the project level, as described in the PDD. A stratified sampling approach was used to quantify CO₂-equivalent. The audit team reviewed the calculations employed to determine tree heights and confirmed that they are consistent with the height model defined in Westfall and Lausten (2006). The audit team also confirmed that belowground CO₂-equivalent mass was quantified as a function of live aboveground CO₂-equivalent mass in accordance with Step 2 of Annex A of the Protocol.

The uncertainty of the forest carbon inventory was quantified as described in Section 5 of the PDD. The audit team was able to review the uncertainty calculations and confirmed that the uncertainty was calculated accurately and appropriately. Finally, the audit team confirmed that the confidence deduction was appropriately quantified in accordance with Appendix A.4 of the Forest Project Protocol.

As no timber harvest occurred in the project scenario for the duration of the reporting period described in Section 3.1.4 of this report, no quantification of CO₂-equivalent mass in wood products for the project scenario has occurred.

3.2.5.3 Quantification of secondary effects emissions

Secondary effects have been quantified in accordance with Equation 6.10 of the Forest Project Protocol. The audit team confirmed that the equation was appropriately implemented.

3.2.5.4 Summary of GHG emission reductions or removals

Quantification of GHG emission reductions and removals was appropriately conducted in accordance with the Reserve's calculation workbook. The audit team confirmed the appropriate transfer of all values to this workbook. The audit team assumes that, as the calculation workbook is a product of the Reserve, the calculation procedures employed within the workbook appropriately conform to the Forest Project Protocol.

3.2.6 Quantification of Project Reversal Risk Rating

The reversal risk rating employed for the project is described in Section 7 of the PDD. The audit confirmed that the reversal risk rating was appropriately calculated in accordance with Appendix D of the Forest Project Protocol. Furthermore, the audit team confirmed that the reversal risk rating of 19.2% was appropriately transferred to the Reserve's calculation workbook.

4 VERIFICATION CONCLUSION

The audit team affirms, with a reasonable level of assurance, that the GHG emission reductions and removals set out below have been quantified in accordance with the verification criteria, as set out in the guidance documents referenced in Section 1.2 of this report. In addition, as the Project was submitted to the Climate Action reserve on 11 December 2013, the Project meets the requirement for being verified within 30 months of submittal. Furthermore, the audit team affirms, with a reasonable level of assurance, that the project was in compliance with the verification criteria described above for the duration of the reporting period described in Section 3.1.4 of this report.

Table 1. Project Summary (all values tCO2e)

Vintage	Baseline Stocks	Project Stocks	Net GHG Reductions	Buffer Pool Contribution	CRTs
2006	94,942	126,954	31,290	6,008	25,282
2007	94,942	128,433	758	146	612
2008	94,942	129,912	758	146	612
2009	94,942	131,392	758	146	612
2010	94,942	132,871	758	146	612
2011	94,942	134,350	758	146	612
2012	94,942	135,829	758	146	612
2013	94,942	137,309	758	146	612

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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.

Mature
Forest
Management

Pool Covers

Reforestation

Solar
Photovoltaic

Confirmation

Climate
Forward
Confirmation
Manual

Confirmation
Body
Requirements

Confirmation
Documents
and
Reference

Connect with
a Confirmation Body

Confirmation Training

Project registry

Why we must
all take urgent
action

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

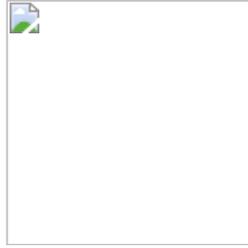
Invest in flexible emissions reductions aligned with forward-looking climate mitigation needs

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.

Sign up for Climate Forward news

Climate Forward is a new program of the Climate Action Reserve. To ensure delivery of Climate Forward news and updates, please sign up here: <https://climateforward.org/sign-up>



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A new market option to
accelerate climate action

Basic rationale for Climate Forward

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

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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?

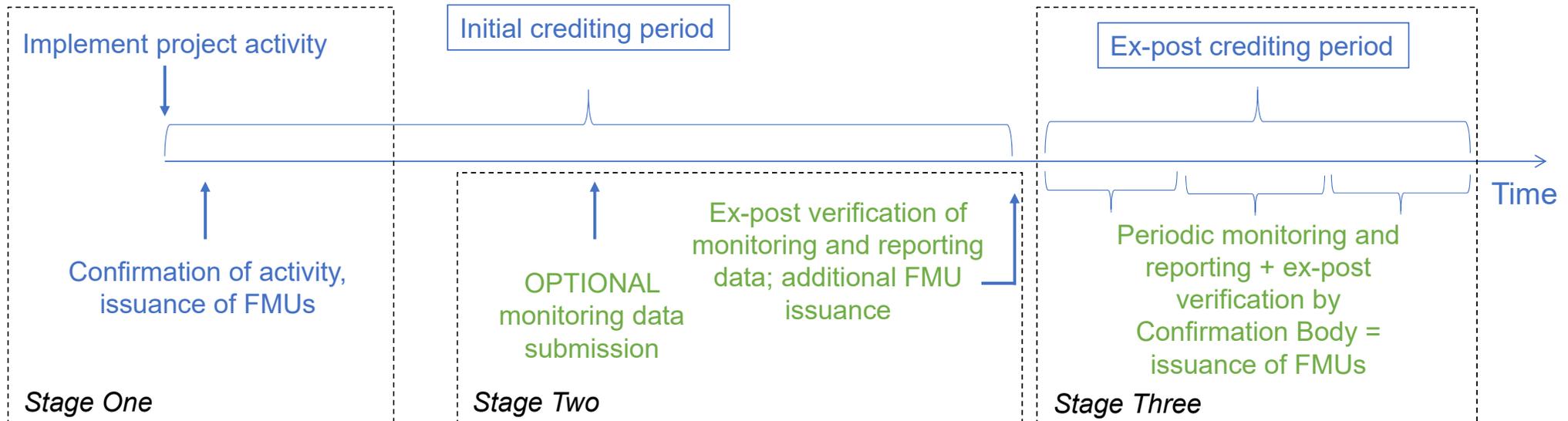
- Methodologies are proposed by a third party
 - Any credible mitigation concept is acceptable
 - CAR evaluates to ensure conservative recognition of credits and approves methodology
- Project proponent (company) invests in project consistent with approved methodology
- Once project is up and running, 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

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

CLIMATE FORWARD ▶

- 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!

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Contact us any time at:
info@climateforward.org



Climate Forward Confirmation Manual

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Abbreviations and Acronyms

C	Carbon
CEQA	California Environmental Quality Act
CH ₄	Methane
CO ₂	Carbon dioxide
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) created this Confirmation Manual to detail the requirements of its confirmation program and provide approved confirmation bodies with a standardized approach to the independent and rigorous confirmation of project implementation and estimates of GHG emissions reductions and removals reported by project proponents into its Climate Forward program (Program). 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, the Climate Forward Program Manual, and this Confirmation Manual. Project Proponents may also use this document to help prepare them for the reporting and confirmation process.

This standardized approach to confirmation promotes the relevance, completeness, consistency, accuracy, transparency and conservativeness of emissions reductions data reported to the Reserve. This is an accompanying document to the Climate Forward Program Manual, which presents the Reserve’s policies, processes and procedures for registering projects and generating Forecasted Mitigation Units (FMUs) using the Climate Forward program.

Detailed information on Climate Forward’s general operating procedures and program can be found in the following documents:

- Climate Forward Program Manual
<http://www.climateactionreserve.org/climate-forward/program/>
- Climate Forward User Guide
<http://www.climateactionreserve.org/open-an-account/>
- Climate Forward Terms of Use
<http://www.climateactionreserve.org/open-an-account/>

Confirmation is an integral part of the Program. The key objectives of the confirmation program and guidelines found in this manual are to:

- Ensure projects are real, additional, permanent, confirmable and enforceable (see Climate Forward Program Manual for definitions of these terms)
- Minimize the risk of erroneously crediting or double counting of Forecasted Mitigation Units (FMUs)
- Ensure projects meet eligibility requirements
- Support the transparency and integrity of the data contained within Climate Forward
- Maintain that confirmations are conducted in a consistent and comparable manner across projects
- Ensure project compliance with the Reserve approved methodologies and Climate Forward rules

The Reserve requires third-party confirmation of all GHG mitigation projects as specified in each forecast methodology. FMUs are issued only after a Confirmation Report and a Confirmation

Statement attesting to the accuracy of reported emission reductions have been submitted by the confirmation body and accepted by the Reserve. The Reserve relies upon these documents to attest to the legitimacy of the FMUs issued. The confirmation body is held accountable to the Reserve for the quality and independence of the report and statement submitted to the Reserve.

Guidance in this Confirmation Program Manual is limited to the Reserve's Climate Forward Program.

1.1 Climate Action Reserve

The Climate Action 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.

Across its programs, 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 markets; 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.

1.2 Disclaimer

This manual has been prepared for informational and procedural purposes only. Its contents are not intended to constitute legal advice and any person who requires legal advice should obtain it elsewhere. The Reserve maintains the right to amend or depart from any procedure or practice referred to in this guidance document as deemed necessary. Where a departure is necessary, the Reserve will provide public notification of significant changes on its website and will notify affected parties in writing. This guidance is subject to revisions as new information and industry best practices are identified.

This document is intended to be used in combination with project confirmation guidance that accompany each Reserve approved forecast methodology and the International Organization for Standardization (ISO) 14064 series on GHG emission reductions and removals. In the instance that the applicable forecast methodology differs from guidance given in this document, the Reserve approved forecast methodologies prevail. ISO standards are intended to be program neutral, ensuring that key rules and decisions are made and enforced by the GHG program itself. If differing procedures are noted, contact the Reserve staff for further clarification and interpretation.

1.3 Organization of Confirmation Manual

This manual is divided into six parts that outline the necessary steps for confirmation bodies to perform confirmation activities for the Climate Action Reserve under Climate Forward.

Part 1, Introduction provides a brief overview of the Reserve, its principles and requirements of the confirmation process.

Part 2, Standard of Confirmation focuses on the Reserve's standards; describes the levels of assurance and materiality threshold required under the Reserve; and highlights important definitions.

Part 3, Requirements to Perform Confirmation focuses on how a confirmation body becomes accredited to perform confirmation under ISO 14065, outlines obligations and requirements of confirmation bodies under this program, provides specific and detailed training requirements, and details required administrative activities prior to beginning confirmation activities, which include: roles and responsibilities, conflict of interest, providing required notifications, and designing appropriate confirmation activities.

Part 4, Project Confirmation Activities provides guidance on conducting confirmation activities, such as: assessing eligibility criteria, identifying sources, reviewing management systems and methodologies, confirming project implementation and implementation of project resilience measures, and confirming emission reduction and removal estimates.

Part 5, Documenting and Reporting Confirmation Activities covers procedures for successfully completing the confirmation process including: preparing the Confirmation Report, List of Findings, and the Confirmation Statement, and submitting documentation.

Part 6, Administration and Reserve Intervention provides information on the Reserve's confirmation oversight and auditing process, its dispute resolution process and its record keeping requirements.

1.4 Reserve GHG Accounting Principles

Confirmation provides an independent third-party review of project data and information being submitted to the Reserve. This process ensures project eligibility per the relevant project protocol and that reported emission reductions or removals meet the materiality threshold.

To fulfill this purpose, the independent confirmation process maintains the minimum criteria of relevance, completeness, consistency, accuracy, transparency and conservativeness. These underlying principles are laid out in ISO 14064-2:2006 and are interpreted below as Reserve accounting principles as applicable to the Climate Forward program.

- **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-specific 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. An empirical approach can be applied where variation around the forecasted reductions can be discerned as a dataset. Each proposed forecast methodology must provide summary statistics around each default value or quantitative assumption that goes into the overall FMU issuance estimation.

1.5 Overview of Confirmation Process

The following steps must be taken to ensure that the obligations and responsibilities of both the confirmation body and the project proponent are met.

1. **Confirmation body receives accreditation:** Confirmation body meets all accreditation requirements and two Project Experts successfully complete required project confirmation training (see Section 2.2.2).
2. **Project proponent selects approved confirmation body:** Project proponent contacts one or more approved confirmation bodies to discuss confirmation activities. Project proponent selects an organization to verify its GHG emissions reductions or removals and begins to negotiate contract terms (the contract may not be finalized until a determination has been issued by the Reserve).
3. **Confirmation body submits project-specific Notification of Confirmation Activities and Conflict of Interest (NOCA/COI) Form:** After a project proponent chooses a confirmation body, the confirmation body must submit a NOCA/COI Form to the Reserve outlining the proposed scope of the planned confirmation. This document provides insight into the likelihood of a conflict of interest between parties.
4. **Reserve sends approval to proceed to confirmation body:** The Reserve reviews the NOCA/COI Form and supporting information to determine the level of risk associated with the proposed project proponent/confirmation body relationship, then notifies the Team Lead of its determination.

5. **Confirmation body conducts confirmation activities:** Confirmation body develops a risk-based confirmation plan and conducts confirmation following the guidance in the Confirmation Program Manual and the applicable project confirmation guidance. The confirmation must evaluate a project's ongoing eligibility and the GHG emission reduction or removal estimates reported to the Reserve.
6. **Confirmation body shares List of Findings with the project proponent:** A confidential list of material and immaterial findings is sent to the project proponent. This gives the project proponent the opportunity to correct any errors found.
7. **Confirmation body prepares the confirmation documentation for project proponent:** Confirmation body prepares the final List of Findings, Confirmation Report, and Confirmation Statement for project proponent's review prior to uploading electronically to the Reserve software.
8. **Project proponent uploads documents to the Climate Forward registry:** Project proponent then submits all final documentation for Reserve review: the List of Findings, Confirmation Report, and Confirmation Statement.

2 Confirmation Criteria

The Climate Action Reserve's Climate Forward program (Program) is designed to include a rigorous third-party review to confirm that the mitigation project is eligible under the program, implemented according to the forecast methodology and that the GHG emission reductions have been calculated accordingly. This process is referred to as "confirmation" by a "Confirmation Body", as opposed to "validation" or "verification" by a "validation/verification body" (VVB), which are more familiar terms for third-party review in GHG project accounting. These differences in terminology are meant to signal important differences between confirmation under this program and validation or verification, including the ex ante nature of credit recognition under the Program, although many of the activities performed by the Confirmation Body align with traditional validation and verification activities performed by a VVB.

The independent third-party confirmation provides an independent review of data and information used to register FMUs. For every mitigation project registered, an accredited Confirmation Body reviews documentation, data, and procedures used to estimate GHG reductions or removals. 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 mitigation project. The Reserve makes these documents publicly available. Individuals conducting confirmation activities for mitigation projects listed on the Climate Forward website are trained by the Reserve or its approved designees and employed by or subcontracted to an accredited Confirmation Body. A list of approved Confirmation Bodies is available at www.climateactionreserve.org.

Confirmation Bodies follow guidelines set forth in the Climate Forward Program Manual, as well as requirements and procedures described in each approved forecast methodology.

2.1 Standard of Confirmation

2.1.1 Confirmation Principles

Confirmation is the process through which a Confirmation Body assesses a project proponent's GHG assertion against defined confirmation criteria and the standard(s) laid out by the Climate Forward program. The Reserve requires that Confirmation Bodies use the following standards when conducting confirmation activities:

- The applicable approved forecast methodology
- The Climate Forward Program Manual and any relevant policy memos
- The Climate Forward Confirmation Manual
- ISO 14064-3:2006 Specification with guidance for the validation and verification of greenhouse gas assertions

An essential element of confirmation is to ensure that all Confirmation Bodies and confirmation teams conducting work under the Reserve uphold the basic principles laid out in ISO 14064-3:2006. Namely, Confirmation Bodies shall demonstrate independence from the activity being confirmed (interpreted in Section 3.1.1.2 under Conflict of Interest). Confirmation Bodies must also demonstrate ethical conduct and fair presentation of findings, conclusions, and reports throughout the confirmation process. All projects undergoing confirmation must be treated equally, with all appropriate procedures followed. Finally, Confirmation Bodies must conduct confirmation with due professional care, demonstrating the skill, diligence, and competence necessary to perform the confirmation (see Section 3).

2.1.2 Level of Assurance

The Reserve requires the Confirmation Body to provide a reasonable level of assurance. Under the ISO 14064 standards, the level of assurance determines the depth of detail and rigor that the Confirmation Body designs into the confirmation plan used to identify any material errors, omissions or misstatements. The level of assurance refers to the degree of confidence the Confirmation Body is able to provide regarding the accuracy of the asserted GHG removals or reductions. The Reserve requires reasonable, but not absolute, assurance. Absolute assurance is the highest form of assurance, but does not allow for professional judgment, sampling and inherent limitations. The concept of level of assurance is derived from financial auditing and corresponds to the likelihood that a material misstatement has gone undetected.

2.1.3 Materiality Threshold

The concept of materiality is fundamental in confirming GHG assertions. Information is considered material if its omission or misstatement could affect the GHG assertion and could influence the intended user's decisions. In order to reach a conclusion on the veracity of data used to support a GHG assertion, the Confirmation Body must form a view on the materiality of all identified errors or uncertainties.

Issues identified during confirmation activities must be classified by the Confirmation Body as either material (significant) or immaterial (insignificant). To be confirmed successfully, all reported emissions reductions or removals submitted to the Reserve must be free of material misstatements or discrepancies.

A materiality threshold is used to assess any error, omission, or misstatement that may impact the GHG assertion made by a project proponent. This threshold is also known as the "minimum quality standard" and differentiates those errors, omissions, or misstatements that are considered by the Reserve to be significant from those that are insignificant.

Materiality has both a quantitative and a qualitative aspect in relation to a mitigation project seeking registration under this program.

2.1.3.1 Quantitative Materiality Threshold

The quantitative materiality threshold sets a numeric cap on the magnitude of cumulative error in stated forecasted emission reductions or removals permissible under this program as a percent of the Confirmation Body's recalculated forecasted emission reductions or removals. Error leading to misstatement may be introduced through incorrect application of methodology calculations, transcription errors, or the use of incorrect default values, among other factors. Immaterial misstatements identified during confirmation may go uncorrected and the mitigation project may receive a positive Confirmation Statement from the Confirmation Body. All material errors must be corrected prior to a mitigation project receiving a positive Confirmation Statement.

The Confirmation Body must recalculate the total quantity of forecasted GHG emission reductions or removals reported to the Reserve for the relevant crediting period in order to determine if the mitigation project meets the quantitative materiality threshold.

In determining whether a material misstatement has occurred, the Confirmation Body must compare the aggregate total of misstatements against the materiality threshold for the total forecasted emission reductions or removals estimated by the project proponent. Finding several small reporting errors, each of which might be immaterial on their own, may lead to a material

misstatement when totaled against the final number of forecasted emission reductions or removals. The quantitative materiality threshold shall be used to inform the design of the Confirmation Body's sampling plan.

If errors are discovered, the Confirmation Body must determine if these errors result in a material misstatement using its risk-based review of materiality and a rigorous data sampling process.

In an effort to maintain a balance of diligence, accuracy and conservativeness, this program defines the quantitative materiality threshold at a >95 percent level of accuracy (<5 percent error) relative to the Confirmation Body's forecasted emission reductions or removals.

The percent error is defined by the following:

$$\%Error = abs\left(\frac{Stated\ forecasted\ reductions - Confirmed\ forecasted\ reductions}{Confirmed\ forecasted\ reductions}\right) \times 100$$

The accuracy level is defined by the following:

$$Accuracy = 100\% - \%Error$$

This program allows for under-reporting of total FMUs as that is considered conservative. Under-reporting errors are not required to be corrected. The quantitative materiality threshold only applies to mistakes that result in over-reporting.

2.1.3.2 Qualitative Materiality Threshold

A qualitative non-conformance occurs when a prescriptive forecast methodology requirement is not met. Every qualitative non-conformance identified by the Confirmation Body is considered material and must be corrected by the project proponent before a positive Confirmation Statement can be issued. A prescriptive requirement is defined as any specific guidance mandated by the forecast methodology that does not allow for deviation, variance, or Confirmation Body professional judgment.

Take for instance a project proponent who neglects to quantify a small source of project emissions. Leaving out that source does not result in a quantitative material misstatement, but the forecast methodology has an approved GHG Assessment Boundary that specifies the emission sources related to mitigation project that must be accounted for in the forecasted emissions calculations. The omission of this source would be considered a qualitative non-conformance because of the forecast methodology requirements and the forecasted emission reductions would therefore need to be recalculated.

Another example is the application of an incorrect emission factor – again, this would be considered material even if the difference in forecasted emission reductions does not exceed the quantitative materiality threshold. If the applicable forecast methodology prescribes that a specific emission factor be used and that emission factor is not correctly applied by the project proponent, the result is a qualitative misstatement because the non-conformance directly defies a forecast methodology requirement.

Any identified qualitative non-conformances must be documented by the Confirmation Body and presented to the project proponent in the List of Findings prior to issuance of the Confirmation

Statement and Confirmation Report. All qualitative non-conformances must be corrected for the Confirmation Body to be able to issue a positive Confirmation Statement.

2.2 Confirmation Body Requirements

2.2.1 Accreditation

Confirmation Bodies shall be accredited for project validation and confirmation in the sector of the applicable forecast methodology and shall meet the competence requirements as set out in ISO 14065:2007. All Confirmation Bodies must be approved by the Reserve and accredited under ISO 14065 by the American National Standards Institute (ANSI). If the project proponent can demonstrate that there are no Confirmation Bodies accredited through ANSI who are capable of conducting confirmation services, Confirmation Bodies accredited by an International Accreditation Forum (IAF) member body located in the project site country must be used. If none can be found, Confirmation Bodies accredited by the United Nations Framework on Climate Change Convention (UNFCCC) as Accredited Independent Entities approved under Joint Implementation or Designated Operational Entities approved under the Clean Development Mechanism may be used, subject to prior Reserve approval.

2.2.2 Training

The Reserve recognizes the Confirmation Body as the responsible party under its program, rather than an individual. Confirmation Bodies are obligated to ensure that individual third parties are qualified with the proper training and skills to conduct implementation confirmation activities. For individual third parties to be recognized as Project Experts by the Reserve, they must have completed the training requirements as detailed below.

A Project Expert is any third-party from the accredited Confirmation Body who directs, supervises and leads confirmation services and has the authorization from the Confirmation Body to sign written reports or statements. A Project Expert is 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 the Climate Forward General Implementation Confirmation training.

Each Confirmation Body must employ a minimum of two Project Experts. This policy ensures that the confirmation team for every project includes at least two Project Experts, one to serve as the Project Expert and one to serve as the Senior Internal Reviewer. These Project Experts may be employees of the Confirmation Body or contracted personnel.

A Senior Internal Reviewer is any Project Expert from the accredited verification body selected to perform a final quality assurance and quality control (QA/QC) review on the project data and documentation. The Senior Internal Reviewer must also sign the Confirmation Statement attesting to the accuracy of reported data. The Senior Internal Reviewer shall remain independent of all confirmation activities and shall not participate in site visits, as this could compromise his or her objectivity and independence in the final review. The Senior Internal Reviewer must be designated as such on the NOCA/COI Form and also be designated as a Project Expert on the annually submitted Confirmation Staff Reporting form, which is an exhibit to the Confirmation Policies Acknowledgement and Agreement form.

2.2.2.1 Internal Training

Qualification as a Project Expert begins with the Confirmation Body's internal training procedures and programs that instruct staff on how to conduct confirmations and lead

confirmation activities. Confirmation Bodies must have a formal process in place for the initial qualification, training, and ongoing monitoring of all personnel confirming a Reserve project. The Confirmation Body is responsible for ensuring the confirmation team has the proper skills, competency and collective capability to conduct confirmation activities under the Reserve.

In order to be eligible to take the Reserve's trainings to qualify as a Project Expert, an interested individual must have a basic understanding of GHG accounting and have completed either internal training or taken a recommended external course on GHG accounting and basic verification methods.

2.2.2.2 Reserve Training

In addition to internal training, Project Experts must successfully complete a Reserve-administered Climate Forward General Implementation Confirmation training course. This requirement ensures that the individuals leading confirmation activities under the program have a high level of program specific knowledge and training. Following the training, the Reserve provides the recognized independent third parties with a notification and a certificate that allows them to act as Project Experts under the Reserve's Climate Forward program.

An individual's recognition as a Project Expert is generally valid for three years after the date that the training certificate is issued, at which point the Project Expert must take and pass a re-certification exam to demonstrate that he or she has sufficiently maintained knowledge of the program and is well-versed in any relevant programmatic updates made in the interim.

2.2.3 Liability Insurance

Confirmation Bodies are required to maintain professional liability insurance with a reputable insurer to the level of at least \$4 million for each claim and \$4 million annual aggregate. This professional liability insurance must be held separately from general or umbrella liability policies. The policy must provide coverage of damages and defense costs for any actual or alleged error, omission, neglect, misstatement or misleading statement, or breach of duty relating to confirmation activities undertaken by the Confirmation Body and have the Reserve named as an additional insured. The coverage territory for the insurance must include all geographic regions where the Confirmation Body operates and does business under this Climate Forward program. This insurance must be maintained for three years following the completion of confirmation services. Proof of insurance shall be provided to the Reserve within one month of the Confirmation Body's usual insurance renewal date, within three months of the Confirmation Body's initial application for accreditation into the Climate Forward program, and prior to the Confirmation Body beginning its first confirmation activities in the Program.

2.2.4 Acknowledgment and Agreement Form

Confirmation Bodies must have a duly authorized representative of its organization sign and submit the legally binding Confirmation Policies Acknowledgment and Agreement form to the Reserve on an annual basis. This required agreement between the Reserve and Confirmation Bodies ensures that personnel performing confirmation activities are aware of their roles, responsibilities and obligations under the program. It asserts that the Confirmation Body will follow proper processes and procedures as laid out in the approved forecast methodologies and this Confirmation Manual. The agreement outlines requirements in relation to confidentiality provisions, insurance requirements, record-keeping requirements, liability, and conflict of interest. It also includes an authorization of potential oversight of confirmation activities.

The Confirmation Body must acknowledge that its duty of care is first and foremost to the Reserve. When a Confirmation Body is acting under the auspices of the Reserve's Climate Forward program, it is bound by this agreement to abide and adhere to the rules and procedures of the program itself. If, during confirmation activities, a Confirmation Body suspects the occurrence of fraud, double-counting, or any other significant issue that could impact the quantity or quality of FMUs to be issued, the Confirmation Body agrees to immediately report the issue to the Reserve.

The agreement states that personnel conducting confirmation activities shall be trained and knowledgeable on program procedures. It also asserts that the Confirmation Body will remain neutral and impartial. The Confirmation Body must acknowledge that potentially market-sensitive information may be encountered while conducting confirmation activities and agree to strict confidentiality in its findings prior to the release of the Confirmation Report.

Further, the agreement asserts that the Confirmation Body will not engage in any business activities that would amount to a conflict of interest in relation to its Reserve clients. Specifically, the purchasing, selling, trading, or retiring of any GHG credits between a Confirmation Body and a developer client in question is considered a high risk for conflict of interest and is strictly prohibited. Conflicting services of this type are addressed further in Section 3.1.1.2.

The agreement also requires that, in the instance where the Reserve determines an error made by the Confirmation Body resulted in the issuance of FMUs not in compliance with the applicable forecast methodology or program policy, the Confirmation Body deemed responsible will replace or replenish an equal value of FMUs up to the \$4 million required amount of annual professional liability insurance. The same is true if gross negligence, willful misconduct or fraudulent activity on the part of the Confirmation Body has occurred.

Failure to submit the Confirmation Policies Acknowledgment and Agreement form could result in suspension from the Climate Forward program.

2.2.5 Confidentiality

Confirmation Bodies must keep sensitive information encountered while conducting confirmation activities confidential in order to uphold the integrity of reported data. Confirmation Bodies must not make use or take advantage of any confidential information and must take reasonable steps to protect the information from any unauthorized access. Because market-sensitive information may be encountered while conducting project confirmation activities, the Confirmation Body must agree to maintain strict confidentiality in its findings prior to the public availability of the Confirmation Report. Confidentiality arrangements and requirements should be addressed in the contract between the Activity proponent and the Confirmation Body.

The Reserve enters into confidentiality agreements with Confirmation Bodies and project proponents as necessary. The Reserve may also, on occasion, request supporting information to supplement reported data. The Reserve follows standardized security and confidentiality procedures to protect all confidential business information. Any organization that must provide confidential information to support the NOCA/COI assessment should clearly mark which information is considered confidential for it to be treated as such.

3 Confirmation Activities

The objective of confirmation under this program is to provide assurance that GHG reductions or removals being claimed meet the program's principles and criteria for FMU issuance (see Climate Forward Program Manual). To do this, Confirmation Bodies must develop a risk-based confirmation plan that considers the size and complexity of the mitigation project, the confirmation team's knowledge of the project, and the relevant sector, technology, and processes. The confirmation plan must identify areas of key risks to support a reasonable level of assurance that the claimed GHG reductions or removals are materially correct.

Confirmation Bodies must confirm a mitigation project's GHG reductions or removals by:

- Implementing a risk-based approach to confirmation
- Ensuring confirmations are conducted in a systematic and comparable way
- Ensuring Confirmation Reports, List of Findings, and Confirmation Statements are independent and robust

Confirmation activities necessarily differ based on the complexity of a project's GHG emissions reductions or removals and the underlying data supporting them. However, the confirmation process must include, at a minimum, the following steps:

- Reserve notification of confirmation activities and case-by-case evaluation of conflict of interest
- Scoping and planning of project confirmation activities
- Desk review and site visit to conduct project confirmation activities:
 - Confirmation of eligibility criteria
 - Identifying SSRs and assessing risk of material misstatements
 - Reviewing methodologies and management systems
 - Confirming emission reduction or removal calculations
- Preparing a Confirmation Report, List of Findings and Confirmation Statement and submitting them to the Reserve

The following steps must be taken to ensure that the obligations and responsibilities of both the Confirmation Body and the project proponent are met.

1. **Project proponent selects approved Confirmation Body:** Project proponent contacts one or more approved Confirmation Bodies to discuss confirmation activities. Approved Confirmation Bodies and contact information will be publicly posted on the Reserve's website. Project proponent selects an organization to confirm its mitigation project and begins to negotiate contract terms. (The contract may not be finalized until a Conflict of Interest determination has been issued by the Reserve.)
2. **Confirmation Body submits project-specific Notification of Confirmation Activities and Conflict of Interest (NOCA/COI) Form:** After a project proponent chooses a Confirmation Body, the Confirmation Body must submit a NOCA/COI Form to the Reserve outlining the proposed scope of the planned confirmation. This document provides insight into the likelihood of a conflict of interest between parties (see Section 3.1.1.2).

3. **Reserve sends approval to proceed to Confirmation Body:** The Reserve reviews the NOCA/COI Form and supporting information to determine the level of risk associated with the proposed project proponent/Confirmation Body relationship, then notifies the Confirmation Body of its determination.
4. **Confirmation Body conducts confirmation activities:** Confirmation Body develops a risk-based confirmation plan and conducts confirmation following the guidance in this Confirmation Manual and the applicable forecast methodology. The confirmation must evaluate a project's eligibility, implementation and the reported GHG emissions reduction or removal calculations.
5. **Confirmation Body shares List of Findings with the project proponent:** A confidential list of material and immaterial findings is sent to the project proponent. This gives the project proponent the opportunity to correct any errors found (see Section 4.1).
6. **Confirmation Body prepares the confirmation documentation for project proponent:** Confirmation Body prepares the final List of Findings, Confirmation Report, and the Confirmation Statement for the project proponent's review (see Section 4.2).
7. **Project proponent submits documents to the Reserve:** Project proponent submits all final documentation to the Reserve: the List of Findings, Confirmation Report, and Confirmation Statement (see Section 4.3).

Upon completion of the above steps, Reserve staff review the relevant documents before registering the mitigation project and issuing FMUs. The Reserve relies upon the Confirmation Report to attest to the accuracy and legitimacy of the FMUs issued and the Confirmation Body is held accountable to the Reserve for the quality and independence of the Confirmation Report and Statement.

3.1 Risk-Based Approach

Under this program, confirmation is an iterative, risk-based activity in which the complexity of all project components is balanced and assessed in relation to one another using third-party professional judgment. Areas that display low complexity or have minimal bearing on the eligibility or quantification of emission reductions or removals should receive lower priority and attention relative to areas with high complexity and significant implications for project eligibility or emission reductions or removals.

During the planning phase (see Section 3.1.1.3) the confirmation team shall conduct a preliminary risk assessment to establish a confirmation approach based on areas of highest perceived risk. This assessment should include the project type, size, complexity, amount of data and documentation, and should not be considered final. Rather, an iterative approach must be used to re-assess risk and complexity in the context of the knowledge gained and information gathered during the confirmation process.

Identified areas of risk may include any aspect of the mitigation project. Where the confirmation team identifies significant risk, it shall review those project components with increased care exceeding the minimum requirements provided in this document and the relevant forecast methodology. Potential areas of risk may include, but are not limited to:

- Ownership of GHG rights

- Project conformance with the Legal Requirement Test
- Project conformance with the Performance Standard Test
- Maintenance and appropriate operation of project hardware
- Sampling and statistical design
- Adequacy and QA/QC of data collection processes
- Training of project personnel
- Data transcription and handling
- Data calculations

3.1.1 Confirmation Activity Planning

Prior to entering into an engagement to provide confirmation services for a project proponent, the Reserve must review the composition of the confirmation team and the scope of confirmation activities. The Confirmation Body must also conduct a conflict of interest assessment between itself, the project proponent, and any other technical consultants involved in the mitigation project. This information is submitted to the Reserve for its approval in the Notice of Confirmation Activities and Conflict of Interest (NOCA/COI) form (see Section 3.1.1.2 below). These forms shall be submitted simultaneously to the Reserve before the contract with the project proponent is finalized and before confirmation activities commence.

3.1.1.1 Confirmation Team

The Confirmation Body is responsible for assembling a competent and qualified confirmation team to undertake confirmation activities before beginning any confirmation work. The confirmation team must have sector-specific competency in relation to the type of mitigation project being confirmed, and all team members and their respective roles must be disclosed on the NOCA/COI form. This includes specifying which individuals will serve as Team Lead and Senior Internal Reviewer. Both the Team Lead and the Senior Internal Reviewer must be accredited as a Project Expert.

The role of a Team Lead is to coordinate the confirmation team and all underlying confirmation activities. The Senior Internal Reviewer's role is to perform a final quality control on the data checks, the List of Findings, the Confirmation Statement, and Confirmation Report prior to its completion.

In order to perform an impartial evaluation of the confirmation process and results, the Senior Internal Reviewer must remain independent from decisions made by the rest of the confirmation team during confirmation activities. To that end, the Senior Internal Reviewer shall not participate in meetings, phone calls, or site visits between the confirmation team and the project proponent.

3.1.1.2 Conflict of Interest Evaluation

To ensure the credibility of the emissions data reported to the Reserve, it is critical that the confirmation process be independent from the influence of the project proponent. The Confirmation Body must act objectively and exercise professional skepticism while conducting confirmation activities. To help ensure this, the selected Confirmation Body must conduct a conflict of interest (COI) assessment that is reviewed by the Reserve on a project-by-project basis.

The COI assessment process gives the Confirmation Body the ability to demonstrate that its organization can identify and mitigate situations that would impair its ability to render an impartial confirmation statement. Any pre-existing relationship between the Confirmation Body

or its confirmation team and project proponent must be disclosed to the Reserve. The Reserve will then evaluate the potential for a real or perceived conflict of interest between the two entities. If the Reserve finds that there is low risk of COI, a determination is made in writing and sent to the Confirmation Body allowing confirmation services to proceed. After that point, the project proponent and Confirmation Body may finalize negotiations of their contract and begin confirmation activities.

The COI assessment form is available for download from the Reserve website. The completed form must be submitted to the Reserve a minimum of 10 business days prior to the beginning of confirmation activities and the finalization of the contract. This notification period is necessary to provide the Reserve time to assess the risk of COI, resolve, or mitigate issues, and allow itself, its partners, or its consultants the opportunity to conduct confirmation oversight. More information on the confirmation oversight process can be found in Section 5.1. If the Reserve approves confirmation activities to proceed without oversight, project confirmation may begin on the date that approval is received by the Confirmation Body. No confirmation activities may occur prior to COI approval. If a Confirmation Body violates these COI procedures, the Reserve at its discretion may disqualify an approved Confirmation Body from providing services under this program.

If the Reserve finds that there is a medium or high risk of COI, it may request further information or the development of a mitigation plan before a final determination is made. For these cases, the Reserve will convene a COI Committee comprised of three or more staff members (with a minimum of one management level staff member) to discuss the issue. Where a high risk of COI is determined to exist and mitigation is not possible, the Confirmation Body will not be approved to conduct the confirmation.

The following lists contain services that are considered potentially conflicting and therefore incompatible with the provision of confirmation activities. Services of this nature must be declared on the COI form. The Reserve recommends that if there is any doubt whether or not a potential or real COI exists, it should be disclosed to the Reserve on the COI form. Please note that this list is not exhaustive, as there are other services and conditions that could constitute a COI.

High risks for COI:

- Sharing senior management staff or Board of Director membership between the project proponent and the Confirmation Body, or previous employment of the senior management staff by the Confirmation Body or vice versa within the previous three years.
- Designing, developing, implementing, internal auditing, consulting, or maintaining a GHG emissions reduction or removal project
- Designing or developing GHG information systems for the project proponent in the same sector
- Owning, buying, selling, trading, or retiring shares, stocks or FMUs from the project in question
- Brokering in, advising on, or assisting in carbon or GHG-related markets
- Dealing in or being a promoter of credits on behalf of the project proponent

Medium risks for COI:

- Developing GHG emissions factors or other related engineering analyses for the project proponent

- Designing energy efficiency, renewable energy, or other projects for the project proponent that explicitly identify GHG reductions as a benefit
- Providing appraisal services of carbon or GHG liabilities or assets
- Preparing or producing GHG-related manuals, handbooks, or procedures for the project proponent
- Providing legal services
- Providing expert services for a legal purpose or advocating for the project proponent
- Providing other GHG-related fee-paying services to the project proponent during confirmation activities
- Members of proposed confirmation team have a close personal or familial relationship with the project proponent

Potentially conflicting services could be mitigated by the following circumstances, including, but not limited to:

- **Time of service:** Any services delivered between the project proponent and the Confirmation Body (past employee/employer or other relationships) that occurred more than three years before the date of the COI determination are viewed as a lower risk (the Reserve does recommend disclosure of any services delivered between the project proponent and the Confirmation Body, including any services provided earlier than the three year period). However, any services rendered related to the design, development, implementation, or maintenance of a GHG emissions project must be fully disclosed and are always considered conflicting, regardless of the time of delivery.
- **Location:** Services provided to a business unit, facility, or office of the project proponent located outside of country where the mitigation project is located are considered a lower risk for a conflict of interest.
- **Type of service:** Services that do not appear on the above lists of potentially conflicting services may be considered a lower risk.
- **Financial value of service:** The Confirmation Body's provision of other services with a small monetary value relative to the value of confirmation is viewed as a lower risk by the Reserve. Cases where the total value of services provided to the project proponent is a very small percentage of the Confirmation Body's revenue over the same period may be less cause for concern, as well.

3.1.1.3 Developing a Confirmation Plan

Prior to the kick-off meeting, the confirmation team shall develop an initial confirmation plan outlining the scope and nature of confirmation activities to be conducted for the specific project. The confirmation plan must include a review of any previously reported information to the Reserve, a preliminary assessment of areas of high risk, identification of potential systemic weaknesses, a draft sampling plan to recalculate the emission reductions or removals data, and a site visit itinerary. The data sampling plan should be created in line with the requirements of section 4.3.3 of ISO 14064-3, which stipulates the different types of sampling and the typical conditions that apply to each sampling type.

The confirmation plan should evolve as the confirmation progresses and the confirmation team obtains more information on potential areas of risk and supporting evidence to substantiate the GHG emission reductions/removals assertion. The confirmation plan must be submitted to the Reserve for review.

After the Reserve has been notified of planned confirmation activities and issued approval for confirmation to proceed, contract terms may be finalized and confirmation activities can commence.

3.2 Core Confirmation Activities

The core confirmation activities of the Climate Forward program encompass a risk assessment and data sampling effort used to determine that the project is eligible, the mitigation project was implemented according to the approved forecast methodology, no relevant SSRs are excluded, data was properly collected and calculated, and the risk of error is low. Each of these areas must be assessed and addressed through appropriate sampling, testing, and review.

All confirmation activities shall include the following core steps:

1. Confirm eligibility criteria
2. Site visit
3. Review data, identify SSRs, and confirm project implementation
4. Review management systems
5. Confirm emissions estimates

3.2.1 Confirm Eligibility Criteria

Every project must meet the eligibility criteria established in this manual and the relevant forecast methodology to qualify for project registration. There can be no deviation from these rules. The Reserve conducts a preliminary review of project information provided at project submittal to assess eligibility. This review is not a final determination of the eligibility of the project, nor does it guarantee FMU issuance or ownership. Upon initiation of confirmation activities, it is the responsibility of the Confirmation Body to assess these claims and confirm that a project meets the eligibility criteria.

The confirmation body must explicitly state in the Confirmation Report whether each eligibility requirement has been met and summarize the evidence that was reviewed to reach its determination. Please note that areas of high risk may necessitate investigation beyond the steps described below.

3.2.1.1 Location

Each forecast methodology limits project activities to an explicitly defined geographic boundary. Confirmation of project location shall be conducted through site visits, corroboration and review of appropriate documentation, and/or geographic searches confirming location and the project area.

3.2.1.2 Project Start Date

As defined in this document and each forecast methodology, the project start date initiates the project crediting period. Confirmation Bodies must confirm that:

- The stated project start date is correct
- The project start date is eligible per the relevant forecast methodology and the requirements laid out in the Climate Forward Program Manual

Confirmation bodies shall review supporting documentation to ensure the start date established by the project proponent is correct (e.g., design plans, installation dates, operational dates,

commissioning reports, service invoices, log books, staff interviews, etc.) and may use their discretion as to the adequacy and sufficiency of evidence provided. Supporting documentation should always be clear, traceable and directly correspond to the reported timeline. The exact start date must be explicitly stated in the Confirmation Report.

3.2.1.3 Additionality

All approved forecast methodologies incorporate standardized additionality tests. These tests generally have two components that must be confirmed by the Confirmation Body: a legal requirement test and a performance standard test.

The Legal Requirement Test

Confirmation of the legal requirement test requires:

1. **Review of the Attestation of Legal Additionality form:** The Attestation of Legal Additionality states that 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 the project proponent or any other party.
2. **Risk-based review of relevant legal requirements:** The Confirmation Body must conduct a review of applicable local, state, federal, or other applicable regulations in order to reach reasonable assurance that there are no specific mandates for the mitigation project's implementation.

The Performance Standard Test

Confirmation Bodies must confirm that the project meets or exceeds the performance standard specified in the relevant forecast methodology. This determination is not subjective. The applicable performance standard is applied by the project proponent at the time the project commences.

3.2.1.4 Regulatory Compliance

The Confirmation Body shall confirm that the project has identified all applicable laws and regulatory requirements related to initial and ongoing implementation of the project. The Confirmation Body must also confirm that measures enacted to comply with each regulatory requirement have been implemented, as specified in the applicable forecast methodology. The Confirmation Body must confirm that the project proponent has signed the Attestation of Regulatory Compliance. The Attestation of Regulatory Compliance states that 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.

3.2.1.5 Ownership

Project proponents must have exclusive ownership rights to the GHG reductions or removals associated with the mitigation project and for which the Reserve will issue FMUs. It is essential that the Confirmation Body determines the project proponent is the proper owner of a project's emission reductions or removals early in the verification process. The ownership requirement is confirmed through review of the Attestation of Title and an accompanying review of available

ownership documentation. The owner of the FMUs must be the account holder in the Climate Forward registry; the owner must also be the signatory to the Attestation of Title.

The Confirmation Body must confirm that the project proponent has signed the Attestation of Title and is the owner of full, legal and beneficial title to the GHG reductions or removals. Although several parties may be involved in a single mitigation project, the party that signs the Attestation of Title must be the party that has beneficial ownership rights in relation to the FMUs issued in the Climate Forward registry.

If the Confirmation Body determines a different organization has ownership of the FMUs, the Confirmation Body may proceed with confirmation activities if the rightful owner is clearly identified in the confirmation documentation, all involved organizations are informed, and a COI evaluation between that party and the Confirmation Body has been approved by the Reserve. The project could also be moved to a different account within the Climate Forward registry at this time, if relevant.

In addition to the Attestation of Title, Confirmation Bodies should review relevant contracts, agreements, and/or supporting documentation between project proponents, facility owners, utilities, and other parties that may have a claim to the FMUs generated by the project. Confirmation Bodies must review these contracts in a risk-based context and use professional judgment to determine the depth and breadth of the review. To issue a positive Confirmation Statement, the Confirmation Body must conclude with reasonable assurance that the project proponent has title of the GHG reductions/removals.

The Reserve recognizes that confirmation teams generally do not contain a legal expert. If any high-risk contractual and/or title issues remain unresolved following an exhaustive review, the Confirmation Body should contact the Reserve for further assistance. In these circumstances, the Reserve will help make an ownership determination.

3.2.2 Site Visit

The following activities are expected to occur during a site visit confirmation. Please note that this list is not comprehensive. Requirements differ by project type, and the forecast methodologies will note exact requirements. The depth and breadth of confirmation activities shall also be guided by the project specific risk assessment (See Section 3.1).

A site visit must, at minimum, and in addition to core confirmation activities, consist of:

- Re-calculation and review of the data calculations and information presented in order to confirm completeness
- Review of the project implementation report for conformance with forecast methodology requirements
- Evaluation of data management, QA/QC systems, and general procedures in the context of their influence on the generation and quantification of estimated reductions or removals
- Assessment of the implementation and operation (to the extent possible) of the project activity
- Assessment of the implementation and operation of any required Project Resilience Measures (as specified in the relevant forecast methodology)
- Review of information flows for generating, aggregating and quantifying data parameters
- Interviews with relevant personnel to confirm that they are properly trained and qualified

for the duties they perform

- Interviews with relevant personnel to confirm that the operational and data collection procedures will be implemented in accordance with the project implementation report and forecast methodology requirements
- A cross-check between information provided in the project implementation report and data from other primary data sources to the extent available
- A check of any project related equipment including calibration performance and observations of ongoing maintenance practices against the applicable forecast methodology requirements

A site visit can be critical to properly assess project operations, functionality, and data control systems; confirm the project boundaries and assessment area (if applicable); and review measurement techniques, onsite record-keeping practices, and implementation of project resilience measures. The Confirmation Body must conduct a site visit at least once, with timing for the site visit specified by the relevant forecast methodology.

3.2.3 Review Data, Identify SSRs, and Confirm Project Implementation

Confirmation Bodies shall review a project's reported SSRs to ensure that all are properly identified within the GHG Assessment Boundary as defined by the applicable forecast methodology. The review must also include the reporting parameters for the mitigation project. A site visit shall be used to confirm the GHG Assessment Boundary, examine project equipment, identify any associated SSRs resulting from the project, and assess the implementation and operation of the project activity.

Once all reporting parameters and SSRs have been identified and any issues addressed, the Confirmation Body may proceed to reviewing the project's calculation methodologies and management systems.

3.2.4 Review Management Systems

After the project SSRs have been confirmed, the Confirmation Body shall review the methodologies and management systems used to generate and estimate project data. This is principally a risk assessment exercise in which the Confirmation Body must weigh the relative complexity of the scope of the project's emissions operations and activities, the Project Proponent's methodologies and management systems used to calculate GHG reductions or removals, and the likelihood of calculation error because of uncertainty or misstatement. The Confirmation Body must determine the presence and level of inherent and management type risks and focus its confirmation effort on the highest risk areas. This is an area which requires professional judgment, and it is likely that qualitative material non-conformances with the forecast methodology could be identified.

A Confirmation Body's general review of a project's GHG management systems should document whether methodologies/procedures are appropriate given the inherent uncertainty/risk. The Confirmation Body shall also check that the project is implemented in accordance with the applicable forecast methodology. The Confirmation Body is responsible for ensuring that all calculated data are accurate.

3.2.5 Confirm Emission Reduction or Removal Estimates

Based on a project's SSRs, management systems, and corresponding risk profile, the Confirmation Body must ensure that the calculation estimates of GHG reductions or removals are accurate within the appropriate quantitative materiality threshold. This is achieved by re-

calculating all emission estimates based on project data and forecast methodology quantification methods. All emission or efficiency factors used in the equations must also be checked. Cross-checking calculated emissions reductions and performing data reconciliation in line with the methodologies outlined in the relevant forecast methodology is vital to ensure quantitative material misstatements are identified and resolved.

The Confirmation Body shall also trace activity data compiled by the project proponent back to the original source and perform re-calculations in accordance with a sampling plan that focuses on high-risk data. The Confirmation Body shall review all relevant physical and documentary evidence.

In order for the Confirmation Body to confirm the reductions or removal estimates, the sample of recalculated project calculations must be free of material misstatement. It is possible that the overall GHG reductions or removals calculated by the project proponent will differ from those estimated by the Confirmation Body. A discrepancy is considered material if the difference between the Project Proponent's calculated GHG reductions or removals and the Confirmation Team's estimate surpasses the materiality threshold defined in Section 2.1.3.1. Immaterial discrepancies are those that fall within the materiality threshold and are not required to be corrected.

Note that the Reserve allows for under-reporting as that is considered conservative. Under-reporting errors are not required to be corrected. The quantitative materiality threshold only applies to mistakes that result in over-reporting.

If the reported data is not free of material misstatement, the Confirmation Body shall include this information in the List of Findings and complete the sampling effort of other sources.

4 Confirmation Documentation

After the Confirmation Body has completed its confirmation activities, it must take the following steps to document the confirmation process:

1. Complete a detailed Implementation Confirmation Report. This report contains a summary of confirmation activities, including the review of project eligibility criteria, a list of the GHG emissions sources identified within the project boundary, a description of the sampling techniques, and a risk assessment of the processes and reported results. The risk assessment forms the basis of the Confirmation Statement (public document).
2. Complete a detailed List of Findings. This document accompanies the Implementation Confirmation Report and must contain all material and immaterial findings identified during confirmation activities, any recommended corrective actions, and resolutions to material issues (private document).
3. If a reasonable level of assurance is successfully obtained, complete a positive Confirmation Statement detailing the quantity of forecasted GHG emissions reductions or removals (public document, standard form). The Confirmation Statement form is available at: <http://www.climateactionreserve.org/climate-forward/program-and-project-forms/>.

If a mitigation project is deemed ineligible or non-compliant with a methodology to the extent that it cannot be registered, the Confirmation Body shall submit only the negative Confirmation Statement and List of Findings.

4.1 List of Findings

The List of Findings is a private document that details all material and immaterial findings identified by the confirmation team throughout the confirmation. These findings shall be distinguished by materiality and whether they were qualitative non-conformances or quantitative misstatements. The List of Findings submitted to the Reserve should provide a summary of all findings and resolutions that arose during the confirmation process.

The List of Findings must include a record of all corrections made by the project proponent to address the identified issues. Each finding shall detail and list the identified issue and refer to the relevant section of the forecast methodology but shall not provide any solutions or potential remedies for resolution. Resolutions constitute consulting advice and thus create a conflict of interest.

4.2 Confirmation Report

The Confirmation Report is a transparent, overarching document that is produced by the Confirmation Body for the project proponent and is also made available to the Reserve and the public. The Confirmation Report must contain a detailed summary and scope of confirmation activities undertaken. It is made public to uphold the integrity of the program and to establish the veracity of the FMUs issued. As such, the Confirmation Report must provide positive assertion that the mitigation project met all eligibility requirements, followed all forecast methodology and program requirements, applied the appropriate calculation methodologies, and is free of material errors. In addition, the Confirmation Report must include a discussion of how the perceived areas of risk were incorporated into confirmation activities.

The Reserve expects all Confirmation Reports to make explicit, positive assertions of the conclusions drawn. For example, it is insufficient for a Confirmation Report to simply indicate that no findings were identified. The report must explicitly state that the confirmation body has concluded to a reasonable level of assurance that the project met methodology and programmatic requirements and identify the evidence examined to reach that determination.

4.2.1 Confirmation Report Content

The Confirmation Report must clearly specify a detailed scope of the verification process and procedures undertaken. The scope includes the physical and temporal boundaries of the verification as well as the GHGs considered. The confirmation process must be fully documented, with particular focus on the risk-assessment and development of the confirmation plan. This documentation shall include a description of the confirmation activities based on the size and complexity of the project proponent's operations. This section is expected to provide context for the remainder of the report.

In addition, the standard used to verify GHG emissions reductions or removals must be specified in the Confirmation Report. For all projects, the standard must include, at a minimum, this document, the Climate Forward Program Manual, the applicable forecast methodology, any relevant Policy Memos, the latest relevant Errata & Clarifications, and ISO 14064-3. The quantitative materiality threshold for confirmation must also be included. Confirmation bodies are required to adhere to all rules and guidelines relevant to the forecast methodology under which the project is being confirmed.

4.2.1.1 Eligibility

The Confirmation Report must include a description of the eligibility criteria and must make an explicit and positive assertion as to whether each eligibility criterion has been met and explain the basis of this determination. The confirmation report should explicitly cite what supporting documentation and evidence has been used to confirm eligibility criteria.

The Confirmation Report must describe the project definition and scenario as well as indicate any review conducted to confirm the project's asserted baseline status, as this impacts eligibility.

The report must indicate how the Confirmation Body's risk assessment was used to inform the project's conformance with eligibility criteria. While some criteria, such as project location, are relatively straightforward, others may require varying levels of review in order to positively confirm. In particular, Confirmation Bodies must indicate whether the risk assessment indicated that reliance on the Attestation of Legal Additionality, Attestation of Regulatory Compliance, and a risk-based regulatory review was sufficient or whether additional work was conducted. A simple narrative of work performed on the project is insufficient; confirmation body conclusions must be explicitly stated, e.g., "Based on the aforementioned review, we conclude that the project satisfies the legal requirement test".

4.2.1.2 Conformance with the Forecast Methodology

As prescribed by the applicable forecast methodology, all projects must adhere to certain operational, record-keeping, and methodological requirements. The Confirmation Report must explicitly and positively assert whether the project meets these requirements and provide the basis for the determination reached. Again, narratives of project activities must be accompanied by confirmation body conclusions.

In particular, the following areas must be reviewed (if applicable) and the project's conformance or non-conformance explicitly stated in the Confirmation Report:

- Existence of an appropriate project implementation report
- Project resilience measures installed and operating in accordance with forecast methodology requirements
- Equipment installation, operation, and any QA/QC procedures meet forecast methodology requirements
- Calculations and equations applied in accordance with forecast methodology requirements
- All individuals properly trained for the functions performed
- Accuracy of forecasted GHG reductions

The Confirmation Report must contain explicit, conclusive, and unequivocal statements as to the project's conformance with relevant requirements.

4.2.1.3 Calculation Review and Sampling

The Confirmation Report must identify the SSRs contained within the project's GHG Assessment Boundary and make an explicit determination as to whether all necessary and appropriate SSRs have been included. The confirmation team must note the recalculation and confirmation of the total number of GHG reductions forecasted and reported to the Reserve. It may utilize appropriate risk-based sampling techniques for underlying source data that factor into the final GHG reduction calculation.

The Confirmation Report must summarize the sampling techniques used, the confirmation plan, and the risk assessment methodologies employed for project calculations. The report must contain a discussion of the risk assessment and the manner in which this assessment informed the project data and calculation sampling techniques. Relevant input parameters must also be disclosed, and the appropriateness of the chosen parameters must be asserted.

The Confirmation Report shall summarize the GHG reductions estimation in the following format:

Vintage	Baseline Emissions	Project Emissions	GHG Reductions/Removals (CRTs)
20XX	A	B	Result of A - B

The report shall provide information regarding the comparison of the project's reported GHG reductions or removals with the confirmation body's recalculation.

4.2.1.4 Findings and Basis of Opinion

The Verification Report should support the Confirmation Statement by summarizing the results of the verification in a general conclusion. A positive Confirmation Report must contain, at a minimum, the following assertions:

- The project meets all eligibility requirements
- The project was conducted in accordance with all project implementation requirements
- There are no existing material non-conformances or misstatements in the reported data

4.3 Confirmation Statement

The Confirmation Statement confirms the confirmation activities and outcomes for all stakeholders: the project proponent, the Confirmation Body, the Reserve, and the public. The Confirmation Statement shall:

1. Describe the level of assurance of the confirmation;
2. Describe the objectives, scope and criteria of the confirmation;
3. Describe whether the data and information supporting the GHG assertion were hypothetical, projected, and/or historical in nature; and
4. Include the Confirmation Body's conclusion on the GHG assertion, including any qualifications or limitations

The Reserve relies on the Confirmation Statement as the basis for issuing FMUs. A positive Confirmation Statement indicates that the mitigation project and its estimates of emission reductions or removals meet the program standards and requirements.

The Confirmation Statement is a standardized, mandatory form that is available on the Reserve website. The Confirmation Statement must be signed by the Team Lead and Senior Internal Reviewer designated in the NOCA/COI form on file with the Reserve. No deviations are allowed.

Confirmation Statements may be positive or negative. Positive statements provide the required reasonable assurance to the Reserve that the amount of FMUs to be issued is materially correct and the mitigation project has been implemented in line with the relevant forecast methodology.

5 Administration

5.1 Confirmation Oversight and Desktop Audits

Oversight is conducted by the Reserve to provide quality assurance and control on confirmation activities performed by accredited Confirmation Bodies. Oversight consists of a comprehensive examination and evaluation of project confirmation activities to assess Confirmation Body performance, including attending the site visit. It also serves as an opportunity for the Reserve to identify potential improvements to the program's processes and guidance. Oversight is not intended to hold a project or project proponent to a different level of scrutiny or subject it to additional requirements. Oversight is an important element of the Reserve program and provides an extra level of assurance and transparency to bolster the validity of the credits issued.

The Reserve staff member or representative conducting oversight must be provided access to all project documentation and data reviewed by the Confirmation Body as well as participate in certain stages of the confirmation. The Confirmation Body will be notified that it has been selected for oversight upon the approval of the NOCA/COI form. Reserve attendance in the following activities must be accommodated:

- Kick-off meeting between the confirmation team and the project proponent – in-person or conference call
- Project site visit
- Closing meeting between the confirmation team and the project proponent – in-person or conference call

In addition, when conducting full confirmation oversight on a project, the Reserve must review or observe all issues and findings-related discussions between the Confirmation Body and project proponent during the confirmation.

Desktop audits are also conducted by the Reserve and may be initiated under similar circumstances as a full project oversight. Desktop audits are limited to a desktop review and are performed upon the completion of confirmation activities. While oversight covers the entirety of a Confirmation Body's processes and qualifications, a desktop audit consists solely of an investigative review of the project data and documentation, as well as the Confirmation Body's analysis. The Reserve auditor must be granted the same degree of access that would be afforded to staff conducting an oversight, but participation in confirmation milestones will not occur.

The Reserve maintains the right to conduct oversight or audits at any time, and such activities will be conducted by a Reserve staff member, partner or Reserve consultant. The Reserve staff or representative will make every effort to not impede the confirmation process. Proprietary information will be handled confidentially. The Reserve, as well as any partners or consultants, are willing to enter into a Non-Disclosure Agreement (NDA) should the Confirmation Body or project proponent require.

Travel and time costs for Reserve staff conducting oversight are covered by the Reserve.

A staff member, partner or consultant performing oversight for the Reserve will observe and evaluate:

- The overall performance of the Confirmation Body by reviewing its processes and procedures while conducting confirmation activities
- Whether the project activities meet the forecast methodology's requirements
- Whether the GHG reductions or removals claimed can be confirmed to a reasonable level of assurance

The Reserve representative performing oversight or conducting an audit may discuss preliminary observations with the Confirmation Body and project proponent before reporting the findings to the Reserve. Information requests should be addressed promptly. The oversight or audit process shall close with the issuance of a letter detailing the findings and overall evaluation to the Confirmation Body, usually upon conclusion of confirmation activities.

The Reserve will try to clearly coordinate and communicate planned oversight activities to Confirmation Bodies and project proponents, but it reserves the right to adjust confirmation activity dates to accommodate the schedules of all relevant parties.

5.2 Rescission of Confirmation Body Approval

If the Reserve finds that a Confirmation Body has failed to meet the Reserve's standards, it may require the Confirmation Body to undertake specified corrective actions. The Reserve may, at its own discretion, issue warnings, temporary suspensions, and notices to correct. The Reserve maintains the right to rescind or suspend its recognition of an individual confirmation team member or Confirmation Body for any period deemed appropriate. The Reserve will make every effort to accommodate the implementation of corrective actions prior to rescinding approval.

Suspensions could occur if the Reserve determines that a Confirmation Body or individual intentionally violated the COI policies, committed willful misconduct, displayed negligence, proved unable to uphold obligations to the Reserve, or was responsible for any other significant non-conformance with Reserve rules, protocols, or procedures.

The Reserve will make public any suspensions of Confirmation Bodies on its website. However, suspensions of individuals will not be publicly noticed.

5.3 Dispute Resolution Process

In instances where a Confirmation Body and a project proponent find themselves in disagreement, the two parties should attempt to reach a resolution, relying first on the Confirmation Body's internal dispute resolution process. Either party may contact the Reserve for assistance in resolving issues that require guidance on a forecast methodology, COI determinations, or confirmation findings.

If a resolution cannot be reached in a disagreement related to project activities, the confirmation must be completed prior to the initiation of any dispute resolution process detailed in this section. The Confirmation Body must issue the List of Findings, Confirmation Statement and Confirmation Report to the project proponent. The Reserve staff will conduct an internal review of the confirmation documentation as well as any additional supporting documentation, claims and information related to the disagreement that substantiate the opinions of the Confirmation Body or the assertions of the project proponent. The Reserve will interview both parties and make a final determination in a committee comprised of no less than three staff members, two of which will be manager level or higher. The Reserve's determination will be issued in writing to all relevant parties.

Confirmation Bodies and project proponents also have a right to appeal Reserve determinations, including COI determinations, through the Reserve's formal dispute resolution process. An appeal to a specific determination, including a detailed explanation of the issue and any supporting evidence, must be electronically submitted to the Reserve. The Reserve will then convene a Dispute Resolution Committee to review the appeal.

The Dispute Resolution Committee will consist of an odd number of individuals, including at least one Reserve staff member not directly involved in the case, and one Reserve Board member, all of whom are knowledgeable of Reserve policies and procedures. The committee will be convened either in person or via conference call.

The Dispute Resolution Committee may consult outside experts for assistance, but these experts will not have a vote in the committee's final decision. All information reviewed will be kept confidential and should be uploaded to the Reserve software as restricted, private documents by either the project proponent or the Confirmation Body. Each committee member must declare his or her freedom from any conflict of interest and will have an equal vote. The Dispute Resolution Committee will consider the original finding, the detailed explanation, and any supporting documents. The final determination will be based on a majority vote. The decision will be binding and will be notified to all parties in writing. The Dispute Resolution Committee has the power to suspend a Confirmation Body from conducting confirmation activities under the Reserve Program.

5.4 Record Keeping and Retention

The Reserve requires that the following project-related records be retained by the Confirmation Body for a minimum of seven years after completing confirmation activities. It should be noted that some records may be subject to fiscal or other legal requirements that are longer than the Reserve's mandated period.

Confirmation Bodies shall retain electronic copies, as applicable, of:

- The project's monitoring plan
- The project proponent's SSR and/or project activity data as well as evidence cited
- The confirmation plan
- The sampling plan
- The Confirmation Report
- The List of Findings
- The Confirmation Statement

Each Confirmation Body must have an easily accessible record-keeping system, preferably electronic, that provides readily available access to project information. Copies of the original activity and source data records shall be maintained within said record-keeping system. The Reserve may at any time request access to the record-keeping system or any supporting documentation for oversight or auditing purposes.

Glossary

Accreditation body	Under ISO 14065, this is the authoritative body that assesses a confirmation body's competence to perform GHG confirmation activities.
Climate Reserve Tonne (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.
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.
Conflict of interest (COI)	A situation in which, due to other activities or relationships with other persons or organizations, a person or firm is unable to render an impartial Confirmation Statement of a potential client's GHG reductions or the person or firm's objectivity in performing confirmation activities is otherwise compromised.
Contracted Project Expert	Under ISO 14065, this is a Project Expert who is independently contracted to operate as part of a confirmation team under the supervision of a confirmation body on specific confirmation activities. The contracted project expert is not a full-time employee of said confirmation body, but acts as the confirmation body's agent and representative while under contract. The use of contracted project expert under such agreements does not constitute outsourcing.
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 Climate Forward 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 Reserve program, an FMU becomes a mitigation credit when it is retired.

Inherent uncertainty	Scientific uncertainty associated with measuring GHG emissions due to limitations on monitoring equipment or methodologies.
Joint confirmation	In cases where a project developer has multiple projects operating on a single site, the project developer has the option to hire a single confirmation body to assess the projects concurrently. Does not apply to all project types.
Listed	A mitigation project moves from “new” status to “listed” status once the Reserve has satisfactorily reviewed the project submittal form and any other required documentation. Listed projects appear in the public interface of the Reserve software.
Material misstatement	An error that results in a significant difference between the reported and the true quantity or quality of project information to an extent that will influence performance or decisions.
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.
Onsite assessment	A two- to three- day assessment at the site of the confirmation body's main office(s) that is conducted by the accreditation body (ANSI). The purpose of the onsite assessment is to confirm whether the operational capability of the confirmation body conforms to ISO 14065, ISO 14064-3, IAF MD 6, and other accreditation requirements, including those for specific GHG programs/registries and/or activities in specific sectors. This assessment provides assurance that the confirmation body has the capacity to perform the activities related to the scopes of accreditation for which it has applied.
Outsourcing	Under ISO 14065, this is the practice of an organization setting a contract arrangement with another organization to provide services tasked to the original organization. The Reserve allows confirmation bodies to outsource confirmation services with the exception of the Lead Verifier and Senior Internal Reviewer roles.
Project	A specific activity or set of activities intended to reduce GHG emissions, increase the storage of carbon, or enhance GHG removals from the atmosphere. Each project and its accompanying project boundary are defined in the relevant Reserve project protocol.
Project Expert	Employee to a confirmation body who is primarily responsible for directing, supervising and the quality of confirmation activities undertaken on behalf of the Reserve. Each Project Expert must be designated as such on the COI Form and the Acknowledgment and Agreement form. Each confirmation body operating within the Climate Forward

	program must employ or have under contract a minimum of two Project Experts.
Project proponent	An organization or individual that registers projects for the purpose of generating GHG emission reductions or removals. Under the Climate Forward program, project proponents may be issued FMUs for the confirmed emission reductions/removals estimated to be achieved through project activities. They can also transfer and manage FMUs in the Reserve software.
Project Resilience Measure	A measure required to be implemented by the project to address the risks of project abandonment, underperformance, or failure.
Reporting uncertainty	Errors made in the identification of emission sources and the management and calculation of GHG emissions. This arises due to incomplete understanding of climate science or a lack of ability to measure greenhouse gas emissions.
Registered	A project is “registered” once the project has been confirmed by an approved third-party confirmation body, submitted by the project developer to the Reserve for final 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.
Senior Internal Reviewer (SIR)	The Senior Internal Reviewer must be an active Project Expert who is designated on the NOCA/COI Form, is listed in the Acknowledgement and Agreement form, and has successfully completed Project Expert training. The Senior Internal Reviewer must remain independent of all confirmation activities; perform a final quality assurance review on the project data, the Confirmation Report, and the List of Findings; and sign the Confirmation Statement attesting to the accuracy of reported data.
Submitted	A project has been “submitted” once the submittal form and any other required documentation have been completed and uploaded to the Reserve software.
Tax Identification Number (TIN)	Number used to assess ownership and the corporate structure of any legal entities involved in a given project.
Trader/Broker/Retailer	Organization or individual that transfers and manages FMUs in the Reserve software but does not develop its own projects. The trader/broker/retailer holds legal title and all beneficial ownership rights to the FMUs in its account or, with respect to FMUs that will be retired in a Group Retirement Subaccount, the trader/broker/retailer must be

	granted the authority to act on behalf of the holder of the legal title and/or the beneficial ownership rights of the FMUs.
Validation	The process by which an independent validation body assesses a project plan for GHG reductions or removals as well as potential future outcomes. Validation is typically required for projects that do not follow established protocols and occurs prior to project implementation in order to establish the project's methodologies, scope and eligibility to create GHG reductions or removals.
Confirmation Body	An ISO-accredited organization that has been approved by the Reserve to perform GHG confirmation activities for specific project protocols.
Witness assessment	Observation of the confirmation body by the accrediting body in the performance of tasks related to the confirmation process for the scope (or group of sectoral scopes) of accreditation for which the confirmation body has applied. The purpose of the witness assessment is to determine whether confirmation activities are in line with the confirmation body's documented quality procedures and to assess its capability to conform to the applicable sectoral scope(s).

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.

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Program and Project Forms

Document	Description	Project/Account Phase	Privilege
Forecast Methodology Screening Form	<p>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.</p>	<p>Prior to Forecast Methodology development</p>	<p>Private</p>

Mature Forest Management <hr/> Pool Covers <hr/> Reforestation <hr/> Solar Photovoltaic <hr/> Confirmation <hr/> Climate Forward Confirmation Manual <hr/> Confirmation Body Requirements <hr/> Confirmation Documents and Reference <hr/> Connect with a Confirmation Body <hr/> Confirmation Training <hr/> Project registry <hr/> Why we must all take urgent action	Document	Description	Project/Account Phase	Privilege
	Forecast Methodology Template	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.	Forecast Methodology development	Public
	Forecast Methodology Assessment Agreement Form	An agreement that must be completed and signed by the forecast methodology developer and the Reserve. The agreement grants the Reserve title and license to use and amend the methodology once it is submitted to the Reserve. The agreement also indemnifies the Reserve and releases it of all liability.	Prior to Forecast Methodology submittal	Private
	Project Submittal Form	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.	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>	<p>Prior to confirmation</p>	<p>Private</p>
<p>Project Implementation Report Form *COMING SOON*</p>	<p>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.</p>	<p>Prior to confirmation</p>	<p>Private</p>
Attestation of Title	<p>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.</p>	<p>During confirmation</p>	<p>Public</p>

Document	Description	Project/Account Phase	Privilege
Attestation of Regulatory Compliance	<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>	<p>During confirmation</p>	<p>Public</p>
Attestation of Legal Additionality	<p>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.</p>	<p>During confirmation</p>	<p>Public</p>

Document	Description	Project/Account Phase	Privilege
<u>Confirmation Statement</u>	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
<u>Program Manual</u>	A document that summarizes the overarching rules, policies and procedures for registering projects and creating FMUs under Climate Forward.	General	Public
<u>Confirmation Manual</u>	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
<u>Forecast Methodology Approval Manual</u>	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



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“When is it Defensible to Mitigate CEQA GHG Emissions Impacts with GHG Credits?”

Craig Ebert, President

AEP Annual Conference | March 26, 2019

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Climate Action Reserve: a nonprofit dedicated to market based solutions to climate change

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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

*Ecosystem Marketplace 2018 data



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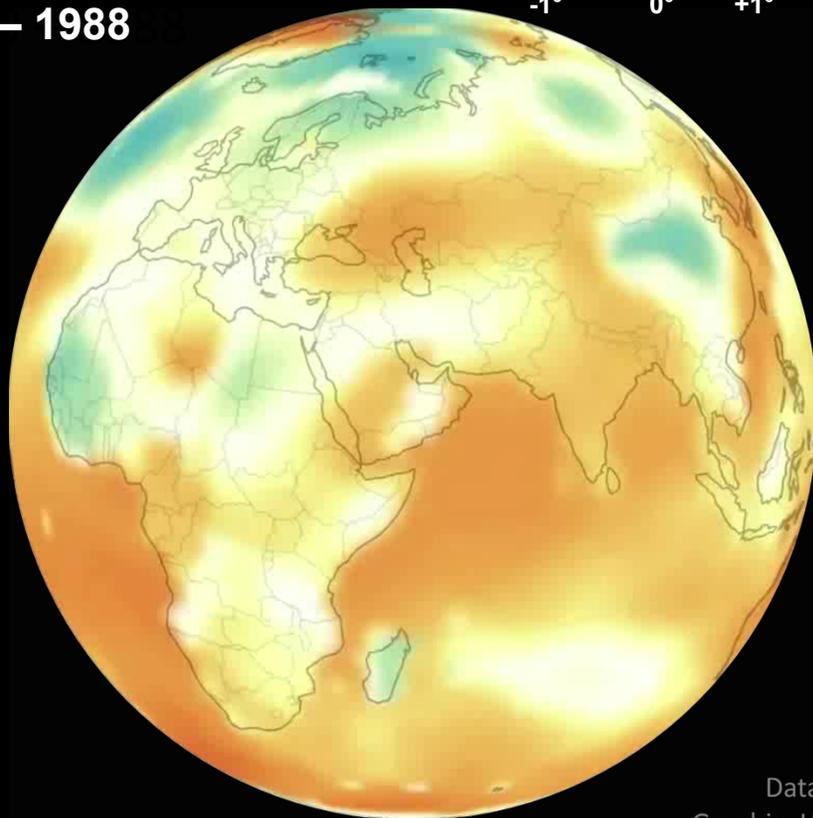
Global Temperature Anomaly

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

FILED
Superior Court of California
County of Los Angeles

DEC 19 2018

Sherri R. Carter, Executive Officer/Clerk
By A. Barton Deputy

**DECISION ON PETITION FOR WRIT OF MANDATE
WRIT DENIED**

FRIENDS OF THE SANTA CLARA RIVER, SCOPE (SANTA CLARA ORGANIZATION FOR PLANNING AND RESEARCH) v. COUNTY OF LOS ANGELES, et al, Case No. BS 170568 (Real Party in Interest, NEWHALL LAND AND FARMING COMPANY)

Newhall Ranch (the development arm of real party Newhall Land and Farming Company) applied for discretionary governmental approvals to develop parcels comprising 12,000 acres in Santa Clarita Valley in northwest Los Angeles County. The proposed development is to be built out as interconnected communities (described as “villages”) and to include, when completed, more than 20,000 dwelling units, commercial and business uses, schools, parks, golf courses, fire stations and infrastructure.

A lawsuit was filed to stop the Newhall Ranch development because of its alleged non-compliance with the California Environmental Quality Act (“CEQA”), Public Resources Code § 21000 et seq.¹ That litigation raised important legal issues—the foremost being the level of significance and the mitigation required for the greenhouse gas (GHG) emissions generated in the construction and operation of the development.²

The Petitioners above—Friends of the Santa Clara River and SCOPE--filed this subsequent action in August, 2017 to challenge the action of the County of

¹ Statutory references are to the Public Resources Code unless otherwise specified.

² The term “greenhouse gases” refers to gases emitted into the atmosphere that allow the sun’s rays to enter the Earth’s atmosphere, but trap the energy that is radiated back into space, thereby resulting in a warming of the atmosphere called the “greenhouse effect.” The greenhouse gases are identified in Health & Safety Code section 38505(g). Carbon dioxide (CO₂) has the greatest impact on global warming because of the relatively large quantities of CO₂ emitted into the atmosphere. (SR1621.)

Los Angeles (“County”) in approving under CEQA the environmental impact reports (“EIRs”) prepared in the year 2011 for the Landmark Village and Mission Village projects. The projects are parts of and within the boundaries of the Newhall Ranch development. This Court discusses the earlier litigation because the issues therein decided are relevant to the present action.

The California Department of Fish and Wildlife (CDFW) Litigation.

The CDFW litigation (filed in 2011) challenged the approvals by the California Department of Fish and Wildlife of the Resource Management and Development Plan and the Spineflower Conservation Plan (the RMDP/SCP specific plan) for the Newhall Ranch development. The Supreme Court, in that litigation, issued a seminal decision interpreting California statutes and regulations concerning GHG emissions. Center for Biological Diversity v. California Department of Fish & Wildlife (2015) 62 Cal.4th 204. The Court held that the CDFW approvals made in reliance on the 2011 EIRs violated CEQA because CDFW’s determination that the increase in GHG emissions from the proposed development over existing conditions was less-than-significant was “not supported by a reasoned explanation based on substantial evidence.” *Id.* at 213. (The Court’s other holdings are discussed below only if relevant to Petitioners’ arguments.)

The Court of Appeal, in implementing the remand from the Supreme Court, issued two follow-up decisions. Center for Biological Diversity v. California Department of Fish & Wildlife (2016) 1 Cal.App.5th 452, 469 (Center for Biological Diversity II); and Center for Biological Diversity v. California Department of Fish & Wildlife (2017) 17 Cal.App.4th 1245. (Center for Biological Diversity III).

Newhall Ranch, in response to the court decisions, redesigned the development with the intent of mitigating the greenhouse gas emissions to a less-than-significant level. The developer, in the new plan, incorporated thirteen mitigation measures so that with the mitigation measures the development would not increase GHG emissions over existing conditions. The CDFW in re-analyzing the GHG emissions with the mitigation measures prepared a document known as the “Additional Environmental Analysis” (the “2017 AEA”). The CDFW upon reviewing the two documents—the 2017 AEA and the 2011 EIRs—determined that the increase in greenhouse gas emissions due to the development will be less-than-significant and that, thus, the development is CEQA-compliant as to GHG emissions. The CDFW, on June 24, 2017, re-approved the Newhall Ranch development. (SR 29188, 39226-39267.)

The two Petitioners herein (and others) challenged CDFW’s determination upon re-approval that the GHG emissions with the mitigation measures were reduced to below the level of significance. The trial court (Judge John A.

Torribio, presiding) rejected their challenge on May 16, 2018. (AR Exh. AA: Proposed Order, LASC Case No. BS 131347.) Judge Torribio, in a 19-page decision and order, concluded:

The Court finds that the Department's approval of the Project as modified, including certification of the 2017 AEA, adoption of Supplemental Findings of Fact and Statement of Overriding Considerations, and approval of the Errata to the MMRP, fully comply with the Department's obligations under the Writ issued by this Court.

No Petitioner appealed the trial court's decision. Judge Torribio's decision and order ended the litigation that challenged CDFW's certification of the program CEQA for the Newhall Ranch master plan development.³ The two petitioners in the present action, Friends of the Santa Clara River and SCOPE, were petitioner parties in the CDFW litigation.

The County of Los Angeles Litigation.

New litigation was filed in 2012 to challenge the County's approvals for the construction of two village projects—Landmark Village and Mission Village—that are within the boundaries of the Newhall Ranch development.⁴ Appeals in the Friends/Native Plant litigations were pending in the Supreme Court when Center for Biological Diversity I was decided, and the Supreme Court transferred those appeals to the Court of Appeal for reconsideration in light of Center for Biological Diversity II. The Court of Appeal, in turn, remanded the cases to the trial court to issue an appropriate writ of mandate under CEQA section 21168.9.

The trial court in the Friends/Native Plant cases (Judge Richard L. Fruin, presiding), on March 13, 2017, issued writs of mandate that targeted the parts of the 2011 EIRs that the Court of Appeal found to be deficient in analyzing the projects' GHG emissions. The appellate court, in later affirming the trial court, summarized the trial court's orders as follows:

³“A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related [among other possibilities] (1) Geographically, (2) As logical parts in the chain of contemplated actions, ... (4) As individual actions carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.” CEQA Guidelines section 15168(a).

⁴ Petitioner Friends of the Santa Clara River (Friends) challenged the approvals for Landmark Village (in LASC Case No. BS136549); and Petitioner California Native Plant Society (Native Plant) challenged the approvals for Mission Village (in LASC Case No. BS138001).

In both cases, the writs of mandate directed the County to (1) void certification on only those portions of the EIR analyzing the significance of GHG emissions; (2) suspend any project activity, including construction, until the County corrects the GHG discussion; and (3) suspend the County's CEQA Findings and Statement of Overriding Considerations and the Mitigation Measures and Reporting Plan (collectively, the CEQA Conditions) until they are corrected. The court specified that the CEQA Conditions were the only 'project approvals' that directly relate to the EIR's GHG emissions analysis, and so only those documents needed to be corrected. The remaining approvals ... were not affected by the Supreme Court and Court of Appeal decisions, and so "no remedial action is required unless compliance with this Writ changes or affects" them.

The writs the trial court issued were crafted to comply with CEQA section 21168.9. Section 21168.9 directs the trial court on remand to enter orders to address any determination that is not compliant with CEQA. If the circumstances do not require annulling the entirety of the agency's action, the trial court is authorized to issue limited orders. Section 21178.9, in subdivisions (a)(3) and (b), expressly authorizes such limited orders, providing as follows:

(a)(3) A mandate that the public agency take specific action as may be necessary to bring the [lead agency] determination into compliance with this division [that is, with CEQA].

(b) Any order pursuant to subdivision (a) shall include only those mandates which are necessary to achieve compliance with [CEQA] and only those specific project activities in noncompliance with [CEQA]. ... However, the order shall be limited to that portion of a determination ... found not to be in noncompliance only if a court finds [the noncompliant action is severable and] severance will not prejudice the project's complete and full compliance with [CEQA]....

The writs issued in the Friends/Native Plant cases were appealed. The two cases were argued together, and the Court of Appeal, on July 12, 2018, issued nearly identical decisions in each case that affirmed the trial court's writ orders. See, Slip Op., Friends III, p.40.

The Present Action.

The above two Petitioners filed the present action (on August 17, 2017) to challenge the County's determination that the mitigation measures Newhall Ranch adopted to bring the Landmark and Mission projects into CEQA compliance have reduced the GHG emissions to less than significance. (They allege separately that the projects' water assessments are inadequate.)

Newhall Ranch, in response to the writ orders issued in the CDFW and County litigations, redesigned the Landmark and Mission projects to include mitigation measures to reduce GHG emissions to a less-than-significant level. The mitigation measures adopted for the Landmark Village project are virtually identical to those adopted for the Mission Village project. Moreover, significantly for this decision, the mitigation measures the developer adopted for the entire Newhall Ranch development are the same mitigation measures approved for the Landmark and Mission projects. Petitioners acknowledge this, saying in their Opening Brief (p.10: 20-22):

These two sets of mitigation measures are essentially identical to each other, and identical to the mitigation measures approved by CDFW for the RMDP/SCP Project for Newhall Ranch as a whole. (SR 1658-59; 30951-52.)

The County complied with this Court's writ orders by deleting from the 2011 EIRs the analysis of GHG emissions for the Landmark/Mission projects; and by preparing the new "Recirculated Analysis" to re-analyze the GHG emissions with the developer's newly adopted mitigation measures. The developer re-designed the Landmark and Mission projects to incorporate thirteen mitigation measures (1) to reduce on-site the GHG emissions for the development (compared to the projects' original design) and (2) with respect to the GHG emissions the projects nonetheless will produce, to offset those emissions by funding measures to eliminate an equivalent of GHG emissions off-site including by the purchase of certified credits from the state's cap-and-trade program. The mitigation measures are designed to enable a reduction in GHG emissions in global GHG emissions in the amount of GHG emissions caused by the construction and operation of the Village projects. (SR 1778.) The mitigation measures for Landmark Village are identified as LV 4.23-1/2-1 through 4.23-13/2-13 (SR1618-19); and for Mission Village, as MV 4.23-1/2-1 through MV 4.23-13/2-13 (SR30911-30911-12). These mitigation measures are calculated to achieve during a 30-year project life a Zero Net Energy (ZNE).⁵ The County's analysis made in the "2017 Recirculated Analysis" for the projects' GHG emissions with the new mitigation measures was based on its consideration of the 2017 AEA (again, that the CDFW had prepared to analyze the GHG emissions for the entire development with the adoption of the same mitigation measures) and by its consultations with experts including specialists

⁵ ZNE is defined by the California Energy Commission in its 2015 Integrated Energy Policy Report as "the value of the net energy produced by project renewable energy resources to equal the value of the energy consumed annually by the project using the CEC's Time Dependent Valuation metric."

from the Air Resources Board in GHG emission modelling and analysis and GHG emission strategies. (SR 45-46.)

The County, based on this independent study, concluded that once the new mitigation measures are included “potentially significant GHG impacts are reduced to less-than-significant levels ... and that the Project will feasibly and reliably achieve net zero GHG emissions....” (SR 52, 119.) The County, on July 18, 2017, certified the 2017 Recirculated Analysis and the 2011 EIRs as compliant with CEQA; adopted supplemental CEQA findings and a Statement of Overriding Considerations; and reapproved the land use entitlements. The County adopted separate resolutions to approve the Landmark Village and Mission Village projects. (Landmark, SR 9-15, Mission, SR 19-25.) The County’s Resolution, for each project, certifies:

...the 2017 Recirculated Analysis, in combination with the 2011 Final EIR, was completed in compliance with CEQA...; certifies that it independently reviewed and considered the information in the 2017 Recirculated analysis, in combination with the 2011 Final EIR, and that the 2017 Recirculated Analysis, in combination with the 2011 Final EIR, reflects the independent judgment and analysis of the Board as to the environmental consequences of the Project; ... (Landmark, AR 15, Mission, AR 25.)

The County also determined that there were no circumstances under section 21166 requiring the preparation of a new EIR and that the modifications to the 2011 EIRs did not require recirculation under CEQA Guidelines section 15088.5. (SR 75,141.) The County, in addition, adopted findings and approved specific acts as needed to authorize proceeding with the Landmark Village and Mission Village projects.

This Court rejects Petitioners’ challenges to the County’s determinations with respect to the Landmark Village and Mission Village projects for the reasons below.

1. CEQA DOES NOT REQUIRE THE PREPARATION OF A NEW EIR TO APPROVE A PROJECT ONCE A DEFICIENCY SPECIFIED IN A WRIT ISSUED UNDER CEQA SEC. 21168.9 IS CORRECTED

Petitioners contend that the County violated CEQA because it considered, separately for each project, the 2017 Recirculated Analysis “in combination” with the 2011 Final EIR. They argue that a lead agency must prepare and certify a new EIR in order to cure a CEQA deficiency that was addressed in the trial court’s targeted writ of mandate issued under section 21169.9. Their counsel said: “For this to work there has to be a full, complete, self-consistent E.I.R. and the fact that the County was ordered by the courts to remedy certain defects in the 2011 E.I.R. does not relieve the County from CEQA’s requirement to

produce a complete and consistent E.I.R. before reapproving the Project.” (Writ Hearing, 9/15/18 transcript, pp. 50: 26-51:3.)

Petitioners argue that the County’s certification that the projects as CEQA compliant must be annulled because the County’s decision-makers looked to the 2017 Recirculated Analysis for a re-analysis of the GHG emissions after the adoption of the new mitigation measures rather than putting that information into updated versions of the 2011 EIRs. Petitioners make this argument in various guises, but the argument, whatever its format, is unsupported under the appellate decisions specific to these projects and under CEQA. The argument, in the first place, flies in the face of the provisions in the writ orders previously issued that were affirmed in Friends III. There the Court of Appeal said:

Based on the plain language of section 21168.9 and the case law interpreting and applying its provisions, we conclude the section gives courts legal authority to issue a limited mandate that directs an agency to bring certain determinations or findings into compliance with CEQA while leaving the remaining decisions or approvals in place.

Slip Op., Friends III, p. 20.

If the 2017 Recirculated Analyses in correcting the analysis for GHG emissions for the Landmark and Mission projects is sufficient, then nothing more is required than for the County to consider the 2017 Recirculated Analyses in combination with the parts of the 2011 EIR that were previously found sufficient. Any argument that these two documents must be reformatted in one document and then approved as a new EIR would derogate the provisions of section 21168.9 which permit a targeted writ directed at any issue found deficient under CEQA to permit the remedial overhaul of that same issue.

This very point was made by Judge Torribio in his May 16, 2018 decision and order ending the CDFW litigation. Judge Torribio decided the issue of whether a lead agency is required to embody a curative analysis imposed by a writ of mandate in a new EIR document. Judge Torribio held:

A court’s review of a return to writ under CEQA is limited to a determination of whether the agency complied with the commands of the writ of mandate. (Pub. Resources Code, § 21168.9(b); Ballona Wetlands Land Trust v. City of L.A. (2011) 201 Cal.App.4th 455, 480 [trial court retains jurisdiction only to ensure compliance with the writ]; National Parks & Conservation Assn. v. County of Riverside (1999) 71 Cal.App.4th 1341, 1352 [on return to writ, court focuses on agency’s compliance with the requirements of the previously issued writ].) In this case, the Writ ordered the [CDFW] to suspend certain project approvals and activities pending corrective modification of the EIR. (Pub. Resource[s] Code, §

21168.0, subd. (a)(2); 14 C.C.R., § 783/7.) The [CDFW] has taken the necessary corrective action to address all deficiencies identified by the Supreme Court, as described in the Judgment and Writ.

In the CDFW case, the Department, in re-approving the project, reviewed the new analysis of GHG emissions as contained in the 2017 AEA and the 2010 EIR. Judge Torribio concluded that CEQA did not require the preparation of a new EIR document. This Court adopts the same analysis and conclusion in response to Petitioners' contention that the County was required to prepare new EIRs for the Landmark and Mission projects.

Petitioners frame the argument that the 2017 Recirculated Analysis and 2011 EIRs are improperly considered "in combination" in various ways. They assert that the Recirculated Analysis is missing an energy analysis required by CEQA Guidelines Appendix F. (Pet. Br., pp. 13-14); and that the energy analysis in the 2011 EIRs is "inconsistent" with the findings in the 2017 Recirculation Analysis. (Reply Br. pp. 9-10.) Petitioners also argue more generally that the County's approval of the Recirculated Analysis is noncompliant with CEQA because it does not analyze all factors required for an EIR. These arguments are variants of the same dispute, in that they assert that parts of a 2011 EIR that were not decertified must be incorporated into a new, updated EIR, to include the 2017 Recirculated Analyses, and then be resubmitted for approval.⁶ That procedure is, for the reasons given above, not required under CEQA and is inconsistent with the writs that were issued in the CDFW litigation and in this action under CEQA section 21168.9.

Petitioners rely on CEQA Guidelines section 15090(a)(1) for their argument that any curative analysis must be contained in a new EIR document. (Reply Br., p. 9.) That section is a procedural provision. It specifies only that: "Prior to approving the Project, the lead agency shall certify that (1) the final EIR has been completed in compliance with CEQA." CEQA section 21168.9 establishes the specific procedure by which a part of an EIR may be decertified and the project held in abeyance until the lead agency revises its determination on deficient findings to comply with CEQA. The trial court's writs issued under section 21468.9 thus do not violate section 15090(a)(1), as Petitioners claim. The Court of Appeal, as mentioned above, affirmed this Court's writs with respect to the Landmark and Mission projects. The County has correctly followed the procedure provided in section 21168.9 to remedy its original failure to adequately address GHG emissions for those projects.

⁶The danger in Petitioners' argument is that an EIR that is revised to correct a particular CEQA deficiency could be attacked on other grounds that were not raised in the original proceedings if a comment period was required for re-approval. The finality of an EIR certification of findings that were not challenged would be compromised.

2. SUBSTANTIAL EVIDENCE SUPPORTS THE CEQA DETERMINATION THAT THE PROJECTS WITH MITIGATION WILL GENERATE ZERO NET ENERGY

The County determined, in certifying the projects for CEQA compliance, that the GHG emissions from the projects, once mitigation measures are fully implemented, will be less than significant. As stated in the Recirculated Analysis:

Without considering mitigation, the Project would increase GHG emissions as compared to the existing environmental setting, which could result in potentially significant impact to global climate change. However, with implementation of the thirteen (13) mitigation measures recommended ... the Project would cause no net increase in GHG emissions. Because the Project, as mitigated, would result in no net increase in the GHG emissions level, the Project would have not significant impact on global climate change. (SR 1618.)

Petitioners argue—it is their main argument—that the County’s determination that the GHG emissions with mitigation measures will be less-than-significant is not supported by substantial evidence in the record and therefore violates CEQA sections 21168 and 21168.5. (Pet. Br., pp. 10-13.)

Petitioners’ argument fails for multiple reasons. Petitioners, to begin with, fail in their responsibility to “lay out the evidence favorable” to the County’s determination “and show why it is lacking.” Defend the Bay v. City of Irvine (2004) 119 Cal.App.4th 1261, 1266 [objectors failed to address evidence that the project would not have a significant adverse impact on housing]. Petitioners also fail on the merits because there is substantial evidence in the record for the County’s determination that there will be net zero GHG emissions once the mitigation measures are fully deployed. Petitioners, moreover, are barred by the doctrine of res judicata as Judge Torribio previously adjudicated their present claim in the CDFW litigation.

The significance levels for GHG emissions is defined by thresholds. These are provided in Appendix G, Section VII in the CEQA Guidelines, as follows:

Threshold 2.1-1: Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Threshold 2.2-2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

The criterion for GHG emissions under CEQA is “the extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environment.” Guidelines section 15064.4(b)(1). That the village

projects will increase GHG emission levels is recognized. The Recirculation Analysis states that the Landmark project will increase GHG emissions by 57,695 MTCO₂e (metric tonnes of carbon-dioxide equivalent) per year; and the Mission project by 78,832 MTCO₂e per year. (For Landmark, see SR 456, and its Table 2.1-3, and for Mission, SR 29678, and its Table 2.1-3).

As to whether a GHG increase caused by a project is significant, the Recirculation Analysis notes “there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions is significant. Further, no agency with regulatory authority and expertise, such as the CARB or SCAQMD, has adopted numeric GHG thresholds for land use development projects for purposes of CEQA.” (SR 456, 29678.) However, the Recirculation Analysis concludes that since the mitigated projects will create no net increase in GHG emissions, the projects “GHG emissions are less than significant with mitigation for purposes of Threshold 1.” (SR 480, 29702.) The question remains whether that level of emissions, nonetheless, conflict with the statewide emission reductions targets and, thus, could violate Threshold 2. The Recirculation Analysis concludes the mitigated emissions level complies with Threshold 2, saying:

[G]iven the Mitigated Project would result in no net increase in GHG emissions—that is, a net zero GHG emissions level, the Project is doing more than its “fair share” to advance statewide policy objectives. Additionally, the Project’s emissions at build out are reasonably anticipated to decline due to continued regulatory and technological advancements. Further, the Project’s mitigation program advances many of the State’s primary policies directed towards the reduction of GHG emissions and the establishment of a clean energy paradigm. Therefore, the Project would not conflict with the statewide emissions reduction targets for 2020, 2030 and 2050 for purposes of Threshold 2. (SR 482, 29704.)

Substantial evidence supports these determinations. The Recirculation Analysis advises that, for the Landmark and Mission projects, 50 percent of the net GHG emissions reduction will be obtained by requiring GHG-limiting structures on-site or elsewhere in Los Angeles County; and that 50 percent will be achieved through implementing the Newhall Ranch GHG Reduction Plan, which will fund or subsidize investments in off-site GHG reduction programs or obtain certified carbon credits. (SR 1646.) The mitigation strategies are too extensive and detailed to summarize here, but the GHG emission reduction strategies described in the Recirculated Analysis include the following:

ZNE construction design in the residential, commercial and public structures included in the Landmark and Mission projects;

Electronic charging stations for vehicles to be installed at every residence and in public locations in the development and off-site;

A building retrofit program to improve energy efficiency of existing buildings in disadvantaged communities in the Los Angeles County;

Implementation of the Newhall Ranch GHG Reduction Plan to fully offset all remaining Project-related GHG emissions to zero by funding activities that directly reduce or sequester GHG emissions or obtaining certified carbon credits (cap-and-trade offsets). (SR1618-1619; 30911-30912.)

These mitigation measures will be implemented as conditions that are imposed on the developer to obtain the required governmental permits for the build-out of the projects. (SR 1780.) The Newhall Ranch GHG Reduction Plan provides procedures to quantify the GHG emissions reductions achieved from the mitigation measures as well as procedures to quantify the GHG emissions that must be reduced elsewhere so that the projects will achieve net zero emissions.

The determination made in the Recirculated Analysis that the Project with the mitigation measures will “cause no net increase in GHG emissions” has substantial evidence support in the record. The County relied on technical evidence found in the Recirculated Analysis including Appendix 2.1-A (SR 395-953; 29617-30243) and Appendix 2.7 (SR 28919-29036, 38947-39064). This technical evidence was prepared by experts on the relevant topics including building energy efficiency, GHG emissions estimations, and transportation planning. (SR 1418-1438, 1463-1485, 1519-1525, 1532-1536.) These consultant studies support the finding that with mitigation the GHG emissions from the two village projects will be net zero and, thus, by definition, will be below a significant level.

The California Department of Fish and Wildlife—considering the same thirteen mitigation measures—determined the mitigation measures for the Newhall Ranch development complied with CEQA. (SR 39213-39216 [CDFW NOD].) The County considered and found it reasonable to “consider [CDFW’s] methodology, analysis, and mitigation as a source of evidentiary support for the Recirculated Analysis.” (SR 51-52, 118.) Moreover, Judge Torribio, acting upon Petitioners’ challenge in the CDFW litigation, held that the mitigation measures that Newhall Ranch had adopted in response to the writ of mandate in the CDFW litigation complied with CEQA. The mitigation measures that Judge Torribio found sufficient under CEQA in the CDFW litigation are the same mitigation measures under consideration in this action. Petitioners did not appeal Judge Torribio’s decision that Newhall Ranch with the mitigation measures had complied with CEQA.

The California Air Resources Board (CARD), the state agency charged with regulating air quality throughout California, found that “the project as currently

proposed will not result in any net additional greenhouse gas emissions after the identified mitigation measures are fully implemented.” (CARB letter of 11/3/16, SR 28917; CARB letter of 6/7/17, SR 29243.) While the CARB letters refer to the CDFW’s analysis of Newhall Ranch’s RMDP/SCP, Petitioners have acknowledged that the mitigation measures for the Landmark and Mission projects are “identical to the mitigation measures approved by CDFW” for the Newhall Ranch as a whole.

Petitioners’ present claim has been decided adversely to them in an earlier litigation to which they were parties. Judge Torribio, in concluding the CDFW litigation with his May 16, 2018 decision and order, decided that substantial evidence supported CDFW’s determination that the mitigation measures for the Newhall Ranch development, of which the village projects are a part, reduced GHG emissions to a less-than-significant level. Judge Torribio’s framed the issue as follows:

The Department has taken the necessary corrective action to address all deficiencies identified by the Supreme Court, as described in the Judgment and Writ. The issue now is whether substantial evidence supports the Department’s determination that the modified Project’s greenhouse gas emissions will be less than significant under CEQA.

Judge Torribio decided that issue as follows:

Through these 13 mitigation measures, the Project’s greenhouse gas emissions will be reduced to zero, resulting in no significant impact under CEQA. Substantial evidence in the record supports the Department’s determination that these mitigation measures can be implemented to reduce greenhouse gas emissions as described in the 2017 AEA.

The mitigation measures at issue in the CDFW litigation, once the lead agency re-approved the project, are the same as here. The issue of whether substantial evidence supported the lead agency’s determination that GHG emissions with mitigation were less-than-significant under CEQA was decided favorably to the lead agency in that litigation. Petitioners were plaintiffs in the CDFW litigation when it was concluded adversely to their position on May 16, 2018. The judgment entered against plaintiffs in the CDFW litigation is final.

Petitioners’ present argument that the County’s determination that GHG emissions from the village projects, once the mitigation measures are deployed, is not supported by substantial evidence is barred by the doctrine of res judicata. See, Inland Oversight Committee v. City of San Bernardino (2018) 27 Cal.App.5th 771, 779-780, 782-783 (claims under the Water Code that were previously decided on demurrer and not appealed constitute a res judicata and collateral estoppel bar to further litigation).

This court concludes that the County's determination that the GHG analysis for the mitigated Landmark and Mission projects will be less-than-significant as to GHG emissions impacts is supported by substantial evidence.

3. A 30-YEAR PERIOD TO ANALYZE THE PROJECTS' GHG EMISSIONS AND MITIGATION IS SUPPORTED BY SUBSTANTIAL EVIDENCE

The County, on July 18, 2017, in Supplemental Findings determined a 30-year period was an appropriate timeframe to measure, mitigate and monitor for GHG emissions from the Landmark and Mission projects. That Supplemental Finding identifies specific reasons for selecting a 30-year analysis period:

The Board finds that a 30-year project life is the appropriate period for evaluating the Project's GHG emissions inventory and mitigation period. The 30-year project life represents the reasonable limit of scientific and evidentiary data for the Project, given current modeling tools, the changing regulatory structure, the level of uncertainty beyond 2050 with respect to regulatory programs mandating further reductions in GHG emissions, and other available information. The 30-year project life has been approved for this project by CARB and is supported by guidance from the South Coast Air Quality Management District, is widely used in CEQA documents by lead agencies including the County, and represents the period of time for which GHG emissions can be reasonably estimated without undue speculation. (Landmark SR 23; Mission SR 98.)

The body of information to support the County's adoption of a 30-year period to analyze GHG emissions is summarized in the 15 pages of Topical Response 2. (See, for Landmark, SR 1776-1789; for Mission, 31059-31068.) The Topical Response addresses "the evidentiary underpinnings for the greenhouse gas emissions analysts' selection of a 30-year project life and the corresponding duration of [the] mitigation period." (SR 1776.)

Petitioners object to, and argue there is no substantial evidence to justify, a 30-year limit for the analysis and mitigation of the projects' GHG emissions "as there is no substantial evidence the Projects' GHG emissions will cease after 30 years." Petitioners say that while the County "may justify the use of 30 years as an analysis window for estimating a project's total GHG emissions ... these arguments do not support a 30-year limit on mitigation." (Pet. Br. 8:19-20 and 30-31.) Petitioners argue that the County's adoption of 30-year horizon for the GHG analysis violates CEQA sections 21168 and 21168.5. (Pet. Br., pp. 8-9.) The referenced CEQA sections are generic provisions; the CEQA provision that is specific to GHG emissions is CEQA Guidelines section 15064.4.

The court concludes, contrary to Petitioners' arguments, that the 30-year timeframe for the analysis of GHG emissions is a discretionary decision under Guidelines section 15064.4 and is supported by substantial evidence. The

reduction in GHG emissions required by the on-site and off-site mitigation measures, moreover, will continue beyond the 30-year period established in the mitigation plan for the two village projects.

A public agency has substantial discretion to select an appropriate methodology to analyze the environmental impacts of a project. With respect to impacts from GHG emissions, CEQA Guidelines section 15064.4(a)(1) authorizes an agency's "careful judgment" in "the determination of significance greenhouse gas emissions." The Supreme Court, in considering the Newhall Ranch program EIR, relied on section 15064.4 to uphold the CDFW's choices in selecting the means to analyze GHG emissions. Center for Biological Diversity, Id. at 217. Section 15064.4, in subdivision (b) identifies certain factors that are to inform the public agency "when assessing the significance of impacts from greenhouse gas emissions on the environment." The Supreme Court, in upholding CDFW's methodology while rejecting its conclusions, quoted the factors listed in section 15064.4, subd. (b), signifying that a public agency's determinations as to the effectiveness of mitigating measures in meeting GHG emission goals should be reviewed in light of those factors. Subdivision (b) provides:

(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) the extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

The County justifies (in Topical Response 2) its selection of a 30-year window for analyzing the significance of GHG emissions for a development project because state environmental agencies have adopted that standard. CARB, the California agency for administering California's GHG policies (Health & Safety Code section 38510), approved CDFW's 30-year project life in its study of GHG emissions for the Newhall Ranch development. (SR 28625-28626, 1781, 31074, 28917, 29243, 1781, 31074.) CARB has also approved the use of a 30-year project life in certifying "leadership projects" (under AB 900) to mitigate all project-related GHG emissions to net zero. The guidance issued by the Southern California Air Quality Management District (SCAQMD) supports a 30-year projected life for CEQA evaluation for new development projects. (SR 28626-28627, 1782-1783, 31075-31076.)

Petitioners discount the importance of CARB’s endorsement for a 30-year review period for GHG emissions by saying “these 30-year windows are for the purpose of analyzing GHG emissions, and it does not indicate that CARB would support limiting GHG mitigation to the first 30 years of a project’s operation.” (Pet. Br. 9:25-27.) Petitioners do not recognize (or at least do not talk about) the fact that the mitigation measures adopted by the County require the building of energy-saving structures at the project sites and of the retrofiting of older structures elsewhere in the County to achieve the net zero goals. The structural designs that reduce GHG emissions likely will continue beyond 30 years. (SR 1778.) Topical Response 2 adds: “During and after the 30-year project life, the Project would be subject to a range of existing and future regulatory standards and policies applicable to the built environment.” (SR 1778.)

Petitioners, in their reply, argue that an assumed 30-year project life for the measurement of environmental impacts, even though a standard adopted by responsible state and local agencies, is an artificial and inadequate limitation for the analysis of continuing GHG emissions and, for that reason, does not comply with CEQA. This Court disagrees. CEQA does not require the analysis nor the mitigation of environmental impacts which are speculative. CEQA, therefore, does not require, as Petitioners suggest, that “if accurate estimates for the Projects’ future GHG emissions are difficult to come by now,” a mitigation obligation plan may be deferred until those emissions are known. (Reply Br., p.7.) The County, in its finding that is quoted at the beginning of this section, has stated valid reasons, supported at length in the Recirculation Analysis, for the methodology it used to approve a GHG emissions mitigation plan for the two village projects. The County’s selection of a 30-year analysis period is justified under CEQA Guidelines section 15064.4 and substantial evidence.

4. CEQA DOES NOT REQUIRE A PROJECT TO MITIGATE GHG EMISSIONS TO A LEVEL THAT IS BELOW LESS-THAN-SIGNIFICANT

Petitioners argue—briefly in their opening brief (Pet. Br. 7: 33-8:15) and more extensively in their reply (Reply 4:27-6:6)—that, if the unmitigated impacts of a project are significant, the adoption of mitigation measures to bring the mitigated impacts to less-than-significant does not comply with CEQA, saying: “CEQA ... requires significant impacts to be mitigated to *minimize* them, not to reduce them to zero, or to a level where they are insignificant.” (Reply 5:20-21, italic orig.)

Petitioners provide no case authority for their position; they rely on their interpretation of the statutory language. CEQA section 21100(b)(3) provides:

The environmental impact report shall include a detailed statement setting forth all of the following: ...

(3) Mitigation measures proposed to minimize the significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy.

Citing a definition from a dictionary, Petitioners say the word “minimize” means “to reduce to the smallest possible amount, size, or degree.” However, in common parlance, the word “minimize” means to reduce in size or in significance, and that appears to be its meaning in 21100(b)(3) because the balance of the provision requires “measures to reduce ... the consumption of energy.” The mitigation measures adopted for the village projects do satisfy a minimization requirement because, when implemented, they will reduce the consumption of energy in the construction and operation phases of the projects. Moreover, the phrase from section 21100(b)(3) refers to mitigation measures that “minimize the significant effects on the environment,” and, if the projects with mitigation will not generate a net increase in GHG emissions, there will be no “significant effects on the environment.” Petitioners’ definitional argument, therefore, is not persuasive.

Petitioners’ argument, more to the point, is beyond the requirement of the CEQA statute. Under CEQA an agency is mandated to adopt mitigation measures that reduce adverse environmental impacts from a project to less than significance. CEQA section 21081; CEQA Guidelines 15091. If GHG emissions for the Newhall Ranch Project as a whole are mitigated to net zero, as the County has required, the emissions from the construction and operation of the projects are mitigated to less-than- significant. The statutory scheme does not require more from the County and the real party.

5. THE LEVEL OF SIGNIFICANCE FOR THE GHG EMISSIONS IS BASED ON THE THRESHOLDS IN APPENDIX G, SECTION VII OF CEQA GUIDELINES

Petitioners raise the argument that the Recirculation Analysis adopted the existing GHG emissions as the significance threshold. (Op. Br. 7:5-22; Reply 4:8-25.) Since the existing project sites are used for agricultural purposes, their existing GHG emissions are low, namely 698 MTCO₂e/year for the Landmark project site (compared with anticipated project emissions [unmitigated] of 58,393 MTCO₂e/yr. at build-out) and 369 for the present Mission site (compared with 79,202 MTCO₂/yr. [unmitigated] at build out). (SR 1642, 30935; see Table 2.1-3 for Landmark at SR1648.) Petitioners argue that “based on this adopted threshold, any increase above the existing baseline GHG emissions would be significant, requiring further mitigation, if feasible, and, if infeasible, a statement of overriding considerations.” (Pet. Br. 7:20-22.)

The immediate response from the County and Real Party is that such argument was waived because it was not raised (exhausted) during the public comment period, as required by CEQA section 21177(a). (Opp. Br. 22:14-18.)

Petitioners' reply appears to concede that this objection was not raised in the proceedings below, but still argues that "SCOPE is not required to have exhausted administrative remedies on this issue because it is not a 'grounds for noncompliance with [CEQA].' (§21177(a).)" This Court assumes, however, from Petitioners' argument as stated in the preceding paragraph, that Petitioners do contend that the County adopted an incorrect baseline and, thus, violated CEQA violation. If that is Petitioners' contention, the objection is dismissed for Petitioners' failure to exhaust under CEQA section 21177(a).

Petitioners' argument is also rejected on its merits. The Recirculated Analysis, which was prepared separately for each village project, states that with mitigation, the GHG significance thresholds will comply with the thresholds provided in "Section VII, Greenhouse Gas Emissions, of Appendix G of the CEQA Guidelines." (SR 1618, 1643-1644, 30911, 30937-30939.) Such analysis also complies with CEQA section 15064.4 (which contains provisions specific to GHG emissions). The County determined that the mitigation regime complies with the thresholds and will reduce emissions from the projects to a less-than-significant level; and this Court has found, *supra* pp. 9-12, that the County's determinations are supported by substantial evidence. CEQA jurisprudence, nonetheless, also provides that "the comparative baseline for a significance determination should normally be the existing physical conditions." Center for Biological Diversity, 62 Cal.4th *supra* at 224-225; also Guidelines section 15126.2(a). The Recirculation Analysis, in some instances, as noted above, also compares GHG emissions at the natural site ("existing baseline conditions") with the projected GHG emissions from the construction and operation of the projects. These comparisons, in this case, do not establish the thresholds for the levels of significance for GHG emissions.

6. WATER SUPPLY IMPACTS DO NOT REQUIRE PREPARATION OF AN EIR SUPPLEMENT OR A NEW WATER SUPPLY ASSESSMENT

With respect to the availability of water supplies, Petitioners advance two arguments to challenge the County's approvals for the Landmark Village and Mission Village projects.

Petitioners contend that the County, before re-approving the village projects on July 18, 2017, was required to prepare and adopt a new water supply assessment under Water Code section 10910(h).

Petitioners also argue that "new information" describing California's drought conditions require the County to prepare and certify a supplemental environmental impact report for water supply impacts under CEQA section 21166.

Neither of these contentions has merit, as discussed below.

THE COUNTY'S RE-APPROVAL OF THE PROJECTS DID NOT REQUIRE THE PREPARATION OF NEW WATER SUPPLY ASSESSMENTS

The County prepared a water supply assessment ("WSA") for each village project before the projects were approved (on February 21, 2012 for Landmark; on October 25, 2011 for Mission). The separate WSAs for the two projects are dated January 2010 and describe the same water supply availability. (LV 8004-8036, MV 25072-25103.) The WSAs were required by California Water Code section 10910(h). The County's compliance with the Water Code provision is also required by CEQA section 21151.9. The WSAs are intended to provide the County with an analysis to show that the affected water system will have sufficient water supplies to meet the existing and planned future development for the area. (LV 8009.)

The County did not prepare new WSAs before it re-approved the village projects on July 18, 2017. Petitioners argue that the County violated CEQA section 21151.9, as well as Water Code section 10910, by failing, when re-approving the Village projects, to obtain new WSAs for each project. (Pet. Br., pp. 25-28.)

Respondents' first response is that Petitioners waived (failed to exhaust) this argument by not raising it in the public comment period before the County re-approved the projects on July 18, 2017. Objections that a project does not comply with CEQA mandates must be presented "orally or in writing during the public comment period" or before the agency takes final action on the project. CEQA section 21177. If the objections are not presented in that time period, they are waived. The Court finds, as this issue was not timely raised, it was waived.

Ignoring their failure to raise any objection in the public comment period, Petitioners assert that when the County "decided to proceed by preparing the Recirculated Analysis [it] triggered the requirement in Water Code § 10910(c)(1) that the County request new WSAs for the two Projects." (Pet.Br. 25: 27-29.) Petitioners further argue that "[t]hough the courts upheld the water supply analysis in the 2011 EIRs, SB 610 and CEQA required the County to prepare new Water Supply Assessments as part of the process of recirculating portions of the EIRs." (Pet. Br. 28: 11-13.) Petitioners' argument, as stated, relies on a false assumption, as the 2011 EIRs neither in whole nor part were recirculated. The County prepared a new Recirculation Analysis to address GHG emissions, but otherwise left the 2011 EIRs in place. Petitioners' further argument that the County's circulation of the Recirculated Analysis triggered automatically a statutory requirement for new WSAs is erroneous. Water Code section 10910(h) provides in relevant part:

(h) ...if a project has been the subject of a water supply assessment that complies with the requirements of this part, no additional water supply assessment shall be required for subsequent projects that were part of a larger project ... unless one or more of the following changes occurs: ... (2) Changes in the circumstances or conditions substantially affecting the ability ... to provide a sufficient supply of water for the project [;] (3) Significant new information becomes available that was not known and could not have been known at the time when the assessment was prepared.

Petitioners concede that there has not been any change that effects “a sufficient supply of water for the project.” They say, in fact, that Newhall Ranch “rigged the system to ensure its projects will be given priority in water allocation.” (Pet. Br. 27:14-15.) Petitioners proffer as “significant new information” various reports about drought conditions (discussed in the next section), but the 2011 EIRs water service sections evaluate the effect of “past and current drought conditions” on water availability for the projects and the area. (LV 4732-4734, MV 6150-6153; also SR 39367, 39383.)

Petitioners, therefore, do not demonstrate any requirement for the preparation of new WSAs before the County re-approved the village projects.

PETITIONERS FAIL TO IDENTIFY “NEW INFORMATION” THAT REQUIRE THE PREPARATION OF A SUPPLEMENTAL EIR

Petitioners contend that they, during the public comment period for the Recirculated Analysis, provided “new information” that undermines the water sustainability findings made in the 2011 EIRs. They argue “[n]ew information shows the water supply is not as reliable as assumed in the 2011 EIRs because of climate change, raising concerns about Santa Clarita’s water supply.” (Pet. Br. 24:22-24.) Petitioners want the Court to issue an order under CEQA section 21166 to require the County to prepare supplemental EIRs to address the projects’ water supply impacts. (Pet. Br. pp.14-24.)

CEQA imposes a high bar to requiring the preparation of a supplemental EIR after an EIR is certified. No supplement may be ordered unless “substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report.” CEQA section 21166(b). Guidelines section 15162(a)(3) requires the moving parties to show that “[n]ew information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence” when the EIR was certified satisfies one or more defined standard, the pertinent one being that “[s]ignificant effects previously examined will be substantially more severe than shown in the previous EIR.” Petitioners’ showing must be based on “substantial evidence in light of the whole record.”

To apply this standard, because Petitioners argue the “[n]ew information shows the water supply is not as reliable as assumed in the 2011 EIRs,” the Court must review the 2011 EIRs for their analysis of water sustainability and also the “new information” provided by Petitioners about water sustainability.

Turning to the 2011 EIRs and supporting documentation, there is for each village project an extensive discussion of the available water supplies. The water demand for each project is identified; the water sources required to meet that demand are committed; and the water quantities available over rainfall cycles is estimated.

The Landmark and Mission projects will have access to the potable water presently used by the Newhall Ranch for agricultural irrigation. Newhall Ranch has contract rights to take 7,038 acre feet per year (afy) from the Alluvial aquifer (LV 10819, 10938; MV 6049, 6171), from which Landmark will receive 608 afy and Mission will receive 1,676 afy annually. (LV 10938; MV 6172.) (The projects’ total water demand—potable and non-potable—is 972 afy annually for Landmark, and 2,919 afy for Mission, with those totals estimated to increase 10 percent in drought years. LV 10819; MV 6049.) The 2011 EIRs analyze the effect of single year and multi-year drought conditions on the availability of water from all sources. That analysis builds on the 2005 and 2010 urban water management plans (UWMP) prepared by local water companies. (See, for the 2005 UWMP, LV 16173, 16254, 16257; and for 2010 UWMP, LV 8382, 8441, 8456; and see LV 2256-2283; MV 2673-2700.) The UWMPs must be prepared by local water purveyors every five years by state law, Water Code section 10610 et seq, and must provide detailed projections (20-year projections) for local water conditions. Water Code §10631, subd. (c)(1)(C). The 2011 EIRs discuss fully the effect of cyclical low rainfall and drought years on the aquifer water sources in Santa Clarita Valley. (LV 4681, 4734, MV 6062, 6157; LV 4695, MV 6078.)

The Court, having reviewed this extensive record, agrees with the opposition brief (p. 35) in its statement that:

Climate and groundwater supply patterns that vary from year-to-year were known, disclosed, discussed, analyzed, and accounted for in the 2010 Urban Water Management Plan (UWMP) and the 2011 EIRs for the two projects.

Petitioners do not dispute that the water sustainability conclusions reported in the 2011 EIRs were the best available in year 2011. Nor do Petitioners contest the methodology by which the 2011 EIRs supported their conclusions as to water sustainability in cyclical rainfall periods typical of Southern California.

The 2011 EIRs reached the following conclusion with respect to water supplies available for the village projects:

Water sources expected to serve the [Village] are the applicant's agricultural water from the Alluvial aquifer to the project's potable demand, and recycled water from the Newhall Ranch WRP ... to meet the project's non-potable demand. These local supplies are readily available from the local groundwater basin, and from existing and approved water reclamation plants

The 2011 EIRs conclude that the local water supplies are adequate "to serve the projects and their anticipated populations" under average and drought conditions and, in addition, "existing and future uses in Santa Clarita Valley." (LV 10818-10819; MV 6048-6049.) The water supply assessments prepared in January by local purveyors as required under state law are consistent with those conclusions. (LV 8004-8036; MV 25073-25105).

The County, on July 18, 2017, in re-approving the village projects (after re-analyzing the GHG emissions with the new mitigation measures) relied on the water assessments in the 2011 EIRs, saying:

Based on the water supply impacts already assessed, the County has determined that there are no identified substantial changes in the Landmark Village Project or its circumstances that warrant any further review of analysis of the Landmark Village Project's water supply impacts. (For Landmark, SR 2543.)

Petitioners presented their "new information" during the public comment period for the Recirculation Analysis. Petitioners submitted the various reports identified below:

- (1) A GSI Water Solutions, Inc. report dated 12/15/14 (SR 3972, 33272);
- (2) A report titled "Drought and Equity in the San Francisco Bay Area dated June, 2016 (SR 7019-7022 and et seq.);
- (3) Text of video "Water Deeply" on an internet site (SR 7047-53); and
- (4) An Environmental Research Letter titled "Future land-use related water demand in California" published May 18, 2016 (SR 7056-7063).

Petitioners argue that the above reports predict that climate change will become substantially more severe so as to imperil the water supplies needed for the projects and that this development is not sufficiently discussed in the 2011 EIRs. They say "the circumstances under which the Projects are being undertaken have changed substantially." (Pet. Br. 14: 30-31.)

The "new information" identified by Petitioners does not, in the Court's view, show that "substantial changes [have] occur[red] ... which will require major revisions" in the 2011 EIRs. Petitioners argue that the handful of reports that they introduced into the record to show that the rainfall reductions since 2011 have rendered as doubtful the projections of water availability contained

in the 2011 EIRs. The 2011 EIRs contain data to show the cyclical patterns of rainfall in Southern California. The County and the real party, in their joint opposition brief, argue the breadth and sufficiency of the data to support the EIR conclusions that the projects will have water sustainability. (Opp. Br., pp.35-39.) Respondents, therefore, argue that Petitioners' "new information" is neither new nor inconsistent with the cyclical pattern recognized in the 2011 EIRs. Yet Petitioners do not respond to this criticism nor discuss any specific deficiencies in the data in 2011 EIRs. Petitioners, because of that oversight, have not demonstrated "substantial evidence in the entire record" to carry their burden.

The "new information" that Petitioners offer is, moreover, too short-term to support broad conclusions that climate change will drastically reduce water availability for the projects or for Santa Clarita Valley. Only the GSI report addresses water availability in Santa Clarita Valley, and the GSI report, to the extent material, contained new data for a limited number of years. Petitioners' argument, moreover, is undercut by their admission there was "heavy rainfall in the winter of 2016-2017." (Pet. Br. 24:15.) While the heavy rainfall for the 2016-2017 winter is minimized in the record (SR 2308), such was acknowledged in the opening brief, noted in the opposition brief (Op. Br. 39:5-6) and discussed at the writ hearing. (9/15/18 transcript, pp. 68-69.) The admission of heavy rainfall in the winter of 2016-2017 limits the evidentiary value of the "new information" put forward by Petitioners to meet CEQA's standard for the preparation of an EIR supplement.

The Court finds that Petitioners have not carried their burden to establish substantial evidence from the record to require the preparation of an EIR supplement to address water sustainability issues for the village projects.

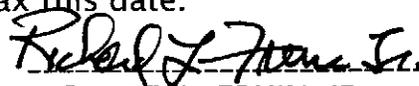
PREPARATION OF JUDGMENT

The Court shall enter Judgment on the Verified Petition for Writ of Mandate for respondent County of Los Angeles and real party Newhall Land and Farming Company. Respondent's counsel is to prepare, serve, and lodge a form of Judgment that with consistent with the Court's Statement of Decision within 10 days.

Once the Judgment is signed the parties are directed to retrieve and retain in their offices the binders containing the administrative record and Joint Appendix submitted by each side.

The Clerk is directed to serve this Decision on Petition for Writ of Mandate on the parties by U.S. Mail and fax this date.

DATED: December 19, 2018



RICHARD L. FRUIN, JR.
Superior Court of California
HON. RICHARD L. FRUIN, JR.

Registry-Administered Buffer Pools and Similar Programs

Each of the registries discussed below implement carbon offset buffer pool systems. The buffer pool systems operate like back-up reserves to ensure the permanency of greenhouse gas (GHG) reductions. Typically, the registries maintain un-retired carbon offsets in a separate pool or reserve that are used in the unanticipated event that a GHG reduction that was previously implemented is reversed; i.e., if carbon dioxide is re-emitted into the atmosphere after a GHG reduction was implemented and a carbon offset was retired. The details of the buffer pool systems utilized by the respective registries are discussed below.

I. Climate Action Reserve

The Climate Action Reserve (Reserve) maintains a buffer pool that is composed of carbon offset credits from different project types. The credits in the buffer pool may be used to compensate for the unanticipated reversal of GHG reductions. Buffer pool contributions are established by the Reserve on a protocol-by-protocol basis.

For example, the Reserve's Forest Protocol requires every project under the protocol to conduct a project-specific risk evaluation. The risk evaluation determines a project's risk rating for reversals, which determines the amount of contributions the project must make into the Reserve Buffer Pool. Appendix A to the Forest Protocol, Determination of a Forest Project's Reversal Risk Rate, contains worksheets and other information a project must use to determine its risk rating. Risks include financial failure; illegal forest biomass removal; conversion; over-harvesting; social; wildfire, disease, or insect outbreaks; or other catastrophic events. The risk rating must be determined prior to project registration and recalculated every year the project undergoes a verification site visit.

a. Climate Forward

Climate Forward is a program under the Climate Action Reserve. All projects under Climate Forward are required to deduct a certain number of forecasted mitigation units to be contributed into a risk pool. The percent of deductions to be contributed to the pool is determined on a project-level/methodology-specific basis. The Reserve also maintains the right to apply a further percent deduction on a program level to projects under Climate Forward. The Reserve conducts periodic audits of Climate Forward projects to evaluate and adjust, if necessary, percent deduction amounts.

II. American Carbon Registry

The American Carbon Registry (ACR) requires proponents of certain project types to enter into a legally binding Reversal Risk Mitigation Agreement. Under the Reversal Risk Mitigation Agreement, the project proponent can choose one of three mechanisms to recover offsets in the event the reductions are reversed.

The first and primary mechanism is the ACR Buffer Pool. If this mechanism is chosen, the project proponent contributes carbon offsets to the ACR Buffer Pool. The number of offsets to be contributed to the pool depends on a project-specific risk assessment. ACR has sole management

and operational control over the offsets in their Buffer Pool. As of 2020, more than 20 million metric tons of carbon offsets have been deposited into ACR's Buffer Pool.

A second mechanism is available for geological sequestration projects. These projects are required to contribute 10 percent of the project's carbon offsets to a Reserve Account, which is managed by ACR.

Under the third option, the project proponent may propose an insurance product as a risk mitigation mechanism. For example, a project proponent could provide bonds, letters of credit, or other financial assurances to ACR in an amount sufficient to ensure ACR can retire offsets should the project suffer reversal of reductions. The form of the insurance product and its amount are subject to ACR approval.

III. Verra

Verra maintains a single buffer pool account, which can be drawn upon by individual projects in the event of a reversal. Projects are required to set aside non-tradeable buffer credits into this account. The number of credits to be deposited into the account is determined by the non-performance risk report assessment prepared by the validation/verification body. Verra allows some buffer credits to be released over time or cancelled if certain conditions are met. As of May 2019, Verra reported that its buffer pool contained more than 35 million metric tons of carbon offsets.

IV. Sources

Climate Action Reserve, *Reserve Offset Program Manual* (September 12, 2019), at pp. 20-21.

Climate Action Reserve, *Forest Project Protocol*, version 5.0 (October 16, 2019).

Climate Forward, *Program Manual* (March 2, 2020) at pp. 23-25.

American Carbon Registry, *The American Carbon Registry Standard*, version 6.0 (July 2019) at pp. 35-36.

American Carbon Registry, *Public Registry*, available at <https://americancarbonregistry.org/how-it-works/registry-reports>.

Verra, *Not the Full Story* (May 27, 2019), available at <https://verra.org/not-the-full-story/>.

Verra, *Registration and Issuance Process* (September 19, 2019) at pp. 29-32.

Registry-Administered Protocol/Methodology Development Processes

Carbon offset protocols and methodologies set forth guidelines and detailed procedures designed to ensure that carbon offset projects meet necessary development and quantification standards prior to the registry's issuance of carbon offset credits.¹ As such, the protocols and methodologies contain carbon accounting principles, specific quantification rules and parameters, and monitoring and verification provisions. Each carbon offset registry maintains its own process for the development of new protocols/methodologies and for the revision of existing protocols/methodologies. The processes for each registry listed in mitigation measures M-GCC-7 and M-GCC-8 of the Village 13 Project Environmental Impact Report (EIR) are summarized below and discussed in further detail in each registry's program manual and related guidance. Each of the listed registries utilizes experts and/or peer reviewers, in addition to public review comments, in the development of the protocols and methodologies. As illustrated, these processes afford an opportunity for public review and input, and include multiple layers of evaluation in order to ensure that each protocol establishes standards and criteria that require carbon offset projects and their corresponding offsets to meet the registries' environmental integrity objectives.

I. Climate Action Reserve

Developing a New Protocol

Developing a new protocol with the Climate Action Reserve (Reserve) generally takes about 9 to 12 months. The Reserve initiates the development process by forming a workgroup made up of industry experts, state and federal agencies, environmental organizations, and other stakeholders. Other interested stakeholders that are not members of the workgroup are also invited to participate in the workgroup process.

The Reserve submits its draft protocol to the workgroup for review. The draft protocol is also made publicly available. The Reserve and the workgroup then engage in a back-and-forth process to develop a revised draft protocol. The revised draft protocol is posted on the Reserve website for a 30-day public comment period. Notice of the public review period is sent to the Reserve newsletter mailing list and to Reserve account holders. A public workshop is also held during the public review period.

After taking public comments and other feedback into account, a final protocol is produced and submitted to the Reserve's Board of Directors for approval. The Board votes on the final protocol at a public board meeting that allows another opportunity for public comment. Once adopted by the Board, the protocol becomes an official Reserve protocol.

Revising an Existing Protocol

An existing protocol may be revised after its adoption. Revisions may be categorized as policy revisions or program revisions. Program revisions are editorial in nature and do not significantly

¹ There is no substantive distinction in the use of "protocol" and "methodology;" the terms are used herein, and by the registries, interchangeably. The Climate Action Reserve more routinely uses the term "protocol," except when administering the "methodology" under its Climate Forward program. The American Carbon Registry and Verra more routinely use the term "methodology."

change the protocol. As such, these revisions do not require public review or adoption by the Reserve's Board. Similarly, an errata or clarification revision may be submitted to correct typographical errors in the protocol. These revisions also do not require public review or Board approval. Policy revisions, on the other hand, involve substantive changes to a protocol. If a policy revision is proposed, and depending on the extent of the revision, the Reserve may convene an expert stakeholder group prior to adoption of the updated protocol. After convening with experts, the Reserve will post the revision for a 30-day public comment period and then submit the revision to the Reserve's Board for adoption.

a. Climate Forward

Climate Forward is a program under the Climate Action Reserve, and the Reserve maintains control over the methodology development process.

Developing a New Methodology

Any proposed methodology must be submitted to the Reserve for approval. Once a proposed methodology has been submitted, the Reserve reviews the methodology for adherence to methodology requirements detailed in the Climate Forward Program Manual. The Reserve provides comments and findings to the methodology developer, which in turn must be responded to in a revised proposed methodology. The Reserve reviews the revised proposed methodology and may seek additional expert review. The Reserve also engages in a public consultation process and holds a public comment period. After public consultation, the methodology is submitted to the Reserve's Board for review and approval.

II. American Carbon Registry

Developing a New Methodology

To develop a new methodology, American Carbon Registry (ACR) coordinates a process consisting of internal review, public stakeholder consultation, and a blind scientific peer review. First, a project proponent submits a proposed methodology to ACR. ACR screens the methodology and communicates with the project proponent if there are any corrections or clarifications. If the proposed methodology meets ACR's requirements, it moves on to public consultation and peer review. ACR provides public notice and posts the methodology on the ACR website for at least 30 days to receive public comment. At the end of the public review period, ACR forwards all comments to the methodology author who then creates a revised methodology that incorporates revisions and/or creates document responses to each comment. An independent expert team reviews the revised methodology for a blind scientific peer review process and creates a report on its findings. The report is given to the methodology author who then incorporates recommended revisions or documents justifications for revisions that are not incorporated. Once all changes have been made, ACR can approve the new methodology and publish it on its website.

Revising an Existing Methodology

ACR may approve a modification to an existing methodology so long as the modification does not negatively affect the conservativeness of the methodology's approach to determining the

additionality and quantification of GHG emissions reductions. Proposed modifications to existing methodologies can be submitted to ACR for review. ACR reviews the proposed modification to determine whether the modification requires the same internal review, public consultation, and peer review process as is required for new methodologies, described above. Modifications to eligibility, applicability, and baseline assumptions are likely to trigger this full process, while modifications to correct minor errors may not require the full process.

III. Verra

Developing a New Methodology

A carbon offset project developer prepares a proposed methodology concept and submits it to Verra for acceptance. If the concept is accepted, the project developer submits the full methodology to Verra for approval. Verra staff reviews the full methodology and posts it on its website for a 30-day public comment period. During the public review period, Verra may also host a public presentation of the methodology to facilitate public stakeholder consultation. All public comments are given to the methodology developer, who must take the comments into account by updating the methodology or demonstrating why the comment was insignificant. After the public review process, an independent validation/verification body comprised of industry experts reviews the methodology and prepares an assessment report. Verra then reviews the most recent methodology and the assessment report and either approves, rejects, or revises the methodology.

Revising an Existing Methodology

If a methodology requires a revision, either substantive or minor, the methodology shall be revised and adopted under the same methodology approval process that is used for new methodologies, described above. If the revision is an edit or clarification to the methodology, then the methodology may be updated through a coordination process between the methodology developer and Verra.

IV. Sources

Climate Action Reserve, *Reserve FAQs*, last accessed on July 6, 2020.

Climate Action Reserve, *Reserve Offset Program Manual* (November 2019) at pp. 45-46.

Climate Forward, *Forecast Methodology Approval Manual* (November 2018).

Climate Forward, *Program Manual* (March 2, 2020) at pp. 27-29.

American Carbon Registry, *The American Carbon Registry Standard*, version 6.0 (July 2019) at pp. 47-49 .

Verra, *Methodology Approval Process* (September 19, 2019) at pp. 1-11, 19-20.

Protocol- and Methodology-Specific Development Processes

The development processes for protocols and methodologies administered by the Climate Action Reserve, American Carbon Registry, and Verra are unique to each registry, but the processes include common elements such as public outreach and public comment. Exemplar timelines and details for specific registry-approved protocols and methodologies are depicted in the table below.²

<u>Protocol/ Methodology</u>	<u>Protocol/Methodology Development Process</u>
<i>Climate Action Reserve (Reserve)</i>	
U.S. Landfill Protocol	The protocol development process for version 5.0 began with a public scoping webinar on October 10, 2018. Workgroup meetings were held on November 15, 2018 and January 16, 2019. On January 19, 2019, the Reserve held a public comment workshop. The public comment period was February 12, 2019 to March 12, 2019, and the Reserve responded to public comments in April 2019. A second public webinar was held on February 27, 2019. The protocol was approved on April 24, 2019.
Forest Protocol	The Reserve held a public comment workshop for version 5.0 of the protocol on November 14, 2018. There were two public comment periods: November 1, 2018 through December 14, 2018 and June 5, 2019 through July 12, 2019. The Reserve provided responses to public comments in June 2019 and August 2019, respectively. The protocol was approved on October 16, 2019.
Dairy Digesters Forecast Methodology	A public comment period for version 1.0 of the methodology was held between June 6, 2019 and July 12, 2019. A public comment webinar was held on June 26, 2019. Responses to public comments were provided in July 2019 and the methodology was approved on September 25, 2019.
Reforestation Forecast Methodology	A public comment period for version 1.1 of the methodology was held between November 20, 2019 and December 20, 2019. A public comment webinar was held on December 4, 2019. Responses to public comments were provided on March 2, 2020. Then, a public overview webinar was held on March 12, 2020. The methodology was approved on May 15, 2020.

² The timelines and details of the development processes for other protocols and methodologies published by Climate Action Reserve, American Carbon Registry, and Verra can be found on their websites, available at:

- <http://www.climateactionreserve.org/how/protocols/>;
- <https://climateforward.org/program/methodologies/>;
- <https://americancarbonregistry.org/carbon-accounting/standards-methodologies>; and
- <https://verra.org/project/vcs-program/methodologies/methodology-catalog/>.

<i>American Carbon Registry (ACR)</i>	
Truck Stop Electrification	Version 1.0 of the methodology was posted for public comment from August 9, 2011 through September 2, 2011. After public comment, the draft methodology was submitted to three peer reviewers for comments. ACR provided responses to the public and peer reviewed comments it received. The methodology was approved in July 2013.
Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use	Version 2.0 of the methodology was posted for public comment from December 4, 2017 until January 12, 2018. After public comment, the draft methodology was submitted to two peer reviewers for comments. ACR provided responses to the public and peer reviewed comments it received. The methodology was approved in April 2018.
<i>Verra</i>	
Weatherization of Single Family and Multi-Family Buildings	Version 1.0 of the methodology was open for public comment from January 20, 2010 until February 18, 2010. All public comments made on the methodology were made and remain available on Verra’s website. In November 2010, a methodology validation report was completed. And, in October 2012, a methodology element review report was completed. The methodology was approved on October 10, 2012.
Avoided Ecosystem Conversion	Version 3.0 of the methodology was open for public comment from October 15, 2013 until November 14, 2013. All public comments made on the methodology were made and remain available on Verra’s website. In May 2014, a methodology element assessment report was completed. The methodology was approved on June 6, 2014.

Filed 6/12/20

CERTIFIED FOR PUBLICATION

COURT OF APPEAL, FOURTH APPELLATE DISTRICT

DIVISION ONE

STATE OF CALIFORNIA

SIERRA CLUB et al.,

Plaintiffs and Respondents,

v.

COUNTY OF SAN DIEGO,

Defendant and Appellant.

D075478

(Super. Ct. No. 37-2018-0001-14081-CU-TT-CTL)

GOLDEN DOOR PROPERTIES, LLC,

Plaintiff and Respondent,

v.

COUNTY OF SAN DIEGO,

Defendant and Appellant.

D075328

(Super. Ct. No. 37-2018-0001-3324-CU-TT-CTL)

SIERRA CLUB,

Plaintiff and Respondent,

v.

COUNTY OF SAN DIEGO,

Defendant and Appellant.

D075504

(Super. Ct. No. 37-2012-0010-1-54-CU-TT-CTL)

CONSOLIDATED APPEALS from judgments and orders of the Superior Court of San Diego County, Timothy Taylor, Judge. Affirmed in part, reversed in part, and remanded with directions. Requests for judicial notice denied.

Thomas E. Montgomery, County Counsel and Joshua M. Heinlein, Deputy County Counsel; Cox, Castle & Nicholson; Michael H. Zischke and Linda C. Klein, for Defendant and Appellant County of San Diego.

Chatten-Brown, Carstens & Minter; Jan Chatten-Brown and Joshua R. Chatten-Brown for Plaintiffs and Respondents Sierra Club, Center for Biological Diversity, Cleveland National Forest Foundation, Climate Action Campaign, Endangered Habitats League, Environmental Center of San Diego and Preserve Wild Santee.

Latham & Watkins; Christopher W. Garrett, Daniel P. Brunton, Taiga Takahashi, Samantha K. Seikkula and Diego E. Flores, for Plaintiff and Respondent Golden Door Properties, LLC.

In this CEQA case,¹ the County of San Diego (County) challenges a judgment, writ of mandate, and injunction directing it to set aside its approvals of a Climate Action Plan (2018 CAP or CAP), Guidelines for Determining Significance of Climate Change, (Guidelines for Determining Significance), and supplemental environmental impact report (SEIR). The primary issue is whether a greenhouse gas (GHG) mitigation measure in the SEIR, called M-GHG-1, is CEQA-compliant. Under M-GHG-1, certain projects

¹ California Environmental Quality Act (CEQA), Public Resources Code section 2100 et seq.

may mitigate their in-County GHG emissions by purchasing carbon offsets originating elsewhere, including internationally.

Plaintiffs are (1) Sierra Club, Center for Biological Diversity, Cleveland National Forest Foundation, Climate Action Campaign, Endangered Habitats League, Environmental Center of San Diego, and Preserve Wild Santee (collectively Sierra Club); and (2) Golden Door Properties, LLC (Golden Door). Plaintiffs' overarching contention is that "[p]roperly restricted and verified offsets can be a valuable GHG mitigation strategy, but the offsets in M-GHG-1 provide no such assurances."

The superior court ordered the County to vacate its approvals of the CAP, Guidelines for Determining Significance, and the certification of the SEIR. The court also enjoined the County from relying on M-GHG-1 during review of greenhouse gas emissions impacts of development proposals on unincorporated County land.

Our primary holdings are: (1) M-GHG-1 violates CEQA because it contains unenforceable performance standards and improperly defers and delegates mitigation. (2) The CAP is not inconsistent with the County's General Plan. (3) However, the County abused its discretion in approving the CAP because the CAP's projected additional greenhouse gas emissions from projects requiring a general plan amendment is not supported by substantial evidence. (4) The SEIR violates CEQA because its (a) discussion of cumulative impacts ignores foreseeable impacts from probable future projects; (b) finding of consistency with the Regional Transportation Plan is not supported by substantial evidence; and (c) analysis of alternatives ignores a smart-growth alternative.

To be abundantly clear, our holdings are necessarily limited to the facts of this case, and in particular, M-GHG-1. Our decision is not intended to be, and should not be construed as blanket prohibition on using carbon offsets—even those originating outside of California—to mitigate GHG emissions under CEQA.

Similarly, our holding regarding the CAP's invalidity is a narrow one. The judgment requiring the County to set aside and vacate its approval of the CAP is affirmed because the CAP's greenhouse gas emission projections assume effective implementation of M-GHG-1, and M-GHG-1 is itself unlawful under CEQA. Except to the extent that (1) the CAP is impacted by its reliance on M-GHG-1; and (2) the CAP's inventory of greenhouse gases is inconsistent with the SEIR (see part IX, *post*), the CAP is CEQA-compliant.

This is the third time the County's attempt to adopt a viable climate action plan and related CEQA documents has been before this court. In an attempt to avoid a fourth, we further note that the CAP contains a GHG reduction measure (T-4.1) designed to offset in-County GHG emissions. As explained *post*, T-4.1 significantly differs from M-GHG-1 in several respects and, perhaps more importantly in indicating the types of offset protocols that might pass muster, is unchallenged in this litigation.

FACTUAL BACKGROUND

A. *Overview*

This is a complex case, in part because of the size of the record (approximately 72,000 pages), and the extensive litigation history, which spans nearly a decade with two

prior opinions from this court.² We begin with an overview of some of the key documents in the case. Because acronyms are used throughout, a glossary is appended at the end of this opinion.

1. *GHG emission reduction*

"Greenhouse gases absorb infrared radiation and trap the heat in the Earth's atmosphere, rather than allowing the radiation to escape into space. . . . [¶] Fossil fuel combustion is the source of the vast majority of the United States' [GHG] emissions. . . . In 2010, California produced 452 million metric tons (MT) of CO₂e.^[3] The transportation sector was the largest contributor to California's [GHG] emissions, producing 38 percent of the state's total. . . ." (*Irritated Residents, supra*, 17 Cal.App.5th at pp. 731-732.)

The Legislature has "emphatically established as state policy the achievement of a substantial reduction in the emission of gases contributing to global warming." (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 215 (*Center for Biological Diversity*)). This policy is implemented in CEQA.

² *Sierra Club v. County of San Diego* (2014) 231 Cal.App.4th 1152 (*Sierra Club I*) and *Golden Door Properties, LLC v. County of San Diego* (2018) 27 Cal.App.5th 892 (*Golden Door*).

³ The capacity of each GHG to retain heat varies. Emissions of GHGs are expressed as MTCO₂e, which is the amount of carbon dioxide in metric tons that would have the same global warming potential as the emission of the particular GHG. (*Association of Irrigated Residents v. Kern County Bd. of Supervisors* (2017) 17 Cal.App.5th 708, 731, fn. 6 (*Irrigated Residents*)).

CEQA 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 [GHG] emissions resulting from a project." (Cal. Code Regs., tit. 14, § 15064.4, subd. (a).)⁴ In determining the significance of a project's GHG emissions, CEQA directs the lead agency to consider, among other things, the "extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of [GHG] emissions." (Guidelines, § 15064.4, subd. (b)(3).)

The California Air Resources Board (CARB) is "the state agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming in order to reduce emissions of greenhouse gases." (Health & Saf. Code,⁵ § 38510.) CARB has pursued several strategies for reducing GHG emissions, including a cap-and-trade program. (Cal. Code Regs., tit. 17, §§ 95801-96022; *Association of Irrigated Residents v. State Air Resources Bd.* (2012) 206 Cal.App.4th 1487, 1498, fn. 6.)

2. *Cap-and-trade*

" 'Cap-and-trade is a market-based approach to reducing pollution. The "cap" creates a limit on the total amount of emissions from a group of regulated sources, and

⁴ The CEQA Guidelines in title 14 of the California Code of Regulations, section 15000 et seq., are hereafter cited as Guidelines. We give them great weight "except where they are clearly unauthorized or erroneous." (*Center for Biological Diversity, supra*, 62 Cal.4th at p. 217, fn. 4.)

⁵ Undesignated statutory references are to the Health and Safety Code.

generally imposes no particular emissions limit on any one firm or source.' "

(*Association of Irrigated Residents v. State Air Resources Bd.*, *supra*, 206 Cal.App.4th at p. 1498, fn. 6.) "The "trade" aspect of a cap-and-trade program creates an incentive for businesses to seek out cost-effective reductions, while also encouraging rapid action to reduce emissions quickly. Regulated entities receive allowances . . . representing the right to emit a ton of greenhouse gas emissions. At specified intervals, regulated businesses must surrender an allowance for each ton of GHG . . . they release. Over time, the total amount of allowances available to all sources is reduced, meaning overall emissions from those sources must be also reduced. If an individual source does not need all of the allowances it has in a given period, it may "bank" those allowances to surrender later or sell them to another registered party. The ability to sell allowances to other businesses that need them creates a market price for pollution reductions and an incentive for businesses to achieve the maximum reductions possible at the lowest cost.'" (*Ibid.*)

Thus, under cap-and-trade, GHG emitters may comply with the cap by purchasing GHG reductions that others achieve, called offsets. Offset credits can be produced by a variety of activities that reduce or eliminate GHG emissions or increase carbon sequestration.⁶

Under cap-and-trade, offset projects must comply with rules and procedures—called Compliance Offset Protocols (CARB Protocols), which CARB adopts and

⁶ Carbon emissions are sequestered, for example, by trees, which absorb carbon from the atmosphere.

administers through an Offset Project Registry (OPR). (Cal. Code Regs., tit. 17, §§ 95973, subd. (a)(1); 95987, subd. (a).) OPRs facilitate "the listing, reporting, and verification of offset projects developed using the [Protocols], and issue registry offset credits."⁷ OPRs must be approved by CARB and "shall use [CARB Protocols] to determine whether an offset project may be listed . . . for issuance of registry offset credits." (Cal. Code Regs., tit. 17, §§ 95986; 95987, subd. (a).) Entities can use offsets to fulfill only up to 8 percent of their compliance obligation. (*Id.*, § 95854, subd. (b).)

GHG offsets "must be real, additional, quantifiable, permanent, verifiable, and enforceable." (Cal. Code Regs., tit. 17, § 95802, subd. (a).) Numerous statutes and regulations are designed to ensure these criteria are met. (Health & Saf. Code, § 38562; Cal. Code Regs., tit. 17, § 95100 et seq.)

3. *The broad contours of this case*

This case involves the County's (1) CAP; (2) associated General Plan Amendment to the County's 2011 General Plan Update (GPU); (3) a threshold of significance for GHG emissions; and (4) Guidelines for Determining Climate Change—collectively the

⁷ (OPR <<https://ww3.arb.ca.gov/cc/capandtrade/offsets/registries/registries.htm>> [as of June 12, 2020] archived at <perma.cc/WXF5-66TKU>).

"Project." The County as lead agency prepared the Project's SEIR, which addresses GHG impacts in the County's unincorporated areas and from County operations.⁸

The superior court determined that the CAP is inconsistent with the GPU and, therefore, invalid. The court also determined that M-GHG-1 violates CEQA by (1) requiring the purchase of out-of-County offsets without legally sufficient analysis; and (2) unlawfully delegating and deferring feasibility findings. The superior court further determined that the SEIR violates CEQA by inadequately analyzing (a) cumulative GHG impacts; (b) impacts to "energy and environmental justice"; and (c) "smart growth mitigation or alternatives for [General Plan Amendment projects]." The court also determined that the County violated CEQA by failing to properly respond to comments on the draft SEIR (DSEIR).

Documents discussed throughout this opinion, introduced here and explained in more detail later, are:

(1) **2011 General Plan Update (GPU):** A comprehensive, long-term plan for developing unincorporated areas of the County. Calls for reducing GHG emissions to meet state GHG targets, and requires preparation of a Climate Action Plan to achieve this reduction.

(2) **2011 Program Environmental Impact Report (PEIR):** Analyzes environmental impacts from implementing the GPU. Requires a climate action plan be prepared.

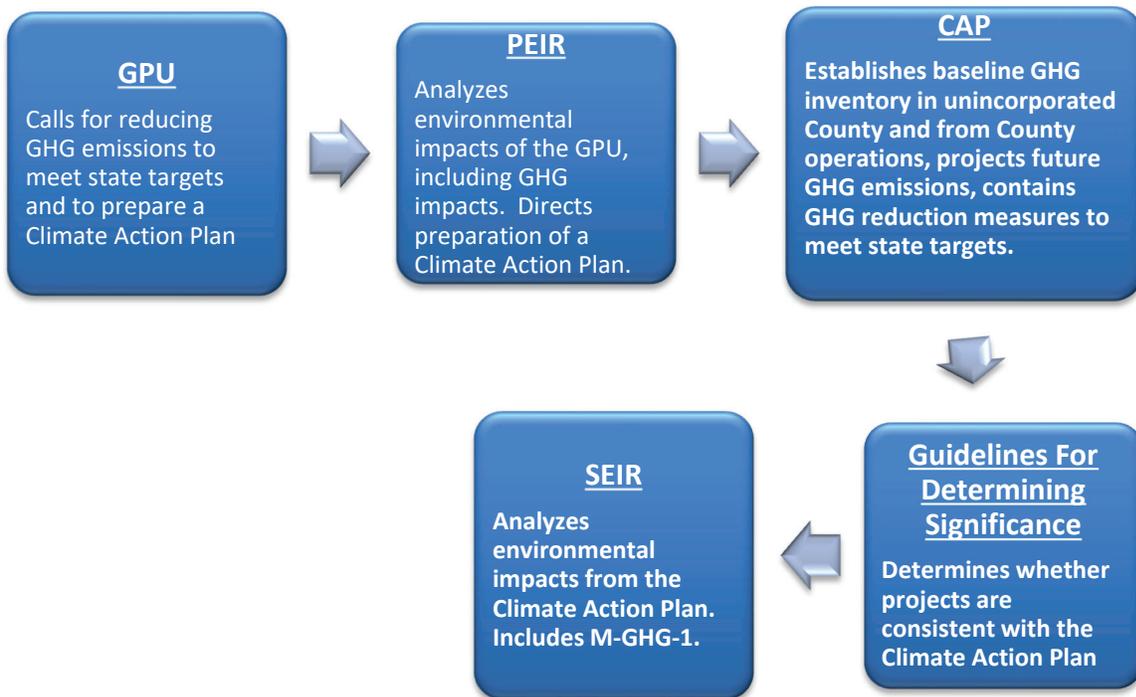
(3) **2018 Climate Action Plan (2018 CAP or CAP):** Establishes a baseline inventory of GHG emissions in the unincorporated County and from County operations. Projects future

⁸ County operations include County facilities and operations located within the unincorporated County communities and in the incorporated cities.

GHG emissions and contains measures to meet state GHG reduction targets.

(4) **Guidelines for Determining Significance of Climate Change (Significance Guidelines):** Contains criteria and a checklist to determine a project's consistency with the CAP.

(5) **2018 Supplemental EIR (SEIR):** Analyzes environmental impacts from implementing the CAP and contains mitigation measures, including M-GHG-1.



B. *The GPU*

The unincorporated County contains 3,570 square miles and as shown in the map *post*, is mostly undeveloped.



In 2011, the County updated its general plan, establishing "a blueprint for future land development projects in the unincorporated County that meets community desires and balances the environmental protection goals with the need for housing, agriculture, infrastructure, and economic vitality."

The GPU contains principles guiding future growth that are intended to retain the County's "rural character, economy, and unique communities, as well as minimizing the environmental impacts of future development." To accomplish these goals, the GPU "shifts growth capacity from the eastern backcountry areas to western communities" by encouraging growth "in villages with 'compact land development patterns to minimize intrusion into agricultural lands and open spaces; reduce travel distances to local services

and businesses, while also inducing community association, activity, and walking.' " The GPU seeks to "develop lands and infrastructure more sustainably in the future."⁹

The GPU contains a "Vision Statement" and "Guiding Principles." These "represent[] the basis by which all updated plan goals, policies, and implementation programs are measured" Addressing GHG emissions, the Vision Statement provides:

"[T]he Land Use Map provides a mix and density of land uses that will minimize automobile trips and their length, invigorate the economic health of our businesses, and promote association with our neighbors. These, coupled with increased access to transit, will reduce our air emissions, greenhouse gas emissions, energy consumption, [and] noise"

C. Climate Change Legislation

California's "landmark legislation addressing global climate change, the California Global Warming Solutions Act of 2006," is commonly referred to as Assembly Bill No. 32 (Assem. Bill No. 32). (*Center for Biological Diversity, supra*, 62 Cal.4th at p. 215.) Assem. Bill No. 32 calls for reducing GHG emissions to 1990 levels by 2020. (*Ibid.*)

In 2016, the Legislature enacted Senate Bill No. 32 (Sen. Bill No. 32), "which adopts a goal of reducing [GHG] emissions by 40 percent below 1990 levels by the year

⁹ Sustainability means "simultaneously meeting our current economic, environmental, and community needs, while also ensuring that we are not jeopardizing the ability of future generations to meet their needs."

2030. This 40 percent reduction is widely acknowledged as a necessary interim target to ensure that California meets its longer-range goal of reducing [GHG] emissions to 80 percent below 1990 levels by the year 2050." (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 519 (*Cleveland National*).)¹⁰

These mandates are a key element of the GPU's goals and policies. GPU Goal COS-20 (as originally adopted) provides for the "[r]eduction of local GHG emissions contributing to climate change that meet or exceed requirements of the Global Warming Solutions Act of 2006." Policy COS-20.1 likewise provides that the County shall "[p]repare, maintain, and implement a climate action plan with a baseline inventory of GHG emissions from all sources; GHG emissions reduction targets and deadlines, and enforceable GHG emissions reduction measures."¹¹

One of the GPU's guiding principles is that "land should be developed more compactly, resulting in reduced automobile use and increased use of public transit,

¹⁰ Sierra Club's request for judicial notice of Executive Order No. B-30-15, pertaining to the 40 percent reduction target, is denied as irrelevant. (*San Diegans for Open Government v. San Diego State University Research Foundation* (2017) 13 Cal.App.5th 76, 90, fn. 8 (*SDOG*).)

¹¹ As part of the Project, the County amended COS-20 and COS 20.1 in 2018. COS 20 as amended provides: "Reduction of community-wide (i.e., unincorporated County) and County Operations greenhouse gas emissions contributing to climate change that meet or exceed requirements of the Global Warming Solutions Act of 2006, as amended by [Sen. Bill No. 32]" As amended, COS-20.1 provides, "Prepare, maintain, and implement a Climate Action Plan for the reduction of community-wide (i.e., unincorporated County) and County Operations greenhouse gas emissions consistent with . . . Guidelines Section 15183.5."

walking, and bicycling. This will result in less consumption of gasoline, generation of less air pollution and GHG emissions, the preservation of greater amounts of habitat and agricultural lands, and the improvement of the lifestyles and health of community residents." The GPU promotes reductions in vehicle trips, gasoline consumption, and GHG emissions by containing 41 "mobility strategies."

D. *The PEIR*

The PEIR addresses the environmental impacts from implementing the GPU.¹² The PEIR did not "speculate on the individual environmental impacts of specific future development projects," but rather considered "build-out of the General Plan land use designations up to forecasted population and housing unit totals."

Growth consistent with the GPU would create in-County GHG emissions. Mitigation measures are necessary to achieve state GHG reduction targets. PEIR mitigation measure CC-1.2 requires the County to prepare a climate action plan with "comprehensive and enforceable GHG emissions reduction measures" to achieve mandated GHG targets.

The County adopted the GPU and certified the PEIR in August 2011.

¹² A program EIR considers " 'a series of actions that can be characterized as one large project and are related' " (Guidelines, §15168, subd. (a).) This allows the lead agency to consider "broad policy alternatives and program wide mitigation measures. . . ." (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 17 Cal.App.5th 413, 425 (*Forest Foundation*)).

E. *The 2018 CAP*

1. *The CAP applies to projects that are consistent with GPU-allowed land use*

Broadly speaking, there are two types of development projects in the County. One type is a project proposing land use that is completely consistent with that allowed under the General Plan. The other type is a project proposing intensity or density of land use exceeding that allowed under the General Plan—that is, a project requiring a general plan amendment.

"The scope of the CAP is to serve as mitigation to reduce GHG emissions resulting from buildout of the 2011 GPU" In other words, to the extent a project is consistent with land use allowed under the GPU, the project applicant must mitigate GHG emissions with CAP GHG reduction measures.

2. *The CAP's GHG inventory*

The CAP establishes a baseline inventory of GHG emissions against which to measure future reductions. The baseline consists of GHG emissions from activities within the unincorporated County and from County operations as of 2014. Although Assem. Bill No. 32 and Sen. Bill No. 32 use 1990 as a benchmark, 2014 is the most recent year in which accurate information is available to inventory GHG emissions in the unincorporated County. This inventory includes GHG emissions from projects requiring a general plan amendment because of increased density or intensity of land use beyond that allowed under the GPU (hereafter, such projects are referred to as GPAs), but only if the GPA project was constructed as of 2014.

3. *The CAP's GHG projections*

The CAP also projects future GHG emissions for development consistent with GPU allowed land use. These projections, based on current trends, population growth, and known legislation, are called " 'business-as-usual' " projections. The projections assume no additional local GHG reduction efforts and regulations will be undertaken, and that population, housing, employment, and transportation will grow consistent with San Diego Association of Governments (SANDAG) projections.

The CAP's GHG projections do not include GPA projects under review, but not yet adopted by the County (hereafter referred to as in-process GPAs).¹³ However, the projections include GHG emissions from GPA projects adopted between August 2011 (the date of the GPU) and August 2017 (the date the DSEIR was publicly released). The projections also account for anticipated legislation that will reduce future emissions without any additional County action. This includes, for example, anticipated increased electric vehicle use.

The CAP's 2014 baseline and projected GHG emissions in MTCO_{2e} are:

2014 Baseline	2020 Projection	2030 Projection	2050 Projection
3,211,505	3,018,671	2,824,049	2,991,507

¹³ Such projects are instead analyzed in the cumulative impact analysis in the SEIR, where M-GHG-1 applies.

4. *GHG reduction targets and measures*

To meet legislative GHG emission reduction targets, CARB recommends reducing emissions to six MTCO_{2e} per capita by year 2030 and to two MTCO_{2e} per capita by 2050. This is equivalent to reducing 2014 emissions by 40 percent (by 2030) and 77 percent (by 2050). Therefore, to meet state targets, the County must reduce GHG emissions to 1,926,903 MTCO_{2e} by 2030 (40 percent below 2014 levels) and to 738,646 MTCO_{2e} by 2050 (77 percent below 2014 levels).

The CAP contains 26 measures intended to meet these targets. "All [26] GHG [r]eduction [m]easures in the CAP will be implemented within the unincorporated County and from County operations" Likewise, all CAP GHG reduction measures "will achieve GHG reductions locally (i.e., from County operations and within the unincorporated County)."

The County "collaborated with over 50 stakeholder groups in the environmental, business, and community sectors during a total of over 100 public events to gather input to inform development of strategies and measures for the CAP. The primary determinant for whether a measure was chosen was its GHG reduction potential and whether it would help the County achieve its GHG reduction target in 2030. Measures were also assessed for their applicability and effectiveness in the County's unique rural setting. . . . As shown in the CAP, the selected measures are anticipated to meet state targets through 2030." All of the CAP's reduction measures "would need to be implemented . . . to meet the reduction targets."

CAP measures include, for example, County acquisition of (1) open space, which would reduce GHG emissions by preserving land that can otherwise be developed; and (2) easements on agricultural land to extinguish future development potential. Under another measure, the County will update 15 community plans by 2030, and an additional four between 2031 and 2040 to incorporate a balanced approach to housing, jobs, services, and infrastructure—including bike lane improvements, shared parking, and community centers located in a core area. The CAP measures also include installing electric vehicle charging stations, encouraging solar water heater installation, and streamlining the permitting of solar energy production.

The CAP's GHG reduction measures may also produce "co-benefits"—"additional jobs and economic development, cleaner air, fewer illnesses and disease, reduced energy and water costs, or an overall improvement in the quality of life and public health."

5. CAP reduction measure T-4.1

Once implemented, the CAP's suite of measures may require adjustment to stay on target. To provide needed flexibility, the CAP includes measure T-4.1, under which the County may make "direct investments in local projects to offset carbon emissions."

"A direct investment project is created when a specific action is taken that reduces, avoids, or sequesters GHG emissions." For example, the County could invest in a weatherization project that reduces carbon emissions within the county while also reducing residents' heating and cooling expenses. Other direct investment projects are urban forest and urban tree planting.

Under T-4.1, the "County will not purchase carbon offset credits . . . but will . . . track carbon offsets achieved through County direct investment projects" within the unincorporated County. Emissions reductions occur, but unlike in cap-and-trade, offsets are not traded as an independent commodity. The SEIR estimates that T-4.1 can achieve 176,614 MTCO_{2e} reductions by 2030.

T-4.1 "would be implemented throughout the unincorporated County, where the benefits of carbon sequestration and GHG emissions reductions would occur." Direct investment projects must comply with (1) "established protocols that have been approved by . . . CARB, the California Air Pollution Control Officers Association (CAPCOA), or the San Diego County Air Pollution Control District"; (2) "that received 'public review prior to adoption' "; and (3) the project must yield GHG reductions that are additional—that is, beyond what will occur under business-as-usual operations and reductions not otherwise mandated. "Adherence to the protocols ensures that the carbon reductions generated by the project are real, permanent, quantifiable, verifiable, and enforceable." An independent, qualified third-party must verify the GHG reduction achieved.¹⁴

6. CAP implementation and monitoring

The County will annually report the CAP's implementation, update the GHG emissions inventory every two years, and every five years report findings from these updates. "[I]f certain measures have proven successful, additional investment in those measures may be made; or, conversely, if certain measures are proving to be more

¹⁴ Plaintiffs do not challenge T-4.1 or any other CAP GHG reduction measure.

difficult to achieve, then the County may redirect its efforts to other measures to achieve overall GHG reduction targets."

7. Consistency with the CAP is the threshold of significance

CEQA requires public agencies to conduct an environmental review of discretionary projects they approve and to prepare an EIR for any project that may have a significant effect on the environment. (Pub. Resources Code, § 21151, subd. (a).) The Guidelines encourage public agencies to develop "thresholds of significance" to assist in determining whether a project's effect will be deemed significant. (Guidelines, § 15064.7.) " 'A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.' " (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2016) 2 Cal.App.5th 1067, 1072-1073.)

The Project's threshold of significance for GHG emissions is consistency with the CAP:

"A proposed project would have a less than significant cumulatively considerable contribution to climate change impacts if it is found to be consistent with the County's Climate Action Plan; and, would normally have a cumulatively considerable contribution to climate change impacts if it is found to be inconsistent with the County's Climate Action Plan."

Details on how to achieve consistency with the CAP are in a separate document, the Guidelines for Determining Significance, which also contains a checklist of CAP GHG reduction measures, called the CAP Consistency Review Checklist (Checklist).

The Checklist implements a two-step process to determine consistency with the CAP. The first step assesses whether a project is consistent with growth projections and land use assumptions in the GPU. Those assumptions are the basis of the CAP's GHG emissions projections.

Thus, if a project's land use is consistent with the GPU, then its GHG emissions are already accounted for in the CAP's projections (because the projections assume build-out under the GPU). In that event, the proposed project will achieve GHG reduction targets by implementing CAP reduction measures.

In step two, the project applicant uses the Checklist to itemize and describe how the project will implement applicable CAP GHG reduction measures.¹⁵ For example, applicants for a residential development must indicate on the Checklist whether the project will implement electric or alternatively-fueled water heating systems.

In-process GPAs that the County had not adopted by August 2017 are not included in the CAP's GHG projections. Such projects achieve consistency with the CAP under M-GHG-1, which we discuss next.

¹⁵ The CAP and Checklist also applies to projects requiring a land use and/or zoning amendment to the GPU, but which would result in an equivalent or less GHG-intensive project when compared to those allowed under the GPU.

E. The SEIR and M-GHG-1

1. The SEIR, in general

Twenty-one GPAs were in-process as of August 2017. The SEIR acknowledges that in-process GPAs are reasonably foreseeable, could result in significant GHG impacts and, therefore, are included in the SEIR's cumulative GHG impacts analysis. The SEIR also recognizes that these and future GPAs are not accounted for in the CAP and may impact the County's ability to meet CAP targets. To the extent in-process and future GPAs would increase GHG emissions above projected CAP levels, their impact would be significant (i.e., inconsistent with the CAP). The SEIR requires GPAs to use M-GHG-1 to mitigate GHG emissions to be within the threshold of significance, i.e., to not exceed the CAP's GHG emission projections.

2. M-GHG-1, in general

M-GHG-1 "requires a project that increases density or intensity [of land use] above what is allowed in the [GPU] to mitigate GHG emissions first through all feasible onsite design features" Onsite design features may include "land use and design features that reduce VMT [Vehicle Miles Traveled], promote transit oriented development, promote street design policies that prioritize transit, biking, and walking, and increase low carbon mobility choices, including improved access to viable and

affordable public transportation"16 If onsite design features are insufficient to fully mitigate GHG emissions, then the project may use offsite mitigation, including in some cases purchasing offset credits originating from projects anywhere in the world.17

Under M-GHG-1, the GPA project may mitigate GHG emissions under either of two options: The first is called "No Net Increase." Under this option, "GPA project applicants shall achieve no net increase in GHG emissions from additional density above the 2011 GPU." For example, "if 400 residential units were allowed under the GPU and a GPA proposes 500 residential units, the emissions for the 400 would be mitigated by implementing CAP reduction measures, thereby reducing GHG impacts from the 400 units to below significance. GHG emissions for the 100 additional units must be mitigated to zero through "onsite design features and mitigation measures and offsite mitigation, including the purchase of carbon offset credits"

Option two is called "Net Zero." Under this option, GPA applicants shall reduce all project GHG emissions to zero. Applicants shall first demonstrate compliance with CAP measures before considering additional feasible onsite design features and mitigation measures. Offsite mitigation, including purchase of carbon offset credits,

16 "Generally, vehicle miles traveled [VMT] is the most appropriate measure of transportation impacts. . . . VMT refers to the amount and distance of automobile travel attributable to a project." (Guidelines, § 15064.3, subd. (a).)

17 The text of M-GHG-1 is in Appendix 2 to this opinion.

would be allowed after all feasible onsite design features and mitigation measures have been incorporated.

Common to both options is the goal to reduce to zero any increases in GHG emissions over those projected in the CAP. If that occurs, CAP GHG emission forecasts are unaffected by the GPA project. Accordingly, the GPA project would be consistent with the CAP, and thus within the threshold of significance for GHG emissions.

F. *CEQA Streamlining*

To avoid repetition, wasted time, and unnecessary speculation, a lead agency may "tier" environmental impact reports for a sequence of actions so that later EIRs incorporate and build on the information in the previous CEQA document. (Pub. Resources Code, §§ 21068.5; 21093, subd. (a).) Projects that are consistent with the GPU and implement CAP GHG reduction measures may incorporate by reference the CAP's cumulative GHG analysis. Conversely, projects that are consistent with the GPU but do not implement CAP GHG reduction measures, as well as GPAs—will require a project-level GHG analysis.

PROCEDURAL HISTORY¹⁸

A. *Sierra Club Petition*

After the County certified the SEIR, Sierra Club filed a petition for a writ of mandate challenging the County's approval of the CAP, Significance Guidelines,

¹⁸ Procedural history predating the events described here is contained in *Sierra Club I, supra*, 231 Cal.App.4th at pp. 1156-1163 and *Golden Door, supra*, 27 Cal.App.5th at pp. 896-898.

threshold of significance for GHG emissions, and the SEIR. In the trial court, Sierra Club asserted (1) the CAP and SEIR violated CEQA because M-GHG-1 allows "in-County emissions from in-process and future GPAs to increase, provided there are offsets purchased somewhere in the world, without demonstrating that such offsets will be fully enforceable, verifiable, permanent, and additional"; (2) the County "gutted Mitigation Measure CC-1.2 by establishing a target of "a mere 2 [percent] reduction in emissions within the County from 2014 levels by 2020"; (3) the SEIR fails to analyze the CAP's impact on the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); (4) the County improperly failed to update its transportation modeling "using data that included the recently approved GPAs, all reasonably expected GPAs, and the approval of new residential development in far-flung rural areas"; (5) the SEIR failed to analyze impacts from increased vehicle miles that would result from allowing "GPA applicants to purchase GHG offsets"; (6) the SEIR fails to consider an alternative in which "land use classifications and new GPA approvals" comport with and achieve certain VMT reduction goals; (7) The SEIR fails to make good faith, reasoned responses to public comments; (8) the SEIR fails to analyze environmental justice impacts; and (9) the CAP and threshold of significance are inconsistent with the GPU.

B. Golden Door Petition and Consolidation

In a separate action, Golden Door sought injunctive and declaratory relief. Golden Door alleged that it is the "owner and operator of an award-winning hospitality and agricultural operation . . . situated on approximately 600 acres" in San Diego County. Golden Door challenged the County's compliance with its General Plan and CEQA "to

the extent that the County has failed, in its newly adopted CAP, to adhere to requirements to achieve 'reduction of community-wide (i.e., unincorporated County) and County Operations greenhouse gas emissions' and other legal requirements."

In the trial court, Golden Door primarily asserted that the County violated CEQA (and acted inconsistently with the GPU) by adopting a "program for carbon offset credits ('offsets') that would allow in-process and future ['GPAs'] to *increase* [GHGs] within the County, in exchange for the purchase of offsets applicable to elsewhere in the world" Golden Door asserted that the County "did not even attempt to quantify the GHGs from the known, in-process GPAs, even though the 2018 CAP Project clearly intended the offset program to apply to all GPAs." Golden Door also asserted that the County improperly delegated and deferred feasibility findings in M-GHG-1 and failed to adequately analyze: (1) VMT and other impacts resulting from implementing M-GHG-1; (2) cumulative GHG impacts; (3) energy and environmental justice; and (4) smart growth mitigation or alternatives for GPAs. Like Sierra Club, Golden Door also claimed that the County failed to adequately respond to comments.

By stipulation, the trial court consolidated these two cases, along with a third (*Sierra Club v. County of San Diego*, No. 37-2012-00101054-CU-TT-CTL) that had been stayed.

After hearing, the trial court granted an (amended) peremptory writ of mandate, ordering the County to set aside its approvals of the CAP, Guidelines for Determining Significance, Checklist, certification of the SEIR, and "all attendant approvals in reliance thereon" The trial court also entered a permanent injunction, providing: "During

review of [GHG] emissions impacts of development proposals on unincorporated County lands under CEQA, including in the review of such impacts prior to the issuance of any permits or entitlements for any General Plan amendment projects approved after February 14, 2018, the County . . . shall not rely on Mitigation Measure M-GHG-1" Subsequently, the court entered a "final judgment" that also declared "that the February 2018 Climate Action Plan and the certification of the Final SEIR to the 2011 General Plan Update Program EIR are legally inadequate and may not be used to provide the basis for CEQA review of GHG impacts of development proposals in the unincorporated County."

C. Appeals and Consolidation

The County filed a notice of appeal in the consolidated cases from "all judgments and orders" including the writ of mandate and the permanent injunction. This court consolidated the three appeals.

DISCUSSION

I.

THE CAP IS NOT INCONSISTENT WITH THE GPU

A. The Trial Court's Ruling

In the trial court, Plaintiffs asserted that the CAP is inconsistent with the GPU because (1) M-GHG-1 is "part and parcel" of the CAP; and (2) the GPU requires reducing *in*-County emissions; however, M-GHG-1 allows purchasing carbon offsets "anywhere in the world." Noting the "paucity of offsets available within the County,"

Sierra Club asserted, "offsets are all but certain to come from outside the County," thus violating a prime directive in the GPU.

The superior court agreed with Plaintiffs, stating, "[T]he County's General Plan has consistently . . . stated it required in-County GHG reductions. However, M-GHG-1, which is expressly incorporated into the 2018 CAP . . . allows essentially unlimited increases in GHG within the County. In this respect, applicants proposing projects in the County can meet their GHG mitigation requirements by purchasing offsets from anywhere in the world"

The County contends the court erred because (1) M-GHG-1 is not a mitigation measure of the CAP. Rather, M-GHG-1 is a mitigation measure in the SEIR and only applies to GPAs; (2) the CAP is, therefore, not inconsistent with the GPU; and (3) GPAs using M-GHG-1 would mitigate GHG emissions to be within CAP projections and, therefore, be consistent with the GPU. We agree with the first and second points, and find it unnecessary to consider the third in this context.

B. The Consistency Requirement

Land use decisions must be consistent with the policies expressed in a general plan. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 570 (*Citizens of Goleta Valley*)). This doctrine is " 'the linchpin of California's land use and development laws; it is the principle which infused the concept of planned growth with the force of law.' " (*Corona-Norco Unified School Dist. v. City of Corona* (1993) 17 Cal.App.4th, 994.) However, " 'it is nearly, if not absolutely, impossible for a project to be in perfect conformity with each and every policy set forth in the applicable plan. . . .

It is enough that the proposed project will be compatible with the objectives, policies, general land uses and programs specified in the applicable plan.' " (*Save Our Heritage Organisation v. City of San Diego* (2015) 237 Cal.App.4th 163, 186.)

C. *The Standard of Review*

Our role is the same as that of the trial court. (*Naraghi Lakes Neighborhood Preservation Assn. v. City of Modesto* (2016) 1 Cal.App.5th 9, 19.) Review "is highly deferential to the local agency, 'recognizing that "the body which adopted the general plan policies in its legislative capacity has unique competence to interpret those policies when applying them in its adjudicatory capacity. [Citations.] Because policies in a general plan reflect a range of competing interests, the governmental agency must be allowed to weigh and balance the plan's policies when applying them, and it has broad discretion to construe its policies in light of the plan's purposes. [Citations.] A reviewing court's role 'is simply to decide whether the [governing body] officials considered the applicable policies and the extent to which the proposed project conforms with those policies.' [Citation.]" [Citation.]" (*Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 816.) "It is, emphatically, not the role of the courts to micromanage these development decisions." (*Sequoiah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 719 (*Sequoiah Hills*), italics omitted.)

D. *The CAP is Not Inconsistent with the GPU*

The CAP's GHG reduction measures apply only to the extent development is consistent with land use allowed under the GPU. In such cases, the project's emissions have already been accounted for in the CAP's projections. By incorporating the CAP's

GHG mitigation measures, a project will reduce its GHG emissions to levels consistent with state GHG reduction targets.

In contrast, M-GHG-1 applies only to "in-process and future" GPAs—that is, development involving density or intensity of land use above that allowed under the GPU. To the extent such projects exceed CAP emission projections, their emissions are not included in the CAP and, therefore, must be mitigated to zero to keep the County on track to meet state targets. M-GHG-1 is intended to be that mitigation program. The CAP explains this, stating:

"With incorporation of Mitigation Measure GHG-1, GPAs listed in the cumulative impact discussion of the Draft SEIR and all future GPAs that propose increased density/intensity above what is allowed in the General Plan will comply with the CAP and, therefore, will not interfere with the County's 2020 and 2030 GHG reduction targets or 2050 goal. General Plan Amendments would, therefore, comply with the threshold of significance, which is consistency with the CAP."

Thus, although the CAP *refers* to M-GHG-1, M-GHG-1 is not one of the CAP's GHG reduction measures. Rather, the 26 *local* measures, none of which involve purchasing carbon offsets outside the County—are the heart of the CAP. If the analysis were to stop here, we would conclude that the CAP is fully consistent with the GPU because the CAP analyzes GHG emissions resulting from buildout under the GPU. Moreover, all of the CAP's GHG reduction measures will be implemented locally, thus reducing GHG emissions in the County, which is also fully consistent with the GPU.

However, the CAP is not entirely independent from M-GHG-1. The CAP projects future GHG emissions in the County. Those projections *exclude* emissions from

in-process GPAs and future GPAs. The CAP's projections exclude these foreseeable GHG emissions on the assumption that such projects will mitigate their GHG emissions to zero (or net zero) under M-GHG-1. The CAP states:

"General Plan Amendment projects currently in process . . . have not been included in the 2014 GHG . . . projections. . . . GPAs have the potential to result in a significant cumulative impact and also impact the ability of the County to meet its targets and goal. However, Mitigation Measure GHG-1 is provided to reduce the cumulative impact to less than significant. In addition, [M-GHG-1] would be required for all future GPAs"

As noted *ante*, M-GHG-1 allows mitigating in-County GHG emissions with offset credits originating outside the County—even in another country. However, the GPU expresses fundamental principles "designed to protect *the County's* unique and diverse natural resources and maintain the character of its rural and semi-rural communities. It reflects an environmentally sustainable approach to planning that balances the need for adequate infrastructure, housing, and economic vitality, while maintaining and preserving each unique community within the County, agricultural areas, and extensive open space." (Italics added.) The GPU emphasizes *local* policies to reduce *local* GHG emissions:

"The General Plan takes steps to address the challenging issue of climate change by reducing GHG emissions, retaining and enhancing natural areas, improving energy efficiency, reducing waste, recycling, and managing water use. The General Plan will reduce GHG emissions primarily through minimizing vehicle trips and approving land use patterns that support increased density in areas where there is infrastructure to support it, increased opportunities for transit, pedestrians, and bicycles, and through green building and land development conservation initiatives. Policies also address adaptation to climate change, such as continued wildfire management and protection, monitoring flood hazards, and regional collaboration on biological preservation, water use and supply, and other areas of concern."

To the extent GPAs emit GHG in the County, but mitigate those impacts by reducing emissions elsewhere, the CAP's projection of future GHG emission levels is not entirely consistent with the GPU's focus on reducing *in-County* GHG emissions.¹⁹ The issue, therefore, is whether this is enough to invalidate the CAP as being inconsistent with the GPU.

A project need not conform perfectly to every general plan policy to be consistent with the general plan. (*Families Unafraid to Uphold Rural etc. County v. Board of Supervisors* (1998) 62 Cal.App.4th 1332, 1341.) The rule of general plan consistency is that the project "must be 'compatible with the objectives, policies, general land uses, and programs specified in' " the general plan. (*Sequoyah Hills, supra*, 23 Cal.App.4th at pp. 717-718.) "[C]ourts accord great deference to a local governmental agency's determination of consistency with its own general plan, recognizing that 'the body which adopted the general plan policies in its legislative capacity has unique competence to interpret those policies when applying them in its adjudicatory capacity. [Citations.] Because policies in a general plan reflect a range of competing interests, the governmental agency must be allowed to weigh and balance the plan's policies when applying them, and it has broad discretion to construe its policies in light of the plan's purposes. [Citations.] A reviewing court's role 'is simply to decide whether the [agency] officials considered the applicable policies and the extent to which the proposed project

¹⁹ See *post*, section II (F) for additional discussion of the impact of M-GHG-1 on the CAP.

conforms with those policies.' " (*San Franciscans Upholding the Downtown Plan v. City & County of San Francisco* (2002) 102 Cal.App.4th 656, 677-678.)

Here, GPU policies must also be construed in light of science. "[T]he 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." (*Center for Biological Diversity, supra*, 62 Cal.4th at pp. 219-220.) Thus, reducing or eliminating GHG emissions anywhere is a benefit.

Although the CAP is not perfectly in tune with the GPU, and in light of the highly deferential standard of review, we conclude the court erred in determining that the CAP is inconsistent with GPU policies. A "guiding principle" in the GPU is to "reduce greenhouse gas emissions that contribute to climate change." The GPU recognizes that the "sources, impacts, and solutions to climate changes are complex." The GPU contains a policy to "reduce GHG emissions *primarily* through minimizing vehicle trips and approving [sustainable] land use patterns" (Italics added.) The GPU provides that the "*primary* opportunities to reduce air quality pollutants and GHG emissions are in the urbanized areas of the County where there are land use patterns that can best support the increased use of transit and pedestrian activities" (Italics added.)

Plaintiffs' argument that the CAP is inconsistent with these goals would require replacing "primarily" with "exclusively." Moreover, the CAP is consistent with the GPU by providing measures to reduce VMT, recognizing that such measures are necessary to achieve the 2030 target. "[P]roposed transportation measures in the CAP focus on

reducing VMT through improved design of development, infrastructure improvements, travel demand management programs, parking code revisions, and alternative fuel use." "Several GHG reduction measures focus on reducing the number and length of single-occupancy vehicle trips (measures T-1.1, T-1.2, and T-1.3) and expanding alternative transportation opportunities (measures T-2.1, T-2.2, T-2.3, and T-2.4)." CAP measure T-2.1 reduces VMT by improving roadway segments, intersections, and bikeways to encourage pedestrian and cyclist trips. Another reduces VMT by encouraging alternative work schedules and telecommuting.

Additionally, the GPU provides that the CAP shall contain a "baseline inventory" of GHG emissions from all sources, GHG emissions reduction targets and deadlines, and enforceable GHG emissions reduction measures. The CAP complies by containing (1) a baseline inventory, (2) GHG reduction targets and deadlines, and 26 GHG reduction measures.

The GPU also contains a policy to reduce in-County and County operations GHG emissions to meet legislative targets. The CAP is consistent with this goal by adopting per capita reductions suggested by CARB to meet 2030 and 2050 targets.

To support a contrary result, Plaintiffs cite *Spring Valley Lake Assn. v. City of Victorville* (2016) 248 Cal.App.4th 91. There, a city's general plan required all new commercial development to generate electricity onsite to the maximum extent feasible. (*Id.* at p. 98.) The EIR for a proposed Walmart stated the project would be solar ready, and should a determination be made in the future that photovoltaic panels can deliver power there at a reasonable cost, Walmart and the city would negotiate adding solar

energy-generating facilities to the project. (*Ibid.*) On appeal, this court affirmed the trial court's finding that the project was not consistent with the general plan because the city "effectively found there was no extent to which it would be feasible to require the project to generate electricity onsite" and "there is no evidence in the record to support such a finding." (*Id.* at pp. 99-100.) In contrast here, however, the SEIR's finding that implementing the CAP would not be inconsistent with the 2011 GPU is supported by substantial evidence.

E. It is Unnecessary to Decide Whether M-GHG-1 Projects Are Consistent with the GPU

In a related argument, Plaintiffs contend that GPAs using M-GHG-1 will be inconsistent with the GPU because M-GHG-1 allows in-County emissions to be mitigated with out-of-County offsets. It is unnecessary to decide this issue. As explained *post*, M-GHG-1 is not CEQA-compliant. Because M-GHG-1 fails on these grounds, it is unnecessary to decide whether M-GHG-1 is invalid for other reasons. (See *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 101-102 (*CBE*) [appellate court not required to address additional alleged defects that may be addressed in a completely different and more comprehensive manner upon subsequent CEQA review following remand].)

II.

M-GHG-1 VIOLATES CEQA

A. The Trial Court's Ruling

The superior court determined that M-GHG-1 violates CEQA by (1) "allow[ing] the use of offsets purchased anywhere on the planet, with no limit on geographic scope or duration (and no temporal or cumulative limit)"; (2) containing an "illusory" geographic priority because only one offset project exists in the County; and (3) requiring offsets be purchased from CARB-approved registries is "not remotely similar to the CARB program." Elaborating, the trial court noted that cap-and-trade offsets are generally limited to those occurring in the United States and may only be used to meet up to 8 percent of a participant's annual compliance obligations. However, M-GHG-1 has neither limitation. The court also stated there is no evidence that out-of-County offsets will be enforceable, verifiable, and of sufficient duration. The court further determined that M-GHG-1 lacks "standards or criteria" for achieving the Director's "'satisfaction'" and for determining whether a registry is sufficiently "reputable" to substitute for the identified registries.

B. CEQA Overview

"The foremost principle under CEQA is that the Legislature intended the act "to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'" [Citations.] 'With narrow exceptions, CEQA requires an EIR whenever a public agency proposes to approve or to carry out a project that may have a significant effect on the environment.

[Citations.]' The basic purpose of an EIR is to 'provide public agencies and the public in general with detailed information about the effect [that] a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project.' [Citations.] 'Because the EIR must be certified or rejected by public officials, it is a document of accountability. If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees.' [Citation.] The EIR "protects not only the environment but also informed self-government.' " (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 511-512 (*Sierra Club*)). " ' "The EIR is the heart of CEQA," and the integrity of the process is dependent on the adequacy of the EIR.' " (*Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4th 899, 924.)

C. *The Standard of Review*

The parties disagree about the applicable standard of review. The County contends the CEQA issues are reviewed for abuse of agency discretion, and that the substantial evidence standard governs review of the County's "factual findings, conclusions, and determinations." However, citing primarily *Sierra Club, supra*, 6 Cal.5th 502, Plaintiffs contend "[d]e novo is the correct standard of review" for the CEQA claims.

The applicable standard of review is more nuanced. "[T]he appellate court reviews the agency's action, not the trial court's decision; in that sense appellate judicial

review under CEQA is de novo." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 427.)

The County's determinations as lead agency are reviewed for abuse of discretion. (*Sierra Club, supra*, 6 Cal.5th at p. 512.) " '[A]n agency may abuse its discretion under CEQA either by failing to proceed in the manner CEQA provides or by reaching factual conclusions unsupported by substantial evidence.' " (*Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 935 (*Banning Ranch*)).

And within this abuse of discretion standard, review varies depending on the issue involved. " 'While we determine de novo whether the agency has employed the correct procedures, "scrupulously enforc[ing] all legislatively mandated CEQA requirements" [citation], we accord greater deference to the agency's substantive factual conclusions. In reviewing for substantial evidence, the reviewing court "may not set aside an agency's approval of an EIR on the ground that an opposite conclusion would have been equally or more reasonable," for, on factual questions, our task "is not to weigh conflicting evidence and determine who has the better argument." ' " (*Sierra Club, supra*, 6 Cal.5th at p. 512.)

In *Sierra Club*, the California Supreme Court summarized these principles as follows: (1) An agency has considerable discretion in deciding the manner of discussing potentially significant effects in an EIR. (2) However, a reviewing court must determine whether that discussion comports with an EIR's intended function. (3) This review is not solely a matter of discerning whether there is substantial evidence to support the agency's factual conclusions. (*Sierra Club, supra*, 6 Cal.5th at pp. 515-516.) For example, there are " 'instances where the agency's discussion of significant project impacts may

implicate a factual question that makes substantial evidence review appropriate,' such as an agency's decision to use a particular methodology. [Citation.] 'But whether a description of an environmental impact is insufficient because it lacks analysis or omits the magnitude of the impact is not a substantial evidence question.' [Citation.] Where the ultimate inquiry is whether an EIR omits material necessary to reasoned decisionmaking and informed public participation, the inquiry is predominantly legal and, '[a]s such, it is generally subject to independent review.' " (*Chico Advocates for a Responsible Economy v. City of Chico* (2019) 40 Cal.App.5th 839, 846-847.)

"The ultimate inquiry . . . is whether the EIR includes enough detail 'to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.' " (*Sierra Club, supra*, 6 Cal.5th at p. 516.) "Generally, that inquiry is a mixed question of law and fact subject to de novo review, but to the extent factual questions . . . predominate, a substantial evidence standard of review will apply." (*South of Market Community Action Network v. City and County of San Francisco* (2019) 33 Cal.App.5th 321, 330-331 (*South of Market*).) " 'A prejudicial abuse of discretion occurs if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process.' " (*Id.* at p. 331.)

With these principles in mind, we turn to the CEQA issues.

D. *M-GHG-1 Violates CEQA Because Its Performance Standard is Unenforceable*

1. *Introduction*

A mitigation measure is a change that would reduce or minimize the project's significant adverse environmental impact. (*No Slo Transit, Inc. v. City of Long Beach* (1987) 197 Cal.App.3d 241, 256.) " 'Mitigating conditions are not mere expressions of hope.' " (*Sierra Club I, supra*, 231 Cal.App.4th at p. 1167.) They must be enforceable through permit conditions, agreements, or other legally-binding instruments. (Pub. Resources Code, § 21081.6, subd. (b); Guidelines, § 15126.4, subd. (a)(2).)

Mitigation measures for GHG emissions may include "[o]ffsite measures, including offsets that are not otherwise required." (Guidelines, § 15126.4, subd. (c)(3).) The parties agree that offsets "can be a valuable GHG mitigation strategy" if "[p]roperly restricted" with "verified offsets." However, as the superior court remarked, "the devil is in the details."

Under section 38562, subdivision (d)(1) and (2), cap-and-trade offset credits may be issued only if the emission reduction achieved is "real, permanent, quantifiable, verifiable, enforceable, and additional to any GHG emission reduction otherwise required by law or regulation, and any other GHG emission reduction that otherwise would occur."

" 'Real' means . . . that GHG reductions . . . result from a demonstrable action or set of actions, and are quantified using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG

reservoirs within the offset project boundary and account for uncertainty and the potential for activity-shifting leakage and market-shifting leakage."²⁰ (Cal. Code Regs., tit. 17, § 95802.) " 'Permanent' means . . . that GHG reductions . . . are not reversible, or when GHG reductions . . . may be reversible, that mechanisms are in place to replace any reversed GHG emission reductions . . . to ensure that all credited reductions endure for at least 100 years." (*Ibid.*) " 'Quantifiable' means . . . the ability to accurately measure and calculate GHG reductions . . . relative to a project baseline in a reliable and replicable manner for all GHG emission sources . . ." (*Ibid.*) " 'Verifiable' means that an Offset Project Data Report assertion is well documented and transparent such that it lends itself to an objective review by an accredited verification body." (*Ibid.*) " 'Additional' means . . . greenhouse gas emission reductions or removals that exceed any greenhouse gas reduction or removals otherwise required by law, regulation or legally binding mandate, and that exceed any greenhouse gas reductions or removals that would otherwise occur in a conservative business-as-usual scenario." (Cal. Code Regs., tit. 17, § 95802.)

²⁰ GHG sink means "a physical unit or process that removes a GHG from the atmosphere." (Cal. Code Regs., tit. 17, § 95802.) GHG reservoir means "a physical unit or component of the biosphere, geosphere, or hydrosphere with the capability to store, accumulate, or release a GHG removed from the atmosphere by a GHG sink or a GHG captured from a GHG emission source." (*Ibid.*) Leakage is an unintended increase in GHG emissions caused by a project. " 'Market-shifting leakage,' in the context of an offset project, means increased GHG emissions or decreased GHG removals outside an offset project's boundary due to the effects of an offset project on an established market for goods or services." (*Id.*, § 95102.)

The text of M-GHG-1 incorporates section 38562, subdivision (d)(1) by reference by stating, "Carbon offset credits must be purchased through [certain named registries or through] . . . any other reputable registry or entity that issues carbon offsets consistent with . . . section 38562(d)(1) . . ." ²¹ Moreover, to demonstrate that M-GHG-1 is CEQA-compliant, the County invites comparison between M-GHG-1 and CARB-issued offset credits under cap-and-trade. Although conceding at oral argument that there are "some differences" between cap-and-trade offset credits and offset credits under M-GHG-1, the County contends cap-and-trade and M-GHG-1 are "substantially similar." Specifically, the County asserts that M-GHG-1 will be "effective and enforceable" because M-GHG-1 requires offsets to be purchased from registries that "meet the stringent requirements of . . . section 38562, subdivision (d)(1)."

Accordingly, we compare and contrast the "stringent requirements" in M-GHG-1 with those governing CARB offset credits under cap-and-trade.

2. *Cap-and-trade offset protocols*

The value of any offset depends on whether GHG emission reduction has occurred. "[U]nlike the produce at the farmer's market, we can't examine the [GHG offset] product to determine its value. Not only are emission reductions invisible, they actually *didn't happen*. So to have confidence in their value, we need a reliable and accurate picture of what *would have happened*, as well as what *actually happened*."

²¹ The County asserts that CEQA does not "import Health and Safety Code standards for Assem. Bill No. 32 . . ." It is unnecessary to address that issue because M-GHG-1 self-imposes these requirements.

(California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures* (2010), p. 22 (*CAPCOA Quantifying*), italics in original.)

"Protocols are the formalized procedures for accounting for credits that ensure the credits are an accurate and reliable representation of emission reductions that actually occurred." (*CAPCOA Quantifying, supra*, at p. 22.) Protocols " 'qualify and quantify GHG destruction, ongoing GHG reductions or GHG removal enhancements achieved by an offset project.' " (*Our Children's Earth Foundation v. State Air Resources Bd.* (2015) 234 Cal.App.4th 870, 879 (*Our Children's*).

Under cap-and-trade, an offset project must use a CARB-approved "Compliance Offset Protocol" (CARB Protocol). (Cal. Code Regs., tit. 17, § 95973, subd. (a)(1).) CARB Protocols are designed to "ensure that the reductions are quantified accurately, represent real GHG emissions reduction, and are not double-counted within the system." More specifically, a CARB Protocol must:

"(1) Accurately determine the extent to which GHG emission reductions and GHG removal enhancements are achieved by the offset project type;

"(2) Establish data collection and monitoring procedures relevant to the type of GHG emissions sources, GHG sinks, and GHG reservoirs for that offset project type[];

"(3) Establish a project baseline that reflects a conservative estimate of business-as-usual performance or practices for the offset project type;

"(4) Account for activity-shifting leakage and market-shifting leakage for the offset project type, unless the Compliance Offset Protocol stipulates eligibility conditions for use of the Compliance Offset Protocol that eliminate the risk of activity-shifting and/or market-shifting leakage;

"(5) Account for any uncertainty in quantification factors for the offset project type;

"(6) Ensure GHG emission reductions and GHG removal enhancements are permanent;

"(7) Include a mechanism to ensure permanence of GHG removal enhancements for sequestration offset project types;

"(8) Establish the length of the crediting period pursuant to [California Code of Regulations, title 17,] section 95972[, subdivision] (b) for the relevant offset project type; and

"(9) Establish the eligibility and additionality of projects using standard criteria, and quantify GHG reductions and GHG removal enhancements using standardized baseline assumptions, emission factors, and monitoring methods." (Cal. Code Regs., tit. 17, § 95972.)

A CARB Protocol must also specify the project's geographic boundary.

Generally, that boundary must be within the United States or its territories. (Cal. Code Regs., tit. 17, § 95972, subd. (c).)²² Also, the project must employ procedures specified in the CARB Protocol "for monitoring measurements and project performance" (*Id.*, § 95976, subd. (a).)

There are currently six CARB Protocols. (Cal. Code Regs., tit. 17, § 95975, subd. (e).) Each is from a distinct economic sector outside the coverage of cap-and-trade. (*Ibid.*) For example, the livestock protocol authorizes offset credits for projects that reduce methane emissions. (*Our Children's, supra*, 234 Cal.App.4th at p. 880.)

²² In this respect, the County's assertion at oral argument that cap-and-trade has no "geographic preferences" is incorrect.

Cap-and-trade offsets must also be *additional*. This means that the offset project must "exceed any [GHG] reduction or removals otherwise required by law, regulation, or legally binding mandate." The offset must also exceed what would have otherwise occurred "in a conservative business-as-usual scenario." (Health & Saf. Code, § 38562, subd. (d)(1) & (2); Cal. Code. Regs., tit. 17, § 95802, subd. (a)(4).)²³ For example, the ozone depleting substances protocol excludes destruction of such substances by the United States government because such " 'is common practice and considered business-as-usual. . . . ' " (*Our Children's, supra*, 234 Cal.App.4th at p. 881.)

A CARB Protocol must " '[e]stablish [] the eligibility and additionality of projects using standard criteria, and quantif[y] GHG reductions and GHG removal enhancements using standardized baseline assumptions, emission factors, and monitoring methods.' [Citation.] Furthermore, a specific project may qualify for an offset credit only by meeting both the additionality requirements set forth in the regulation and any additionality requirements in the applicable [CARB] [P]rotocol." (*Our Children's, supra*, 234 Cal.App.4th at p. 878.)

²³ " 'Conservative' means . . . utilizing project baseline assumptions, emission factors, and methodologies that are more likely than not to understate net GHG reductions or GHG removal enhancements for an offset project to address uncertainties affecting the calculation or measurement of GHG reductions or GHG removal enhancements." (Cal. Code Regs., tit. 17, § 95802, subd. (a)(77).) " 'Business-as-Usual Scenario' means the set of conditions reasonably expected to occur within the offset project boundary in the absence of the financial incentives provided by offset credits, taking into account all current laws and regulations, as well as current economic and technological trends.' " (*Id.*, subd. (a)(43).)

CARB Protocols are regulatory documents. Therefore, CARB must "provide public notice of and opportunity for public comment prior to approving any [CARB] Protocols" (Cal. Code Regs., tit. 17, § 95971, subd. (a).)

After issuing offset credits, CARB may invalidate them if newly discovered information shows the Protocol was noncompliant. (Cal. Code Regs., tit. 17, § 95985, subd. (c).)

Offset projects in foreign countries present additional concerns. "With domestic offsets, the offset developer and capped source purchaser are within [CARB's] jurisdiction. Regulations have been adopted that assure that if an offset is false, fails or otherwise is inadequate that [CARB] can take enforcement action.' [CARB] can rely upon existing monitoring, inspections and other tools that an enforcement agency has available to it. An international offset in a developing country is inevitably dependent upon the host country or third parties to validate the activities giving rise to the offset. Corruption at any stage in the development of the offset, from the initial reporting to the verification and monitoring will undermine the offset." (Alan Ramo, *The California Offset Game: Who Wins and Who Loses*, 20 *Hastings W.-Nw. J. Env't'l L. & Pol'y* 109, 147 (2014) (*Ramo Offset*).)

California's cap-and-trade program includes several additional requirements for out-of-state and foreign offsets. This process is called "linkage." (Gov. Code, § 12894, subd. (e).)

Before linking with another jurisdiction's offset program, CARB must notify the Governor, who has 45 days in which to consider advice from the Attorney General, and

make (or decline to make) the following findings that are submitted to the Legislature:

(1) The other jurisdiction's GHG emissions program must be "equivalent to or stricter than" California's program; (2) California must retain the ability to enforce Assem. Bill No. 32 requirements against any entity subject to regulation under those statutes, and against any entity located within the other jurisdiction to the maximum extent permitted under the United States and California Constitutions; (3) the other jurisdiction must have equivalent or stricter enforcement powers; and (4) the proposed linkage does not impose any liability on California. (Gov. Code, § 12894, subs. (f) & (g).)²⁴

3. *Registries*

An Offset Project Registry (Registry) is "an entity that . . . is approved by [C]ARB that lists offset projects, collects Offset Project Data Reports, facilitates verification of Offset Project Data Reports, and issues registry offset credits for projects being implemented using a CARB Protocol." (Cal. Code Regs., tit. 17, § 95802.) However, to obtain a CARB offset credit, it is not enough for a Registry to issue credit. CARB alone determines whether a registry offset qualifies as a compliance instrument. (*Id.*, §§ 95802 [defining registry offset credit], 95981.1 [process for issuing CARB offset credits].)

4. *M-GHG-1 is not equivalent to cap-and-trade offsets*

The County contends that M-GHG-1 is "substantially similar" to the offset program authorized under cap-and-trade. Specifically, the County asserts that like offsets

²⁴ Sierra Club's request for judicial notice of CARB's website discussing linkage is denied as irrelevant. (*SDOG, supra*, 13 Cal.App.5th at p. 90, fn. 8.)

under cap-and-trade, M-GHG-1 requires offsets "be purchased from a registry approved by [C]ARB or one that meets section 38562[, subdivision (d)(1)]." The County argues that this is a "sufficient safeguard[]" to "ensure credits purchased pursuant to M-GHG-1 are real, permanent, verifiable, and enforceable."

However, M-GHG-1 is materially different from Assem. Bill No. 32 compliant cap-and-trade offsets in several key respects. Under M-GHG-1, offsets must be purchased through "(i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard, (ii) any registry approved by CARB to act as a registry under the state's cap-and-trade program, (iii) through the CAPCOA GHG Rx and SDAPCD, or (iv) if no registry is in existence as identified . . . above, then any other reputable registry or entity that issues carbon offsets consistent with . . . section 38562 [subdivision] (d)(1), to the satisfaction of the Director"25 At oral argument, the County explained that it is "through the use of those registries that the protocol gets applied." But M-GHG-1 says nothing about the protocols that the identified registries must implement. Therefore, implicit in the County's argument is that if the registry administering the offset is CARB-approved, then for that reason alone, *necessarily* the GHG emissions reduction protocol administered by that agency is also Assem. Bill No. 32 compliant, thereby ensuring the validity of the offset credit claimed. However, this assumption is incorrect.

25 CAPCOA GHG Rx is the California Air Pollution Control Officers Association Greenhouse Gas Reduction Exchange. APCD is the Air Pollution Control District.

Unlike M-GHG-1, under cap-and-trade, it is not enough that the registry be CARB-approved. Equally important, the protocol itself must be CARB-approved. (Cal. Code Regs., tit. 17, § 95970, subd. (a)(1) & (2).)²⁶ *This distinction is significant because some offset protocols administered by CARB-approved registries are not Assem. Bill No. 32 compliant.* Indeed, CARB has stated that offset protocols developed by CARB-approved registries (including registries named in M-GHG-1) do *not by that fact alone* meet the offset criteria in Assem. Bill No. 32:

"Voluntary offset programs such as the American Carbon Registry, Climate Action Reserve, Verified Carbon Standard, and others may submit protocols to [C]ARB for review. However, regardless of how the voluntary protocols are developed, [C]ARB staff must determine whether the voluntary protocol should be developed for use in the Cap-and-Trade Program and if so, to conduct its own rulemaking process under the Administrative Procedure Act. . . . *This process ensures that any voluntary protocol . . . demonstrates the resulting reductions meet the offset criteria in [Assem. Bill No. 32]*

"Protocols developed by the voluntary programs are not Compliance Offset Protocols as they are not developed through a rulemaking process, *may not meet the [Assem. Bill No. 32] and Cap-and-Trade Regulation criteria*, and were not approved by [CARB]." (Italics added.)

Furthermore, before approving a protocol, CARB subjects the proposed offset protocol to public notice, a comment period, and a public hearing. (Cal. Code Regs., tit. 17, §§ 95970, subd. (a)(2), 95971, subd. (a).) CARB also requires that emission reductions for offset credit be from sources not already covered by cap-and-trade. For

²⁶ "A registry offset credit must . . . [r]esult from the use of a Compliance Offset Protocol" (Cal. Code Regs., tit. 17, § 95970, subd. (a)(2).)

example, CARB would not approve an offset protocol for installing solar panels because electricity generation is already covered under cap-and-trade.

The CARB Protocols are the heart of cap-and-trade offsets—but the word "protocol" is not even mentioned in M-GHG-1. Contrary to the County's contention, M-GHG-1 is not equivalent to cap-and-trade offset programs because M-GHG-1 does not require the protocol itself to be consistent with CARB requirements under title 17, section 95972, subdivision (a)(1)-(9) of the California Code of Regulations, quoted *ante*. For example, CARB will not approve a protocol unless its GHG reductions are permanent. (*Id.*, § 95970, subd. (a)(1).) If the project is to sequester carbon (e.g., planting trees), the protocol must ensure that the GHG will not be released for 100 years. M-GHG-1 is deficient because it has no such safeguards.

Under cap-and-trade, legislative safeguards seek to ensure that out-of-state offsets reflect genuine GHG reductions. For example, CARB may approve out-of-state offsets only if the Governor makes findings to ensure the linked jurisdiction's offsets are genuine, verifiable, and enforceable under law that is at least as strict and enforceable as is California law. (Gov. Code, § 12894, subd. (f).) However, M-GHG-1 has no such restrictions. The only M-GHG-1 limit on mitigating with international offsets is the Director's unilateral decision that offsets are not feasibly available within (1) the unincorporated county; (2) the County; (3) California; and (4) the United States. The fundamental problem, unaddressed by M-GHG-1, is that the County has no enforcement authority in another state, much less in a foreign country. M-GHG-1 does not require a

finding that an out-of-state offset site has laws at least as strict as California's with respect to ensuring the validity of offsets.

At oral argument, the County asserted that the "registries" would be the County's enforcement mechanism to ensure the validity of offsets originating in foreign countries. This argument fails, however, because it is premised on the assumption that the registry's protocol is Assem. Bill No. 32 compliant—and as explained *ante*, M-GHG-1 does not require use of an Assem. Bill No. 32 compliant protocol.

Moreover, nothing other than the Director's determination of feasibility limits a GPA applicant from obtaining up to 100 percent of its GHG emission reductions through M-GHG-1 offsets. This includes offset projects occurring anywhere in the world. In sharp contrast, cap-and-trade offsets cannot exceed 8 percent of an entity's entire compliance obligation. (Cal. Code Regs., tit. 17, § 95854, subd. (b).)²⁷

The relative ease with which GPAs might obtain offset credits originating in foreign countries under M-GHG-1 is particularly concerning because "[i]n a developing country where one relies upon records that may not exist, and testing technology that may be inadequate or fraudulent, it can be difficult if not impossible" to verify GHG reductions. (*Ramo Offset, supra*, 20 Hastings W.-Nw. J. Env't'l L. & Pol'y at p. 121.) "Beyond these challenges is the issue of what would have happened anyway. A developing country is so named because it is economically underdeveloped and is

²⁷ We express no opinion on whether 8 percent is also the CEQA limit. That issue is not before us.

hopefully making economic and social progress. In that climate, how does one distinguish between an emission reduction that would have happened anyway and one that is happening only or in part because of the encouragement of the offset program and the potential to sell a credit for a profit?" (*Ibid.*) "Corruption also presents challenges [As of 2011], [t]here [were] . . . carbon reduction projects either certified or under development in Ethiopia, Nicaragua, the Philippines, Kenya, and Venezuela. Yet, Transparency International's Global Corruption Report 2009 rates Ethiopia as the 126th most corrupt country out of 180 countries, Nicaragua as the 134th, the Philippines as the 141st, Kenya as the 147th, and Venezuela as the 158th." (Brian Joseph McFarland, *Carbon Reduction Projects and the Concept of Additionality* (2011) 11 *Sustainable Dev. L. & Pol'y* 15, 16 (*McFarland*), fn. omitted.)

There is another significant deficiency in M-GHG-1. Under cap-and-trade, GHG emission reductions must be *additional* "to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur." (§ 38562, subd. (d)(2).) "Additionality is an important requirement because if non-additional (i.e., 'business-as-usual') projects are eligible for carbon [offset] . . . then the net amount of greenhouse gas emissions will continue to increase and the environmental integrity of carbon reduction projects will be called into question." (*McFarland, supra*, 11 *Sustainable Dev. L. & Pol'y* at p. 15.) For example, CARB will not approve a protocol that "includes technology or GHG abatement practices that are already widely used." Moreover, "[t]o assess if a specific GHG mitigation method may have 'otherwise occurred,' " CARB will determine "if that method is

common practice in the geographic area in which the proposed [CARB Protocol] is applicable."

Although additionality is "a critical component of any environmental market" it is "often seen as expensive [and] onerous. . . ." (Karen Bennett, *Additionality: The Next Step for Ecosystem Service Markets* (2010) 20 Duke Env'tl. L. & Pol'y F. 417, 419.)

Perhaps this explains why M-GHG-1 seemingly goes out of its way to *not* require additionality.

Under M-GHG-1, the Director may approve offsets issued by any "reputable registry or entity that issues carbon offsets consistent with . . . section 38562[, subdivision] (d)(1)." The County asserts this reference to section 38562 ensures that offset protocols administered under M-GHG-1 will be substantially similar to Assem. Bill No. 32 compliant offsets. However, subdivision (d)(1) of section 38562 does not require that offsets be additional. Additionality is required under the next subdivision [(d)(2)] in section 38562, which provides in part:

"Any regulation adopted by [CARB] . . . shall ensure all of the following: [¶] . . . [¶] (2) . . . the reduction is 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." (§ 38562, subd. (d)(2).)

Although M-GHG-1 cites subdivision (d)(1) of section 38562, it is silent with respect to subdivision (d)(2). And there is nothing else in M-GHG-1's text that requires

additionality.²⁸ At oral argument, when asked to identify the language *in* M-GHG-1 that requires "additionality," the County's lawyer cited a portion of the SEIR that states, "One carbon offset credit represents the past reduction or sequestration of one metric ton of carbon dioxide equivalent that is '*not otherwise required*' (CEQA Guidelines section 15126.4 [subdivision] (c)(3))." (Italics added.) Later, however, counsel correctly conceded that "not otherwise required" is *not* in the text of M-GHG-1. Rather, it is in a prefatory section of the SEIR about greenhouse gas emissions, prior to the text of M-GHG-1 itself.

In comments to the DSEIR, Golden Door's attorneys called the County's attention to these problems. In response, the County did not claim that additionality was not required. Rather, the County asserted that M-GHG-1 offsets would be additional by "adher[ing] to the applicable protocol, as detailed in SEIR Appendix B." In its reply brief, the County makes the same assertion, stating: "Appendix B to the SEIR contains nearly 3,000 pages of offset protocols that the registries listed in M-GHG-1 use to ensure that offsets meet rigorous standards showing they are . . . additional, and verifiable"

The problem with this argument is that Appendix B itself states that it does not apply to M-GHG-1. Rather, Appendix B applies to CAP reduction measure T.-4.1. Appendix B is entitled "Range of *Direct Investment* Protocols." (Italics added.) The

²⁸ In its reply brief, the County glosses over this deficiency by asserting that under M-GHG-1, "a registry must meet the requirement of . . . section § [*sic*] 38562" However, the text of M-GHG-1 invokes only subdivision (d)(1) of that statute, not subdivision (d)(2).

direct investment program is GHG reduction measure T-4.1 in the CAP. As explained *ante*, under T-4.1, the County may invest in projects in the County that reduce or eliminate in-County GHG emissions. The SEIR explains, "Appendix B of this Draft SEIR provides a range of protocols that may be applied to County direct investment projects to implement GHG Reduction Measure T-4.1." Elsewhere in its response to comments, the County similarly states, "Appendix B provides support for the County's local direct investment projects through CARB-approved protocols. . . . *Appendix B applies only to how the County will ensure tracking and enforceability of GHG Reduction Measure T-4.1.*" (Italics added.) In response to another comment, the County added, "The performance-based protocols listed in CAP SEIR Appendix B will be used to develop project-level detail for implementing GHG Reduction Measure T-4.1" At oral argument, the County had no response to this point.

Thus, although nothing appears to preclude a GPA project from using an Appendix B protocol as part of its M-GHG-1 mitigation—nothing in M-GHG-1 *requires* it. By insisting that M-GHG-1 requires additionality because it requires GPAs to use Appendix B protocols, the County actually highlights one of M-GHG-1's most significant flaws—offset credits under M-GHG-1 need not be additional.²⁹

²⁹ In this litigation, Plaintiffs have not challenged any of the Appendix B protocols. Therefore, for future reference they are:

CAPCOA GHG Rx protocols: (a) Biomass Waste for Energy Project (2013); (b) Coastal Wetland Creation Version 1.0 (2016); (c) Compost Additions to Grazed Grasslands (2014); (d) Forestry Protocol #1 (2013); (e) Forestry Protocol # 2 (2013);

5. *The County's arguments that M-GHG-1 is enforceable lack merit*

The County also contends that M-GHG-1 is effective and enforceable because it "perfectly conforms" to a "discussion draft" on carbon offsets prepared by the Governor's Office of Planning and Research (OPR). However, this document is not part of the record and we deny the County's judicial notice request. (*Moore v. City of Los Angeles* (2007) 156 Cal.App.4th 373, 386 [review of administrative proceeding is limited to matters contained within the administrative record].)

In any event, the OPR document on its face states it is a "draft" containing "initial thoughts." To the extent the document has any probative value, it states that offsets are a "permissible way to mitigate climate change impacts under CEQA." Plaintiffs do not challenge that point. The issue is whether M-GHG-1 does so in a CEQA-compliant manner, which the OPR document does not address.

(f) Forestry Protocol #3 (2013); (g) Revised Livestock Projects (2014); (h) U.S. Livestock version 4.0 (2017); (i) Organic Waste Digestion (2017); (j) Weatherization of Single Family and Multi-Family Buildings (2016); (k) Wetland Implementation and Rice Cultivation in the Sacramento-San Joaquin Delta, San Francisco Estuary and the Coast of California Version 1.0 (2016);

Climate Action Reserve protocols: (a) Coal Mine Methane Version 1.1; (b) Forest Version 4.0 (2017); (c) Grassland Version 2.0 (2017); (d) Landfill Version 4.0 (2011); (e) U.S. Livestock Version 4.0; (f) Nitric Acid Production Version 2.1; (g) Nitrogen Management Version 1.1; (h) Organic Waste Composting Version 1.1; (i) Urban Forest Management Version 1.0 (2014); (j) Urban Tree Planting Version 2.0 (2014); (k) U.S. Ozone Depleting Substances Version 2.0;

CARB protocols: (a) U.S. Forest Projects (2015); (b) Livestock Projects Capturing and Destroying Methane from Manure Management Systems (2014); (c) Mine Methane Capture Projects Capturing and Destroying Methane From U.S. Coal and Trona Mines (2014); (d) Ozone Depleting Substances Projects Destruction of U.S. Ozone Depleting Substances Banks (2014) ; (e) Urban Forest Projects (2011).

The County also contends that the Newhall Ranch Resource Management and Development Plan (Newhall) is an "example of the type of project that helps the state achieve its emission reduction goals." The County claims that the Newhall plan relies on carbon offsets "from anywhere in the world for approximately 50 percent of its GHG emission reductions" The County concludes, therefore, that statewide emissions reductions "can be accomplished by reductions that occur out-of-state."

However, comparing M-GHG-1 to Newhall's GHG mitigation measures serves only to demonstrate M-GHG-1's severe deficiencies. In Newhall, GHG mitigation measures included requirements that (1) homes, commercial buildings, and public facilities create as much energy as is used by implementing energy-efficient design and renewable energy generation, such as solar panels; (2) every home (up to 21,500) be equipped with an electric vehicle charging station; (3) 2,000 onsite charging stations be installed in commercial and community areas; (4) subsidies for electric vehicle purchases be provided; (4) electric school bus and neighborhood electric vehicle programs, transit subsidies, tech-enabled mobility features, bike-share and car-share programs be provided; and (5) energy efficient upgrades for schools and public buildings in disadvantaged communities be constructed. M-GHG-1 contains none of these measures.

Moreover, Newhall's GHG mitigation identified "Direct Reduction Activities" that "are prototypical" of GHG reduction measures the developer would implement. These included (1) conservation of forest land to sequester GHG emissions; (2) funding clean burning cook stoves for underprivileged households in foreign countries (more than three billion people globally depend on burning wood fuels in archaic stone fires; a single clean

cook stove can save about two MTCO_{2e} per year); and (3) programs for methane capture. M-GHG-1 identifies no specific GHG offset protocols to be implemented.

Further, "to ensure environmental integrity," the Newhall GHG mitigation plan required that any reduction or elimination be additional. It also defined additional using both a legal requirement test and a performance test.³⁰ As already explained, the text of M-GHG-1 does not require additionality.

Moreover, the County is incorrect in claiming that Newhall's GHG mitigation plan allowed carbon offsets "anywhere in the world for approximately 50 percent of its GHG emission reductions." Actually, in Newhall at least 68 percent of project GHG emissions reductions were required to be achieved in California. Moreover, at least *80 percent* were required to be achieved in the United States. In Newhall, even the possibility of 20 percent international offsets was reduced by requiring the developer to continue seeking reasonable opportunities to obtain domestic offsets. M-GHG-1 has no similar limits on international offsets.

And finally, in Newhall if the lead agency determines within 90 days that offsets are noncompliant with performance standards, permitting ceases until that agency

³⁰ The legal-requirement test requires that the activity "shall not be required for GHG reduction by applicable law (i.e., statute, ordinance or regulation) in effect at the time of the initiation" of the activity. The performance test requires that the activity "shall reduce GHG emissions below the applicable common industry practice for GHG reductions as in effect at the time" the activity is initiated. The performance test for a particular activity "shall be set in a protocol by an [a]pproved [r]egistry through analysis of standard practices and technology deployment in the applicable industry sector."

determines the standards have been met. Once again, M-GHG-1 has no safeguards for after-acquired information invalidating a previously issued offset.

For the first time in its reply brief, the County also contends that M-GHG-1 reductions would be "additional" because the County "would not permit a project applicant to mitigate . . . with out-of-County offsets until the applicant has exhausted the project's onsite and in-County options. By not raising this in its opening brief, the County has forfeited the point. (*Doe v. California Dept. of Justice* (2009) 173 Cal.App.4th 1095, 1115 (*Doe*) [" ' "Obvious considerations of fairness in argument demand that the appellant present all of his points in the opening brief. To withhold a point until the closing brief would deprive the respondent of his opportunity to answer it or require the effort and delay of an additional brief by permission." ' "].) Moreover, even if we were to consider this argument, it fails because it is based on a fundamental misunderstanding. Additionality is not a geographic limitation, but rather considers whether the offset would have otherwise occurred.

Again for the first time in its reply, citing *Our Children's, supra*, 234 Cal.App.4th at page 882, the County contends that GHG emission reductions under M-GHG-1 are additional because they "would be additional to other legislatively-mandated reductions as assured by compliance with [s]ection 38562." This point is also forfeited. (*Doe, supra*, 173 Cal.App.4th at p. 1115.) Moreover, as explained *ante*, M-GHG-1 does not invoke subdivision (d)(2) of section 38562. The offset program analyzed in *Our Children's* does. (*Our Children's*, at p. 877.)

E. M-GHG-1 Violates CEQA By Improperly Deferring Mitigation

Under M-GHG-1, the Director determines whether to approve offset credits. That decision is based on two determinations. First, the registry or issuing entity must be CARB-approved or "reputable" and issue offsets consistent with section 38562, subdivision (d)(1). Second, the offsets must not be "available" and/or not "financially feasible" in a location closer to the County as listed in the geographical hierarchy. Plaintiffs contend that M-GHG-1 violates CEQA by improperly delegating and deferring mitigation to these future determinations. We agree.

"Formulation of mitigation measures shall not be deferred until some future time." (Guidelines, § 15126.4, subd. (a)(1)(B).) However, the specific details of a mitigation measure . . . may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure." (*Ibid.*; see also *Forest Foundation, supra*, 17 Cal.App.5th at pp. 442-443.) Where an EIR improperly defers mitigation, the approving agency abuses its discretion by failing to proceed as required by law. (*CBE, supra*, 184 Cal.App.4th at pp. 89-90.)

Citing *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884 (*Oakland Heritage*), the County contends that M-GHG-1 is "similar to mitigation measures upheld by courts that require plans or purchasing of offsets subject to review

and approval by an agency official." In *Oakland Heritage*, the appellate court upheld a mitigation measure deferring site-specific earthquake mitigation measures. However, the EIR in *Oakland Heritage* required the developer to submit a design level investigation for each parcel that would "be in accordance with applicable City ordinances and policies and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from known active faults." (*Id.* at p. 889.) The EIR also required that the design level investigation would be reviewed by a structural engineer, a registered geotechnical engineer, and submitted to "the City Building Services Division . . . 'to ensure compliance with the applicable requirements of the geotechnical investigation as well as other applicable code requirements.'" (*Id.* at p. 894.) The EIR further contained "an extensive discussion of the mandates of various state and [c]ity laws bearing upon seismic safety, including the Seismic Hazards Mapping Act [citation], the Building Code . . . , and various City ordinances." (*Id.* at p. 892.) The EIR concluded that " '[c]onsidering the rigorous investigation process required under the engineering standard of care, compliance with state laws and local ordinances, and regulatory agency technical reviews, the mitigation measures . . . will reduce the risk of seismic hazards and ensure that impacts associated with development [of the] . . . Project area would remain less than significant.'" (*Id.* at p. 910.)

Oakland Heritage concluded that the EIR sufficiently addressed potential environmental impacts associated with seismicity. The court noted that the EIR "discussed the statutes and regulations aimed at increasing seismic safety." (*Oakland*

Heritage, supra, 195 Cal.App.4th at p. 907.) The EIR also "discussed the responsibilities of the engineers and building officials and the processes to ensure that site investigations, grading, and construction are completed in accordance with the laws designed to protect the public and property from the effects of earthquake shaking and ground failure." (*Id.* at pp. 908-909.)

Contrary to the County's assertions, the mitigation measure in *Oakland Heritage* is materially distinguishable from M-GHG-1. In *Oakland Heritage*, the delegation to staff was based on objective statutory standards. In contrast here, M-GHG-1 provides only a generalized goal of no increase or net zero GHG emissions, and then allows the Director to determine whether any particular offset program is acceptable based on unidentified and subjective criteria.

Deferred mitigation violates CEQA if it lacks performance standards to ensure the mitigation goal will be achieved. For example, in *CBE, supra*, 184 Cal.App.4th 70, the appellate court struck down deferred mitigation for GHG emissions reduction because the mitigation measure "merely propose[d] a generalized goal of no net increase in greenhouse gas emissions and then set[] out a handful of cursorily described mitigation measures for future consideration that might serve to mitigate the 898,000 metric tons of emissions resulting from the Project." (*Id.* at p. 93.) The mitigation measures were undefined, and "[t]he only criteria for 'success' of the ultimate mitigation plan" was "the subjective judgment of the City Council, which presumably will make its decision outside of any public process a year after the Project has been approved." (*Ibid.*) The mitigation plan in *CBE* violated CEQA because it "offered no assurance that the plan for

how the [p]roject's greenhouse gas emissions would be mitigated to a net-zero standard was both feasible and efficacious" (*Id.* at p. 95.)

M-GHG-1 violates CEQA in much the same ways as did the deferred mitigation plan addressed in *CBE*. As there, M-GHG-1 sets a generalized goal—no net increase or net-zero GHG emissions. And also like *CBE*, achieving that goal depends on implementing unspecified and undefined offset protocols, occurring in unspecified locations (including foreign countries), the specifics of which are deferred to those meeting one person's subjective satisfaction.

Endangered Habitats League, Inc. v. County of Orange (2005) 131 Cal.App.4th 777 (*Endangered Habitats*) is another instructive example of improper deferred mitigation. There, the EIR required an acoustical report to demonstrate structures were designed to meet noise standards "satisfactory to the manager of the county's building permit division." (*Id.* at pp. 793-794.) The Court of Appeal held this violated CEQA because it "does no more than . . . allow approval by a county department without setting any standards." (*Id.* at p. 794.)

Like the improper deferred mitigation plans in *CBE* and *Endangered Habitats*, M-GHG-1 contains no objective standards for determining whether any particular offset project is "available" and "financially feasible" in one location or another. Without any objective and measurable standard for what "feasible" onsite reductions consist of, M-GHG-1 provides no reasonable assurance that any onsite GHG reduction will actually occur.

This concern is not merely theoretical. The County has approved GPAs using GHG mitigation measures similar to M-GHG-1 that will use a staggering amount of offsite carbon credits. For example, the County-approved Newland Sierra project planned to mitigate 82 percent of its GHG emissions with offsite offsets.³¹

Especially troubling is that M-GHG-1 contains no objective standards for the Director to apply in determining whether offsets originating in foreign countries are real, permanent, verifiable, enforceable, and additional. As one commentator notes, the ordinary challenges in establishing that a domestic offset protocol meets these standards are magnified in foreign countries:

"The main motivation in encouraging offsets in developing countries is the enhancement of forests. The question becomes, what is the business-as-usual scenario in a situation when deforestation, the destruction of forests, is business as usual? If a lowering of the rate of deforestation is considered an emissions reduction, all that means is less trees are being cut down. This is a far cry from the [C]ARB's domestic Urban Forest Protocol using a performance standard of a net gain in trees. Until there is actually an increase in trees, the ability to remove carbon continues to decline and yet offsets can be rewarded." (*Ramo Offset, supra*, 20 Hastings W.-Nw. J. Env't'l L. & Pol'y at p. 149.)

The administrative record in this case echoes some of these same concerns, stating, "The complexity of the offset program . . . is certain to result in some inaccuracy, and potentially in fraud. These uncertainties are one of the reasons that CARB limits the use of offsets in the Cap-and-Trade program to no more than 8 [percent] of the total."

³¹ In March 2020, a majority of the electorate voted to repeal the Board of Supervisors' amendment of the General Plan associated with the Newland Sierra project.

However, under M-GHG-1, the Director's findings of unavailability and feasibility could allow a GPA applicant to offset all project GHG emissions through credits originating in foreign countries.

M-GHG-1 also entrusts to the "satisfaction of the Director" whether the proposed offset registry is "reputable" and the protocol being implemented by the registry is "consistent" with section 38562, subdivision (d)(1)—that is, whether the projected GHG reductions are "real, permanent, verifiable and enforceable." However, M-GHG-1 has no objective criteria for making such findings.³² In contrast, to ensure that GHG reductions are real, CARB requires the reduction be "a direct reduction within a confined project boundary." Thus, "[r]ecycling activities would not be eligible for offset credit as the recycling activities do not have a direct GHG reduction at the recycling facility. . . ." M-GHG-1 contains no similar standards. To ensure permanency, CARB requires there be "no opportunity for a reversal of the avoided emissions." This is implemented, for example, in CARB's forestry protocol, which requires sequestering carbon "for at least 100 years." But M-GHG-1 lacks any permanency criteria. To ensure emissions reductions are additional, CARB will not approve a protocol "for a project type that

³² At oral argument, the County asserted that objective criteria guides the Director's discretion under M-GHG-1 because there must be "sufficient credits"—i.e., an amount of carbon offsets to result in a GPA project having zero GHG emissions above the CAP. It is undoubtedly true that determining the amount of GHG reductions needed to obtain net zero is objective because it is a mathematical calculation. However, this begs the question whether the calculated GHG emissions reduction will actually be obtained. That is determined by the validity of the protocol being implemented, and M-GHG-1 does not require Assem. Bill No. 32 compliant protocols.

includes technology or GHG abatement practices that are already widely used."

However, M-GHG-1 contains no such objective criteria.

It is true that M-GHG-1 establishes a goal of no net increase above the CAP's GHG emission projections. However, courts have invalidated deferred mitigation measures having similar generalized goals that lack performance standards. (*CBE, supra*, 184 Cal.App.4th at p. 93 [no "net increase" in GHG emissions]; *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1118-1119 (*Gray*) [mitigation measure aimed at restoring water supplies governed only by generalized goal, not specific performance criteria]; *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 670 [measures intended to protect vernal pools relied on generalized goal and lacked specific performance criteria or standards].)

In defending M-GHG-1, the County asserts that CEQA permits shifting the responsibility to perform a mitigation measure to agency staff's discretion. The County contends the discretion given the Director under M-GHG-1 is similar to mitigation upheld in *California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173 (*California Clean*), *Mount Shasta Bioregional Ecology Center v. County of Siskiyou* (2012) 210 Cal.App.4th 184 (*Mount Shasta*), and *Gray, supra*, 167 Cal.App.4th 1099. However, these cases do not support the County's claims.

In *California Clean*, a city certified an EIR for a 234-acre shopping center. A mitigation measure required the developer to submit a market study and urban decay analysis for approval by the city's community development department (Department). (*California Clean, supra*, 225 Cal.App.4th at p. 193.) The appellate court held that the

mitigation measure properly delegated review and approval authority to the Department. However, the court held the measure violated CEQA by failing to specify actions required to alleviate urban decay. (*Id.* at pp. 193-195.) Similarly here, there is nothing inherently unlawful under CEQA by delegating M-GHG-1 determinations to the Director. The problem is that M-GHG-1 contains no objective criteria for exercising that discretion to ensure that the GHG emissions reduction goals are actually met.

In *Mount Shasta*, plaintiffs challenged an EIR for a project expanding an existing manufacturing facility. (*Mount Shasta, supra*, 210 Cal.App.4th at p. 190.) The Court of Appeal upheld noise mitigation measures that required postoperation acoustical testing if noise exceeded the level of significance (an increase of at least 3.0 dBA and an overall noise level above the applicable city or County standard). (*Id.* at p. 208.) However, unlike *Mount Shasta*, here M-GHG-1 contains no objective standard to govern the Director's discretion. Feasible means "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." (Guidelines, § 15364.) M-GHG-1 contains no objective criteria for the Director to apply in making these factual determinations.

M-GHG-1's lack of objective standards is well illustrated by comparing it to the mitigation measure in *Sierra Club, supra*, 6 Cal.5th 502. That case involved an EIR for a planned community of 2,500 homes. (*Id.* at p. 508.) A mitigation measure provided that HVAC units would be equipped with a catalyst if "reasonably available and economically feasible." (*Id.* at p. 525.) The Supreme Court held that mitigation measure passed CEQA muster because the EIR objectively defined "economically feasible" to mean costing less

than 10 percent of the base HVAC cost. (*Ibid.*) In contrast here, M-GHG-1 contains no objective standard of feasibility.

The County's reliance on *Gray, supra*, 167 Cal.App.4th 1099 is also untenable. There, to mitigate night light impacts, the EIR required that exterior lighting shall be designed and maintained "such that glare and reflections are contained within the boundaries of the parcel, and shall be hooded and directed downward and away from adjoining properties and public rights-of-way." (*Id.* at p. 1126.) The measure also prohibited blinking and flashing lights and provided that all light fixtures "shall be appropriate to the use they are serving in scale, intensity, and height." (*Ibid.*) The measure stated, "[A]ll exterior lighting will be designed, installed and operated as required by the Planning Director." (*Ibid.*) The Court of Appeal upheld the measure because the agency had committed itself to "specific performance standards"—that lighting be hooded and directed away from adjacent properties and towards the project site. (*Id.* at p. 1127.) M-GHG-1 is materially different because mitigation measures are based on the Director's private and subjective discretionary determinations.

In a related argument, citing *Sacramentans for Fair Planning v. City of Sacramento* (2019) 37 Cal.App.5th 698 (*Sacramentans*), the County also asserts that the Director's discretion under M-GHG-1 is "no greater" than the discretion afforded to the staff member in that case to determine that a housing project provided "a significant community benefit." However, the discretionary issue in *Sacramentans* was whether the

city's approval resulted from an unconstitutional delegation of legislative authority. (*Id.* at p. 716.) The case does not involve deferred mitigation.³³

The County also defends M-GHG-1's lack of objective standards by emphasizing that scientific knowledge in this area is constantly evolving. We agree that an agency should be encouraged to adopt flexible mitigation measures that can adapt as better technology becomes available (unless those changes increase the project's significant impacts). (See *Sierra Club, supra*, 6 Cal.5th at p. 524.) However, "the novelty of greenhouse gas mitigation measures is one of the most important reasons 'that mitigation measures timely be set forth, that environmental information be complete and relevant, and that environmental decisions be made in an accountable arena.'" (*CBE, supra*, 184 Cal.App.4th at p. 96.) Although "foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." (*Ibid.*)

The County's reliance on *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603 (*Native Plant*) is also unpersuasive. There, a project significantly impacted vernal pool habitat. (*Id.* at p. 610.) Mitigation measures included acquiring offsite habitat. (*Id.* at p. 612.) Project opponents asserted that the agency improperly deferred mitigation by failing to specify where offsite vernal pools might be acquired. (*Ibid.*) The Court of Appeal rejected that contention because the

³³ The CEQA issues in *Sacramentans* were whether (1) the regional transportation and emissions reduction plan were inadequate; and (2) the impact analysis improperly tiered to prior environmental impact reports. (*Sacramentans, supra*, 37 Cal.App.5th at p. 718.)

mitigation measure included objective criteria—replacement habitat in a specified ratio (2:1) to the habitat lost from the project. (*Id.* at pp. 621-622.) The case is inapposite because M-GHG-1 lacks objective criteria to ensure mitigation is effective.

Citing *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, the County also contends that "courts have upheld mitigation measures such as M-GHG-1 where a building official . . . must review and approve a plan or proposed implementation of a mitigation measure, essentially performing a mitigation monitoring function." However, this argument misses the target. The CEQA defect in M-GHG-1 is not that it allows one person—the Director—to make discretionary decisions. The problem is M-GHG-1 lacks objective criteria to ensure the Director's exercise of that discretion will result in GHG reduction that is real, permanent, quantifiable, verifiable, enforceable, and additional. Unlike M-GHG-1, the mitigation measure in *Gentry* was "subject to a host of specific performance criteria imposed by various ordinances, codes, and standards, as well as other mitigation conditions." (*Id.* at p. 1395.)

F. *The Effect of M-GHG-1's Invalidity on the CAP*

After determining that M-GHG-1 was invalid under CEQA, the superior court also held the CAP was invalid because it "expressly incorporated" M-GHG-1 by reference. As explained *ante*, we read the CAP differently because M-GHG-1 is not a CAP GHG emission reduction measure for GPU-consistent projects, but rather is a mitigation measure for GPAs in the SEIR. Nevertheless, we too conclude that the CAP is tainted by M-GHG-1, albeit on somewhat different grounds.

The CAP contains in-County GHG projections for 2020, 2030, and 2050. Those projections perform important CEQA functions by (1) informing the public of the total GHG emissions to be expected if the CAP is implemented; and (2) determining the extent to which a GPU-consistent project must eliminate or reduce GHG emissions to be within the threshold of significance.

These projections exclude forecasted GHG emissions from future GPAs and in-process GPAs that the County had not adopted by August 2017. The CAP excludes these on the assumption that in-process and future GPAs will mitigate GHG emissions above the CAP to zero under M-GHG-1. Because M-GHG-1 is invalid, there is no factual basis for that assumption. Accordingly, to this extent the CAP's finding that in-process and future GPAs would not result in significant GHG impacts is not supported by substantial evidence.

G. The SEIR Discloses M-GHG-1's 30-Year Shelf Life

Golden Door contends that the CAP and SEIR are misleading because they do not disclose that M-GHG-1 requires offsets for only 30 years, after which "any purported GHG reductions from offset credits vanish, and the County's ability to meet GHG targets worsens significantly." However, the SEIR states, "M-GHG-1 . . . requires GPAs that increase density or intensity above the 2011 GPU to offset additional (Option 1) or all (Option 2) GHG emissions for a 30-year period." The SEIR also explains that a 30-year

project life is "consistent with the 30-year project lifetime frame used by the South Coast Air Quality Management District's GHG guidance (SCAQMD 2008)."

III.

CUMULATIVE IMPACTS

A. Additional Background

The SEIR identifies 21 GPAs. These include Newland Sierra (2,135 dwelling units), Otay 250 (up to 3,158 dwelling units), and Otay Ranch Village 14 (1,119 dwelling units).³⁴

The SEIR acknowledges that these in-process GPAs "are reasonably foreseeable [and] have sufficient detail and plans to understand the changes in land use conditions that are proposed" The SEIR also acknowledges that these GPAs are "probable future projects that when combined with the [P]roject, could result in a cumulatively considerable effect." The SEIR addresses cumulative GHG impacts from these GPAs by requiring them to mitigate under M-GHG-1. The issue here is whether CEQA requires analysis of cumulative impacts from in-process GPAs other than, and in addition to, their projected GHG emissions.

Although conceding that "[t]he SEIR properly finds that GPAs are reasonably foreseeable," the County claims no additional cumulative impacts analysis is required because (1) "the parameters of those projects remained highly speculative"; and (2) the

³⁴ Sierra Club's request for judicial notice of the County's plans for review and approval of the Otay Ranch Village 14 GPA, and that project's draft EIR is denied as irrelevant. (*SDOG, supra*, 13 Cal.App.5th at p. 90, fn. 8.)

County did not know whether the in-process GPAs would rely on carbon offsets, "and if so, whether that reliance would . . . result in other impacts such as air quality, noise, energy, or transportation" For the first time in its reply brief, the County further contends that even if in-process GPAs would "vastly increase GHG emissions, energy impacts, and air emissions through unaccounted VMT increases," there is no harm because "[t]he CAP would reduce GHG emissions and related air quality and energy impacts compared to conditions without the CAP."³⁵

B. Cumulative Impacts and the Standard of Review

A cumulative impact is one "created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts". (Guidelines, § 15130, subd. (a)(1).) "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects." (*Id.*, § 15355, subd. (b).)

Environmental impacts of probable future projects must be analyzed because "consideration of the effects of a project or projects as if no others existed would encourage the piecemeal approval of several projects that, taken together, could

³⁵ Also for the first time in its reply brief, the County claims that the SEIR analyzed air quality emissions from "reasonably foreseeable" GPAs "based on their location and proposed mix of uses" However, by not raising these arguments in its opening brief, the County has forfeited them. (*Doe, supra*, 173 Cal.App.4th at p. 1115.) Applying forfeiture is especially appropriate because in the opening brief, the County took a contrary position, asserting that no cumulative impact analysis beyond GHG emissions was required.

overwhelm the natural environment and disastrously overburden the man-made infrastructure and vital community services. This would effectively defeat CEQA's mandate to review the actual effect of the projects upon the environment." (*Las Virgenes Homeowners Fed'n v. County of L. A.* (1986) 177 Cal.App.3d 300, 306.) The agency must interpret this requirement to " 'afford the fullest possible protection of the environment.' " (*Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 868 (*Eel River*).

An EIR must analyze cumulative impacts of a project when the project's incremental effect is cumulatively considerable. (Guidelines, § 15130, subd. (a); *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1214 (*Bakersfield Citizens*)). Moreover, if a mitigation measure would itself create new significant environmental impacts, these too must be discussed, "though in less detail than required for those caused by the project itself." (*Forest Foundation, supra*, 17 Cal.App.5th at p. 432.)

Even where, as here, a program EIR is involved, "[t]he fact more precise information may be available during the next tier of environmental review does not excuse [the agency] from providing what information it reasonably can now. [Citation.] Moreover, if known impacts are not analyzed and addressed in a program EIR, they may potentially escape analysis in a later-tier EIR." (*Forest Foundation, supra*, 17 Cal.App.5th at p. 440.) "If, on the other hand, the cumulative impact is insignificant or if the project's incremental contribution to the impact is not cumulatively considerable, the lead agency is not required to conduct a full cumulative impacts analysis, but the EIR

must include a brief explanation of the basis for the agency's finding(s)." (*San Francisco Baykeeper, Inc. v. State Lands Com.* (2015) 242 Cal.App.4th 202, 222 (*SF Baykeeper*).

" 'We review an agency's decision regarding the inclusion of information in the cumulative impacts analysis under an abuse of discretion standard. "The primary determination is whether it was reasonable and practical to include the projects and whether, without their inclusion, the severity and significance of the cumulative impacts were reflected adequately." ' " (*Rodeo Citizens Assn. v. County of Contra Costa* (2018) 22 Cal.App.5th 214, 231 (*Rodeo Citizens*).

C. The SEIR's Cumulative Impacts Analysis Fails Because It Does Not Address Impacts by GPAs Mitigating GHG Emissions under M-GHG-1

When conducting a cumulative impacts analysis, an agency must include closely related projects that are currently under environmental review. This is because once review is begun, a significant investment of time, money, and planning has probably occurred. Thus, once an EIR is initiated, the project is probable rather than merely possible. (*Eel River, supra*, 108 Cal.App.4th at p. 870.)

For example, in *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61 (*SFRG*), the agency considered a proposal to construct high-rise downtown office buildings. (*Id.* at p. 67.) As part of its cumulative impacts analysis, the agency considered the amount of new office space that would be added to the area by other approved projects. (*Id.* at p. 68.) Project opponents asserted that the agency violated CEQA by failing to consider projects then under environmental review. (*Id.* p. 74.) The Court of Appeal agreed, stating, "Because projects under

environmental review . . . could easily have been ascertained by the [agency] from its own records, there was no practical or reasonable barrier to their disclosure and inclusion in the analyses. . . . The only reason we can infer for the [agency's] failure to consider and analyze this group of projects was that it was more expedient to ignore them." (*Ibid.*)

Elaborating, the appellate court stated:

"First, experience and common sense indicate that projects which are under review are ['reasonably] foreseeable probable future projects. . . .' Ordinarily an office building project that is awaiting environmental approval has reached a stage of development where the developer, financial institutions, and contractors almost certainly view its construction to be a very real probability, and not without reason. Such a view is doubtless shared by those performing the environmental review and preparing the EIR.

"Second, we find it illogical that an EIR should carefully evaluate the direct impacts of one project which is 'under environmental review,' but completely ignore the cumulative impacts of that project's siblings in the same category. Nothing makes the EIR's subject project more 'probable' or 'foreseeable' than any of the other projects under review, just as nothing makes them less so." (*SFRG, supra*, 151 Cal.App.3d at p. 75.)

Here, the 21 in-process GPAs, if constructed, would collectively add nearly 14,000 dwelling units in the unincorporated County. The EIRs for just five of these disclose they will collectively produce 139,485 MTCO_{2e} in construction-related GHG emissions alone.³⁶ However, the SEIR does not analyze these cumulative impacts—except by stating that in-process GPAs will mitigate to zero above the CAP under M-GHG-1.

³⁶ One hundred thirty nine thousand four hundred eighty five MTCO_{2e} is equivalent to about one year of GHG emissions from 30,000 combustion engine cars.

These in-process GPAs are closely related projects currently under environmental review. They are closely related because the CAP and SEIR address GHG emissions reduction in the unincorporated County and from County operations, and the GPAs will create GHG emissions in this same geographic area. These GPAs are in the process of environmental review by the County as lead agency. Accordingly, the SEIR should have considered whether these GPAs (listed in Table 1-3 of the SEIR) would create cumulatively considerable impacts in addition to GHG impacts in combination with the Project.³⁷ As Golden Door correctly notes, cumulative impacts from adding 14,000 dwellings and related infrastructure in projects utilizing M-GHG-1 (and, therefore, using offsite carbon offsets to mitigate their in-County GHG emissions) would likely include impacts to air quality, energy, and vehicle miles traveled, among others. "The absence of this analysis makes the [S]EIR an inadequate informational document." (*Eel River, supra*, 108 Cal.App.4th at p. 872.)

The County contends that analyzing cumulative impacts (in addition to GHG impacts) from in-process GPAs requires an inappropriate level of detail for the SEIR. However, the detail required for a cumulative impact analysis is based on reasonableness and practicality. (*Rodeo Citizens, supra*, 22 Cal.App.5th at p. 231.) In this case, the SEIR admits that the in-process GPAs are "reasonably foreseeable [and] have sufficient detail and plans to understand the changes in land use conditions that are proposed."

³⁷ SEIR Table 1-3 contains "the complete list of GPAs" that were under County review as of August 2017.

Despite knowing that (1) these probable GPAs would add some 14,000 homes, and (2) these projects would implement M-GHG-1 by using offsite carbon offsets—the County did not analyze *any* of their cumulative impacts apart from GHG emissions (which the SEIR concluded would be mitigated to zero above the CAP.) The problem here is not a lack of detail about a cumulative impact considered; the CEQA defect is the failure to analyze any such cumulative impact at all.

The County does not explain how the GPAs could be probable and foreseeable enough to create cumulatively considerable GHG impacts, but not probable and foreseeable enough to create, for example, vehicle miles traveled impacts from projects expected to add 14,000 new homes to the backcountry. Of course, if a potential cumulative impact is insignificant, the lead agency is not required to conduct "a full cumulative impacts analysis," but must explain the basis for the finding of insignificance. (*SF Baykeeper, supra*, 242 Cal.App.4th at p. 222.) However, the SEIR also fails to engage in that analysis.

The County also defends its failure to analyze these cumulative impacts by asserting, "CEQA does not require the SEIR to speculate about whether the County would approve pending project applications or the conditions imposed should the County approve them." Citing *Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011 (*Sacramento Old City*) and *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1018 (*Environmental Council of Sacramento*), the County asserts that "[e]ven though applications for GPAs existed . . . the parameters of those projects remained highly speculative." The County

claims it did not know of changes that might be made "during the public process, whether the future and proposed projects would rely on carbon offsets, and if so, whether that reliance would . . . result in other impacts such as air quality, noise, energy, or transportation." The County repeated this at oral argument, noting that after the County certified the SEIR, the general plan amendment for one of the in-process GPAs was set aside by referendum.

However, the SEIR itself contradicts the claim that the GPAs were too speculative. Table 1-3 of the SEIR contains a list of "past, present, and *probable* future projects that when combined with the [P]roject could result in a cumulatively considerable effect." (Italics added.) Moreover, the County's reliance on *Sacramento Old City* and *Environmental Council of Sacramento* for the opposite conclusion is unavailing. In both cases, the future projects were not then in *any* stage of development. In *Sacramento Old City*, plaintiffs challenged an EIR for a project expanding a convention center and constructing an office tower. (*Sacramento Old City, supra*, 229 Cal.App.3d at p. 1016.) Among other things, the EIR determined that an additional 2,621 parking spaces would be needed. (*Id.* at p. 1020.) Plaintiffs argued that mitigation measures to accommodate the 2,600 parking space deficit would include constructing new downtown parking lots, erecting a large parking garage, or shuttling hundreds of people from outlying parking areas—all of which in themselves would create substantial cumulative environmental impacts that must be analyzed in the EIR, but were not. (*Id.* at p. 1030.) The Court of Appeal rejected that contention, stating, " 'prophecy' is not required in an EIR" and "[n]or

do we require discussion in the EIR of specific future action that is merely contemplated or a gleam in the planner's eye." (*Id.* at p. 1031.)

Environmental Council involved a habitat conservation plan and implementation agreement for protecting hawks and snakes in a 53,537 acre basin. (*Environmental Council of Sacramento, supra*, 142 Cal.App.4th at p. 1023.) The conservation plan established a program to minimize and mitigate the expected loss of habitat and incidental killing of covered species that could result from authorized urban development of 17,500 acres. (*Id.* at p. 1025.) Subsequently, the city and county adopted a memorandum of understanding (MOU) outlining an approach for future agreements regarding land use in the basin. (*Id.* at pp. 1029-1030.) The MOU did not approve development nor involve any specific development proposals. (*Id.* at p. 1030.) No funds were committed under the MOU, and the MOU did not change any existing land use requirements but rather contemplated further discretionary approvals and environmental review. (*Ibid.*) A federal court described the MOU as "tentative" and stated that development under the MOU "was not reasonably certain to occur" (*Ibid.*) The plaintiffs in *Environmental Council* asserted that CEQA required the agencies to consider cumulative impacts from the MOU. (*Id.* at pp. 1028-1029.) The Court of Appeal rejected that argument because the MOU involved "unspecified and uncertain development that might be approved in the future" and "[f]ar too little is known about the scope, the location, or the types of projects that might be proposed in the future" (*Id.* at p. 1032.)

In sharp contrast here, the in-process GPAs were well beyond the initial planning stages. The County knew the scope, location, types of projects being proposed and, in some cases, even specific amounts of GHG emissions that would be mitigated with offset credits originating out of County. In the superior court, the County filed a declaration by one of its planning managers, who authenticated excerpts from the Lake Jennings Marketplace EIR. That EIR requires the applicant to purchase 2,708 MTCO_{2e} in offset credits before the first grading permit is issued and another 71,880 MTCO_{2e} of credits before the first certificate of occupancy is issued. In the same declaration, the planning manager also authenticated EIR excerpts of five other in-process GPAs with similar GHG mitigation measures. As summarized in the table *post*, these in-process GPAs will mitigate GHG emissions by purchasing listed amounts of offset credits, almost certainly originating outside the County:

Project	EIR date	Offset Provision Summary
Newland Sierra ³⁸	Draft EIR circulated June 2017.	Requires carbon offsets for approximately 82 percent of its GHG emissions. Allows international offsets.
Warner Ranch	Draft EIR circulated December 2016.	Requires purchasing 2,413 MTCO _{2e} in annual carbon offsets.
Harmony Grove Village South	Draft EIR in April 2017, revised in February 2018.	Requires 4,411 MTCO _{2e} in offset credits before issuance of the first grading permit and thereafter 5,222 annually; allows international offsets.

³⁸ The administrative record contains public communications stating that the Newland Sierra project includes a GPA that would add over 2,100 homes in an area zoned for only 99 homes in the GPU and is six miles from the nearest public transit center.

Valiano	Final EIR published in February 2018.	Requires offset credits up to 6,123 MTCO ₂ e to mitigate construction-related GHG emissions and 4,493 annually for operational GHG emissions.
Otay 250	Final EIR published in March 2018.	Even with onsite mitigation, the project will result in 37,554 MTCO ₂ e that may be mitigated with offsets, including internationally.

As lead agency, the County had access to these EIRs and, therefore, was not required to speculate about their contents. The County knew or reasonably should have known that these GPAs would almost certainly be purchasing out-of-County credits to offset in-County GHG emissions. Accordingly, the SEIR was required to consider whether these GPAs and others like them would lead to significant cumulative impacts in combination with the Project.

In a related argument, the County urges that cumulative impact analysis should be deferred until project-specific environmental review of each of the GPAs. However, in *Forest Foundation*, this court rejected a similar argument, stating: " 'Designating an EIR as a program EIR . . . does not by itself decrease the level of analysis otherwise required in the EIR. [I]n considering a challenge to a program EIR, 'it is unconstructive to ask whether the EIR provided "project-level" as opposed to "program-level" detail and analysis. Instead, we focus on whether the EIR provided "decisionmakers with sufficient analysis to intelligently consider the environmental consequences of [the] project.' "

(*Forest Foundation, supra*, 17 Cal.App.5th at p. 426.)

In sum, the SEIR's cumulative impact analysis is inadequate because it fails to address reasonably known cumulatively considerable impacts from probable GPAs utilizing M-GHG-1 to mitigate GHG emissions by purchasing out-of-County offsets.³⁹

IV.

THE SEIR'S FINDING OF CONSISTENCY WITH THE REGIONAL TRANSPORTATION PLAN IS NOT SUPPORTED BY SUBSTANTIAL EVIDENCE

A. Senate Bill No. 375—Background

In 2008, the Legislature enacted the Sustainable Communities and Climate Protection Act (Stats. 2008, ch. 728, § 1; Stats. 2009, ch. 354, § 5), commonly known as Senate Bill No. 375 (Sen. Bill No. 375), to reduce GHG emissions through improved land use and transportation planning. Sen. Bill No. 375's findings and legislative declarations, quoted in part below, emphasize the necessity for changed land use patterns and improved transportation to meet Assem. Bill No. 32 goals:

"(a) The transportation sector contributes over 40 percent of the greenhouse gas emissions in the State of California; automobiles and light trucks alone contribute almost 30 percent. The transportation sector is the single largest contributor of greenhouse gases of any sector. [¶] . . . [¶]

"(c) Greenhouse gas emissions from automobiles and light trucks can be substantially reduced by new vehicle technology and by the increased use of low carbon fuel. However, even taking these measures into account, it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. *Without improved land use and transportation policy, California will not be able to achieve the*

³⁹ Our analysis assumes without deciding that the GHG mitigation measure(s) in EIRs for these in-process GPAs is/are lawful. Those projects are not before us and we express no opinion on that issue.

goals of AB 32." (Gov. Code, § 14522.1 [Section 1 of Stats. 2008, ch. 728 [Sen. Bill No. 375]], italics added.)

Under Sen. Bill No. 375, CARB must develop region-by-region emission reduction targets for automobiles and light trucks for 2020 and 2035. (Gov. Code, § 65080, subd. (b)(2)(A).) "The targets set by CARB for the San Diego region, using a 2005 baseline, require a 7 percent per capita reduction in greenhouse gas emissions by 2020 and a 13 percent per capita reduction by 2035." (*Cleveland National, supra*, 3 Cal.5th at p. 506.)

Metropolitan planning organizations (MPOs) are also involved in implementing Sen. Bill No. 375. MPOs are federally required organizations comprised of representatives of local government, transportation agencies, and state officials. (23 U.S.C. § 134.) The San Diego Association of Governments (SANDAG) is the MPO for the San Diego region.

Under Sen. Bill No. 375, each MPO must draft and adopt a Sustainable Communities Strategy (SCS) as part of its regional transportation plan (RTP). (Gov. Code, § 65080, subd. (b)(2)(B).) CARB reviews and either approves or rejects each SCS. (*Id.*, subd. (b)(2)(J)(ii).)

An SCS establishes how planned land uses and transportation projects will achieve CARB's GHG reduction targets. These include "a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emission

reduction targets approved by [CARB]" (Gov. Code, § 65080, subd. (b)(2)(B)(vii).)

An SCS must also (1) assess how to provide housing for all income levels of the regional population, projected eight years into the future; and (2) identify a transportation network to service the region's transportation needs. (*Id.*, subd. (b)(2)(B)(iii) & (iv).)

"The reductions mandated by [Sen. Bill No. 375] may be achieved through a variety of means, including 'smart growth' planning to maximize building densities at locations served by public transit and to locate residences near needed services and shopping to reduce automobile dependency.^[40] Other means include shifting investment toward mass transit, changing transportation pricing, and encouraging car sharing, walking, and biking." (*Cleveland National, supra*, 3 Cal.5th at p. 506.)

Because the RTP must be internally consistent, the housing needs analysis and the reductions in GHG emissions must work together to achieve the stated goals. (Gov. Code, § 65080, subd. (b) ["The [RTP] shall be an internally consistent document"].) However, the SCS is not the equivalent of a general plan. The SCS does not directly require local government to take particular actions in planning, regulating, and permitting land development. (Gov. Code, § 65080, subd. (b)(2)(K) ["Nothing in a[n SCS] shall be interpreted as superseding the exercise of the land use authority of cities and counties within the region."].)

⁴⁰ Smart growth means "compact, efficient, and environmentally sensitive pattern of development that focuses future growth away from rural areas and closer to existing and planned job centers and public facilities, while preserving open space and making more efficient use of existing urban infrastructure."

Sen. Bill No. 375 requires the California Transportation Commission to establish guidelines for an MPO to use in developing an RTP. (Gov. Code, § 14522.1, subd.

(a)(1).) These guidelines must take VMT into account:

"(b) The guidelines shall . . . account for all of the following:

"(1) The relationship between land use density and household vehicle ownership and vehicle miles traveled in a way that is consistent with statistical research.

"(2) The impact of enhanced transit service levels on household vehicle ownership and vehicle miles traveled." (Gov. Code, § 14522.1, subd. (b)(1) & (2).)

However, under Sen. Bill No. 375, a combination of factors and methodologies may be used to achieve GHG reduction targets. Each percentage reduction in GHG emissions assigned to a particular MPO does not require that same percentage reduction in VMT. (Gov. Code, § 65080, subd. (b)(2)(A)(i).)

B. *SANDAG's Regional Plan*

As part of its mandate under Sen. Bill No. 375, SANDAG's target is to reduce the region's per capita GHG emissions from cars and light trucks by 7 percent by 2020 (when compared with a 2005 baseline), and 13 percent by 2035. To achieve these goals, SANDAG developed an SCS as part of its RTP (Regional Plan).

The Regional Plan is organized around five strategies: (1) focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure, including transit; (2) preserve sensitive habitat, open space, cultural resources, and farmland; (3) establish a transportation network that reduces GHG

emissions; (4) address housing needs of all economic segments of the population; and (5) implement the regional plan through incentives and collaboration.

1. *Housing*

The Regional Plan states, "Land use decisions made at the local level can impact nearly all sources of emissions Development guided by smart growth principles—remember: more compact communities, less suburban sprawl—brings people closer to more destinations. It also encourages alternative travel choices, such as public transit, carpooling, walking and biking, which cut greenhouse gas emissions and other forms of pollution."

The Regional Plan notes that "[d]uring the last 15 years, our jurisdictions have changed their land use plans significantly, resulting in development patterns that concentrate future growth in urbanized areas, reduce sprawl, and preserve more land for open space and natural habitats." SANDAG states these were "seismic shifts" in thinking about how to grow. The Regional Plan concludes that the "long-term plans for our local cities and the County of San Diego now call for focusing new growth in the urbanized areas of the western portion of our region where more people already live." By designing communities that better integrate land use and transportation, the Regional Plan seeks to "create more opportunities for developing a wider variety of travel choices beyond the car"

SANDAG forecasts that the San Diego region will continue to grow more sustainably. "More compact and efficient communities, paired with a greater variety of transportation options and less sprawl, will result in preserved open space and habitat,

and a more efficient use of water and energy." New housing should be located "in urban communities close to jobs and transit."

"While the western areas will grow over time through more compact communities, more land in the eastern two-thirds of the region will be preserved as open space." The Regional Plan encourages local jurisdictions in the region "to continue to embrace smart growth and sustainable development" because "new growth and development in the most urbanized areas of the region is a key strategy toward sustainability."

Sen. Bill No. 375 requires that areas be identified within the region sufficient to house the region's entire population over the course of the planning period. The Regional Plan forecasts needing 325,000 additional homes. The Regional Plan states that "[n]ew housing should be located in urban communities close to jobs and transit." SANDAG projects that 82 percent of homes to be built by 2050 will be attached multifamily units mostly located where the greatest investments in public transit are being made. Approximately 55 percent of the region will be preserved as open space and parks, habitat, or farmland.

2. Transportation

The "heart" of the Regional Plan is an SCS that "charts a course toward lower GHG emissions related to cars and light trucks, and proposes other measures to make the San Diego region more environmentally sustainable." The SCS focuses on transportation because "about a third of GHG emissions generated in this nation come from that sector alone." Transportation is also the largest source of GHG emissions in the region. In 2012, passenger cars and light trucks comprised 37 percent of the region's GHG

inventory. Although the transportation sector is responsible for the greatest GHG reductions (nearly 30 percent of the total), most of those reductions will come from higher fuel efficiency vehicles (18 percent) and a more diverse fuel mix (low carbon fuel standards) (9 percent). Statewide regional transportation plans are responsible for less than three percent of the GHG reductions.

SANDAG states that its Regional Plan will exceed its CARB targets "[b]y . . . using land in ways that make developments more compact, conserving open space, and investing in a transportation system that provides people with alternatives to driving alone." "Reducing the number of miles that people travel in their cars is an important goal." "Fuel efficiency improvements and alternatives also comprise a major part of" planned GHG emission reductions from the transportation sector.

The Regional Plan states that it will exceed CARB's goals, resulting in a 15 percent per capita reduction in emissions by 2020, and a 21 percent per capita reduction by 2035—"far more than what the state mandates require" Approximately half of the reductions would result from "investment in transit projects and their operations, managed lanes, active transportation projects" and measures "that support . . . working from home or telecommuting." "About one-quarter of the reductions are estimated from changing land use and population characteristics, while another quarter are projected from increases in the cost of driving"

C. The SEIR's Discussion of Consistency with Sen. Bill No. 375

1. The CAP

The SEIR states that the Project is consistent with the Regional Plan and with Sen. Bill No. 375. With respect to the CAP, the SEIR states that GHG reduction measure T.2.1 would "implement traffic calming measures," and measure T.2.2 would require private employers to adopt a transportation demand management program.⁴¹ Measure T-2.3 reduces County employee VMT by 20 percent by 2030. Parking restrictions in measure T-2.4 reduce VMT by 10 percent by 2030. The SEIR concludes that "[a]dditional supporting efforts for the built environment and transportation category" in the CAP "would also encourage efforts to support the goals and policies of Sen. Bill No. 375 and the [Regional Transportation Plan]/SCS." The CAP's numerous GHG reduction measures will contribute 13 percent of GHG reductions needed to meet the 2030 target and 8 percent of the GHG reductions estimated for 2050. These include

⁴¹ Measure T-2.1 seeks to reduce VMT by making pedestrian and bicycle trips "a more comfortable and safer experience when traveling along public roads. Specific improvements may include marked crosswalks, countdown signal timers, speed humps, and protected bikeways. Measure T-2.2 states it will reduce emissions from commute VMT in new nonresidential development by 15 percent by 2030 by amending the County Code to include a Transportation Demand Management Ordinance requiring measures such as telecommuting, car sharing, vanpools, carpools, shuttle service, bicycle parking facilities, and transit subsidies.

(1) reducing VMT by acquiring open space, agricultural easements, and updating community plans; (2) using alternative fuels in County projects and installing electric vehicle charging stations; and (3) establishing a local direct investment program.

Summarizing its strategy to reduce VMT, the CAP states:

"The county's largest unincorporated communities are located in the western areas of the county, with access to water, sewer, roads, schools, and other public facilities. Focusing new development in and around existing unincorporated communities allows the County to maximize existing infrastructure

"This strategy focuses on preserving open space and agricultural lands, and focusing density in the county villages. Conservation efforts will avoid GHG emissions from transportation and energy use associated with conveyance of water and solid waste service. Reductions in Vehicle Miles Traveled (VMT) resulting from this strategy will also improve air quality through reduced vehicle emissions and contribute to public health improvements by creating opportunity for active transportation choices."⁴²

The SEIR also concludes that the CAP is consistent with the Regional Plan's VMT projections. The SEIR explains this is because the County provided SANDAG land use forecasts based on the GPU. SANDAG, in turn, used these forecasts to make VMT projections that achieve Sen. Bill No. 375 targets. The CAP uses these same VMT forecasts for the GHG reduction measures. The SEIR concludes that the CAP's GHG inventory is consistent with SANDAG's VMT projections, since both are based on projected build-out under land uses allowed under the GPU.

⁴² "Active transportation choices" includes any method of travel that is human powered, such as walking and bicycling.

The SEIR acknowledges the "disproportionality" between the percentage of GHG emissions attributable to the transportation sector (45 percent) and the lower percentage of GHG emissions reductions attributable to CAP GHG reduction measures (13 percent). The SEIR explains that disparity is the unavoidable result of the unincorporated county's "low-density development" and "intervening distance between land uses."

2. *M-GHG-1*

The SEIR acknowledges that "several comments question how . . . M-GHG-1 . . . addresses the consistency of future projects proposing a [GPA] with Sen. Bill No. 375." The SEIR states that such projects "have the potential to result in a significant cumulative GHG impact because they may adversely affect the ability of the CAP to meet its targets and goal" Nevertheless, the SEIR explains that M-GHG-1 is consistent with Sen. Bill No. 375 and the Regional Plan because (1) it is the GPA applicant's responsibility (not the County's) to determine how the GPA affects VMT projections and the region's ability to meet Sen. Bill No. 375 targets; and (2) it would be "speculative" to "presuppose approval of future and proposed GPA projects, including the GHG emissions and VMT from these future projects. The SEIR concludes, therefore, that "M-GHG-1 would ensure that GPAs are mitigating their emissions such that they would not conflict with the Regional Plan and Sen. Bill No. 375 targets"

D. The Plaintiffs' and the Amicus Attorney General's Contentions

Plaintiffs contend that "[t]he CAP, via M-GHG-1, creates a 'pathway' for future GPAs to mitigate their emissions through the purchase of out-of-county carbon offsets, in direct contradiction of Sen. Bill No. 375's instruction to reduce emissions from land use

development and transportation patterns." In a related argument, Plaintiffs assert that "the SEIR does not fully address how facilitating sprawl development and increased VMTs by authorizing out-of-County offsets would be consistent with the [Regional Plan]."

Appearing as amicus curiae, the Attorney General amplifies these arguments, noting that one of the GPAs, Harmony Grove Village South, will increase VMT by 11.5 million miles annually.⁴³ Like Plaintiffs, the Attorney General asserts that the SEIR fails as an informative document because "the SEIR does not even acknowledge that [M-GHG-1] will foreseeably result in increased VMT, let alone provide a complete analysis of its consistency with the SANDAG Plan."

E. The Consistency Finding is Not Supported by Substantial Evidence

1. Introduction

The SEIR concludes that M-GHG-1 is consistent with the Regional Plan and Sen. Bill No. 375 targets, stating: "[I]ncorporation of M-GHG-1 would ensure that GPAs are mitigating their emissions such that they would not conflict with the Regional Plan and Sen. Bill No. 375 targets" Plaintiffs challenge this finding, asserting it is not supported by substantial evidence and that as a result, the SEIR fails as an informational document. We agree.

⁴³ The Attorney General filed an amicus curiae brief under California Rules of Court, rule 8.200(c)(7).

An EIR must "discuss any inconsistencies between the proposed project and . . . regional plans" including "regional transportation plans." (Guidelines, § 15125, subd. (d).) This determination must be supported by substantial evidence. (See *Oakland Heritage, supra*, 195 Cal.App.4th at p. 898.) "In reviewing the record for substantial evidence, we presume the agency's findings are correct and resolve all conflicts and reasonable doubts in favor of the findings." (*Citizens for Positive Growth & Preservation v. City of Sacramento* (2019) 43 Cal.App.5th 609, 629.) Substantial evidence in a CEQA case is "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. . . . Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." (Guidelines, § 15384, subds. (a) & (b).)

2. *The SEIR's consistency finding is not supported by substantial evidence*

a. *Improper analysis of GPAs*

The SEIR's consistency finding is flawed because it makes unwarranted conclusions about GHG impacts from GPAs. For example, the SEIR states that projected GHG emissions from GPAs would be consistent with the Regional Plan because "the County provided SANDAG land use forecasts based on the GPU, which SANDAG then incorporated into the adopted Regional Plan" to create VMT projections that "align with the 2011 GPU." The defect in this analysis is that by definition, land uses allowed under the GPU do not include GPAs (which increase density or intensity of use beyond that

allowed under the GPU). Thus, if VMT projections are based on GPU land uses (as the County claims), then necessarily those projections *exclude* VMT from in-process GPAs.

The County makes a similar error in contending that CAP GHG reduction measures will reduce VMT as contemplated in the Regional Plan. The CAP's GHG emission forecasts are based on land use allowed under the GPU only and *assume* that in-process and future GPAs will mitigate GHG emissions to zero above CAP projections under M-GHG-1. Therefore, the fact that the CAP itself is consistent with VMT reductions in the SCS does not support a finding that VMT impacts by in-process and future *GPAs* will be consistent with the Regional Plan.

b. *The County's GPA arguments are misleading*

Not only does the County make unwarranted conclusions about GHG impacts from GPAs, but when the County does address VMT impacts from GPAs, its arguments are misleading. For example, the County contends that the "SEIR also includes projected GHG emissions from [GPAs] approved through the time of the draft SEIR and reasonably foreseeable [GPAs] . . . which captured in broad strokes the GHG from VMT associated with these cumulative projects." However, the CAP's GHG projections include emissions only from those GPAs that the County had *adopted* between August 2011 and August 2017. In other words, those GHG projections *exclude* emissions from the 21 in-process GPAs. The County's assertion that the SEIR includes GHG emissions from "reasonably foreseeable" GPAs is true only if "reasonably foreseeable" *excludes* in-process GPAs. Yet in its opening brief, the County concedes that in-process GPAs are "reasonably foreseeable."

In a related argument, the County states that GPU policies designed to reduce VMT also apply to GPAs. However, this too is misleading. Measures to reduce GHG emissions for projects with land use consistent with the GPU are found in the CAP. To the extent GPAs increase density or intensity of land use beyond that allowed under the GPU, those projects do not mitigate GHG emissions under the CAP, but rather under M-GHG-1. Indeed, in arguing that the CAP is consistent with the GPU, the County insisted on this very point—that "GPAs are not part of the project emissions of the CAP because they are part of the cumulative impact analysis in the SEIR." Therefore, the County's assertion—that GPU policies designed to reduce VMT also apply to GPAs—is true only to the limited extent that the GPA project's proposed land use is consistent with the GPU.

The County also contends substantial evidence supports the SEIR's consistency finding because "future General Plan amendments are not part of the Project" However, the CAP is part of the Project—and the CAP's GHG emission projections assume that in-process and future GPAs will implement M-GHG-1 to mitigate GHG emissions to zero above CAP GHG targets.

c. The consistency finding is properly considered

Last, the County makes several arguments in an attempt to remove the entire issue of consistency with the Regional Plan from the case.

First, the County contends Plaintiffs' argument improperly "conflate[s] VMTs with GHG emissions." However, "Generally, vehicle miles traveled is the most appropriate measure of transportation impacts." (Guidelines, §15064.3, subd. (a).) At oral argument,

the County also asserted that VMT is "just coming into play." However, VMT has often been used in California's regulation of air quality and GHG impacts:

"California legislation related to air pollution began to refer to vehicle miles traveled measurements of traffic flows in the context of travel demand management in the 1990s. In 1988, enactment of [Assem. Bill No. 4420] (Sher) directed the California Energy Commission to study the potential impacts of global climate change on the state, including its transportation system.[] The Energy Commission's 1991 report, *Global Climate Change: Potential Impacts and Policy Recommendation*, suggested a broad range of policies and strategies for reducing greenhouse gases.[] The eighth of the Energy Commission's recommended strategies was 'Reducing vehicle miles traveled in personal vehicles, through promoting improved and expanded transportation alternatives, vehicle miles traveled fees, and other highway use fees. . . .' After publication of the California Energy Commission's 1991 report, reducing vehicle miles traveled was widely considered to be a potential regulatory means for greenhouse gas emission reduction." (Dorothy J. Glancy, *Vehicle Miles Traveled and Sustainable Communities*, 46 *McGeorge L. Rev.* 23, 52-53 (2014).)

The County next contends that the SCS "does not require VMT reductions." But this assertion distorts the record. The Regional Plan states: "Reducing the number of miles that people travel in their cars is an important goal for our Regional Plan" and that "[I]and use decisions made at the local level can impact nearly all sources of emissions—for better and for worse. Development guided by smart growth principles—remember: more compact communities, less suburban sprawl—brings people closer to more destinations. It also encourages alternative travel choices, such as public transit, carpooling, walking and biking, which cut greenhouse gas emissions and other forms of pollution."

The County further contends it is SANDAG's obligation to make the Regional Plan consistent with the GPU, and not the SEIR's obligation to explain any inconsistencies with the Regional Plan. This argument is untenable. Guidelines section 15125, subdivision (d) states that an EIR "shall discuss any inconsistencies between the proposed project and applicable . . . regional plans."

Last, citing *Environmental Council of Sacramento v. County of Sacramento* (2020) 45 Cal.App.5th 1020 (*Environmental Council of Sacramento*), the County asserts that CEQA does not require analysis of consistency with a sustainable communities strategy. In that case, the plaintiff challenged an EIR for failing to address whether it was consistent with the Sacramento Area Council of Government's (SACOG) metropolitan transportation plans/sustainable communities strategy (MTP/SCS). The Court of Appeal rejected that argument because plaintiff failed to (1) exhaust administrative remedies; and (2) "cite any evidence that a project must be evaluated under CEQA for consistency with an SCS." (*Environmental Council of Sacramento*, at p. 1037.) In contrast here, Plaintiffs exhausted administrative remedies. The SEIR acknowledges that "[m]any comments" expressed concern that proposed GHG reduction measures would not meet VMT reduction targets established by SANDAG's RTP/SCS. Moreover, unlike *Environmental Council of Sacramento*, here the SEIR does address consistency between the CAP and the RTP/SCS.

Moreover, we disagree with the dicta in *Environmental Council of Sacramento*, *supra*, 45 Cal.App.5th at page 1037 that CEQA does not require this consistency analysis. Sen. Bill No. 375 requires regional planning agencies to include a sustainable

communities strategy in their regional transportation plans. (Gov. Code, § 65080, subd.(b)(2)(B).) As noted, Guidelines section 15125, subdivision (d) provides that an EIR "shall discuss any inconsistencies between the proposed project and . . . regional plans. Such regional plans include . . . regional transportation plans." Accordingly, CEQA requires analysis of "any inconsistencies" between the Project and the Regional Plan.

d. *The impact of CARB's 2017 Scoping Plan*

The Regional Plan states, "Reducing the number of miles that people travel in their cars is an important goal for our Regional Plan." One of the five Regional Plan "building blocks" is implementing "measures designed to reduce the number of miles people travel in their vehicles." The Regional Plan consistently emphasizes the necessity for "[d]evelopment guided by smart growth principles . . . more compact communities, less suburban sprawl" to reduce GHG emissions to Sen. Bill No. 375 targets. Thus, the County's failure to analyze and disclose VMT impacts caused by GPAs threatens achieving state-mandated GHG emission reduction targets.

The seriousness of this deficiency is underscored by the 2017 CARB Scoping Plan, which is the state's blueprint for meeting GHG emission reduction targets. (*Center for Biological Diversity, supra*, 62 Cal.4th at p. 220.) The Scoping Plan recognizes that in the past, "development patterns have led to sprawling suburban neighborhoods, a vast highway system, growth in automobile ownership, and under-prioritization of infrastructure for public transit and active transportation." The Scoping Plan states, "VMT reductions are *necessary* to achieve the 2030 target *and must be part of any*

strategy evaluated in this Plan." (Italics added.) The Scoping Plan emphasizes that "California must reduce demand for driving" and "lower-VMT future development patterns are *essential* to achieving public health, equity, economic, and conservation goals."

"Local land use decisions play a particularly critical role in reducing GHG emissions associated with the transportation sector

"While the State can do more to accelerate and incentivize these local decisions, local actions that reduce VMT are also necessary to meet transportation sector-specific goals and achieve the 2030 target under [Sen. Bill No. 32.] *Through developing the Scoping Plan, CARB staff is more convinced than ever that, in addition to achieving GHG reductions from cleaner fuels and vehicles, California must also reduce VMT.*" (Italics added.)

VMT reduction is an integral part of California's strategy to reach 2030 and 2050 GHG emission reduction targets. However, M-GHG-1 would potentially allow GPAs to mitigate 100 percent of their in-County GHG emissions by purchasing out-of-County (including international) originating offsets. In so doing, M-GHG-1 is inconsistent with the Regional Plan because it ignores whether GPAs are located consistent with smart growth policies.

e. *Failure to fulfill informational role*

" [A]n EIR is required to provide the information needed to alert the public and the decision makers of the significant problems a project would create and *to discuss currently feasible mitigation measures.*' [Citation.] To fulfill the EIR's informational role, the discussion of the mitigation measures must contain facts and analysis, not bare conclusions and opinions. [Citation.] The level of detail CEQA requires in the EIR's

discussion of facts and analysis of the mitigation measures depends on 'whether the EIR includes enough detail "to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.' " (*King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 869.)

The SEIR fails to comply with these informational standards. For example, at one place the SEIR claims no VMT analysis is even necessary because "M-GHG-1 would ensure that GPAs are mitigating their emissions such that they would not conflict with the Regional Plan and Sen. Bill No. 375 targets on this issue." This explanation—that it is unnecessary to consider whether GPAs using M-GHG-1 will increase VMTs because GPAs will use M-GHG-1—is meaningless.

In a response to a comment, the SEIR also states it is too "speculative" to presuppose approval of future and proposed GPA projects, including the GHG emissions and VMT from these future projects. But this argument is untenable because, as noted *ante* in the cumulative impacts discussion, many of the in-process GPAs were well into the planning process, and yet the SEIR does not analyze or discuss VMT impacts of any of them. (See *Banning Ranch, supra*, 2 Cal.5th at pp. 938-939.) "[T]here was no practical or reasonable barrier to [the] disclosure and inclusion" of projects currently under an agency's own environmental review." (*SFRG, supra*, 151 Cal.App.3d at p. 74.) Even if more precise information may be available during project-specific review, the County must still provide reasonably obtainable information, or explain (supported by substantial evidence) why it cannot do so. "[I]f known impacts are not analyzed and

addressed in a program EIR, they may potentially escape analysis in a later-tier EIR."

(*Forest Foundation, supra*, 17 Cal.App.5th at p. 440.)

V.

THE SEIR FAILED TO ANALYZE A REASONABLE RANGE OF ALTERNATIVES

A. Background

An EIR "shall describe a range of reasonable alternatives to the project . . . which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation."

(Guidelines, § 15126.6, subd. (a).)

The SEIR analyzed four project alternatives:

1. A no-project alternative, which assumed the CAP, GPA, GHG thresholds, and Guidelines for Significance would not be implemented;
2. An "enhanced direct investment" alternative, in which the County would pursue the direct investment reduction measure (T-4.1) to a greater degree than currently proposed in the CAP, and without a renewable energy target;
3. A 100 percent renewable energy alternative that would implement the CAP with increased reliance on renewable energy to meet GHG reduction targets;
4. An alternative that would increase the solid waste diversion rate from 75 percent to 80 percent by 2030.

Although the CAP recognizes that on-road transportation is the largest source of GHG emissions in the County (45 percent of the GHG inventory), no alternative addresses VMT or transportation-related GHG emissions. Plaintiffs contend that the County violated CEQA by failing to consider smart-growth alternatives aimed at reducing VMT. As explained *post*, we agree.

B. The SEIR's Discussion of Project Alternatives is Deficient

The "core of an EIR is the mitigation and alternatives sections." (*Citizens of Goleta Valley, supra*, 52 Cal.3d at p. 564.) An agency may not approve a project that will have significant environmental impacts if there are feasible alternatives that would substantially lessen those effects. (Pub. Resources Code, § 21002; Guidelines, §§ 15002, subd. (a)(3), 15021, subd. (a)(2).)

" "There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." [Citation.] The rule of reason "requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" and to "examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project." [Citation.] An EIR does not have to consider alternatives "whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." ' [Citation.] A court will uphold the selection of project alternatives unless the challenger demonstrates ' "that the alternatives are manifestly unreasonable and that they do not contribute to a reasonable range of alternatives." ' " (*Forest Foundation, supra*, 17 Cal.App.5th at p. 436.)

Examining alternatives begins with project objectives because it is these objectives that a proposed alternative must be designed to meet. (*San Franciscans for Livable Neighborhoods v. City and County of San Francisco* (2018) 26 Cal.App.5th 596, 632.)

The SEIR identifies these Project objectives:

1. Reduce community and County operations GHG emissions to meet 2020 and 2030 reduction targets, and provide a mechanism to meet the County's 2050 goal;
2. Identify GHG reduction strategies and measures that reduce GHG emissions from activities in the unincorporated areas;
3. Update the General Plan and GPU to incorporate and reflect the GHG reduction targets, strategies, and measures for the reduction of GHG emissions because of buildout of the General Plan;
4. Prepare a County baseline GHG emissions inventory, and analyze the potential growth of these emissions over time; and
5. Establish a comprehensive approach to reduce County GHG emissions by incorporating feasible and effective GHG emission reduction measures.

This court's decision in *Forest Foundation, supra*, 17 Cal.App.5th 413 is closely on point and compels the conclusion that the SEIR's alternatives section violates CEQA. *Forest Foundation* involved a program EIR for SANDAG's 2011 RTP/SCS (called the 2050 Regional Transportation Plan).⁴⁴ (*Forest Foundation*, at pp. 421, 425.) That EIR analyzed GHG emissions impacts for years 2020, 2035, and 2050. (*Id.* at p. 430.) The

⁴⁴ The 2050 RTP/SCS was adopted in 2011 and included a sustainable communities strategy with transportation choices designed to reduce GHGs and meet state targets set following passage of Sen. Bill No. 375. SANDAG updated the 2050 RTP four years later, naming it the 2015 Regional Plan.

EIR analyzed seven project alternatives, none of which involved reducing VMT. (*Id.* at pp. 435-436.) This court held that omitting "an alternative which could significantly reduce total vehicle miles traveled is inexplicable given SANDAG's acknowledgement in its Climate Action Strategy that the state's efforts to reduce greenhouse gas emissions from on road transportation will not succeed if the amount of driving, or vehicle miles traveled, is not significantly reduced." (*Id.* at p. 436.) The court noted that the Climate Action Strategy explained that lowering VMT can be accomplished through improved land use and transportation planning. (*Ibid.*) The Climate Action Strategy recommended increased funding and system investments for public transit, increased service on existing routes, and infrastructure upgrades. (*Id.* at pp. 436-437.) We concluded, "Given these recommendations, their purpose, and their source, it is reasonable to expect at least one project alternative to have been focused primarily on significantly reducing vehicle trips." (*Id.* at p. 437.)

Like the Climate Action Plan discussed in *Forest Foundation, supra*, 17 Cal.App.5th 413, here too SANDAG states the "heart" of the RTP/SCS is to lower GHG emissions "related to cars and light trucks" because "about a third of GHG emissions generation" are attributable to "that sector alone." The 2015 RTP/SCS states, "Reducing the number of miles that people travel in their cars is an important goal for our Regional Plan." The Scoping Plan states, "VMT reductions are necessary . . . and must be part of any strategy" CARB likewise states, "local actions that reduce VMT are also necessary to meet transportation sector-specific goals and achieve the 2030 target under Sen. Bill No. 32. . . . California must also reduce VMT." Indeed, CARB states, "It is

important that VMT reducing strategies are implemented early because more time is necessary to achieve the full climate, health, social, equity, and economic benefits from these strategies." Thus, CARB recommends that agencies "prioritize onsite design features that reduce emissions, *especially from VMT . . . within the project's region. . . .*"

In light of this consistently clear mandate to reduce VMT to help achieve target GHG emission reductions, it is reasonable to expect at least one project alternative in the SEIR to have been focused primarily on significantly reducing VMT.⁴⁵ (*Forest Foundation, supra*, 17 Cal.App.5th at p. 437.) The SEIR's failure to do so is prejudicial because it precludes informed public participation and decisionmaking. (*Ibid.*)

Citing *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143 (*Bay-Delta*), the County contends that implementing a smart-growth alternative would be inconsistent with project objectives, one of which is to reduce GHG emissions from buildout of the General Plan, not an *amended* General Plan. *Bay-Delta* involved a project to restore the Bay-Delta's ecological health and improve management of Bay-Delta water for the various beneficial uses that depend on it. (*Id.* at pp. 1151-1152.) The Supreme Court held the failure to examine a program alternative requiring reduced water exports from the Bay-Delta was not an abuse of

⁴⁵ In its response to the Attorney General's amicus brief, the County contends *Forest Foundation* is distinguishable because that case concerned SANDAG's plan to reduce GHG emissions from cars and light duty trucks. However, that reads *Forest Foundation* too narrowly. As here, the RTP in *Forest Foundation* also included a SCS designed to promote "a more sustainable future by integrating land use, housing, and transportation planning to create a more sustainable, walkable, transit-oriented, compact development patterns and communities" (*Forest Foundation, supra*, 17 Cal.App.5th at p. 429.)

discretion because that alternative would not achieve the objective of water supply reliability. (*Id.* at pp. 1163-1166.) In other words, an agency need not discuss alternatives that cannot achieve the project's underlying purpose. (*Id.* at p. 1165.)

Here, Project objectives include (1) "[r]educe community and County operations GHG emissions . . . and provide a mechanism to meet the County's projected 2050 goal"; (2) "[i]dentify GHG reduction strategies and measures that reduce GHG emissions from activities in the unincorporated areas"; (3) "[p]repare a County baselines GHG emissions inventory, which includes community and County operations emissions, and analyze the potential growth of these emissions over time"; and (4) establish a comprehensive approach to reduce County GHG emissions by incorporating feasible and effective GHG emission reduction measures." *Bay-Delta* is materially distinguishable because here, a smart growth alternative is consistent with achieving Project objectives.

Moreover, it is impossible to take M-GHG-1 (and, therefore, GPAs) completely out of the CAP. As noted *ante*, the CAP achieves GHG reduction targets only by excluding from its projections in-process GPA GHG emissions above the CAP—on the assumption that GPAs will mitigate to zero-above-the-CAP under M-GHG-1. As a result, a project alternative based on reducing GHG emissions by implementing smart growth policies affecting GPAs is broadly consistent with CAP objectives.

Further, the GPU "includes specific goals and policies aimed at reducing GHG emissions including growing in a compact and efficient manner, using energy more efficiently, harnessing renewable energy to power buildings, improving waste recycling, and improving access to sustainable transportation." The CAP, which is based on

buildout under the GPU, recognizes that "[g]iven that the largest source of emissions in the unincorporated county is the On-Road Transportation sector, the CAP proposes several measures . . . to reduce the number and length of vehicle trips." Thus, there is no conflict among (1) buildout under the GPU, (2) the CAP, and (3) an alternative that would encourage smart growth and associated reduced VMT.

At oral argument, the County also asserted that the CAP is "not a land use plan, but an emissions reduction plan" and, therefore, project alternatives should also be focused on emission reduction, not land development as in a smart growth plan. This argument is untenable, however, because the County overstates the purported distinction between land use and GHG emissions. GHG emission reduction targeted by Assem. Bill No. 32 and other legislation is concerned with human activities contributing to climate change. To state the obvious, the amount of GHG emissions from agricultural land and open space will be vastly different if that same land contains 14,000 homes, roads, and infrastructure. Land use often drives GHG emission levels. Therefore, a smart growth land use alternative is reasonably related to GHG emission reduction.

Also at oral argument, the County asserted that VMT reduction "was considered," noting that the "first two" CAP GHG reduction measures involve reducing VMT. Counsel concluded, "When you're reducing VMT, you are offsetting an impact of a proposed project . . . we have a plan that is already an emissions reduction plan and it already includes VMT." However, on-road transportation accounts for 45 percent of the County's greenhouse gas inventory (as of 2014) and produced 1,456,060 MTCO₂e. Yet the two CAP reduction measures counsel referenced are expected to collectively reduce

2030 GHG emissions by 8,101 MTCO_{2e}, or less than 1 percent of the on-road transportation sector's contribution. Therefore, contrary to the County's contention, VMT reduction in the CAP is not tantamount to a smart growth project alternative.

Finally, although this argument is not entirely clear, the County also contends its failure to include an alternative aimed at reducing VMT was compelled by this court's decision in *Sierra Club I, supra*, 231 Cal.App.4th 1152. This argument is untenable. *Sierra Club I* required the County to prepare the SEIR; however, we did not address the CEQA-required content of the alternatives section in it.

VI.

THE COUNTY ADEQUATELY RESPONDED TO COMMENTS ON THE DEIR

A. Legal Principles

Guidelines section 15088, subdivision (a) requires the agency to prepare a written response to "comments on environmental issues" from persons who reviewed the draft EIR. For "significant environmental issues raised" in such comments, the agency must "describe the disposition" of such issues (for example, revisions to the proposed project) in a "good faith, reasoned analysis in response." (Guidelines, § 15088, subd. (c).) "Conclusory statements unsupported by factual information will not suffice." (*Ibid.*) However, "the level of detail contained in the response . . . may correspond to the level of detail provided in the comment." (*Ibid.*) A response may be sufficient if it refers to parts of the draft EIR that analyzes the environmental impacts raised by the comment. (*City of Irvine v. County of Orange* (2015) 238 Cal.App.4th 526, 550 (*City of Irvine*).) "A

general comment can be adequately met with a general response" and "[r]esponses need not be exhaustive." (*Ibid.*)

B. *Comments, Responses, and Analysis*

There are several hundred comments on the draft SEIR. The superior court singled out three as having inadequate responses. The County's opening brief challenges only these three rulings, and there is no cross-appeal challenging the adequacy of any other responses to comments. We discuss each of these three rulings next.

Comment O-21-4: Sempra Services Corporation commented that the CAP focuses too little attention on reducing GHG emissions from the transportation sector.

Response to Comment O-21-4: The County responded by stating, "Please see Master Response 9 and 6." Master Response 6 states in part, "Several comments assert that the County underutilizes opportunities to reduce emissions in the transportation sector, comparing the contribution of emissions from the transportation sector (45 [percent]) to [the] proportion of overall reductions from the Built Environment and Transportation category (13 [percent]). . . . ¶ The County acknowledges the disproportionality. . . . However . . . the nature of the unincorporated county is low-density development that is not conducive to non-driving trips. . . . In addition the County has limited jurisdiction in controlling transportation emissions apart from land use and infrastructure planning. . . . While the nature of trips will likely continue to be personal vehicle based, the fuel source and emissions factors of those trips can be modified by switching to renewable sources including electricity. . . . In an effort to be responsive to these comments, the County has added Measure T-3.5 to install 2,040 Level

2 electric vehicle charging stations through public-private partnerships at priority locations in the unincorporated county by 2030. Electrifying VMT allows for the use of cleaner and renewable energy to power vehicles, and reduces GHG emissions associated with gasoline-powered internal combustion engines. Investment in a larger charging network than currently exists is needed to encourage EV use and achieve additional GHG reductions beyond State goals."

Analysis of Response to Comment O-21-4: The response is adequate because it directly addresses the question, explains the disparity between GHG emissions reduction measures in transportation and electricity sectors, and describes revisions to the proposed project (adding measure T-3.5) to address the objection. (Guidelines, § 15088, subd. (c).) In ruling otherwise, the trial court erred by ignoring Master Response 6.

Comment O-22-19: The Sierra Club commented that the SEIR should include a mitigation measure "of installing a car-parking system" that gives County employees "more choice over how they spend their wages, while significantly reducing the frequency of the choice of arriving at work in a single-occupancy vehicle."

Response to Comment O-22-19: The County determined that unbundling the cost of parking from salaries would be infeasible because County employees work in diverse locations where parking is either free and plentiful or expensive and rare. Calculating a fair unbundled charge applicable to all County employees would be "virtually impossible under these varied conditions." The response also explained that "to institute such a policy would affect County employees' Terms and Conditions of Employment, which would require negotiation and agreement for each of the County's nine labor unions

The majority of the County's employees are currently covered by collective bargaining agreements, which are not open for negotiations until 2022. In addition, unbundling the cost of parking would require both elimination of subsidies paid to some classes of employees who park in paid lots, and charging employees who park for free in lots owned by the County. This would potentially affect employee income. . . . [¶]

Additionally a policy to unbundle the cost of parking would need to be adopted for all County facilities to ensure equal opportunities, benefits, and access for County employees. However, this may have a disproportionate impact on employees that work at facilities in more rural areas of the County, where there is no or limited public transportation alternatives available."

Analysis of Response to Comment O-22-19: This response is adequate because it explains why the lead agency's position disagrees with the recommendations and objection raised in the comment. (Guidelines, § 15088, subd. (c).) The response contains factual assertions (e.g., free or subsidized parking already provided; majority of County employees under a collective bargaining agreement; unbundling parking would affect employee compensation) and analysis based on those facts. The trial court erred in determining that this response was too conclusory.

Comment L-4-3: SANDAG commented, "Please continue to take into consideration consistency with guiding plans for the region. . . . SANDAG . . . encourages smart, sustainable growth and reinforces principles set forth in SANDAG's Regional Plan."

Response to Comment -L4-3: In response, the County stated, "Section 2.10.4.2 of the Draft SEIR evaluated the CAP's consistency with guiding plans for the region."

Analysis of Response to Comment L-4-3: SANDAG's comment that the County "take into consideration" consistency with regional guiding plans is simply an exhortation to comply with law. No response was necessary.

VII.

ISSUES INVOLVING EXHAUSTION OF ADMINISTRATIVE REMEDIES

"Exhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." (*Bakersfield Citizens, supra*, 124 Cal.App.4th at p. 1199.) "That requirement is satisfied if "the alleged grounds for noncompliance with [CEQA] were presented . . . by any person during the public comment period provided by [CEQA] or prior to the close of the public hearing on the project before the issuance of the notice of determination." " (*City of Long Beach v. City of Los Angeles* (2018) 19 Cal.App.5th 465, 474.) " "To advance the exhaustion doctrine's purpose "[t]he "exact issue" must have been presented to the administrative agency. . . ." (*Forest Foundation, supra*, 17 Cal.App.5th at p. 446.) The issue raised administratively must be "sufficiently specific" " so that the agency has the opportunity to evaluate and respond" (*Ibid.*)

A. The Challenge to the SEIR's Alternatives Analysis was Exhausted

The County contends that Plaintiffs did not adequately exhaust remedies with respect to the SEIR's alternative projects analysis. However, a February 2018 letter from Golden Door's attorneys to the County Board of Supervisors states in part, "The County

should also study a mitigation measure *or alternative* to limit General Plan Amendments to areas identified by SANDAG as 'smart growth' areas [I]t is vital to locate unplanned residential development in smart growth areas near transit and jobs. Changing land use patterns must favor smart growth over sprawl to be consistent with the RTP/SCS." (Italics added.) Raising similar issues, a January 2018 letter from Sierra Club's attorneys to the San Diego Planning Commission cites *Forest Foundation, supra*, 17 Cal.App.5th 431 and states, " 'The omission of an alternative which could significantly reduce total vehicle miles traveled is inexplicable given SANDAG's acknowledgements . . . that the state's efforts to reduce greenhouse gas emissions from on-road transportation will not succeed if the amount of driving, or vehicle miles traveled, is not reduced.' "

The purpose of requiring exhaustion is to afford an agency an opportunity to address contentions and possibly render litigation unnecessary. Here, that policy was fulfilled when Plaintiffs urged the County to consider an "alternative" to limit GPAs to "smart growth areas near transit and jobs" to be "consistent with the RTP/SCS." Plaintiffs' attorneys even cited one of the leading cases supporting their position. This is far from the perfunctory "skeleton showing" the County claims. Rather, Plaintiffs reasonably alerted the County to consider whether the SEIR violated CEQA by failing to analyze a smart-growth alternative aimed at reducing VMT.

B. *Environmental Justice*

Government Code section 65302 identifies required "elements" in a general plan. These include, among others, housing, conservation, open space, and noise. Effective in

2017, the Legislature amended this statute to require "[a]n environmental justice element . . . that identifies disadvantaged communities within the area covered by the general plan" (Gov. Code, § 65302, subd. (h)(1) [Stats. 2016, ch. 587 (Sen. Bill No. 1000), § 1.5].) The environmental justice element shall, among other things, "[i]dentify objectives and policies to reduce the unique or compounded health risks in disadvantaged communities by means that include, but are not limited to, the reduction of pollution exposure, including the improvement of air quality" (Gov. Code, § 65302, subd. (h)(1)(A).)

Addressing similar concerns, the California Environmental Protection Agency is required to "[c]onduct its programs, policies, and activities that substantially affect human health or the environment in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low-income populations of the state." (Pub. Resources Code, § 71110, subd. (a).) And under Assem. Bill No. 32, CARB "shall ensure that the greenhouse gas emission 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" (Health & Safe. Code, § 38565.)

1. *The SEIR*

In the superior court, Plaintiffs asserted that the SEIR does not adequately evaluate "impacts on environmental justice." The superior court agreed, ruling that the SEIR "failed to address environmental justice" by making "no attempt to disclose the increased health damage that could occur to the more vulnerable County residents (children, the ill,

and disadvantaged communities) from the project 'increasing nonattainment criteria pollutants' . . . , or from not requiring GHG offsets to be obtained in-County."

In its opening brief, the County challenges this ruling—but only in a footnote under a heading entitled, "Petitioners Did Not Exhaust on Two Claims, Which Are Waived." That footnote states: "CEQA does not require environmental justice analysis." In support, the County cites Public Resources Code section 21083.1 (courts "shall not interpret this division or the state guidelines . . . in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines") and *Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, 1107, which states, "[T]he purpose of this statute was to 'limit judicial expansion of CEQA requirements.'" The footnote also asserts that "any unique adverse health burden from application of M-GHG-1 on disadvantaged communities would be too speculative to analyze as discussed in Section C.1, *supra*."

On review of a CEQA action, our role is generally the same as the trial court. (*State Water Resources Control Bd. Cases* (2006) 136 Cal.App.4th 674, 836 (*Water Resources*)). However, that means "only that we would not be bound by, or be required to show any deference to, the trial court's conclusion" on the environmental justice issue. (*Ibid.*) It does not mean that the County, as the appellant aggrieved by the trial court's determination, is entitled to seek reversal by relegating an issue to argument in a footnote. "Even when our review on appeal 'is de novo, it is limited to issues which have been adequately raised and supported in [the appellant's opening] brief. [Citations.] Issues not raised in an appellant's brief are deemed waived or abandoned.'" (*Ibid.*) To succeed

here, the County must first establish error. And even in a CEQA case, "[t]he most fundamental rule of appellate review is that an appealed judgment or order is presumed to be correct." [Citation.] It is the appellant who bears the burden of overcoming that presumption.' " (*Ibid.*, italics omitted.)

The County has forfeited this argument. (*Hall v. Department of Motor Vehicles* (2018) 26 Cal.App.5th 182, 193 [argument in footnote forfeited]; *Sabi v. Sterling* (2010) 183 Cal.App.4th 916, 947 ["Footnotes are not the appropriate vehicle for stating contentions on appeal."]; *Holden v. City of San Diego* (2019) 43 Cal.App.5th 404, 419-420 [same, collecting cases].) Indeed, the County's challenge to the trial court's environmental justice ruling is also forfeited because it is under a heading in the brief challenging only administrative exhaustion. (*Provost v. Regents of University of California* (2011) 201 Cal.App.4th 1289, 1294 ["we do not consider all of the loose and disparate arguments that are not clearly set out in a heading and supported by reasoned legal argument"].) These well settled rules of appellate practice are not mere technicalities. They ensure that opposing parties are fairly apprised of contentions so as to afford a full and fair opportunity to respond.

Although we have discretion to overlook this forfeiture, prudential concerns militate against doing so here. Whether CEQA may in some circumstances require an environmental justice analysis is at least reasonably arguable. (See generally, Alan Ramo, *Environmental Justice as an Essential Tool in Environmental Review Statutes: A New Look at Federal Policies and Civil Rights Protections and California's Recent Initiatives*, 19 *Hastings W.-N.W. J. Env'tl. L. & Policy* 41, 42 (2013) [noting that "[t]he

California Attorney General's recent litigation involving . . . global warming emissions[] affecting minority communities has sparked renewed interest in the relationship between environmental review laws and the doctrine of environmental justice."].) However, the County's brief lacks analysis from which our consideration of that issue could even begin.⁴⁶

2. *Amendment to the General Plan*

In the superior court, Golden Door asserted that when the County amended GPU policy COS-20 and goal COS 20.1 in 2018, this triggered "a separate requirement" under Government Code section 65302 to adopt an environmental justice element in the general plan. The County contends Plaintiffs are precluded from making this assertion because it was not first made "during the administrative process."

Assuming without deciding that the exhaustion doctrine applies to this non-CEQA issue, it is unnecessary to consider it because Plaintiffs have abandoned the point in the trial court. We have searched the trial court's 17-page single-spaced minute order and are unable to find any ruling on Plaintiffs' claim that the amendments to COS 20 and COS 20.1 triggered the County's obligation to add an environmental justice element to the general plan. In ruling on a complex case such as this one, many things may be overlooked that would readily have been corrected had attention been called to them.

⁴⁶ Except to the extent that this opinion has law-of-the-case and/or claim or issue preclusion effect, we do not express any opinion on whether CEQA requires environmental justice review.

Where the court neither rules nor reserves its ruling for later, the party pressing the point must make some effort to have the court actually rule. "If the point is not pressed and is forgotten, [the party] may be deemed to have waived or abandoned it" (*People v. Braxton* (2004) 34 Cal.4th 798, 813.)⁴⁷

C. Geographic Scope

Guidelines section 15130, subdivision (b)(3) provides that an EIR's cumulative impacts analysis "should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used." Here, the SEIR states that the "cumulative impact analysis *study area* for GHG emissions" is the "entire unincorporated county and County local government operations." (Italics added.) The SEIR additionally states, "the issue of global climate change is inherently a cumulative issue" and, therefore, the geographical scope of the cumulative GHG analysis is global.

The superior court ruled that the SEIR violates CEQA by using "a geographic scope that was inconsistent and alternated between a 'Countywide' geographic scope of cumulative GHGs and a 'global' geographic scope." The court also determined that "the issue of inconsistent geographic areas" was "exhausted."

⁴⁷ Therefore, it is unnecessary to consider the County's argument that even if Government Code section 65302 required adding an environmental justice element to the General Plan, one was not required because "there were no disadvantaged communities in the unincorporated County" when the County prepared the SEIR. This disposition also renders moot the County's request for judicial notice of General Plan 2017 Guidelines published by the Office of Planning and Research.

The County contends this claim was never presented during administrative proceedings. Plaintiffs do not address this issue in their appellate briefs.⁴⁸ However, in the trial court Golden Door asserted it raised the point in letters dated (1) January 16, 2018, expressing "concern[] about the CAP's mitigation measure for cumulative GHG impacts caused by General Plan Amendment projects"; (2) February 8, 2018, raising numerous objections to M-GHG-1; (3) February 13, 2018, objecting to various aspects of M-GHG-1; and (4) September 25, 2017, asserting that the CAP must provide assurances that the offset projects will achieve projected reductions.

To advance the exhaustion doctrine's purpose "[t]he 'exact issue' must have been presented to the administrative agency" [Citation.] While "less specificity is required to preserve an issue for appeal in an administrative proceeding than in a judicial proceeding" . . . 'generalized environmental comments at public hearings,' 'relatively . . . bland and general references to environmental matters' [citation] or 'isolated and unelaborated comment[s]' [citation] will not suffice.'" (*Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535-536.) Here, the cited letters contain general criticisms of and objections to M-GHG-1. But none states that the DSEIR violates CEQA by having an inconsistent geographical scope. Accordingly, the trial court erred in determining this issue was exhausted. Necessarily, therefore, the court should not have

⁴⁸ We nevertheless consider the point because a respondent's failure to address an issue raised in the opening brief is not a concession. (*Griffin v. The Haunted Hotel, Inc.* (2015) 242 Cal.App.4th 490, 505.)

reached the merits. Accordingly, the ruling that the SEIR's cumulative GHG impacts discussion contains an inconsistent and flawed geographical scope must also be reversed.

VIII.

ENERGY ISSUE RULING FORFEITED

The trial court ruled that the County "failed to analyze potential energy impacts that may result from GPAs and strategies to reduce energy impacts on such project sites" and also "failed to evaluate the reasonably foreseeable impacts on energy usage in allowing increased VMTs in exchange for GHG reduction through offsets." In a footnote in its brief, Golden Door contends the County has forfeited this issue on appeal by failing to address it in the opening brief. The County asserts that Golden Door itself has forfeited the waiver argument by making it only in a footnote.

Since the trial court's judgment is presumed correct, it is the appellant's burden to establish error. (*Water Resources, supra*, 136 Cal.App.4th at p. 836.) The County's failure to address the energy impacts ruling in its opening brief compels the conclusion the trial court's ruling on that point must be affirmed.⁴⁹

⁴⁹ Golden Door also asserts (again, in a footnote) that the County did not raise any issue in its opening brief that M-GHG-1 is or is not mandatory. We agree with the County that it is unclear what Golden Door claims to be forfeited and, therefore, do not consider the point further.

IX.

INCONSISTENCY BETWEEN THE CAP AND SEIR

The SEIR must explain project impacts in a manner "reasonably calculated to inform the public" (*Sierra Club, supra*, 6 Cal.5th at p. 520.) The CAP states that its 2014 inventory of GHG emissions does not include emissions from GPAs that were adopted, but not constructed, as of 2014:

"Even though there were GPAs that were *adopted* between 2011 (adoption of 2011 General Plan Update) and 2014 (inventory baseline year), none of these GPAs were constructed by 2014 and; therefore, their GHG emissions are *not included* in the 2014 *inventory*. The 2014 inventory is based on emissions-generating activities that existed on the ground in 2014." (Italics added.)

However, a portion of the SEIR states that the CAP's GHG emissions inventory *includes* GPAs adopted between August 2011 and March 28, 2017:

"[T]he Draft CAP's GHG *inventory* includes GPAs adopted between August 2011 (adoption of 2011 GPU) and March 28, 2017 (date at which the inventory technical reports were prepared)." (Italics added.)

These are inconsistent. The first states that the inventory excludes GPAs not constructed by 2014. The second states that the inventory includes GPAs adopted by March 2017.⁵⁰

To avoid inconsistency, the County contends we should read "inventory" as used in the first quotation (from the CAP) to mean *projected* future GHG emissions. This

⁵⁰ We discovered this inconsistency on our own and invited supplemental briefs on the issue, which we have considered.

argument is untenable, however, because "inventory" is consistently used in the CAP and elsewhere in the SEIR to mean existing emissions, not future projections.

X.

REMEDIES

For the first time in its reply brief, and citing Public Resources Code section 21168.9, the County contends that even if M-GHG-1 violates CEQA, we should "nonetheless allow the CAP to stand under CEQA's provisions for severable remedies."⁵¹ The County asserts this remedy is particularly appropriate here because the CAP is not "tainted by any CEQA violation found with respect to M-GHG-1" and "M-GHG-1 is not required for the CAP" This argument fails for two reasons. First, the County has forfeited this argument by not asserting it in the opening brief. "We will not ordinarily consider issues raised for the first time in a reply brief. [Citation.] An issue is new if it

⁵¹ Public Resources Code section 21168.9 provides in part: "(a) If a court finds, . . . that any determination, finding, or decision of a public agency has been made without compliance with this division, the court shall enter an order that includes one or more of the following: [¶] (1) A mandate that the determination, finding, or decision be voided by the public agency, in whole or in part. [¶] . . . [¶] (3) A mandate that the public agency take specific action as may be necessary to bring the determination, finding, or decision into compliance with this division. [¶] (b) Any order pursuant to subdivision (a) shall include only those mandates which are necessary to achieve compliance with this division and only those specific project activities in noncompliance with this division. The order shall be made by the issuance of a peremptory writ of mandate specifying what action by the public agency is necessary to comply with this division. However, the order shall be limited to that portion of a determination, finding, or decision or the specific project activity or activities found to be in noncompliance only if a court finds that (1) the portion or specific project activity or activities are severable, (2) severance will not prejudice complete and full compliance with this division, and (3) the court has not found the remainder of the project to be in noncompliance with this division."

does more than elaborate on issues raised in the opening brief or rebut arguments made by the respondent in respondent's brief. Fairness militates against allowing an appellant to raise an issue for the first time in a reply brief because consideration of the issue deprives the respondent of the opportunity to counter the appellant by raising opposing arguments about the new issue." (*American Indian Model Schools v. Oakland Unified School Dist.* (2014) 227 Cal.App.4th 258, 275-276.)

Moreover, even if not forfeited, we would reject the argument. " 'Directing an agency to void its approval of the project is a typical remedy . . . for a CEQA violation.' " (*John R. Lawson Rock & Oil, Inc. v. State Air Resources Bd.* (2018) 20 Cal.App.5th 77, 102.) As explained *ante*, to the extent the CAP's GHG emission projections for GPAs assume mitigation to zero or net zero under M-GHG-1, the CAP's projection is unsupported by substantial evidence. Severing the CAP from M-GHG-1 would not result in "complete and full compliance" with CEQA and is, therefore, not authorized by Public Resources Code section 21168.9, subdivision (b).

Citing *POET, LLC v. State Air Resources Bd.* (2013) 218 Cal.App.4th 681 (*POET*), the County contends the court should allow the CAP to remain in effect even if M-GHG-1 is invalid. At oral argument, the County asserted that "all of the work that went into the CAP is something that should be preserved."

We disagree. The CAP's strategies and measures are designed to reduce GHG emissions for build-out under the GPU. The CAP does so by (1) calculating a baseline GHG emissions level as of 2014; and (2) estimating future GHG emissions under a

business as usual standard; and (3) implementing state mandated GHG reduction targets. If any *one* of these calculations is erroneous, the CAP fails to accomplish its purpose.

In addition to the inconsistency between the CAP and SEIR discussed *ante* in part IX, the problem here is with the CAP's GHG projections. The projections assume that in-process and future GPAs will mitigate to zero-above-the-CAP under M-GHG-1. Because M-GHG-1 is invalid, these projections are not accurate. There is no assurance that in-process and future GPAs will in fact mitigate to net zero. Thus, there is no evidence that the CAP's reduction measures will achieve the stated reduction targets, even for projects consistent with the GPU. In sum, it is impossible to surgically excise M-GHG-1 from the CAP to produce a valid stand-alone climate action plan.

The County's reliance on *POET* is not persuasive. There, the CEQA project was a statewide regulation concerning low carbon fuel standards. CARB's low carbon fuel standards regulations satisfied "a vast majority of the applicable legal requirements, but ran afoul of several procedural requirements" (*POET, supra*, 217 Cal.App.4th at p. 697.) The appellate court determined that in the "extraordinary case" before it, suspending the fuel standards regulations would do more environmental harm than allowing them to remain in effect pending the completion of CARB's corrective action. (*Id.* at pp. 697, 761.) Accordingly, the appellate court exercised its inherent equitable authority to maintain the status quo and allow the regulations to remain operative. (*Id.* at p. 761.)

Unlike *POET*, the CEQA defect in the CAP is not procedural. The CAP is substantively flawed because its projections depend upon the validity of M-GHG-1 to

reduce GHG emissions for probable in-process and all future GPAs to zero-above-the-cap, and M-GHG-1 itself is invalid under CEQA.

XI.

NO SPECIAL MASTER

Citing *Legislature of California v. Reinecke* (1973) 9 Cal.3d 166 and *Wilson v. Eu* (1991) 54 Cal.3d 471, Golden Door asks us to appoint a special master to "work with all interested parties to assure the County expeditiously prepares an adequate CAP and accompanying SEIR" However, both cited cases involve legislative impasse in enacting reapportionment plans. The Court intervened in those cases and appointed special masters because the legislative impasse might continue indefinitely, the Court's duty to ensure equal protection of the laws was implicated, and electoral rights would be irretrievably lost if no action were taken. (*Wilson*, at p. 473.) Especially given the existing injunction prohibiting the County from relying on M-GHG-1 during CEQA review of GHG emissions impacts of development proposals on unincorporated County lands, similar exigent circumstances are lacking here.

XII.

THE COURT DECLINES TO PROVIDE AN ADVISORY OPINION

Citing no authority, Sierra Club asks that we provide "a clear declaration that no out-of-County offsets are permitted under the current General Plan. Sierra Club also asks that we "further declare that before the County could reauthorize out-of-County offsets, the County would have to adequately analyze the direct and cumulative impacts of such a program under CEQA, determine that in-County reductions are not available *and cannot*

be made available through a County or APCD program, and conduct the appropriate process to amend its General Plan."

Essentially, Sierra Club's request is for advisory opinions on mitigation measures and environmental analysis not before us in this case. It remains to be seen how the County will amend the CAP, the SEIR, and M-GHG-1 to comply with this opinion. Accordingly, we decline to issue advisory opinions to forestall hypothetical events that may never occur. (*Teachers' Retirement Bd. v. Genest* (2007) 154 Cal.App.4th 1012, 1044.)

XIII.

SUMMARY OF HOLDINGS

A. The 2018 Climate Action Plan (CAP)

The CAP is not inconsistent with the General Plan. Nevertheless, the judgment requiring the County to set aside and vacate its approval of the CAP is affirmed because the CAP's greenhouse gas emission projections assume effective implementation of M-GHG-1, and M-GHG-1 is itself unlawful under CEQA. Except to the extent that (1) the CAP is impacted by its reliance on M-GHG-1; and (2) the CAP's inventory of greenhouse gases is inconsistent with the SEIR (see holding (C)(4) *post*), the CAP is CEQA-compliant.

B. M-GHG-1 is Invalid under CEQA

Generally speaking, CEQA permits mitigation measures for GHG emissions to include offsite measures, including purchasing offsets. However, M-GHG-1 violates CEQA because M-GHG-1 does not require that (1) offset protocols meet Assem. Bill

No. 32 criteria as established in the California Code of Regulations, title 17, section 95972; (2) greenhouse gas emission reductions achieved are additional within the meaning of Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2) and California Code of Regulations, title 17, section 95802, subdivision (a); and (3) offsets originating outside California have GHG emissions programs equivalent to or stricter than California's program.

Additionally, M-GHG-1 violates CEQA because (1) it would allow a project applicant to offset 100 percent of its GHG emissions through offset projects originating outside of California; and (2) it allows a County official to determine whether any particular offset program is feasible and otherwise appropriate, with no objective criteria to guide the exercise of that discretion. M-GHG-1, therefore, lacks performance standards to ensure the mitigation goal will be achieved. Therefore, the judgment directing the County to set aside and vacate its approval of the CAP and SEIR is affirmed.

C. SEIR Holdings

1. The cumulative impacts analysis violates CEQA

The SEIR's cumulative impacts analysis violates CEQA because it excludes GHG impacts from in-process GPAs.

2. The finding that M-GHG-1 is consistent with the Regional Plan is not supported by substantial evidence

The SEIR's finding that M-GHG-1 is consistent with the Regional Plan is not supported by substantial evidence. Therefore, the County abused its discretion in certifying the SEIR. (*Golden Door I, supra*, 27 Cal.App.5th at p. 901.)

3. *The failure to analyze a smart-growth alternative*

The SEIR violates CEQA because it fails to analyze a smart-growth alternative to the Project.

4. *Inconsistency with the CAP*

The CAP and SEIR are inconsistent with each other. The CAP states that its 2014 inventory of GHG emissions excludes emissions from GPAs that were adopted, but not constructed as of 2014. However, the SEIR states that the same inventory includes GPAs adopted between August 2011 and March 28, 2017.

For these additional reasons, the judgment directing the County to set aside and vacate its approval of the CAP and SEIR is affirmed.

5. *Thirty-year shelf-life*

The SEIR adequately discloses that M-GHG-1 requires offsets for only 30 years.

6. *Response to comments*

The County's response to comments on the DSEIR is adequate.

7. *Geographic scope*

The trial court erred in determining that the SEIR contains an inconsistent geographic scope because Plaintiffs failed to adequately exhaust administrative remedies on that issue (see below).

D. Exhaustion of Remedies

Plaintiffs adequately exhausted administrative remedies on all issues addressed by the trial court except that of geographical scope.

E. Environmental Justice Holdings

The County has forfeited the argument that the trial court erred in determining that the SEIR violates CEQA by failing to address environment justice impacts.

Plaintiffs have forfeited the argument that the 2011 amendment to the General Plan triggered a separate requirement to adopt an environmental justice element in the general plan.

F. Energy Impacts

The County has forfeited any argument that the trial court erred in determining that the SEIR failed to adequately analyze impacts to energy from GPAs and increased VMTs in exchange for GHG reduction through offsets.

G. No Special Master Nor Advisory Opinion

The court declines to (1) appoint a special master to oversee CEQA compliance on remand; and (2) issue an advisory opinion regarding CEQA compliance.

DISPOSITION

The trial court erred in determining that (1) the CAP is inconsistent with the GPU; (2) the County's response to comments violates CEQA; and (3) the SEIR has an inconsistent geographical scope for cumulative impacts.

The trial court did not err in concluding that "during CEQA review of GHG emissions impacts of development proposals on unincorporated County lands and the

issuance of any permits or entitlements for any General Plan amendment projects approved on or after February 14, 2018, the County, its agencies, agents, employees, representatives, supervisors, or other personnel should not have relied on Mitigation Measure M-GHG-1, which is contained within the County of San Diego Supplement to the 2011 General Plan Update Program Environmental Impact Report, dated January 2018."

The trial court also did not err in issuing a writ of mandate directing the County to set aside and vacate the February 14, 2018, approvals of the 2018 Climate Action Plan and the certification of the Final Supplemental Environmental Impact Report and approvals listed as specified in the final judgment filed January 16, 2019.

Furthermore, the trial court did not err in issuing an injunction stating that during review of GHG emission impacts of development proposals on unincorporated County lands under CEQA, including the review of such impacts prior to the issuance of any permits or entitlements for any General Plan amendment projects approved on or after February 14, 2018, the County, its agencies, agents, employees, representatives, supervisors, or other personnel, shall not rely on Mitigation Measure M-GHG-1.

Additionally, because M-GHG-1 is invalid under CEQA, the trial court did not err in declaring that the February 2018 Climate Action Plan and the certification of the Final SEIR to the 2011 General Plan Update Program EIR are legally inadequate and may not be used to provide the basis for CEQA review of GHG impacts of development proposals in the unincorporated County.

Because the final judgment is expressly based on findings and determinations made in the trial court's December 24, 2018 minute order, on remand the trial court is directed to (1) amend that minute order; (2) issue a new writ of mandate, injunction, and judgment; and (3) conduct further proceedings—all of which are to be consistent with this opinion. In the interests of justice, the parties shall bear their own costs on appeal. (Cal. Rules of Court, rule 8.278(a)(5).)

IRION, J.

WE CONCUR:

McCONNELL, P. J.

HUFFMAN, J.

I, KEVIN J. LANE, Clerk of the Court of Appeal, Fourth Appellate District, State of California, do hereby certify that this preceding and annexed is a true and correct copy of the original on file in my office.

WITNESS, my hand and the Seal of the Court this

6/12/20

KEVIN J. LANE, CLERK

By 
Deputy Clerk



APPENDIX 1

Assembly Bill No. 32Global Warming Solutions Act of 2006

APCD.....Air Pollution Control District

CAP Climate Action Plan

CAPCOA..... California Air Pollution Control Officers Association

CAPCOA GHG Rx..... California Air Pollution Control Officers
Association Greenhouse Gas Reduction Exchange

CARB California Air Resources Board

CARB Protocol..... Compliance Offset Protocols adopted by CARB

CHECKLIST The CAP Consistency Checklist

EIR..... Environmental Impact Report

MTCO_{2e}..... A measure of the global warming
potential of a greenhouse gas

DSEIR.....Draft Environmental Impact Report

GHG.....Greenhouse Gas

GPA A proposed project requiring a General Plan
amendment because of increased density or intensity
of land use beyond that allowed under the GPU

GPU2011 General Plan Update

M-GHG-1Mitigation Measure Greenhouse Gas-1

MPO..... Metropolitan Planning Organization

OPR Offset Project Registry

PEIR..... Program Environmental Impact Report

RTP (aka Regional Plan).....Regional Transportation Plan

SANDAG..... San Diego Association of Governments

Senate Bill No. 32.....2016 legislation setting GHG reduction
goal of 40% below 1990 level

Senate Bill No. 375.....2008 Sustainable Communities and
Climate Protection Act

SEIR..... Supplemental Environmental Impact Report

SCSSustainable Communities Strategy

VMT Vehicle Miles Traveled

APPENDIX 2

"CAP Mitigation Measure M-GHG-1: The County shall require in-process and future GPAs to reduce their emissions to ensure that CAP emission forecasts are not substantially altered such that attainment of GHG reduction targets could not be achieved. Project applicants for in-process and future GPAs could accomplish this through two options, as outlined below.

"Option 1 (No Net Increase): GPA project applicants shall achieve no net increase in GHG emissions from additional density above the 2011 GPU. Applicants shall be required in their respective CEQA documents to quantify the GHG emissions from their projects that exceed the GHG emissions for the 2011 GPU density or intensity forming the basis of the CAP emission forecasts (i.e., projections). This increase in emissions shall be reduced through onsite design features and mitigation measures and offsite mitigation, including purchase of carbon offset credits by the applicant. Applicants shall demonstrate compliance with relevant CAP measures as identified in the "CAP Consistency Review Checklist" in addition to all feasible onsite design features and mitigation measures. Offsite mitigation, including purchase of carbon offset credits, would be allowed after all feasible onsite design features and mitigation measures have been incorporated.

"For example, if 400 residential units were allowed under the 2011 GPU and a GPA proposes 500 residential units, the emissions for the additional 100 units would be calculated and offset through compliance with the CAP Consistency Review Checklist and additional feasible onsite measures and offsite measures, including the use of carbon offsets. The emissions associated with the allowable density of 400 units would be mitigated through compliance with the CAP Consistency Review Checklist.

"The County will consider, to the satisfaction of the Director of Planning Development Services (PDS), the following geographic priorities for GHG reduction features and GHG reduction projects and programs: 1) project design features/onsite reduction measures; 2) offsite within the unincorporated areas of the County of San Diego; 3) offsite within the County of San Diego; 4) offsite within the State of California; 5) offsite within the United States; and 6) offsite internationally.

"Geographic priorities would focus first on local reduction features (including projects and programs that would reduce GHG emissions) to ensure that reduction efforts achieved locally would provide co-benefits. Depending on the carbon offset credit utilized, co-benefits may include reductions in criteria air pollutants, toxic air contaminants, energy demand, water consumption, health benefits, social benefits, and economic benefits. The GPA applicant or its designee shall first pursue offset projects and programs locally within unincorporated areas of the County of San Diego to the extent such carbon offset credits are available and are financially feasible, as reasonably determined by the Director of PDS.

"If carbon offset credits are provided as mitigation, the GPA applicant, or its designee, shall purchase and retire carbon offsets in a quantity sufficient to offset the net increase from GHG emissions above the density or intensity allowed in the 2011 GPU. This includes all GHG emissions from construction (including sequestration loss from vegetation removal) and operations.

"For the net increase of construction and operations GHG emissions prior to County's issuance of the project's first grading permit (for construction GHG emissions) or first building permit (for operations GHG emissions) the GPA applicant, or its designee, shall provide evidence to the satisfaction of the Director PDS that the project applicant or its designee has purchased and retired carbon offsets credits in a quantity sufficient to offset the net increase of construction and operations GHG emissions generated by the project. Operations emissions may be offset in phases commensurate with the overall phasing of the project.

"Carbon offset credits must be purchased through any of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard, (ii) any registry approved by CARB to act as a registry under the state's cap and trade program, (iii) through the CAPCOA GHG Rx and the SDAPCD, or (iv) if no registry is in existence as identified in options (i), (ii), or (iii) above, then any other reputable registry or entity that issues carbon offsets consistent with Cal Health & Saf. Code section 38562(d)(1)), to the satisfaction of the Director of PDS.

"Option 2 Net Zero: GPA project applicants shall reduce all project GHG emissions to zero to achieve no net increase over baseline conditions (carbon neutrality). Project emissions shall be reduced to zero through onsite design features and mitigation measures and offsite mitigation, including purchase of carbon offset credits by the applicant or its designee. Applicants shall demonstrate compliance with relevant CAP measures as identified in the 'CAP Consistency Review Checklist' before considering additional feasible onsite design features and mitigation measures. Offsite mitigation, including purchase of carbon offset credits would be allowed after all feasible onsite design features and mitigation measures have been incorporated.

"The County will consider to the satisfaction of the Director of Planning & Development Services (PDS), the following geographic priorities for GHG reduction features, and GHG reduction projects and programs: 1) project design features/onsite reduction measures; 2) offsite within the unincorporated areas of the County of San Diego; 3) offsite within the County of San Diego; 4) offsite within the State of California; 5) offsite within the United States; and 6) offsite internationally.

"Geographic priorities would focus first on local reduction features (including projects and programs that would reduce GHG emissions) to ensure that reduction efforts achieved locally would provide co-benefits. Depending on the carbon offset credit

utilized, co-benefits may include reductions in criteria air pollutants, toxic air contaminants, energy demand, water consumption, health benefits, social benefits, and economic benefits. The GPA applicant or its designee shall first pursue offset projects and programs locally within unincorporated areas of the County of San Diego to the extent such carbon offset credits are available and are financially feasible, as reasonably determined by the Director of PDS.

"If carbon offset credits are provided as mitigation, the GPA applicant, or its designee, shall purchase and retire carbon offsets in a quantity sufficient to offset all GHG emissions from the project. This includes all GHG emissions from construction (including sequestration loss from vegetation removal) and operations.

"Prior to the County's issuance of the project's first grading permit (for construction GHG emissions) or first building permit (for operations GHG emissions) the GPA applicant, or its designee, shall provide evidence to the satisfaction of the Director of PDS that the project applicant or its designee has purchased and retired carbon offset credits in a quantity sufficient to offset all construction and operations GHG emissions generated by the project. Operations emissions may be offset in phases, commensurate with the overall phasing of the project.

"Carbon offset credits must be purchased through any of the following: (i) a CARB-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard, (ii) any registry approved by CARB to act as a registry under the state's cap and trade program, (iii) through the CAPCOA GHG Rx and the SDAPCD, or (iv) if no registry is in existence as identified in options (i), (ii), or (iii) above, then any other reputable registry or entity that issues carbon offsets consistent with Cal Health & Saf. Code section 38562(d)(1)), to the satisfaction of the Director of PDS."



**Verified Carbon
Standard**

A VERRA STANDARD

Methodology Approval Process

ABOUT VERRA



Verra supports climate action and sustainable development through the development and management of standards, tools and programs that credibly, transparently and robustly assess environmental and social impacts, and drive funding for sustaining and scaling up these benefits. As a mission-driven, non-profit (NGO) organization, Verra works in any arena where we see a need for clear standards, a role for market-driven mechanisms and an opportunity to achieve environmental and social good.

Verra manages a number of global standards frameworks designed to drive finance towards activities that mitigate climate change and promote sustainable development, including the [Verified Carbon Standard \(VCS\) Program](#) and its [Jurisdictional and Nested REDD+ framework \(JNR\)](#), the [Verra California Offset Project Registry \(OPR\)](#), the [Climate, Community & Biodiversity \(CCB\) Standards](#) and the [Sustainable Development Verified Impact Standard \(SD VISta\)](#). Verra is also developing new standards frameworks, including [LandScale](#), which will promote and measure sustainability outcomes across landscapes. Finally, Verra is one of the implementing partners of the [Initiative for Climate Action Transparency \(ICAT\)](#), which helps countries assess the impacts of their climate actions and supports greater transparency, effectiveness, trust and ambition in climate policies worldwide.

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1 INTRODUCTION

The methodology approval process is the process by which new methodologies, methodology revisions, modules and tools (referred to in this document as “methodologies”) are approved under the VCS Program. The process consists of two main steps. First, the methodology developer submits a methodology concept note for evaluation and acceptance by Verra. Second, following Verra acceptance of the methodological concept (“concept”), the methodology developer drafts the full methodology and submits it for assessment and approval. Such methodologies are subject to an in-depth review by Verra, a public stakeholder consultation hosted on the Verra website and an independent assessment by one validation/verification body, before final approval by Verra.

The methodology approval process is outlined at a high level in the *VCS Program Guide* and the purpose of this document is to provide detailed requirements and practical guidance on the process. The document lays out the steps involved in the methodology approval process and then provides further requirements and guidance for specific elements that are subject to the process. This document is intended for use by methodology developers (“developers”), project proponents, validation/verification bodies and any other parties who use the methodology approval process.

This document will be updated from time-to-time and readers shall ensure that they are using the most current version of the document.

2 SCOPE AND COST OF THE METHODOLOGY APPROVAL PROCESS

2.1 Scope of the Methodology Approval Process

The following are subject to the methodology approval process:

- 1) New methodologies.
- 2) Methodology revisions.
- 3) New modules and tools.
- 4) Module and tool revisions.

2.2 Methodology Approval Process

New methodologies, new methodology modules and tools, and methodology revisions are approved through the process set out in Section 4 below, which consists of an in-depth review by Verra, a public stakeholder consultation, an independent assessment by one validation/verification body and final review and approval by Verra.

Verra may pilot alternative processes for approving methodologies where it is deemed that an alternative approach may be more efficient, and equally robust. In such instances, Verra will define and transparently document the alternative process.

2.3 Cost of the Methodology Approval Process

The cost of the methodology approval process consists of two separate administration fees and the cost of contracting the validation/verification body to undertake assessment of the methodology. All costs are borne by the developer.

Specifically, an application fee is payable upon submission of a methodology concept note, as set out in Section 3.3. Following Verra acceptance of the concept, a processing fee is payable upon submission of the full methodology, as set out in Section 4.3. The administration fee rates are set out in the VCS Program document *Program Fee Schedule*.

In addition, validation/verification bodies charge for undertaking assessment of the methodology. Their rates are primarily dependent on the scope and complexity of the methodology. Developers are encouraged to contact several validation/verification bodies to determine their cost and service options.

Financial compensation is available to developers of new methodologies, the details and conditions of which are set out in the *VCS Program Guide*.

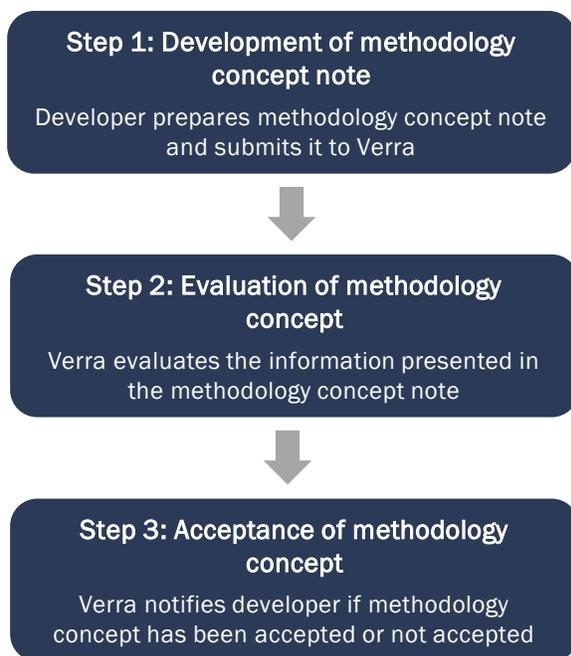
The time taken to complete the methodology approval process is largely dependent upon the initial quality of the methodology and the length of time taken by the validation/verification body to complete its assessment.

3 METHODOLOGY CONCEPT ACCEPTANCE

3.1 Overview

Diagram 1 summarizes the methodology concept acceptance process, which is further described in the sections that follow.

Diagram 1: Steps in the Methodology Concept Acceptance Process



3.2 Step 1: Development of Methodology Concept Note

- 3.2.1 The developer prepares the methodology concept note that will be subject to evaluation by Verra. The methodology concept note shall be prepared using the VCS Methodology Concept Note Template and written in a clear and concise manner. All instructions in the template shall be followed.
- 3.2.2 A methodology concept note shall be developed and submitted for new methodologies, modules and tools, as well as substantive methodology revisions. Minor methodology revisions shall be handled according to the procedure set out in Section 7.

3.3 Step 2: Evaluation of Methodology Concept

- 3.3.1 The developer shall submit the methodology concept note to Verra electronically at secretariat@verra.org. Upon submission, Verra invoices the developer for the methodology concept note application fee, the fee rate of which is set out in the VCS Program document *Program Fee Schedule*. The methodology concept note application fee shall be paid by the developer before Verra begins evaluation of the concept.

Note – Where a concept includes a group of methodology elements (e.g., a new methodology with associated modules), the concept will be handled as a single unit of work.

- 3.3.2 Verra evaluates the concept to determine whether:

- 1) The project activities covered by the concept are not covered by an existing methodology.
- 2) The concept is broadly applicable (i.e., not for a specific technology or process).
- 3) An overview of key methodological approaches is provided, and in particular the method for emission reduction quantification has been well thought through.
- 4) The methodology will be developed by an appropriately experienced team, and sufficient funding is in place to ensure that the methodology approval process can be completed.

- 3.3.3 Preference will be given to methodology concepts that include one or more of the following:

- 1) An innovative approach to demonstrating additionality or quantifying emission reductions or removals (e.g., the methodology concept uses a standardized method, modeling and/or approaches that simplify monitoring).
- 2) Demonstration that the concept has the potential for significant environmental impact (e.g., projects applying the methodology could generate more than 1 million tonnes of GHG emission reductions and/or removals during a 10-year period).
- 3) Demonstration that the concept is applicable to a sector or region that is underrepresented in the carbon markets.
- 4) Demonstration that proposed projects are awaiting the development and approval of the methodology.

3.4 Step 3: Acceptance of Methodology Concept

- 3.4.1 Verra will complete its initial evaluation of the concept within 25 business days of submission, and will submit questions or comments to the developer, as appropriate, where additional information is required for Verra to complete its evaluation.

Once Verra has sufficient information to complete its evaluation of the concept note, Verra will notify the developer of one of the following outcomes:

- 1) The concept has been accepted.
- 2) Revisions are required to the concept before it can be accepted.
- 3) The concept has not been accepted.

3.4.2 Where the concept is accepted, the developer drafts the full methodology and may submit it for approval following the procedure set out in Section 4.

3.4.3 Where revisions are required to the concept, Verra will specify the criteria that have not been met. The developer may then revise and resubmit the concept note for Verra to continue its evaluation.

3.4.4 Where the methodology concept is not accepted, the concept note may be resubmitted if substantial revisions are undertaken. Resubmission of such concept notes shall be treated as original submissions and require payment of an application fee.

4 METHODOLOGY APPROVAL PROCESS

4.1 Overview

Diagram 2 summarizes the methodology approval process, which is further described in the sections that follow.

Diagram 2: Steps in the Methodology Approval Process



4.2 Step 1: Development of Methodology

- 4.2.1 The developer prepares the methodology documentation that will be subject to review by Verra, public stakeholder consultation and independent assessment by one validation/verification body.
- 4.2.2 The methodology documentation shall be prepared in accordance with all the applicable VCS rules. Methodology documentation shall be written in a clear, logical, concise and precise manner, to aid readability and ensure that criteria and procedures set out in the methodology can be applied consistently by intended users. In addition, the methodology documentation should apply the guidance on language and terminology set out in the *Validation and Verification Manual*.

Methodologies and methodology revisions shall be prepared using the *VCS Methodology Template* and modules and tools shall be prepared using the *VCS Module Template*. All instructions in the templates must be followed. The methodology documentation shall state clearly the date on which it was issued and its version number.

Note – The entity acting as developer may change during the course of taking a methodology through the methodology approval process, provided that any necessary authorization is secured from the original developer, Verra is notified and the new entity submits to Verra a signed methodology approval process submission form (see Section 4.3).

4.3 Step 2: Verra Review of Methodology

- 4.3.1 The developer shall submit to Verra a signed methodology approval process submission form (available on the Verra website) and the methodology documentation. Upon submission, Verra invoices the developer for the methodology processing fee, the fee rate of which is set out in the VCS Program document *Program Fee Schedule*. The methodology processing fee shall be paid by the developer before Verra begins its review of the methodology documentation.
- 4.3.2 Verra conducts a review of the methodology documentation to ensure that the methodology is of sufficient quality to enable its assessment under the VCS methodology approval process, and to ensure that the methodology documentation has been completed in accordance with VCS Program rules. Verra's review of the methodology will focus on ensuring that the methodology is well-structured and clearly written, there is logical and technical consistency within the methodology and there are no major inconsistencies with VCS Program rules and requirements.

Note – Methodology developers must take the time to ensure that methodology documentation is professionally written, structured and formatted. Verra will not post methodology documentation for public comment until it is of acceptable quality (e.g., is free from typos and grammatical errors). Verra may contract, at its own expense, an external expert where Verra staff do not have sufficient technical expertise to review all technical aspects of the methodology or where Verra deems that an external expert would add value to the Verra review

of the methodology. Where it is deemed necessary, the developer shall revise the methodology documentation before it is accepted into the methodology approval process.

- 4.3.3 Where the Verra review of the methodology reveals that it is not yet of the requisite standard or would sanction politically or ethically contentious project activities, or may otherwise impact the integrity of the VCS Program or the functioning of the broader carbon market, Verra reserves the right not to accept the methodology into the methodology approval process.

4.4 Step 3: Public Stakeholder Consultation

- 4.4.1 Verra posts the methodology documentation on the Verra website for a period of 30 days, for the purpose of inviting public comment. As part of the consultation process, Verra may also host a presentation of the methodology. Any comments shall be submitted to Verra at secretariat@verra.org and respondents shall provide their name, organization, country and email address.
- 4.4.2 At the end of the public comment period, Verra provides all and any comments received to the developer. The developer shall take due account of such comments, which means it will need to either update the methodology or demonstrate the insignificance or irrelevance of the comment. It shall demonstrate to the validation/verification body what action it has taken.
- 4.4.3 All and any comments received are posted by Verra on the Verra website, alongside the methodology information.

4.5 Step 4: VVB Assessment of Methodology

- 4.5.1 Verra will send a request for proposals (RFP) to all validation/verification bodies which meet the relevant eligibility criteria to conduct the methodology assessment (set out in Section 5.1 below). Upon receipt of any proposals, Verra will narrow the pool of eligible validation/verification bodies based on those with the most relevant expertise and experience. Verra will forward the remaining proposals to the methodology developer, and the methodology developer may make a selection amongst the eligible pool of validation/verification bodies provided by Verra. Verra contracts the validation/verification body selected by the methodology developer, using its standard agreement. The developer pays the validation/verification body directly, as provided for in the contract between Verra and the validation/verification body and the methodology approval process submission form.
- 4.5.2 The validation/verification body shall not begin their assessment until the Verra review is complete and shall issue the assessment report only after the public stakeholder consultation period has ended.
- 4.5.3 The developer shall respond to all and any of the validation/verification body's findings. As a result of any such findings, the developer may need to amend the methodology documentation.

- 4.5.4 The validation/verification body shall produce an assessment report in accordance with the VCS Program rules and best practice. The assessment report shall be prepared using the *VCS Methodology Assessment Report Template*. The assessment report shall address the scope of assessment applicable to the methodology (see Sections 6.1, 7.2 and 8.1 for methodologies, methodology revisions and modules/tools respectively). In addition, the assessment report shall contain the following:
- 1) An explanation of whether and how the developer has taken due account of all comments received during the public stakeholder consultation (see Step 3 above).
 - 2) A summary of all methods, criteria and processes used to determine whether and how the methodology adheres to VCS Program rules and requirements. For example, the assessment process may include background research, document reviews, interviews and site visits.
 - 3) A list of the members on the assessment team, including their role and a summary description of the qualifications of each member of the team indicating their expertise and experience in the sectoral scope(s) relevant to the methodology. Where applicable, the name of the VCS-approved expert and his/her role in the assessment shall also be stated.
 - 4) A description of all and any of the validation/verification body's findings and the developer's response to them.
 - 5) An assessment statement prepared in accordance with the requirements for validation statements set out in the VCS Standard, *mutatis mutandis*. Such statement shall also state the version number of the methodology documentation upon which the statement is based.
 - 6) Evidence of fulfillment of eligibility requirements for validation/verification bodies, as set out in Section 5.2.

4.6 Step 5: Final Review and Approval

- 4.6.1 The developer shall provide Verra with the most recent methodology documentation, the assessment report produced by the validation/verification body and a signed *Methodology Element Approval Request Form*.
- 4.6.2 Verra reviews the most recent methodology documentation and the assessment report produced by the validation/verification body to ensure the methodology has been assessed in accordance with VCS Program rules. Where the review finds that the methodology has not been assessed in accordance with VCS Program rules, it will require the developer to revise the methodology documentation, involving the validation/verification body, as required. Where necessary, the validation/verification body shall revise the assessment report. Verra may withhold the acceptance of the assessment report until all findings from Verra's review have been satisfactorily addressed. Verra may also make revisions to the methodology where it deems necessary.

- 4.6.3 Where Verra approves the methodology, it notifies the developer and the validation/verification body of same. The approved methodology is assigned a reference number and posted with the assessment report on the Verra website. The methodology can then be used by project proponents to develop projects.
- 4.6.4 Where the assessment report does not approve the methodology and attempts to resolve the situation in accordance with Section 4.6.2 have been unsuccessful, it is not approved by Verra. Verra may also withhold approval where it is not satisfied with the quality of the methodology documentation, the assessment report, or where it deems that the methodology does not comply with the VCS Program rules or would sanction politically or ethically contentious project activities, or may otherwise impact the integrity of the VCS Program or the functioning of the broader carbon market.

Note – The validation/verification body shall be responsible for reviewing any minor modifications, edits or clarifications that need to be made to the methodology within two years of its approval. The process for such updates is set out in Section 9.

4.7 Procedure for Clarification and Facilitation by Verra

- 4.7.1 The developer and/or the validation/verification body may request that Verra provides clarification with respect to unresolved findings or the VCS Program rules. Verra consults all necessary parties before providing any clarification and notifies the developer as well as the validation/verification body when such clarification is provided.

4.8 Inactive Methodologies

- 4.8.1 Where a methodology under the methodology approval process does not progress to the subsequent step of the process within 12 months or where the developer chooses to withdraw the methodology from consideration under the methodology approval process, Verra updates the status of the methodology on the Verra website to *inactive*. However, recognizing that certain complex methodologies under the methodology approval process may require more time for assessment, Verra will not update the status of a methodology to *inactive* where a methodology is under ongoing assessment or where the developer notifies Verra that it is still pursuing the methodology under the approval process. The developer may reactivate the methodology at any time by notifying Verra.

5 ELIGIBILITY REQUIREMENTS FOR VALIDATION/VERIFICATION BODIES

5.1 Eligibility Requirements

- 5.1.1 The eligibility requirements for validation/verification bodies are set out in Table 1 below. Recognizing that the approval of methodologies has implications for more than a single project, the eligibility requirements ensure that the appropriate level of expertise and experience is applied in the methodology approval process. Table 1 also states (third column) for which of the applicable eligibility requirements the validation/verification body shall submit evidence of its fulfillment of same. The specific requirements regarding evidence of fulfillment of applicable eligibility requirements are outlined in Section 5.2.

Note – The eligibility requirements for validation/verification bodies set out in Table 1 are in addition to the requirements for competence set out in the VCS Standard.

Table 1: Eligibility Requirements for Validation/Verification Bodies

Methodology	Eligibility Requirements	Evidence Required?
Non-AFOLU methodologies	1) The validation/verification body shall be eligible under the VCS Program to perform validation for the applicable sectoral scope(s). Where there is more than one sectoral scope applicable to the methodology, the validation/verification body shall be eligible for all relevant sectoral scopes for validation; AND	N
	2) The validation/verification body shall have completed at least ten project validations or methodology assessments under the methodology approval process in the sectoral scope group applicable to the methodology. ¹ Project validations can be under the VCS Program or an approved GHG program and projects shall be registered under the applicable program. A validation of a single project under more than one program (e.g., VCS and CDM) counts as one project validation. Methodology assessments shall be for methodologies that have been approved by Verra.	Y
AFOLU methodologies	1) The validation/verification body shall be eligible under the VCS Program to perform validation for sectoral scope 14 ² (AFOLU); AND	N
	2) For non-ARR methodologies, the validation/verification body shall use an AFOLU expert (see Section 10) in the assessment; AND	Y
	3) The validation/verification body shall have completed at least ten project validations in any sectoral scope. Project validations can be under the VCS Program or an approved GHG program and projects shall be registered under the applicable program. A validation of a single project under more than one program (e.g., VCS and CDM) counts as one project validation.	Y
Methodologies using a standardized method	In addition to the above, the validation/verification body shall use a standardized methods expert (see Section 10) in the assessment.	Y

¹ The sectoral scope groups shall be determined in accordance with the ANSI project level groups to which the VCS sectoral scopes are mapped. The mapping of ANSI project level groups to VCS sectoral scopes is available on the Verra website. Where the methodology has more than one applicable sectoral scope and such scopes fall under more than one sectoral scope group, the validation/verification body must have validated at least ten projects or methodologies in each of the relevant sectoral scope groups.

² Or the approved GHG program equivalent to VCS Program sectoral scope 14, where the validation/verification body is accredited under an approved GHG program and the sectoral scopes under the approved GHG Program are not directly equivalent to the VCS Program numbering system for sectoral scopes.

- 5.1.2 In the unlikely event of there being no validation/verification bodies that meet the eligibility requirements set out in Table 1, the developer shall contact Verra, who will work with the developer to choose an appropriately qualified validation/verification body.

5.2 Evidence of Fulfilment of Requirements

- 5.2.1 The validation/verification body shall submit evidence of its fulfillment of eligibility requirements where indicated in the third column of Table 1. Such evidence shall be provided in the validation/verification body's assessment report of the methodology and shall be as follows:

- 1) Where the validation/verification body is required to have undertaken a certain number of project validations or methodology assessments, a summary of such work shall include the following:
 - a) For project validations, the name of the project, the date that the validation report was issued, the date that the project was registered and the name of the GHG program under which the project was registered.
 - b) For methodology assessments, the name of the methodology and the date that the assessment report was issued.
- 2) Where the validation/verification body is required to use an AFOLU expert or a standardized methods expert, the assessment report shall state the name of the expert and their role in the assessment.

6 NEW METHODOLOGIES

6.1 Scope of Assessment

- 6.1.1 The validation/verification body shall determine whether the proposed methodology complies with the requirements set out in the VCS Program document *VCS Methodology Requirements* and any other applicable requirements set out under the VCS Program.
- 6.1.2 Validation/verification bodies shall adhere to the instructional text in the *Methodology Element Assessment Report Template* and refer to the guidance in the *Validation and Verification Manual* when completing the methodology assessment report.
- 6.1.3 The scope of assessment shall include (at a minimum) the following, and the assessment report shall provide an explanation of whether and how the methodology addresses these:
- 1) Relationship to approved or pending methodologies: Assessment of whether any existing methodology could reasonably be revised to meet the objective of the proposed methodology, determined in accordance with Section 6.2.
 - 2) Stakeholder consultation: Assessment of whether the developer has taken due account of all stakeholder comments.
 - 3) Structure and clarity of methodology: Assessment of whether the methodology is written in a clear, logical, concise and precise manner.
 - 4) Definitions: Assessment of whether the key terms in the methodology are defined clearly and appropriately, and are consistently used in the methodology.
 - 5) Applicability conditions: Assessment of whether the proposed methodology's applicability conditions are appropriate, adequate and in compliance with the VCS Program rules.
 - 6) Project boundary: Assessment of whether an appropriate and adequate approach is provided for the definition of the project's physical boundary and sources and types of GHGs included.
 - 7) Baseline scenario: Assessment of whether the approach for determining the baseline scenario is appropriate, adequate and in compliance with the VCS Program rules.
 - 8) Additionality: Assessment of whether the approach/tools for determining whether the project is additional are appropriate, adequate and in compliance with the VCS Program rules.
 - 9) Baseline emissions: Assessment of whether the approach for calculating baseline emissions is appropriate, adequate and in compliance with the VCS Program rules.
 - 10) Project emissions: Assessment of whether the approach for calculating project emissions is appropriate, adequate and in compliance with the VCS Program rules.

- 11) Leakage: Assessment of whether the approach for calculating leakage is appropriate, adequate and in compliance with the VCS Program rules.
- 12) Net GHG emission reductions and/or removals: Assessment of whether the approach for calculating the net GHG benefit of the project is appropriate, adequate and in compliance with the VCS Program rules.
- 13) Monitoring: Assessment of whether the monitoring approach is appropriate, adequate and in compliance with the VCS Program rules.
- 14) Data and parameters: Assessment of whether the specification for data and parameters (available at validation, and monitored) is appropriate, adequate and in compliance with the VCS Program rules.

6.1.4 Where the proposed methodology references tools or modules approved under the VCS Program or an approved GHG program, the validation/verification body shall determine whether the tool or module is used appropriately within the methodology. Reassessment of the actual tool or module is not required.

6.2 Relationship to Approved or Pending Methodologies

6.2.1 In order to safeguard against the unnecessary proliferation of methodologies, methodology developers are required to demonstrate that no approved or pending methodology under the VCS Program or an approved GHG program could reasonably be revised to meet the objective of the proposed methodology. Methodology revisions are appropriate where a proposed activity or measure is broadly similar to an activity or measure covered by an existing approved methodology such that the proposed activity or measure can be included through reasonable changes to that methodology. The procedure for demonstration and assessment that no existing methodology could reasonably be revised to meet the objective of the proposed methodology is as follows:

- 1) The methodology developer shall list the approved or pending methodologies, under the VCS Program or an approved GHG program, that fall under the same sectoral scope or same AFOLU project category³ or combination of sectoral scopes or AFOLU project categories, as applicable. The list shall include, at a minimum, all such methodologies that are available sixty days before the proposed methodology is submitted to Verra. Such list of methodologies (“listed methodologies”) shall contain the methodology name and reference number, and the GHG program under which it is approved or pending.
- 2) The methodology developer shall state whether, and explain how, the proposed methodology uses, includes, refers to or relies upon all or part of any of the listed methodologies. Where it does, the methodology developer shall demonstrate that none of the identified methodologies (“similar methodologies”) could have been reasonably revised

³ The current AFOLU project categories are ARR, ALM, IFM, ACoGS, WRC and REDD.

(i.e., developed as a methodology revision) to meet the objective of the proposed methodology. The onus is upon the methodology developer to demonstrate that a methodology revision would not have been more appropriate, failing which the proposed methodology shall not receive a positive assessment from the validation/verification body. Examples that sufficiently demonstrate the requirement for a new methodology include, but are not limited to, the following:

- a) The proposed methodology uses an approach to setting the baseline and assessing additionality that is different to any of the similar methodologies (e.g., the similar methodologies use a project method for additionality, whereas the proposed methodology uses a performance method).
- b) The proposed methodology uses, includes, refers to or relies upon all or part of a number of the similar methodologies, such that it would have been problematic to revise any particular one of the similar methodologies.
- c) The proposed methodology uses a modular approach to provide a more flexible methodology with wider applicability than any of the similar methodologies.
- d) The proposed methodology draws upon the similar methodologies to provide a simplified methodology for micro-scale projects.
- e) None of the similar methodologies could be revised without substantial changes to the sections on project boundary or procedure for determining the baseline scenario.
- f) None of the similar methodologies could be revised without the addition of new procedures or scenarios to more than half of its sections.

6.2.2 The methodology developer shall document the above in the relevant section of the methodology document, such document being subject to review by Verra, public consultation and independent assessment by the validation/verification body. Where Verra or the validation/verification body is unable to conclude that any approved or pending methodology under the VCS Program or an approved program could not have been reasonably revised to meet the objective of the proposed methodology, in accordance with the procedure set out above, it shall not grant the methodology a positive assessment.

6.3 Proposals for Methodologies Currently Excluded under the Scope of the VCS Program

- 6.3.1 The scope of the VCS Program is revised from time to time, such as with the inclusion of AFOLU into the program in November 2008 and ozone-depleting substances in January 2010. As part of the process of revising the scope of the VCS Program, it is useful for Verra to have a view of possible methodologies and projects that might be eligible under such revisions. Where developers would like to prepare methodologies that currently fall outside of the scope of the VCS Program and have them assessed by a validation/verification body, they are encouraged to contact Verra and to follow the requirements in this document if continuing with such methodology development and assessment.

7 METHODOLOGY REVISIONS

Methodology revisions shall be prepared using the *VCS Methodology Template*. The VCS Program distinguishes between three types of revisions based on the extent of the revisions and between revisions to VCS methodologies and revisions to approved GHG program methodologies. The requirements for each are set out in the sections below.

7.1 Types of Methodology Revisions

- 7.1.1 Verra determines on a case-by-case basis whether a methodology revision is substantive, minor, or represents a limited modification, edit or clarification, based on the extent and type of changes proposed.
- 7.1.2 Where the methodology requires revision (substantive or minor), the methodology shall be revised and approved via the methodology approval process set out in Sections 3 and 4 above.
- 7.1.3 For minor revisions the following applies:
 - 1) A description shall be developed and submitted using the *VCS Minor Methodology Revision Description Template*. All instructions in the template shall be followed. Upon submission, Verra invoices the developer for the methodology application fee, the rate of which is set out in the VCS Program document *Program Fee Schedule*.
 - 2) Verra will evaluate the description to determine whether the proposed revision meets the conditions for minor revisions.
 - 3) Where Verra determines that the proposed revision is substantive, the developer may submit a methodology concept note following the procedure set out in Section 3 and is subject to the appropriate application fee (in addition to the application fee paid upon the original submission).
- 7.1.4 For limited modifications, edits or clarifications to the methodology, the methodology may be updated via a process whereby Verra makes the required changes or coordinates with the developer to make the changes, and issues a revision (i.e., new version) of the methodology.

7.2 Scope of Assessment

The scope of assessment for methodology revisions shall be the same as for new methodologies (see Section 6.1), though excluding assessment of relationship to approved or pending methodologies.

7.3 Revisions to VCS Methodologies

A revision to a VCS methodology is handled as an update to the prevailing version of the methodology and the following applies:

- 1) The methodology revision shall not narrow the methodology's applicability or in any other way exclude project activities that are eligible under the prevailing version of the methodology, unless such narrowing or exclusion is authorized by Verra.
- 2) The methodology document of the prevailing version of the methodology shall be edited to incorporate the methodology revision. The Word version of the prevailing methodology document may be requested from Verra. Where the prevailing version of the methodology does not use the *VCS Methodology Template*, the methodology shall be transferred into the template.
- 3) Where the methodology revision is approved by Verra, the prevailing version of the methodology is withdrawn and the revised methodology replaces it. The previous version of the methodology may be used for up to six months from the date it was withdrawn.

7.4 Revisions to Approved GHG Program Methodologies

A revision to an approved GHG program methodology creates a parallel, revised methodology and the following applies:

- 1) The methodology revision shall reference the (underlying) methodology that it is revising, including the methodology name, version number, issue date and approved GHG program. The methodology revision shall require the use of the latest version of such methodology, such that the methodology revision keeps pace with developments that may occur in the underlying methodology.
- 2) The methodology revision shall use the *VCS Methodology Template*. The rationale for developing the methodology revision shall be clearly stated. Where sections of the underlying methodology are not altered, this shall be stated in the relevant section of the methodology revision document.
- 3) Where a methodology revision has been approved by Verra and a new version of the underlying methodology is issued such that the integrity of the methodology revision is affected and it no longer meets with VCS Program requirements, projects will not be able to use the methodology revision (as set out in the validation and verification section of the *VCS Standard*). The methodology revision may be updated and approved via the methodology approval process.

Note – Methodology deviations and monitoring plan deviations do not require the project proponent to prepare new methodology documentation and are not managed via the methodology approval process. Instead, the validation/verification body validates the deviation as part of the project validation or verification process (as applicable) in accordance with the VCS Standard.

8 NEW MODULES AND TOOLS

8.1 Scope of Assessment

- 8.1.1 New modules and tools shall be assessed against the aspects of the assessment scope for new methodologies set out in Section 6.1 that are relevant to the specific module or tool.
- 8.1.2 The assessment of a revision to a module does not require the reassessment of all methodology framework documents which reference it, though the assessment shall determine whether the revised module is appropriate for the methodologies and that all methodologies maintain their overall integrity. Likewise, the assessment of a revision to a tool shall ensure that the integrity of methodologies that use the tool is not adversely impacted.

9 REVIEW OF APPROVED VCS METHODOLOGIES

On occasion, Verra may review methodologies approved under the VCS Program to ensure that they continue to reflect best practice and scientific consensus. This includes ensuring that methodologies approved under the program are consistent with any new requirements issued by Verra and that methodologies have appropriate criteria and procedures for addressing all VCS Program rules and requirements.

As a result of a review, Verra may need to put on hold the prevailing versions of methodologies or permanently withdraw methodologies approved under the VCS Program. Relevant stakeholders will be kept informed during the review process. The procedure for reviews is set out in the sections below. Note that these procedures are applicable to all types of methodologies and a module may be put on hold or withdrawn without the parent methodology being put on hold. The statuses of all methodologies are available on the Verra website.

9.1 Trigger for Review

9.1.1 A review of a methodology may be triggered as a result of the following:

- 1) Verra periodically issues new requirements that reflect the on-going development of the program, best practice and/or emerging scientific consensus with respect to projects and methodologies. On occasion, methodologies may become materially inconsistent with new requirements subsequently issued (e.g., the inconsistency could lead to a material difference in the quantification of GHG emission reductions or removals by projects applying the methodology).
- 2) Verra may periodically review methodologies where there are concerns that they do not reflect best practice or scientific consensus, or they are materially inconsistent with VCS requirements. Such reviews may be triggered by general scientific or technical developments in the sector or specific concerns about a methodology that are brought to Verra's attention.
- 3) Verra sanctions the consolidation of a number of methodologies into one single methodology (requiring the withdrawal of the original methodologies).

9.2 Procedure for Review

- 9.2.1 The review of the methodology and any relevant issue that triggered the review is undertaken by Verra, with input sought from the developer, the validation/verification body(s) that initially assessed the methodology and appropriately qualified external experts, as required.
- 9.2.2 Where the review is triggered by new requirements being issued by Verra, Verra undertakes the review of approved VCS methodologies within 60 days of the new requirements being issued.

9.3 Outcome of Review

- 9.3.1 Where the review determines that the methodology meets all VCS Program rules and requirements and reflects best practice and scientific consensus, no further action is required.
- 9.3.2 Where the review determines that the methodology requires limited modifications, edits or clarifications, Verra coordinates with the developer to update the methodology documentation, in accordance with procedure set out in Section 7.1.4. Verra may require the validation/verification body that initially assessed the methodology to review and approve the updates via email. Likewise, Verra may seek input from appropriately qualified external experts.
- 9.3.3 Where the review determines that the methodology requires substantive revision, the methodology is put on hold. Where the developer or another entity would like to have the methodology reissued, the methodology shall be revised and approved via the methodology approval process set out in Section 4 (though the methodology shall be exempt from the submission of a methodology concept note and corresponding application fee, processing fee and the public stakeholder consultation). Verra may seek input from appropriate qualified external experts prior to approving the new version of the methodology.
- 9.3.4 Where the review determines that the methodology is fundamentally flawed, the methodology is withdrawn (or in certain circumstances put on hold pending further investigation). The withdrawal of a methodology is considered permanent.
- 9.3.5 Where the review determines that the methodology needs to be withdrawn due to consolidation of a number of methodologies, the methodology is withdrawn. The withdrawal of the methodology is considered permanent.

9.4 Grace Periods

- 9.4.1 Versions of methodologies put on hold or withdrawn may be used for the grace period set out for the methodology on the Verra website, provided the project has been listed on the VCS project pipeline on the Verra project database by the date the methodology is put on hold or withdrawn. Projects shall have their validation reports issued before the end of the grace period. Beyond such date, projects may only use any new approved version of the methodology. Grace periods are determined by Verra using the following guidelines:

- 1) Where the methodology only requires limited modifications, edits or clarifications (consistent with Section 9.3.2), the prevailing version of the methodology is considered withdrawn when the updated version of the methodology is issued and the prevailing version of the methodology may be used for up to six months from the date it was withdrawn. Where the continued use of the prevailing version of the methodology is not appropriate (e.g., a typo in an equation could lead to material misstatement in the estimation of GHG emission reductions or removals), no grace period is granted for the use of the prevailing version of the methodology.
 - 2) Where the methodology requires substantive revision (consistent with Section 9.3.3), or is withdrawn or put on hold due to fundamental flaws (consistent with Section 9.3.4), the following applies:
 - a) The prevailing version may be used for up to six months after it was put on hold.
 - b) Where the prevailing version of the methodology impacts the integrity of the VCS Program or the functioning of the broader carbon market, no grace period is granted (to any projects), subject to approval from the Verra Board.
 - 3) Where the methodology is withdrawn due to consolidation of methodologies in accordance with Section 9.3.5, the withdrawn methodology may be used for up to twelve months after the date of withdrawal.
- 9.4.2 Methodologies being developed under the methodology approval process do not have to comply (immediately) with new requirements where the assessment report has been submitted to Verra in accordance with the VCS Program rules before the time Verra issues such new requirements. However, such methodologies, where finally approved by Verra, are valid for six months from the date that the new requirements were issued by Verra (i.e., any projects shall have their validation report issued within such time periods). After such time period, projects cannot use the methodology and it is considered put on hold or withdrawn, as determined by Verra.
- 9.4.3 Notwithstanding the above, methodologies being developed under the methodology approval process shall be required, subject to Verra Board approval, to comply (immediately) with new requirements where a failure to do so would impact the integrity of the VCS Program or the functioning of the broader carbon market.

10 USE OF EXPERTS IN THE ASSESSMENT OF METHODOLOGIES

10.1 Purpose of Expert

10.1.1 Recognizing that there is currently limited experience and expertise within the broader validation/verification body community regarding the assessment of certain methodologies and the precedent that is set by new methodologies approved under the VCS Program, an expert shall be used in the assessment of the following:

- 1) Non-ARR AFOLU methodologies (see Table 1).
- 2) Methodologies that use a standardized method.

10.1.2 The process for use and designation of experts shall operate as set out in Sections 10.2 and 10.3. The requirement and necessity for validation/verification bodies to use an expert shall be revisited by Verra as and when it has been demonstrated that the validation/verification body community has developed sufficient experience and expertise in assessing the relevant types of methodologies.

10.2 Use of Expert

10.2.2 As set out in Section 5.1, a validation/verification body conducting an assessment of an AFOLU methodology or a methodology that uses a standardized method may need to use an expert in the assessment, and the following applies:

- 1) Experts shall be approved by Verra in accordance with the procedure set out in Section 10.3.
- 2) AFOLU experts shall be approved for the AFOLU project category relevant to the methodology.
- 3) Standardized method experts have the authority to assert their expert judgment in relation to the appropriateness of the proposed level(s) of the performance benchmark metric in ensuring environmental integrity and provision of sufficient financial incentive to potential projects, and therefore to require the methodology to use a level it deems appropriate.

- 10.2.3 The expert can be part of the validation team or act as technical expert to the validation team. Where the expert is acting as technical expert to the validation team, they shall meet all the requirements of technical experts set out in *ISO 14065:2013* and shall not carry out the assessment alone.
- 10.2.4 As set out in Section 5.2 the methodology assessment report shall state the name of the expert and its role in the assessment.

10.3 Application Procedure for Experts and List of Experts

10.3.1 The procedure for applying to be an expert is as follows:

- 1) The applicant shall complete the expert application form, available on the Verra website, and submit this together with two references, at least one of which shall be a professional non-academic reference, to Verra at secretariat@verra.org. The applicant shall also pay the expert application fee, the rate of which is set out in the VCS Program document *Program Fee Schedule*.
- 2) The application is assessed by members of an assessment panel and on a quarterly basis. Further information about the assessment panel, process and schedule is available on the Verra website.
- 3) The assessment criteria for AFOLU experts are as follows:
 - a) **AFOLU expertise and experience:** The applicant shall possess significant expertise in the project category. The applicant shall have at least three years of relevant work experience or an equivalent combination of education and work experience as follows:
 - i) Have expertise in assessing carbon baselines, modeling, leakage, and measurement and monitoring frameworks, as they relate to AFOLU methodologies;
 - ii) Have experience in developing AFOLU projects or methodologies or assessing projects or methodologies under the VCS Program or an approved GHG program; and,
 - iii) Be well-versed in current scientific thinking and best practices associated with AFOLU project design and implementation, and carbon accounting and reporting.

Such experience shall be demonstrated and supported with direct work experience, education/training, peer-reviewed journal articles, publications, publicly available reports and/or methodologies developed, applied or assessed.

Based on the above requirements, the following expertise and experience are expected for ALM, IFM, REDD, ACoGS and WRC AFOLU expert applicants:

- i) ALM AFOLU expert applicants shall demonstrate the above AFOLU expertise and experience with respect to agricultural and cropland systems. Applicants shall have knowledge and experience related to farming, fertilization and nutrient cycling.

Applicants shall have experience in quantifying emissions from agricultural systems and from fertilizer application and have experience modeling, measuring and monitoring soil carbon stocks and GHG emissions from agricultural activities and crop systems.

- ii) IFM AFOLU expert applicants shall demonstrate the above AFOLU expertise and experience with respect to plantations, silviculture, agro-forestry, and timber harvesting. Applicants shall have experience in determining baseline scenarios for managed forests and shall demonstrate an understanding of forest stand dynamics. Applicants shall demonstrate experience in modeling timber harvests or forest rotations and shall have experience quantifying carbon stock. Applicants shall have experience in measuring and monitoring forest carbon. Applicants shall understand the dynamics of market leakage with respect to timber production.
- iii) REDD AFOLU expert applicants shall demonstrate the above AFOLU expertise and experience with respect to forests facing threats of deforestation and degradation. Applicants shall have experience in determining the most plausible baseline scenario in either a planned or unplanned deforestation and/or degradation situations. Applicants shall demonstrate an understanding with regard to drivers of deforestation and/or degradation and approaches to modeling deforestation and/or degradation patterns, and be able to apply that knowledge to leakage. Applicants shall demonstrate an understanding of forest stand dynamics. Applicants shall demonstrate experience in measuring and monitoring changes in land use and carbon stock.
- iv) ACoGS AFOLU expert applicants shall demonstrate the above AFOLU expertise and experience with respect to grasslands and shrublands. Applicants shall have experience in establishing the most plausible baseline scenario in either a planned or unplanned land use conversion of forest or non-forest ecosystems. Applicants shall demonstrate an understanding with regard to drivers of land use conversion and approaches to modeling land use conversion, and be able to apply that knowledge to leakage. Applicants shall demonstrate an understanding of grassland and shrubland ecosystem dynamics. Applicants shall have experience modeling, measuring and monitoring soil carbon stocks.
- v) WRC AFOLU expert applicants are expected to demonstrate the above AFOLU expertise and experience with respect to wetland ecosystems. WRC experts many demonstrate wetlands expertise for peatlands only, wetlands excluding peatlands or wetlands including peatlands. WRC expert applicants for non-peatlands shall have knowledge and experience related to wetlands conservation and restoration activities such as enhancing, creating and/or managing hydrological condition, sediment supply, salinity characteristics and water quality. Applicants shall have experience in quantifying, measuring, modeling and monitoring GHG emissions or gas fluxes from wetland ecosystems. WRC AFOLU expert applicants for peatlands

shall have experience establishing the most plausible baseline scenario and quantifying trace gas fluxes from drained and undrained peatland ecosystems. Applicants shall demonstrate experience in measuring and monitoring changes in peat depth and extent as well as changes in site conditions relevant to GHG fluxes and shall demonstrate expertise in hydrological connectivity as it relates to ecological leakage.

- b) AFOLU project category and regional scope: The applicant shall possess appropriate regional experience in the relevant project category. For example, REDD applicants shall possess relevant developing country and tropical forest experience. This is required because it is expected that most REDD methodologies will be applied within such contexts and because of the unique characteristics that must be considered when establishing robust deforestation and degradation baselines in these regions.
 - c) Organizational affiliation and independence: The applicant shall demonstrate independence and freedom from conflict of interest in relation to the methodology assessment process.
- 4) The assessment criteria for standardized methods experts are as follows:
- a) Standardized methods expertise and experience: The applicant shall possess significant expertise in the development and use of standardized methods. The applicant shall have at least three years of relevant work experience or an equivalent combination of education and work experience as follows:
 - i) Have expertise and experience in developing projects or methodologies or assessing projects or methodologies that use standardized methods; and,
 - ii) Be well versed in current scientific thinking and best practices associated with standardized methods and their implementation.

Such experience shall be demonstrated and supported with direct work experience, education/training, peer-reviewed journal articles, publications, publicly available reports and/or methodologies developed, applied or assessed.
 - b) Organizational affiliation and independence: The applicant shall demonstrate independence and freedom from conflict of interest in relation to the methodology assessment process.
- 5) Applicants will be notified of the outcome of the assessment and, where approved, shall be added to the list of experts. The list shall state the name of the expert, the AFOLU project category(s) for which they are approved (for AFOLU experts), and their contact details. The list of experts is available on the Verra website.
- 6) An expert can request to be removed from the list of experts at any time by contacting Verra and requesting same. Verra also reserves the right to remove an expert from the list where it determines that the expert no longer meets the required criteria or performance quality for experts.

11 POST-APPROVAL ASSESSMENTS

Recognizing that market and sector conditions change over time, the procedures set out in this section are provided to ensure that methodologies, once approved, remain appropriate to evolving market and sector conditions. These procedures also provide an important safeguard given the limited experience to date with the development and use of standardized methods under GHG programs. These procedures may be revised as experience with standardized methods is acquired.

11.1 Post-Approval Assessment of Standardized Methods

11.1.1 For methodologies using a standardized method, an assessment shall be undertaken within five years of the approval of the standardized method and each subsequent five years, as follows:

- 1) The developer (or another entity) shall re-evaluate the standardized method to reflect current data or demonstrate that there have not been significant changes in data, as follows:
 - a) For performance methods, the data and dataset characterizing available technologies, current practices and trends within a sector (which may be documented and contained in the methodology or may be maintained in a separate database referenced by the methodology) shall be evaluated, and updated if there have been significant changes in the data. The developer does not need to undertake stakeholder consultation with respect to the level of the performance benchmark metric (as is required for the initial development of performance methods).
 - b) For activity methods, additionality shall be re-determined (from scratch using the activity penetration, financial viability or revenue streams options). Where the 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 either of the other two options. Such activity methods become invalid and shall be withdrawn.

Note – The VCS Methodology Requirements should be read for further information on the use of data within standardized methods and appropriateness of the level of performance benchmarks.

- 2) The developer or another entity shall submit to Verra a report documenting the standardized method revaluation. This report shall be issued no earlier than four years after the previous approval of the methodology. Verra reviews the report and determines whether a revision to the standardized method or methodology is required.
- 3) Where a methodology revision is required, the revised methodology shall be approved via the methodology approval process set out in Section 4. In addition, the following applies:

- a) The methodology shall be exempt from the submission of a methodology concept note or minor methodology revision description, and corresponding application fee, processing fee and the public stakeholder consultation.
 - b) The scope of assessment shall be limited to assessment of the revisions undertaken as set out in Section 11.1.1(1) above.
 - c) For performance methods where data is maintained in a central repository (i.e., not documented and contained within the methodology), the validation/verification body shall assess whether there are still clear and robust custody arrangements for the data and defined roles and responsibilities with respect to the central repository.
 - d) For performance methods, Verra re-examines the appropriateness of the level(s) of the performance benchmark metric to ensuring environmental integrity and provision of sufficient financial incentive to potential projects, by re-evaluating the original (and any subsequent) analysis undertaken to determine the level of the performance benchmark metric and considering evidence from use of the methodology by projects. The methodology may need to be revised to reflect the outcome of such re-examination and Verra will co-ordinate with the developer accordingly.
 - e) Verra reviews the revised methodology and the assessment report submitted by the validation/verification body, together with the outcome of the re-examination of the appropriateness of the level(s) of the performance benchmark metric, following the procedure set out in Section 4.6, *mutatis mutandis*.
- 4) Where a report is not submitted to Verra within five years of the methodology's initial or previous approval, the methodology is put on hold until such time as it is determined that the methodology does not require revision or the revised methodology is approved. Where the methodology remains on hold on the day that is seven years after its previous approval, the methodology will be withdrawn.

Note – Where methodologies are put on hold or withdrawn, grace periods apply (as set out in Section 9) and registered projects may continue to issue VCUs for the remainder of their project crediting periods.

11.2 Interim Assessment of Activity Methods

- 11.2.1 For methodologies or modules using an activity method that uses the activity penetration option for establishing a positive list, an interim assessment shall be undertaken within three years of the initial or previous (where the activity method has already undergone post-approval assessment in accordance with Section 11.1) approval of the activity method, as follows:
- 1) The scope of the assessment shall be to assess whether the activity penetration level for the project activity remains within the permitted threshold.
 - 2) The developer or another entity shall submit to Verra a report documenting the assessment. A full re-analysis of the activity penetration level is not required and other

- proxies may be used to confirm that the activity penetration level for the project activity remains within the permitted threshold. Proxies may include the continued existence of barriers to the implementation of the project activity (such as cost of technology, cost of implementation of the project activity or level of awareness of the project activity) and the continuing validity of assumptions made within the activity method.
- 3) The report shall be submitted to Verra no sooner than 30 months, and no later than 34 months, after the initial (or previous) approval of the activity method.
 - 4) Where Verra deems that the report does not adequately justify that the activity penetration level remains within the permitted threshold, and the developer (or other entity) does not provide sufficient further evidence, the methodology will be put on hold. It may be revised and assessed via the methodology approval process.

11.3 Periodic Assessment of Default Factors

11.3.1 For methodologies that establish (their own) default factors which may become out of date (see the *VCS Methodology Requirements* for further information on default factors), an assessment shall be undertaken within five years of the approval of the methodology and each subsequent five years, as follows:

- 1) The scope of the assessment shall be to assess whether the value of the default factor remains appropriate to current market, sector or other relevant conditions.
- 2) The developer or another entity shall submit to Verra a report documenting the assessment. An assessment of the key parameters used to establish the value of the default factor may be used to ascertain whether the value of the default factor remains appropriate (i.e., a full re-evaluation of the value is not required).
- 3) The report shall be issued no earlier than four years after the previous approval of the methodology.
- 4) Where Verra deems that the report does not adequately justify that the value of the default factor remains appropriate, and the developer (or other entity) does not provide sufficient further evidence, the methodology will be put on hold. It may be revised and assessed via the procedure set out in Section 9.3.2 or 9.3.3, as appropriate. The scope of assessment shall be limited to assessment of whether the new value of the default factor is appropriate.

APPENDIX 1: DOCUMENT HISTORY

Version	Date	Comment
v4.0	19 Sep 2019	Initial version released under VCS Version 4.



Standards for a Sustainable Future



**Verified Carbon
Standard**



**Climate, Community
& Biodiversity Standards**



**Sustainable Development
Verified Impact Standard**

Blog Posts

Not the Full Story

27 May 2019

By David Antonioli, CEO, Verra, and Naomi Swickard, Chief Market Development Officer, Verra

The Problem with ProPublica’s Story

ProPublica’s recent report on carbon credits from forest conservation ([An Even More Inconvenient Truth](#)) reflects a flawed and incomplete understanding of how carbon credits work and how they can be used to

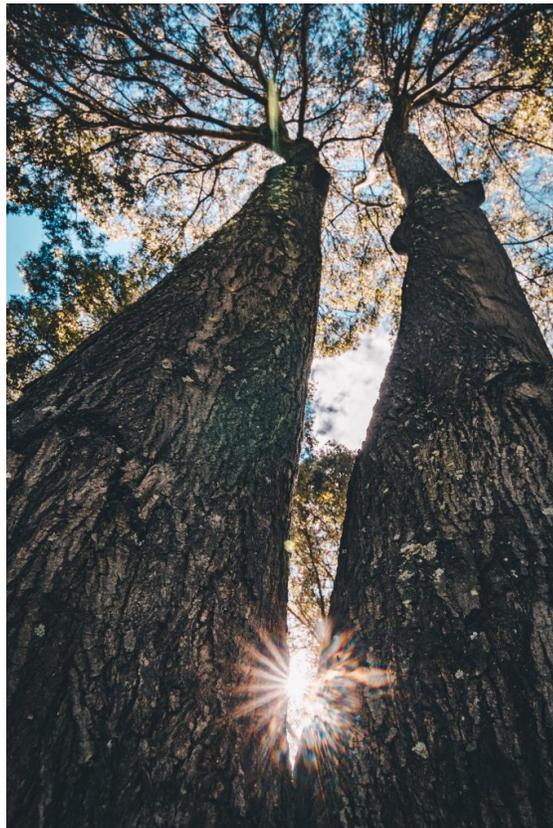


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conserve forests. While the author claims to have done extensive research, a close review of the article indicates that her research is based on extremely limited evidence and also misrepresents and omits important facts. Most worryingly, she willfully ignored and failed to take into account significant amount of information our staff provided to her during lengthy conversations relating to the fundamentals of carbon credits — what they are and how they work.

Misunderstanding REDD+

The ProPublica story is largely based on a detailed description of the situation in the state of Acre, Brazil, which is often touted as a leader in forest conservation. While Acre has indeed been a pioneer in respect of forest conservation, it is worth noting that its REDD+ (Reducing Emissions from Deforestation and Forest Degradation) initiative has yet to achieve any type of third-party certification. In other words, to date, Acre has not issued a single carbon credit, at least not one that would meet the strict requirements of robust standards like the Verified Carbon Standard (VCS), the standard most often used to certify REDD+ projects around the world.

In order to issue such credits, REDD+ initiatives need to be subject to an extensive vetting process that ensures these credits are the result of verified emission reduction activities that have been implemented and only reflect the additional climate contribution made by the project or program. Proper certification would also account for any potential displacement (“leakage”) of deforestation activities and would also need to ensure that any REDD+ credits are backed by a system that ensures their permanence. Finally, such REDD+ credits would need to be listed on a publicly available registry that enables anyone to review the details of the REDD+ activities, including the number of credits issued. This means that REDD+ crediting is a tool that will only deliver money and resources to activities that have actually reduced deforestation — such credits are not issued upfront and in good faith, as the article states.

The Buffer Mechanism

The article fails to cover some key facts related to carbon credits. For example, there is no mention of buffer mechanisms, which have become a recognized approach for ensuring that all carbon credits issued to REDD+ activities are permanent. Buffers work by requiring land-based projects, which run the risk of the sequestered carbon being re-emitted into the atmosphere (so-called “reversals” that are caused by wildfires or deforestation, for example), to set aside a risk-adjusted percentage of the emission reductions and removals achieved, which are then placed into a buffer pool. These “buffer credits” are managed separately (not by the project owner) and can be cancelled in cases where reversals occur. Buffer pools work much like insurance does. In the case of REDD+, the project owner pays a “premium” in the form of emission reductions that are deposited into a buffer account, which, in turn, is managed by an independent standards body (the “insurer”). If and as reversals occur in any single project in the system, the carbon losses are covered through the cancellation of an equivalent number of buffer credits from the buffer pool.

Both the Surui (Brazil) and Oddar Meanchey (Cambodia) projects mentioned in the article are certified through the VCS Program, which backs all REDD+ credits issued with a robust buffer pool that draws from a diverse portfolio of over 150 projects across dozens of countries. Indeed, the VCS buffer pool currently stands at 35.7 million tCO₂e, which means it is easily able to cover the 250,000 carbon credits from the Surui project and the 48,000 credits from the Oddar Meanchey project that were lost due to unfortunate challenges the projects encountered. As mentioned, this means that those carbon credits are still permanent because they are backed by other emission reductions in the system.

The Bigger Purpose of REDD+

The article also fails to capture the overall purpose of REDD+, which is far more encompassing than just forest conservation. One of the key insights we have drawn from the more than 150 REDD+ projects certified by the VCS is that successful projects most often work closely with the communities that live in and around forests to address core livelihood needs. For example, projects often provide agricultural support services, which enable farmers to produce more food on the same plot of land, thereby enhancing

food security and reducing pressure on forests. Projects also improve livelihoods directly and generate new employment opportunities, such as jobs for rangers who protect the forest against illegal deforestation and fight wildfires. Some projects even go as far as building schools and health clinics, and providing access to clean drinking water. In short, REDD+ projects have the potential to transform local forest-based economies so that communities can benefit from healthy and thriving forests, rather than being forced to chop them down.

Such comprehensive approaches are important because they address leakage, also mentioned in the article; the term refers to the very real risk that protecting a forested area could cause deforestation to happen elsewhere. However, if communities are able to thrive without cutting down the forest, there is no reason for leakage to occur. Nevertheless, to address any such residual risk, the VCS Program requires all projects to mitigate, monitor and report on potential leakage; if it occurs, the appropriate number of credits are subtracted from the number of emission reductions achieved, thereby reducing the total amount of credits that can be issued.

All of the above, and more, was explained to Ms. Song who spent several hours speaking to our staff about how the VCS Program works, including the requirements relating to the buffer pool and leakage. A simple search of our [publicly available database](#) would have also revealed that there are more than 150 successful REDD+ projects in operation around the world and that the details for each one, including full auditor reports, are readily available.

It is therefore concerning that this information was ignored. An article following high standards of investigative journalism should provide a comprehensive view of the story, even if it does not align with a predetermined conclusion or ideological position.

Conclusion

At the end of the day, REDD+ is a pay-for-performance system, which means that if projects and programs do not implement activities that reduce emissions against a credible baseline, address leakage and non-permanence in a comprehensive way, and have those results audited by an independent third party,

there will be no credits and no money will flow. The VCS Program has been built around this premise to ensure that only the projects and activities of the highest quality are credited; its decade-long track record shows this approach is working. Due to its robust requirements, the VCS has generated confidence in an instrument that has enabled millions of dollars to flow to forest conservation around the world, much of which has improved the lives of thousands of individuals who have benefitted from these investments. The buyers of these carbon credits include some of the most important and reputable companies and organizations in the world, as well as thousands of committed individuals, and we are delighted to see that they continue to support these efforts.

As a society, we continue to struggle to conserve our threatened forests, especially in the developing world where deforestation pressures can be intense. REDD+ carbon credits have proven to be a credible and effective tool for incentivizing the protection of these precious ecosystems, while generating compelling environmental and social value. Success in this important endeavor will depend on many things, including, in particular, accurate and comprehensive reporting on how tools such as carbon credits truly function.

Case studies outlining the work REDD+ projects do to support local communities and the sustainable development goals of national governments can be found [here](#).

OUR WORK



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**Verified Carbon
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A VERRA STANDARD

Registration and Issuance Process

ABOUT VERRA



Verra supports climate action and sustainable development through the development and management of standards, tools and programs that credibly, transparently and robustly assess environmental and social impacts, and drive funding for sustaining and scaling up these benefits. As a mission-driven, non-profit (NGO) organization, Verra works in any arena where we see a need for clear standards, a role for market-driven mechanisms and an opportunity to achieve environmental and social good.

Verra manages a number of global standards frameworks designed to drive finance towards activities that mitigate climate change and promote sustainable development, including the [Verified Carbon Standard \(VCS\) Program](#) and its [Jurisdictional and Nested REDD+ framework \(JNR\)](#), the [Verra California Offset Project Registry \(OPR\)](#), the [Climate, Community & Biodiversity \(CCB\) Standards](#) and the [Sustainable Development Verified Impact Standard \(SD VISta\)](#). Verra is also developing new standards frameworks, including [LandScale](#), which will promote and measure sustainability outcomes across landscapes. Finally, Verra is one of the implementing partners of the [Initiative for Climate Action Transparency \(ICAT\)](#), which helps countries assess the impacts of their climate actions and supports greater transparency, effectiveness, trust and ambition in climate policies worldwide.

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1 INTRODUCTION

This document outlines the procedures for listing pipeline projects, registering projects and issuing verified carbon units (VCUs) under the VCS Program. This document is intended for use by project proponents, VCU buyers, VCU sellers and any other entities participating in the VCU market. Note that the *VCS Standard* and its related documents provide the rules and requirements for developing projects, and this document (the *Registration and Issuance Process*) should not be used for such purpose.

Projects may have one or many project proponents, though to aid readability, this document uses project proponent in the singular. For projects with multiple project proponents, *project proponents* should be substituted in place of *project proponent*, as appropriate.

Project proponents interact with the Verra registry to list pipeline projects, register projects and issue VCUs (i.e., project pipeline listing, project registration and VCU issuance are handled by the Verra registry). Verra staff are responsible for undertaking a completeness check on documentation and for ensuring adherence to the VCS Program rules with respect to the pipeline listing process and the project registration process. Verra staff also upload information to the Verra registry.

The Verra registry provides the central repository for all information and documentation relating to pipeline and registered projects. The registry is also responsible for ensuring uniqueness of projects, issuing VCU serial numbers and tracking VCU retirement. The registry makes project and VCU information and documentation publicly available and can be accessed via the Verra website. As set out in the VCS Program document *VCS Program Guide*, Verra is responsible for reviewing project documentation and overseeing validation/verification bodies to ensure the integrity of projects and VCUs in the Verra registry system.

This document will be updated from time-to-time and readers shall ensure that they are using the most current version of the document.

2 OPENING A VERRA REGISTRY ACCOUNT

A Verra registry account shall be opened by any market participant who wants to list a pipeline project, register a project and/or issue, trade or retire VCUs as set out in Diagram 1, with the notes that follow providing further details.

Diagram 1: Opening a Verra Registry Account



- 2.1.1 The Verra registry is managed and operated by Verra staff. Further details about the Verra registry system are available in the *VCS Program Guide*.
- 2.1.2 A market participant can apply to open a Verra registry account at any time. For example, a would-be project proponent does not need to have a validated or verified project and a would-be VCU buyer does not need to have entered into a legal agreement to purchase VCUs in order to open a Verra registry account.
- 2.1.3 Market participants can apply to open a Verra registry account through the Verra website. Market participants are also encouraged to contact the Verra registry at any time at registry@verra.org.

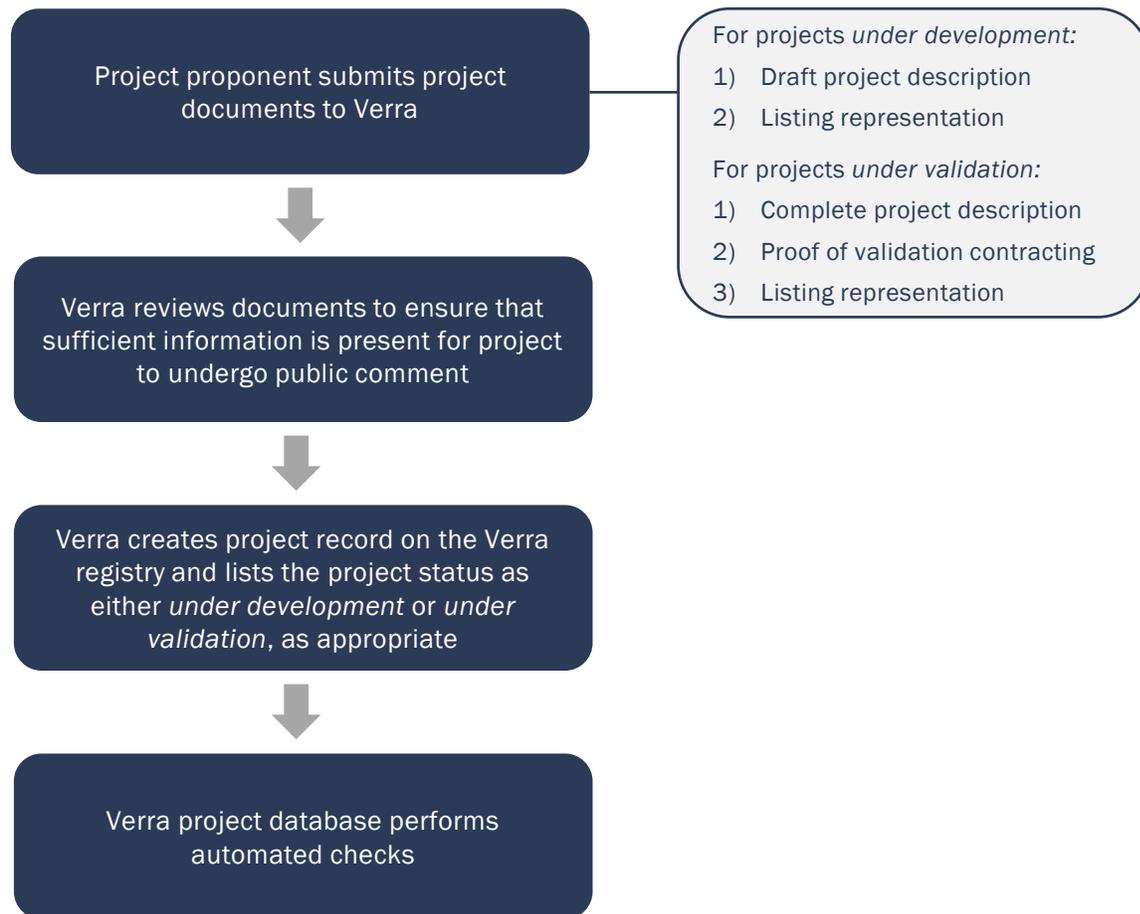
3 PIPELINE LISTING PROCESS

The Verra registry contains a project pipeline which lists projects before they are registered. Projects 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. Note, also, that where a methodology element is put on hold or withdrawn, only projects that have been listed on the project pipeline by the date on which the methodology element is put on hold or withdrawn shall be granted the grace period for using the methodology element (i.e., any projects not listed on the project pipeline by such date shall not be granted the grace period). Project proponents may therefore wish to list their projects at the early stages of project development to ensure that they can take advantage of any grace periods. See the VCS Program document *Methodology Approval Process* for more information on grace periods.

The date on which the project is listed on the project pipeline marks the beginning of that project's 30-day public comment period. Any comments shall be submitted to Verra at secretariat@verra.org and respondents shall provide their name, organization, country and email address. At the end of the public comment period, Verra provides all and any comments received to the project proponent. The project proponent shall address such comments as set out in the *VCS Standard*.

The process for listing a project on the project pipeline is set out in Diagram 2 below, with the notes that follow providing further details.

Diagram 2: Pipeline Listing Process



3.1 Process

- 3.1.1 The only entities that may initiate the pipeline listing process are the project proponent, an entity to which the project proponent has assigned sole right to the GHG emission reductions or removals for the entire project crediting period, an entity who has been authorized by the project proponent(s) to list the project on the project pipeline or the authorized representative of any of these entities. No other entity can initiate the pipeline listing process.
- 3.1.2 Pipeline projects shall be listed as either *under development* or *under validation*. Projects under development are those which have not yet contracted a validation/verification body to perform validation. Projects under validation are those that have contracted a validation/verification body to perform validation (i.e., are ready to begin or have begun the validation process).

- 3.1.3 To list a project as *under development*, the following shall be submitted to the Verra registry:
- 1) A draft project description which shall include (at a minimum) the cover page and drafts of sections 1.1, 1.2, 1.3, 1.5, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 3.1, 3.2, 3.3, 3.4, and 3.5 of the *VCS Project Description Template*. Note that indicative information is sufficient (e.g., the proposed approach for demonstrating additionality or establishing project ownership, rather than the full rationale and evidence that will be submitted for validation); and
 - 2) A listing representation.

- 3.1.4 To list a project as *under validation*, the following shall be submitted to the Verra registry:
- 1) A complete project description (i.e., one with all sections of the *VCS Project Description Template* completed);
 - 2) Proof of contracting of the validation, provided in accordance with Section 4.2.6; and
 - 3) A listing representation.

Note – Pipeline projects may either apply an approved methodology or a methodology that is under development. Where a methodology under development is applied, the project description shall provide a reference for the draft version of the methodology.

- 3.1.5 The project status may be updated from *under development* to *under validation* where the required documentation set out in Section 3.1.4 is submitted (noting that a second listing representation is not required). Verra shall undertake the relevant checks set out in Section 3.1.8.

- 3.1.6 The following applies with respect to the listing representation:

- 1) The Verra website provides the template for the listing representation. The template shall not be altered other than to fill in the project-specific details.
- 2) The listing representation shall be properly executed as a deed in accordance with applicable local laws and the organization's own constitutional documents (e.g., signature by directors and requirement of company seals).
- 3) Where more than one individual or organization can claim rights in respect of the execution of the listing representation, and there exists no other (single) entity which may execute the listing representation, all such individuals and organizations shall execute the listing representation, using the appropriate template available on the Verra website for pipeline projects with multiple project proponents, as applicable. Note that such representations may be executed in any necessary number of counterparts.

- 3.1.7 All project documents may be submitted to the Verra registry in electronic format.

- 3.1.8 Verra shall check the submitted project documents to ensure that:
- 1) The relevant sections of the *VCS Project Description Template* have been completed in accordance with Sections 3.1.3 and 3.1.4.
 - 2) The listing representation has been signed by the relevant responsible parties.
 - 3) Where required, proof of contracting has been properly submitted.
- 3.1.9 Verra reviews the project documents to ensure that sufficient information is present for the project to undergo public comment and may require the project proponent to update project documentation before listing the project on the Verra registry.
- 3.1.10 Verra shall upload all relevant project documentation to the Verra registry. Verra will use the information from the project documents to create the project record in the Verra registry. The status of the project shall be *under development* or *under validation*, as appropriate.
- 3.1.11 Verra shall store the electronic and signed original project documents in its record-keeping system for a minimum period of 12 years from the date the project is listed on the project pipeline.
- 3.1.12 Where a pipeline project successfully completes validation, it may progress to project registration on the Verra registry, following the procedures set out in Section 4.
- 3.1.13 Where a pipeline project does not successfully complete validation within 12 months of its initial listing, Verra shall update the project status to *inactivated*, unless Verra is informed that validation is still being pursued. Likewise, inactivated projects may be reactivated by notifying Verra.
- 3.1.14 Where Verra has reason to believe that false or misleading project information has been submitted, Verra seeks clarification from the project proponent. Where the project proponent cannot satisfactorily justify the information provided for the pipeline project, Verra reserves the right to delist the project.

4 PROJECT REGISTRATION PROCESS

The following steps are required under the VCS Program to register a project and issue VCUs, and these are presented in detail in this Section 4:

- 1) Project validation and verification
- 2) Registration and issuance request
- 3) Project review
- 4) Project registration and initial VCU issuance
- 5) Periodic VCU issuance
- 6) VCU retirements and cancellations
- 7) Project maintenance

For the purposes of this document, the project registration process refers to all or any of these six steps, as the case may be. The entity that initiates the project registration process may terminate the process at any one of these steps if it decides it does not want to register the project or have VCUs issued.

4.1 Step 1: Project Validation and Verification

The project shall be validated and the GHG emission reductions or removals verified as set out in Diagram 3 below, with the notes that follow providing further details.

Diagram 3: Validation of Project and Verification of GHG Emission Reductions or Removals



4.1.1 The requirements for validation and verification, including the requirements for validation/verification bodies, are set out in the *VCS Standard* and the *VCS Program Guide*. Projects must complete validation prior to requesting registration and projects must complete verification prior to requesting VCU issuance. The process for requesting registration and issuance,

including the documents required to be submitted for each type of request, are set out in Section 4.2 below.

4.1.2 The Verra registry can display separate vintages within one verification period.

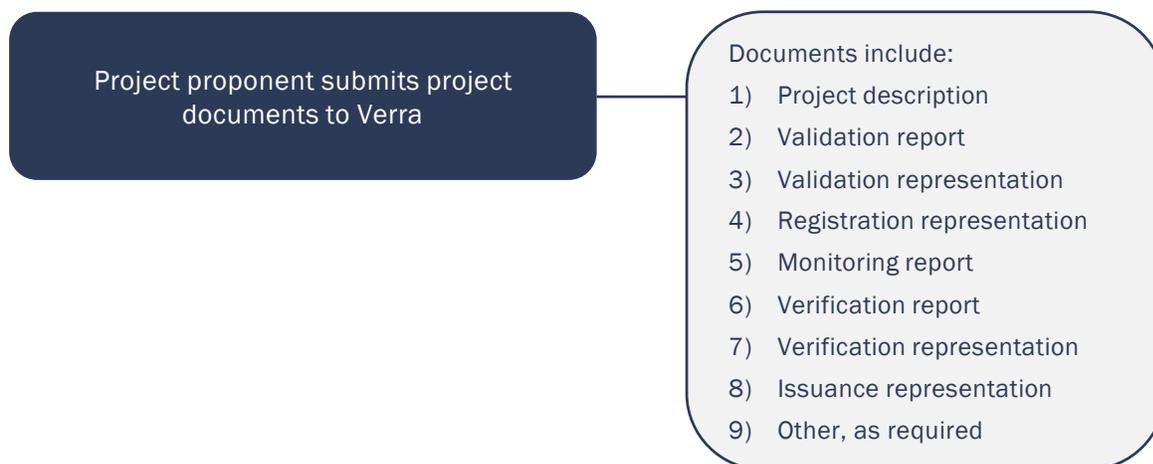
For example, where the verification period is 1 January 2012 to 30 June 2013, the project proponent may wish to have one VCU issuance record for the 2012 VCUs and a separate VCU issuance record for the 2013 VCUs. The creation of such separate VCU issuance records in respect of one verification period is only possible where the monitoring report and associated verification report specify the vintage breakdown. Thus, the monitoring report and associated verification report will need to specify the number of GHG emission reductions or removals generated in 2012 and the number generated in 2013. Vintage breakdown may be specified at a finer granularity than calendar years, and where vintage dates are specified with day, month and year, corresponding VCU issuance records can be created in the Verra registry accordingly. Where the vintage breakdown or the day, month and year start and end dates for the vintage period are not provided, there can only be one VCU issuance record in respect of the verification report (i.e., the Verra registry shall not arbitrarily assign a vintage breakdown where none is specified in the verification report).

Note – Due to the intricacies of accounting for GHG emission reductions and removals in AFOLU ARR and IFM projects with harvesting, such projects may not break down verification periods into vintage periods when any year within the verification period has a negative number of GHG emission reductions or removals. For such projects, the vintage period shall be equivalent to the verification period.

4.2 Step 2: Registration and Issuance Request

The project is presented to the Verra registry for registration and issuance as set out in Diagram 4 below, with the notes that follow providing further details.

Diagram 4: Project Registration Request



- 4.2.1 The only entities that may initiate the project registration process are the project proponent, an entity to which the project proponent has assigned sole right to the GHG emission reductions or removals for the entire project crediting period, or the authorized representative of either of these entities. No other entity can initiate the project registration process.
- 4.2.2 Registration of a project may be requested when the project has completed project validation but before the first verification of GHG emission reductions or removals. Some project proponents may be interested in doing this by way of giving market visibility and credibility to their projects.
- 4.2.3 Where the project is presented for registration without VCU issuance, the relevant documents that shall be provided to the Verra registry are the project description, the validation report, the validation representation, the registration representation, and any AFOLU specific documentation, communications agreement, proof of right or proof of contracting.
- 4.2.4 Where the project is presented for registration and VCU issuance, the relevant documents that shall be provided to the Verra registry are the project description, the validation report, the validation representation, the registration representation, the monitoring report, the verification report, the verification representation, the issuance representation, and any AFOLU specific documentation, communications agreement, proof of right, proof of contracting or evidence and representation with respect to cancellation of GHG credits under another GHG program. Where a project description deviation has been applied, and a revised project description is issued, such project description shall be provided to the Verra registry. Likewise, where a project crediting period has been renewed, the revised project description and new validation report and validation representation shall be provided to the Verra registry.
- 4.2.5 The following shall apply with respect to the project proponent representations:
- 1) The Verra website provides the templates for the registration representation, issuance representation and all other project proponent representations. The templates shall not be altered other than to fill in the project specific details.
 - 2) The project proponent representations shall be properly executed as deeds in accordance with applicable local laws and the organization's own constitutional documents (e.g., signature by directors, requirement of company seals).
 - 3) Where more than one individual or organization can claim rights in respect of the execution of the project proponent representations, all such individuals and organizations shall execute the project proponent representations, using the appropriate templates available on the Verra website for projects with multiple project proponents, as applicable. Note that such representations may be executed in any necessary number of counterparts.
- 4.2.6 Proof of contracting shall be provided to the Verra registry where required, as set out in Section 3.1.4. The project proponent or its authorized representative shall provide evidence of the legal agreement between the project proponent (or other entity that has contracted the validation/verification body to undertake validation) and the validation/verification body, in

relation to validation of the project. A final legal agreement, letter of intent, memorandum of understanding or term sheet shall serve as proof of contracting. Such evidence of proof of contracting shall be uploaded to the Verra registry as a private document (for Verra internal auditing purposes) and therefore will not be publicly available.

- 4.2.7 All project documents may be submitted to the Verra registry in electronic format.
- 4.2.8 There is no need to submit proof of right to the Verra registry where the project proponent or its authorized representative is initiating the project registration process. Proof of right shall be submitted to the Verra registry where an entity other than the project proponent or its authorized representative is initiating the project registration process. Evidencing proof of right is as set out below.
- 4.2.9 The entity initiating the project registration process or its authorized representative shall submit to the Verra registry the legal agreement(s) transferring the right to the GHG emission reductions or removals for the entire project crediting period to it from the project proponent. Where there are one or more intermediaries standing between the entity initiating the project registration process and the project proponent, Verra shall check all the legal agreements documenting the complete chain of transfer of right to the GHG emission reductions or removals to the entity from the project proponent. Legal agreement(s) shall be in English or shall be an official translation of the legal agreement(s).
- 4.2.10 In consideration of confidentiality, the entirety of the aforementioned legal agreement(s) need not be shown, but Verra shall undertake the checks set out in Table 1 (if submitting an official translation of the legal agreement(s), only such information needs to be translated and shown to Verra).

Table 1: Evidence for Proof of Right

Information required	Verra registry check
Names of the parties to the agreement	The parties are the entity initiating the project registration process (buyer or transferee) and the project proponent (seller or transferor), or where there is one or more intermediaries, the parties shall be the relevant parties in the chain of ownership between project proponent and the entity initiating the project registration process
Date of the agreement	Appropriate to the project and transaction subject of the legal agreement
Project name	Same as the project that the entity is presenting for registration
Project crediting period	The project crediting period is defined, with a start date and duration (or end date) specified

Clause that transfers the right to the GHG emission reductions or removals between the parties to the agreement	The clause transfers the right to the GHG emission reductions or removals generated by the project for the project crediting period
Signatures of parties to the legal agreement	The legal agreement is signed by both parties to the agreement

- 4.2.11 The project proponent may protect commercially sensitive information by uploading a public project description and a private project description. The private project description will not be publicly available. The public project description differs from the private project description only in that it does not contain commercially sensitive information.
- 4.2.12 The VCS Program allows projects registered under an approved GHG program (e.g., CDM) to also register with the VCS Program. In such cases, the documentation required for the project registration process is the same as required for projects registering under the VCS Program only, but noting the following:
- 1) The project description from the approved GHG program and a project description using the *VCS Project Description Template* with the relevant sections complete, as set out in the *VCS Standard*, must be submitted.
 - 2) Where GHG emission reductions or removals from one verification period are split between the VCS Program and an approved GHG program, evidence shall be submitted to the Verra registry that any GHG emission reductions or removals presented for VCU issuance have not been issued as GHG credits under the approved GHG program, or where such GHG credits have been issued under the approved GHG program that they have been cancelled. In the latter of these cases, the project proponent or its authorized representative shall also sign and submit to the Verra registry a VCU conversion representation.
 - 3) AFOLU projects are subject to the rules and requirements for non-permanence risk analysis and buffer withholding set out in Section 5. The buffer withholding percentage determined by the *AFOLU Non-Permanence Risk Tool* shall be applied to the proportion of GHG credits to be issued under the VCS Program (only).
 - 4) Where a loss event or a reversal occurs, the project shall comply with the rules for reporting a loss event and holding and cancelling credits set out in Section 5.3. Such reporting, holding and cancelling shall apply to the proportion of credits (GHG credits and buffer credits) granted to date under the VCS Program. For example, if 50 percent of the total credits (GHG credits and, where applicable, buffer credits) granted to the project to date have been granted under the VCS Program and a loss event results in a reversal of GHG emission reductions or removals achieved to date (in relation to which credits have been issued and buffered), buffer credits would be cancelled to cover 50 percent of the reversal.

- 4.2.13 Where the project is registered with both the VCS Program and the CDM, and where temporary GHG credits have been issued to the project (i.e., tCERs and ICERs) which have expired without having been sold or retired, such credits may be issued under the VCS Program in accordance with the requirements in Section 4.2.15. Where temporary credits have expired, evidence of their expiration shall be provided.
- 4.2.14 The VCS Program also allows projects registered under a non-approved GHG program to also register with the VCS Program. In such cases, the documentation required for the project registration process is the same as required for projects registering under the VCS Program only. Where GHG emission reductions or removals from one verification period are split between the VCS Program and a non-approved GHG program, the same requirements set out in Section 4.2.12(2) shall apply.
- 4.2.15 The VCS Program allows projects registered under an approved GHG program to cancel GHG credits issued under the approved GHG program and have them issued as VCUs in the Verra registry. Project activities must be eligible under the VCS Program (i.e., included within the scope of the VCS Program, as set out in the *VCS Standard*) in order to be eligible for such conversion. In such cases, the following applies:
- 1) An official notification or other evidence of cancellation of the GHG credits under the approved GHG program and a signed VCU conversion representation shall be provided to the Verra registry.
 - 2) Where the project is registered under the CDM, those documents required for project registration and Certified Emission Reduction (CER) issuance under the CDM shall be provided to the Verra registry. Verra shall create a project record on the Verra registry, noting that such record shall have the status *credits transferred from other GHG program*. Such projects are not considered to be registered under the VCS Program and are not eligible for verification under the VCS Program without first complying with the procedures for registration with the VCS Program and an approved GHG program set out in Section 4.2.12.
 - 3) Where the project is registered under the JI program, the project shall also register with the VCS Program before Emission Reduction Units (ERUs) may be converted into VCUs¹. Following registration with the VCS Program, such projects shall provide those documents required for ERU issuance under the JI program to the Verra registry.
 - 4) Where the project is registered under the Climate Action Reserve (CAR), those documents required for registration and Climate Reserve Tonne (CRT) issuance shall be provided to the Verra registry. Verra shall create a project record on the Verra registry, noting that such record shall have the status *credits transferred from other GHG program*. Such projects are

¹ The flexibility inherent within the JI program (e.g., use of an approved methodology not required) means it is necessary for JI projects to register with the VCS Program in order to determine whether ERUs issued to such projects are eligible for conversion into VCUs.

not considered to be registered under the VCS Program and are not eligible for verification under the VCS Program without first complying with the procedures for registration with the VCS Program and an approved GHG program set out in Section 4.2.12.

- 5) Where the project is an AFOLU project, the project shall also register with the VCS Program before GHG credits issued under an approved GHG program may be converted into VCUs. The buffer withholding percentage for such projects shall be applied to the number of GHG credits being converted.

4.2.16 Where projects have created another form of GHG-related environmental credit, such as renewable energy certificates, evidence shall be provided to the Verra registry demonstrating that the GHG emission reductions or removals presented for VCU issuance have not also been recognized as another GHG-related environmental credit, or that any such credits have not been used and have been cancelled under the relevant program.

4.2.17 Grouped projects and AFOLU projects with geographic areas characterized by one or more geodetic polygons shall provide the geodetic information to the Verra registry in the format specified in the *VCS Standard*.

4.2.18 The VCS Program allows VCUs to be labelled with additional certifications that have been granted to the project. The Verra website provides the list of standards that are accepted as VCU labels, together with the procedure for attaining such VCU labels.

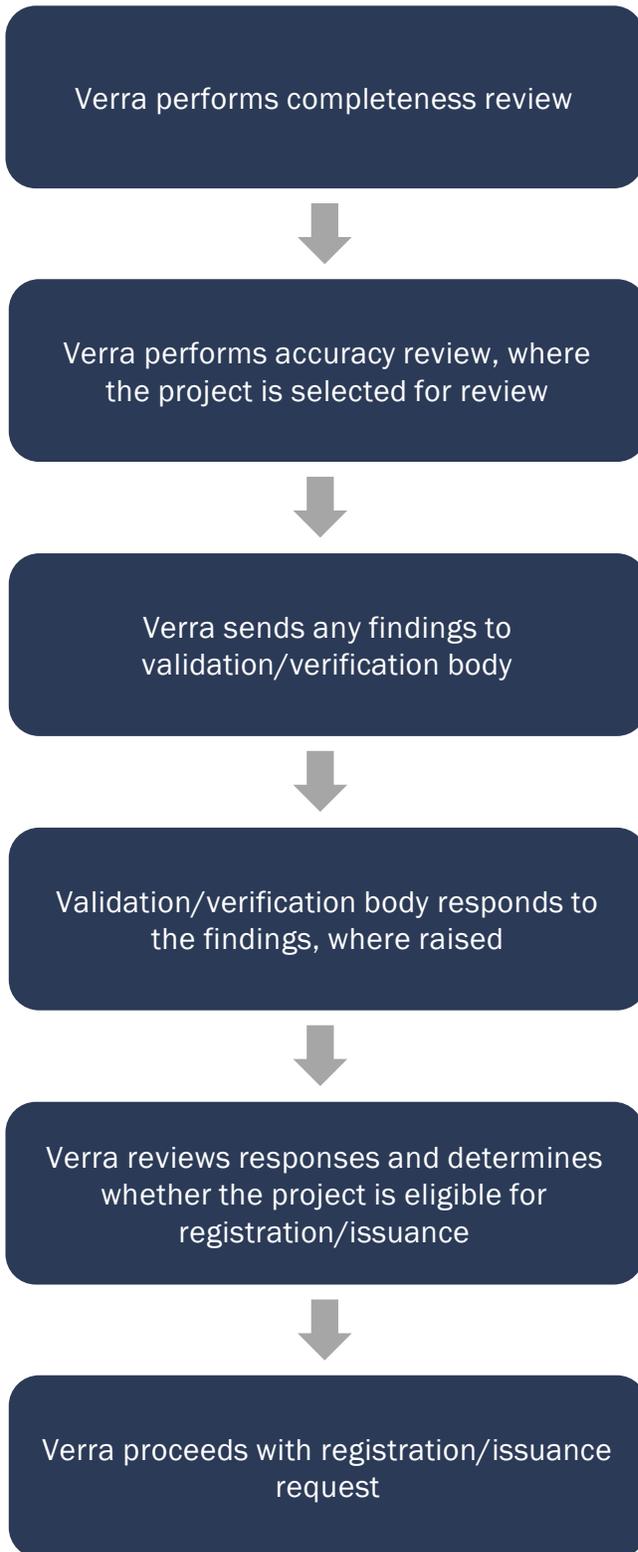
4.3 Step 3: Project Review

The project review is a two-part process consisting of a completeness review and an accuracy review (undertaken at Verra's discretion) of the project registration, VCU issuance or project crediting period renewal request. The project review process is set out in Diagram 5 below. Verra notifies the project proponent (or its authorized representative) and the validation/verification body at the start and completion of each review.

Note that the project review process is triggered when the relevant documentation for registration, issuance or project crediting period renewal is submitted to the Verra registry. As such, project proponents are encouraged to submit their documentation to the Verra registry as soon as it is ready, so that the project review process may be completed at an early stage.

Note also that when submitting issuance documentation, it is not necessary to immediately request issuance of VCUs. Instead, Verra will begin the review process following receipt of the relevant documentation. VCUs may then be issued upon request to the Verra registry any time following the completion of such reviews.

Further details on the project review process are provided in this section.

Diagram 5: Review of Project Registration and VCU Issuance Request

Completeness Review

- 4.3.1 Verra undertakes a completeness review of the request. The purpose of the completeness review is to ensure that all documents are complete and duly signed where necessary, the validation or verification has been completed by an eligible validation/verification body and within required timeframes, the GHG emission reductions and removals have not been issued under another GHG program, appropriate information has been used to complete all project documents, and the baseline scenario and additionality have been correctly assessed. Verra completes the review within ten business days.
- 4.3.2 The validation/verification body shall be accredited for the sectoral scope(s) relevant to the project and shall have signed the required agreement with Verra. The Verra website maintains information on validation/verification bodies and Verra shall check the following:
- 1) The validation/verification body that conducted validation of the project was accredited for the relevant sectoral scope for validation at the date(s) on which the validation report and validation representation were issued.
 - 2) The validation/verification body that conducted verification of the project was accredited for the relevant sectoral scope for verification at the date(s) on which the verification report and verification representation were issued.
- 4.3.3 Verra checks that the requirement for rotation of validation/verification bodies has been met, 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.
 - 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.

Where a project violates the requirements for rotation of validation/verification bodies for the first time, the project shall be subject to a mandatory accuracy review and Verra reserves the right to require the project to redo validation and/or verification with a different validation/verification body. Where a project violates these requirements for a second time, the project shall be required to redo validation and/or verification with a different validation/verification body.

4.3.4 Verra checks the project documents submitted to ensure that:

- 1) Each section of the project documents has been completed with appropriate information.
- 2) Each project document, with the exception of the project description, the non-permanence risk report, the validation report, the monitoring report and the verification report, is signed by the relevant responsible parties.
- 3) Validations have been contracted or completed within the appropriate timeframes, in accordance with the VCS Program rules.
- 4) Where VCU issuance is requested, the GHG emission reductions or removals presented for VCU issuance have not been issued under any other GHG program or recognized under a program which creates GHG-related environmental credits (such as renewable energy certificates). Where the GHG emission reductions or removals presented for VCU issuance are found to have been issued under another program, the VCU issuance request shall be rejected and the project shall no longer be eligible for crediting under the VCS Program. Such checks shall be performed upon each and every VCU issuance. Where the project is being presented for registration only (i.e., without VCU issuance requested), such checks need not be undertaken.

Note – As set out in Sections 4.2.12 and 4.2.13, GHG emission reductions or removals from one verification period can be split between the VCS Program and another GHG program.

4.3.5 Verra reviews the assessment of the project baseline and additionality (at validation and project crediting period renewal) to ensure adherence to the VCS Program rules and the applied methodology.

4.3.6 Verra may request that project documents be updated (e.g., where information is missing or incorrect). Any findings raised as a result of the completeness review shall be addressed before the registration or issuance request can proceed.

4.3.7 The Verra registry shall store the electronic project documents in its record-keeping system for a minimum period of 12 years from the retirement date of the last VCU to which the project documents relate.

4.3.8 Where Verra determines that the project has failed to comply with the VCS Program rules, Verra shall inform the project proponent (or its authorized representative) and the validation/verification body that the project fails to demonstrate compliance with the VCS

Program rules and is ineligible for registration or issuance, stating the reasons. Upon request by the project proponent or its authorized representative, Verra shall return the project documents to the project proponent or its authorized representative.

Accuracy Review

- 4.3.9 Verra may, at its discretion, undertake an accuracy review of the registration, issuance or project crediting period renewal request, the scope of which is to ensure full adherence of the validation or verification to the VCS Program rules and the applied methodology. Where Verra undertakes such an accuracy review, Verra shall notify the project proponent (or its authorized representative) and the validation/verification body. Any findings issued as a result of the Verra review shall be addressed before the registration or issuance request can proceed. Verra determines whether it will undertake a review, completes the review and issues any findings within 20 business days.
- 4.3.10 Where no findings are raised during the accuracy review, Verra notifies the project proponent (or its authorized representative) that the project registration or VCU issuance may proceed in accordance with Section 4.4.
- 4.3.11 Where material non-conformances are identified during the accuracy review (see the *VCS Standard* for further details on the threshold for materiality), the validation/verification body shall respond to the findings issued (e.g., corrective action requests and clarification requests) by Verra, in accordance with the following procedure:
- 1) The validation/verification body shall provide a written response to each finding, undertake (or ensure that the project proponent undertakes, as appropriate) revisions to the project documents where necessary, and submit all revised documents to Verra. Verra reviews such documents within 10 business days.
 - 2) Where the findings are addressed to the satisfaction of Verra, Verra notifies the project proponent and validation/verification body that the project registration or VCU issuance may proceed in accordance with Section 4.4.
 - 3) Where the findings are not addressed to the satisfaction of Verra, Verra may issue a further round of findings (not to exceed a total of three rounds of findings).
 - 4) Where the findings are not addressed to the satisfaction of Verra after the third round and/or where Verra otherwise determines that the project has failed to demonstrate compliance with VCS Program rules, the registration and/or issuance request shall not be accepted. Verra notifies the project proponent (or its authorized representative) and the validation/verification body of same. The findings may be addressed and the request resubmitted three months after such notification, except where the project is ultimately deemed by Verra to not qualify under the VCS Program.
 - 5) Where the accuracy review identifies errors or quality issues in a previous validation or verification, the procedures set out in Section 6 shall apply.

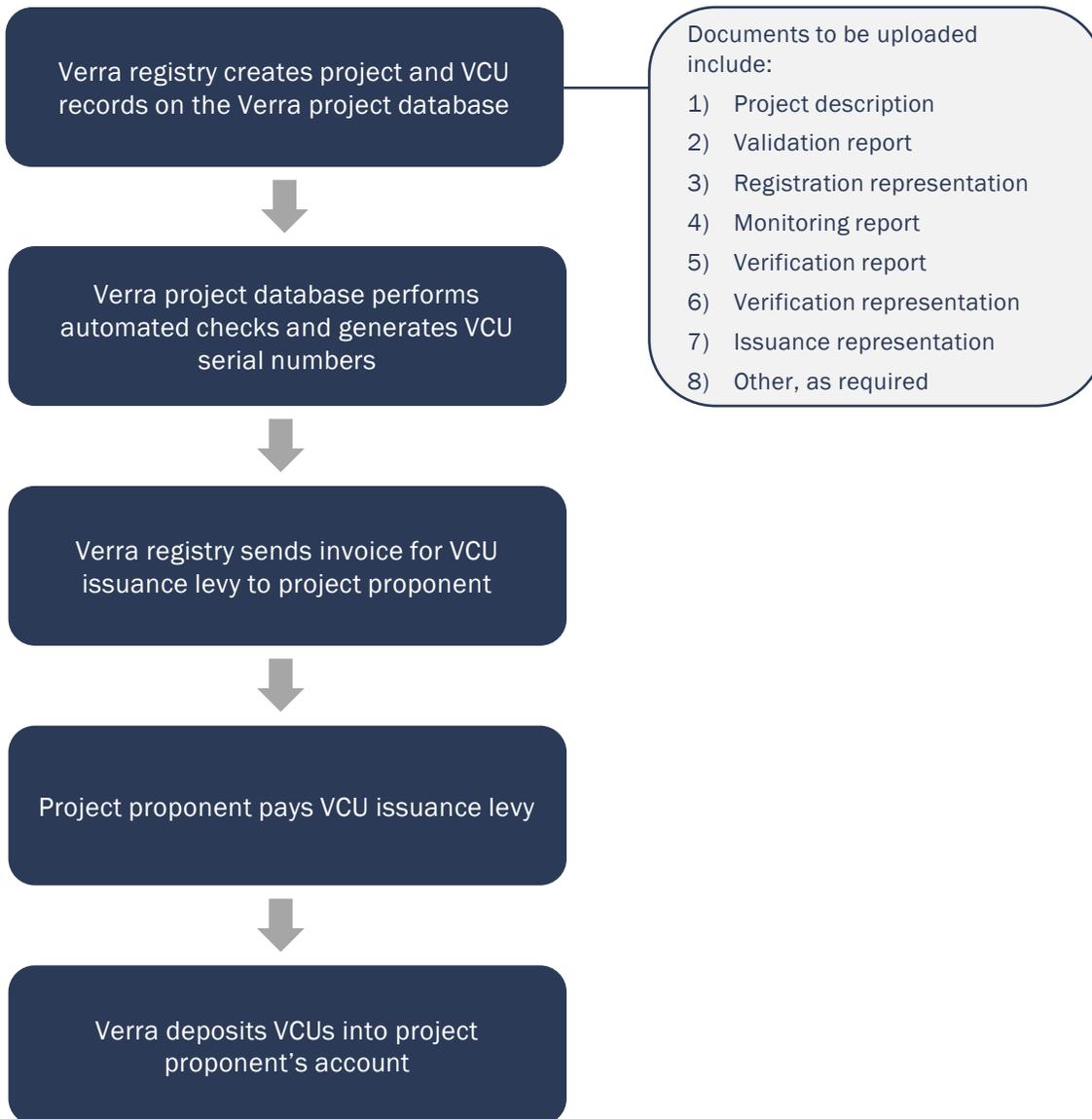
- 6) Where no response is received from the validation/verification body within 60 business days from the date the findings were issued, Verra reserves the right to assume that the project proponent does not intend to pursue the project registration or VCU issuance request. Where Verra determines this to be the case, the project registration and VCU issuance request shall not be accepted, and Verra notifies the project proponent (or its authorized representative) and the validation/verification body of same. The registration and/or issuance request may be resubmitted three months after such notification, except where the project is ultimately deemed by Verra to not qualify under the VCS Program.

Note – For the purpose of determining adherence to deadlines with respect to methodology validity and completion of validation and verification, the dates of the project documents submitted under the initial registration or issuance request shall be used (rather than the dates of the revised documents).

4.4 Step 4: Project Registration and Initial VCU Issuance

The project is registered and the VCUs are issued on the Verra registry as set out in Diagram 6, with the notes that follow providing further details.

Diagram 6: Project Registration and Initial VCU Issuance



4.4.1 Where the project is presented for registration without VCU issuance, the project description, validation report, validation representation, registration representation and any AFOLU specific documentation or communications agreement shall be uploaded to the Verra registry as public documents. Any proof of right or proof of contracting shall be uploaded to the Verra registry as private documents (for Verra internal auditing purposes) and therefore will not be publicly available.

4.4.2 Where the project is presented for registration and VCU issuance, the project description, validation report, validation representation, registration representation, monitoring report, verification report, verification representation, issuance representation and any AFOLU specific documentation, communications agreement or VCU conversion representation shall be

uploaded to the Verra registry as public documents. Any proof of right or proof of contracting shall be uploaded to the Verra registry as private documents (for Verra internal auditing purposes) and therefore will not be publicly available. Where a project description deviation has been applied, and a revised project description is issued, such project description shall be uploaded to the Verra registry as a public document. Likewise, where a project crediting period has been renewed, the revised project description and new validation report and validation representation shall be uploaded to the Verra registry as public documents.

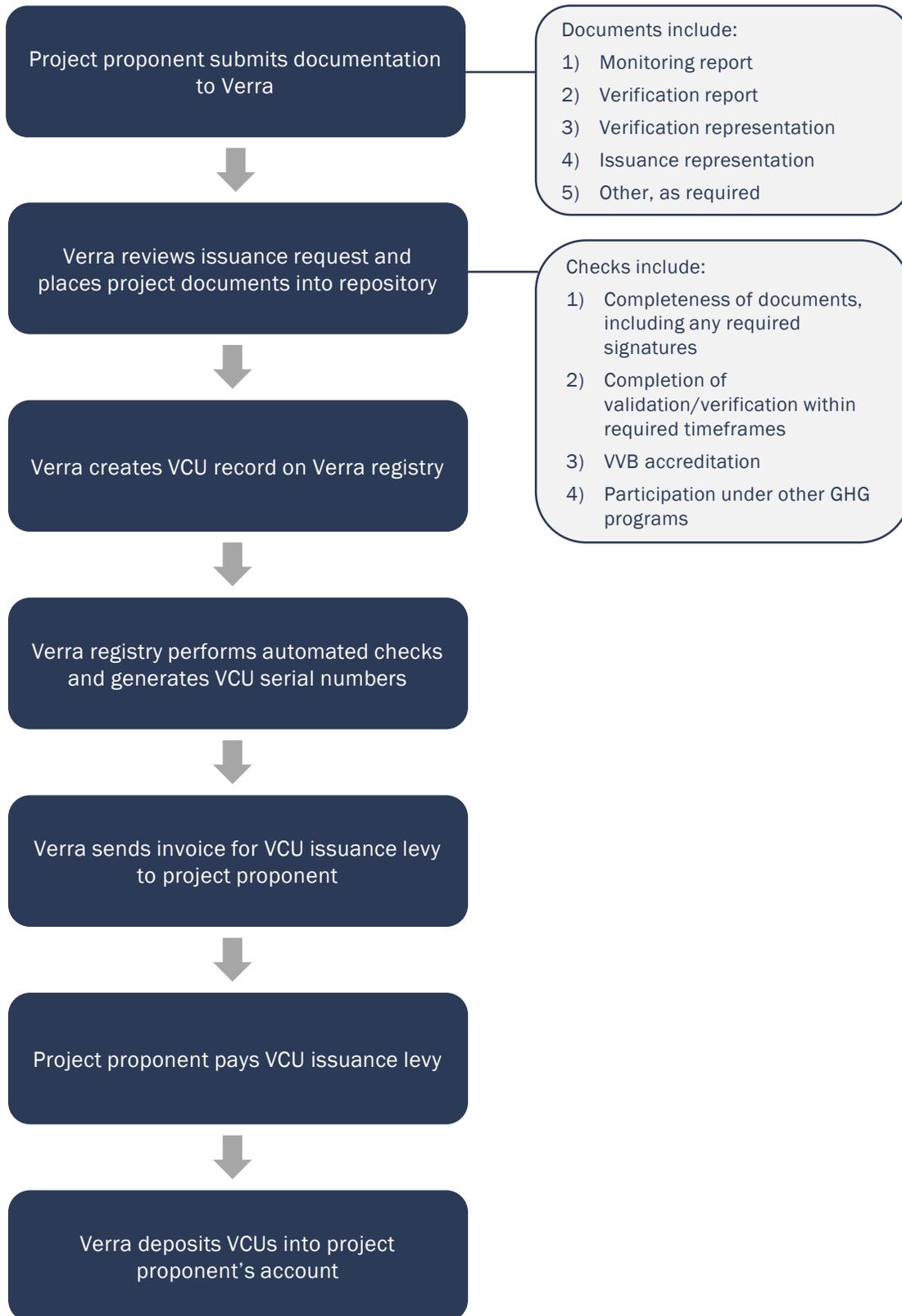
- 4.4.3 The project's geodetic co-ordinates shall be entered onto the project record on the Verra registry. The Verra registry system checks that there are no other projects within a five kilometer radius. Where there are projects within a five kilometer radius, the Verra registry system notifies Verra and provides a list of the overlapping projects. Verra shall confirm that the project being presented for registration is unique and not one of the overlapping projects, noting that it is possible to have two projects operated by the same project proponent at the same location (they would be different activities described in separate project descriptions, with separate validation and verification). It may do this on its own if sufficient information is available or by contacting the validation/verification body of the project being presented for registration who shall confirm that it is unique and not one of the overlapping projects. Where Verra is unable to confirm uniqueness of the project, the project cannot be registered.
- 4.4.4 The registration fee shall be collected by Verra before the project is registered.
- 4.4.5 VCUs can be issued incrementally from a verification report (i.e., when the project proponent or its authorized representative requests VCU issuance, it can request issuance of part of the verification report volume and request issuance of the remaining volume at a later date). The following shall apply:
- 1) The entity requesting VCU issuance shall instruct the Verra registry that it is requesting VCU issuance for only part of the verification report volume and shall specify the volume for which it is requesting VCU issuance.
 - 2) The VCU issuance levy and any fees charged by Verra are payable on the volume of VCUs which are issued, not the total verification report volume.
 - 3) Verra does not specify thresholds or timeframes on incremental VCU issuance (e.g., the total number of incremental VCU issuances that can be made from a verification report and the elapsed time between first and last VCU issuance from the verification report). Verra is entitled to apply such thresholds and timeframes as it deems necessary.
 - 4) The Verra registry displays the total verification report volume, the volume of VCUs issued to date and the history of VCU issuances with respect to the verification report.
 - 5) The entity requesting VCU issuance does not have to request VCU issuance of the total verification report volume (i.e., it can choose to only request VCU issuance for a part of the verification report volume and never request issuance of the remaining verification report volume).

- 6) VCUs are not subject to any discounting with respect to their fungibility. VCU owners, programs or other climate change efforts that accept VCUs may apply a discount at their own discretion.
- 4.4.6 Where the project has cancelled GHG credits issued under an approved GHG program and is having them issued as VCUs (as set out in Section 4.2.15), the project reference number under the approved GHG program shall be noted on the project record on the Verra registry.
- 4.4.7 The VCU issuance levy shall be collected by Verra before VCUs are deposited into an account.

4.5 Step 5: Periodic VCU Issuance

There may be issuance of VCUs subsequent to the initial issuance of VCUs to the project as set out in Diagram 7 below, with the notes that follow providing further details.

Diagram 7: Periodic VCU Issuance



4.5.1 All and any periodic VCU issuances shall be initiated by the project proponent stated on the project record in the Verra registry or its authorized representative. Where another entity wants to become the project proponent (and therefore assume the roles and responsibilities of a project proponent with respect to the Verra registry), the process set out in Section 7 shall be followed. The new project proponent on the project record in the Verra registry or its authorized representative can then initiate VCU issuance.

4.6 Step 6: VCU Retirements and Cancellations

The Verra registry displays the status of every VCU issued under the VCS Program. VCUs may have a status of active, retired or cancelled. Note that VCU *retirement* and *cancellation* have specific meanings, as set out in the VCS Program document *Program Definitions*.

The process for retiring active VCUs is set out in Sections 4.6.1 - 4.6.4 below. The process for cancelling active VCUs is set out in Sections 4.6.5 - 4.6.8 below.

4.6.1 VCUs may be retired as set out in Diagram 8 below, with the notes that follow providing further details.

Diagram 8: VCU Retirement



4.6.2 All and any VCU retirements shall be initiated by the registry account holder or its authorized representative.

4.6.3 The registry account holder or its authorized representative may execute a VCU retirement through its Verra registry account. The Verra registry system records the details of all VCU retirements.

- 4.6.4 VCUs can be retired incrementally from a registry accountholder’s VCU holdings (i.e., when the VCU holder or its authorized representative requests VCU retirement, it can request retirement of part of the VCU holdings and request retirement of any or all of the remaining holdings at a later date). In such cases, the following shall apply:
- 1) The registry account holder or its authorized representative shall designate the specific set of VCUs for retirement through its Verra registry account.
 - 2) Any fees charged by the Verra registry are payable on the volume of VCUs which are retired, not the total VCU holdings volume.
 - 3) Verra does not specify thresholds or timeframes on incremental VCU retirement (e.g., the total number of incremental VCU retirements that can be made from a registry accountholder’s VCU holdings and the elapsed time between first and last VCU retirement from those holdings). Verra is entitled to apply such thresholds and timeframes as it deems necessary.
- 4.6.5 VCUs may be cancelled as set out in Diagram 9 below, with the notes that follow providing further details.

Diagram 9: VCU Cancellation

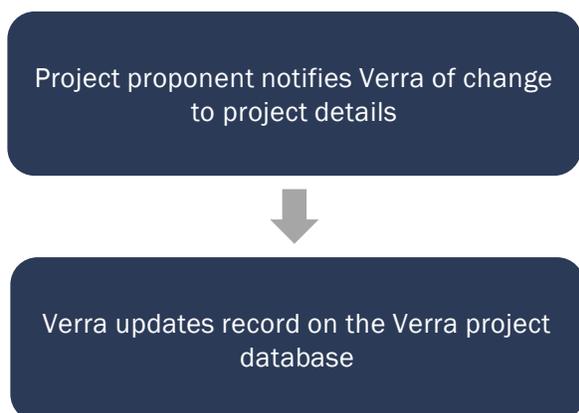


- 4.6.6 The registry account holder, its authorized representative, the other GHG program in which the registry account holder is participating or Verra may initiate a VCU cancellation. Note that the initiator and recipient of a VCU cancellation request depends on the specific circumstances of the cancellation (e.g., where VCUs are being converted into another form of GHG credit, the cancellation request may be submitted to Verra by the other GHG program in which the registry account holder is participating).
- 4.6.7 The registry account holder or its authorized representative may be asked to confirm the details of the VCU cancellation request.
- 4.6.8 VCUs are cancelled in the Verra registry and the Verra registry records the details of all VCU cancellations.

4.7 Step 7: Project Maintenance

Project details may be updated as set out in Diagram 10 below, with the notes that follow providing further details.

Diagram 10: Project Maintenance



- 4.7.1 Where a project fails to submit a verification report to the Verra registry within five years of its last verification, the following applies:
- 1) Verra will send written communication to the project proponent to request evidence that the project is still active despite not having verified.
 - 2) The project proponent shall submit such evidence within one year of receiving the written communication from Verra.
 - a) Evidence may take the form of a letter submitted by the project proponent to Verra and should explain in detail the status of the project, including an explanation as to why the project has not verified and, where relevant, why it should still be considered active.

- b) The letter may be accompanied by any relevant documentation of activity implementation (e.g., photographic evidence, monitoring reports, contract for verification in the near future).
- 3) Where a letter is received, it shall be posted publicly to the Verra registry and the project status in the registry shall be changed to *late to verify*.
- 4) Where no letter is received, the project status shall still be changed to *late to verify*, but will not benefit from an explanation being available to potential buyers and other stakeholders. The project proponent is encouraged to submit an updated letter annually.

Note – Where a project has not verified because it has transitioned to another GHG program (e.g., integrated into a government program), its project status shall be changed to project transferred to other GHG program instead of late to verify.

Note – Where an AFOLU project fails to submit a verification report to the Verra registry within five, ten and fifteen years of its last verification, buffer credits are put on hold or canceled (and the project labeled as inactive), as appropriate, per the requirements set out in Section 5.3.4, below.

4.7.2 Where the project proponent wishes to withdraw the project from the VCS Program (e.g., in order to transfer the project to another GHG program), the following applies:

- 1) The project proponent shall submit a letter (in English) on its organization letterhead, to the Verra registry, requesting that the project be withdrawn. Such letter must include the project name, project ID, the reason for the withdrawal request and the signatures and contact information of all project proponents.
- 2) Verra reviews the withdrawal request and may request additional information prior to approving the request.
- 3) Upon approval, Verra shall update the status of the project to *withdrawn*. The project information shall remain publicly available on the Verra registry, but the project will not be able to issue VCUs.
- 4) In the case of an AFOLU project where VCUs have been previously issued, the following applies:
 - a) The project shall not be eligible for any release of buffer credits.
 - b) Where Verra confirms that the project has registered with another GHG program, all buffer credits associated with the project shall be cancelled.
 - c) Where Verra is unable to confirm that the project has registered with another GHG program, buffer credits shall be cancelled over time in accordance with the rules set out in Section 5.3.4 below.
- 5) Withdrawn projects may rejoin the VCS Program where the project proponent submits a letter to the Verra registry requesting same. Such letter must include the information specified in Section 4.7.1(1) above. Verra reviews the project to determine whether it is

eligible to rejoin the VCS Program, and notifies the project proponent of the outcome of the review. Where the project is eligible to rejoin the VCS Program, Verra updates the status of the project accordingly. Where the project is not eligible to rejoin the VCS Program, the project shall remain withdrawn.

5 AFOLU POOLED BUFFER ACCOUNT

The VCS Program addresses the non-permanence risk associated with AFOLU project activities by requiring projects to set aside non-tradable buffer credits to cover unforeseen losses in carbon stocks. The buffer credits from all projects are held in a single AFOLU pooled buffer account, which can be drawn upon in the event of a reversal in carbon stocks in any individual project.

5.1 Assignment of Buffer Credits at First Request for Issuance

At first VCU issuance, buffer credits shall be deposited into the AFOLU pooled buffer account, in accordance with the procedures below.

- 5.1.1 The number of credits to be deposited in the AFOLU pooled buffer account is determined by the non-permanence risk report assessed by the validation/verification body(s), in accordance with the requirements set out in the *VCS Standard*. The report establishes the non-permanence risk rating, and this percentage is applied to the net change in the project's carbon stocks (stated in the verification report) to determine the number of credits to be deposited in the AFOLU pooled buffer account.
- 5.1.2 Buffer credits are not issued a VCU serial number nor are they considered to be VCUs. They are not subject to the VCU issuance levy.

5.2 Assignment and Release of Buffer Credits at Subsequent Requests for Issuance

Buffer credits associated with the project may be released over time, as an incentive for continued verification and to recognize that certain project risks decrease as the project's longevity is demonstrated, in accordance with the procedures below.

- 5.2.1 The project is eligible to release buffer credits where the non-permanence risk rating in the current verification report remains the same or decreases from the previous verification report. The release of buffer credits from the AFOLU pooled buffer account occurs when a verification report is presented to the Verra registry and VCU issuance is requested. When buffer credits are released from the AFOLU pooled buffer account, they shall be issued as VCUs into the designated Verra registry account upon payment of the VCU issuance levy.
- 5.2.2 Release of buffer credits may only occur where a verification report (submitted to request VCU issuance) was issued at least five years after the issuance date of the verification report previously submitted to request VCU issuance. The first release of buffer credits shall be no sooner than five years after the first verification report was issued and presented to the registry for VCU issuance. Subsequent releases of buffer credits shall not occur more frequently than once every five years. Where verification reports are issued at intervals shorter than once every five years, buffer credits shall be released no sooner than the issuance date of a verification

report that is at least five years after the issuance date of the verification report used to request the previous release of buffer credits (and shall be released at the request for VCU issuance). Where verification events occur at intervals longer than five years, the 15 percent time release (see Section 5.2.4) shall be compounded based on the number of five-year intervals that have passed since the last verification report was issued.

- 5.2.3 Where the project's non-permanence risk rating at the current verification period remains the same as the non-permanence risk rating at the last verification period, buffer credits shall be deposited into the AFOLU pooled buffer account in accordance with the procedure set out in Section 5.1 above.

A 15 percent "time release" of buffer credits is then applied where the five-year interval set out in Section 5.2.2 has passed. This 15 percent time release shall be applied to the total number of buffer credits associated with the project to-date (i.e., the number of buffer credits previously held in the AFOLU pooled buffer account plus the number of buffer credits newly deposited). The deposit and release of buffer credits may be calculated and handled so that the Verra registry carries out a single transaction for the deposit/release of net buffer credits. An example of how the buffer withholding may be reduced over time is available on the Verra website.

- 5.2.4 Where the project's non-permanence risk rating at the current verification period is lower than the non-permanence risk rating at the previous verification period, the new non-permanence risk rating shall be applied and buffer credits shall be deposited into the AFOLU pooled buffer account in accordance with the procedure set out in Section 5.1 above.

The new non-permanence risk rating is also applied to all buffer credits associated with the project that are already deposited in the AFOLU pooled buffer account from previous verification periods. This means previously deposited buffer credits that are in excess of the reduced withholding percentage shall be released and issued as VCUs where the five-year interval set out in section 5.2.2 has passed.

A 15 percent "time release" of buffer credits is then applied to the total number of buffer credits associated with the project to-date (i.e., the number of buffer credits previously held in the AFOLU pooled buffer account plus the number of buffer credits newly deposited). The deposit and release of buffer credits may be calculated and handled so that the Verra registry carries out a single transaction for the deposit/release of net buffer credits.

- 5.2.5 Where the project's non-permanence risk rating at the current verification period is higher than the non-permanence risk rating at the previous verification period, no release of buffer credits shall occur. Buffer credits shall be deposited into the AFOLU pooled buffer account in accordance with the procedure set out in Section 5.1 above.

5.3 Cancellation and Holding of Buffer Credits

Buffer credits are cancelled from the AFOLU pooled buffer account where there are negative net GHG emission reductions or removals associated with the project (as compared to the baseline), and are put on hold in certain situations, as outlined in this section.

5.3.1 Where an event occurs that is likely to qualify as a loss event (see the VCS Program document *Program Definitions* for definition of loss event), the project proponent shall notify Verra within 30 days of discovering the likely loss event. Where VCUs have been previously issued, a loss event report shall be prepared and submitted to the Verra registry, as follows:

- 1) The loss event report shall be prepared using the *VCS Loss Event Report Template*.
- 2) The loss event report shall be accompanied by a loss event representation signed by the project proponent. The template for the loss event representation is available on the Verra website.
- 3) The loss event report shall be submitted to the Verra registry within two years of the date of discovery of the loss event. Where a loss event report is not submitted within two years of the date of discovery of the loss event, the project shall no longer be eligible to issue VCUs.
- 4) Verra shall put buffer credits from the AFOLU pooled buffer account on hold, in an amount equivalent to the estimated loss stated in the loss event report.

5.3.2 The following applies with respect to the verification report submitted subsequent to a loss event:

- 1) Where the net GHG benefit of the project for the verification period is negative, a reversal has occurred (see the VCS Program document *Program Definitions* for definition of reversal) and the following applies:
 - a) Where the total reversal is less than the number of credits put on hold after the submission of the loss event report, Verra shall cancel buffer credits equivalent to the reversal. Any remaining buffer credits shall be released from their on-hold status (though remain in the AFOLU pooled buffer account).
 - b) Where the reversal is greater than the number of credits put on hold after the submission of the loss event report, the full amount of buffer credits put on hold with respect to the submission of the loss event report shall be cancelled, and additional buffer credits from the AFOLU pooled buffer account shall be cancelled to fully account for the reversal.
- 2) Where the net GHG benefit for the verification period is positive (i.e., all losses have been made up over the verification period), a reversal has not occurred and buffer credits put on hold after the submission of the loss event report shall be released from their on-hold status (but shall remain in the AFOLU pooled buffer account).

5.3.3 The following applies with respect to the VCU issuance subsequent to a reversal:

- 1) Where the reversal is a catastrophic reversal (see the VCS Program document *Program Definitions* for the definition of catastrophic reversal) the following applies:
 - a) GHG credits shall be deposited in the AFOLU pooled buffer account in an amount equivalent to the additional number of buffer credits cancelled after the reversal, above what has been previously contributed by the project. For example, if the project previously contributed 100 buffer credits and 150 credits were cancelled from the AFOLU pooled buffer account after a reversal, the project would deposit 50 buffer credits (to replenish the pool at large). Buffer credits deposited to replenish the pool after a reversal (50 in the example above) shall never be eligible for release back to the project.
 - b) Where further GHG credits are available for VCU issuance after replenishing the AFOLU pooled buffer account, additional buffer credits shall be deposited in the AFOLU pooled buffer account in accordance with Section 5.2 (applying the non-permanence risk rating only to those remaining GHG credits eligible for VCU issuance).
- 2) Where the reversal is a non-catastrophic reversal, the following applies:
 - a) GHG credits shall be deposited in the AFOLU pooled buffer account in an amount equivalent to the full reversal.
 - b) Where further GHG credits are available for VCU issuance after replenishing the AFOLU pooled buffer account, additional buffer credits shall be deposited in the AFOLU pooled buffer account in accordance with Section 5.2 (applying the non-permanence risk rating only to those remaining GHG credits available for VCU issuance).

5.3.4 Where a project fails to submit a verification report to the Verra registry within five years of its last verification, 50 percent of the buffer credits associated with the project shall be put on hold. After a further five years, all of its remaining buffer credits shall be put on hold. Where no subsequent verification report has been presented within a period of 15 years, and the project crediting period has not yet expired, buffer credits shall be cancelled from the AFOLU pooled buffer account in an amount equivalent to the total number of VCUs issued to the project (including buffer credits put on hold) and the project shall be labeled as *inactive*.

Note – Where a project has not verified because it has transitioned to another GHG program (e.g., integrated into a government program), it shall be labeled as project transferred to other GHG program instead of inactive.

5.3.5 Where buffer credits are put on hold because a project does not submit a verification report within five years of the previous verification, the project may re-claim buffer credits. A new verification report shall be submitted prior to the expiration of the project crediting period. Verra shall re-assign buffer credits that have been put on hold in accordance with the procedure set out in Section 5.1.1 above. The remaining balance of buffer credits associated with a project shall be cancelled at the end of the project crediting period.

6 QUALITY CONTROL OF REGISTERED PROJECTS

6.1 Process

6.1.1 Verra may, at its discretion, review registered projects and issued VCUs where it has concerns about adherence of the project to the VCS Program rules and the applied methodology. A review may be triggered by any of the following:

- 1) A validation/verification body performing a verification of a registered project identifies an error or quality issue in a previous validation or verification.
- 2) A project proponent identifies an error or quality issue after the registration or issuance of the project.
- 3) A stakeholder has concerns about a registered project².
- 4) Verra itself identifies an error or quality issue, as part of routine operations.

6.1.2 Where a review is triggered, Verra notifies the project proponent (or its authorized representative) and the relevant validation/verification body of the review and may suspend further VCU issuance while the review is performed.

6.1.3 Where material non-conformances are identified during the review (see the *VCS Standard* for further details on the threshold for materiality), the validation/verification body shall provide a written response to findings (e.g., corrective action requests or clarification requests) issued by Verra. Verra also suspends further VCU issuance, where it has not already done so.

Note – Where the relevant validation/verification body is unable to respond due to reasons such as a cease of operations or accreditation, Verra may solicit a response to the findings from alternative entities such as the project proponent or another validation/verification body.

6.1.4 The follow-up actions of the validation/verification body and/or project proponent shall depend on whether the relevant validation or verification was completed before, on or after 8 April 2014, and shall be as set out in Tables 3 and 4 below. In all cases, the relevant validation/verification body shall undertake a root cause analysis to identify why such quality issues occurred.

² Concerns may be raised, in confidence, with Verra at any time.

Table 3: Actions for Validations and Verifications Completed Before 8 April 2014

	Issues found, but no excess VCU issuance and no risk of future excess issuance	Issues found, with excess VCU issuance and/or risk of future excess issuance
Project qualifies under program	<ol style="list-style-type: none"> 1) Validation/verification body shall conduct a root cause analysis 2) Verra lifts suspension on VCU issuance 	<ol style="list-style-type: none"> 1) Validation/verification body shall conduct a root cause analysis 2) Validation/verification body or project proponent, as appropriate, shall revise project documents 3) Verra lifts suspension on VCU issuance, upon acceptance of project document revisions 4) Verra shall upload revised project documents to the Verra registry
Project does not qualify under program	<ol style="list-style-type: none"> 1) Validation/verification body shall conduct a root cause analysis 2) No further VCU issuance is permitted 	<ol style="list-style-type: none"> 1) Validation/verification body shall conduct a root cause analysis 2) No further VCU issuance is permitted

Table 4: Actions for Validations and Verifications Completed On or After 8 April 2014

	Issues found, but no excess VCU issuance and no risk of future excess issuance	Issues found, with excess VCU issuance and/or risk of future excess issuance
Project qualifies under program	<ol style="list-style-type: none"> 1) Validation/verification body shall conduct a root cause analysis 2) Validation/verification body or project proponent, as appropriate, shall revise project documents 3) Verra lifts suspension on VCU issuance, upon acceptance of project document revisions 4) Verra shall upload revised project documents to the Verra registry 	<ol style="list-style-type: none"> 1) Validation/verification body shall conduct a root cause analysis 2) Where significant performance issues are found, and as appropriate, disciplinary action shall be taken against the validation/verification body 3) Validation/verification body or project proponent, as appropriate, shall revise project documents 4) Project proponent may need to compensate for excess issuance (see Section 6.1.5)

		5) Verra lifts suspension on VCU issuance, upon acceptance of project document revisions by Verra 6) Verra shall upload revised project documents to the Verra registry
Project does not qualify under program	1) Validation/verification body shall conduct a root cause analysis 2) Where significant performance issues are found, and as appropriate, disciplinary action shall be taken against the validation/verification body 3) No further VCU issuance is permitted	1) Validation/verification body shall conduct a root cause analysis 2) Where significant performance issues are found, and as appropriate, disciplinary action shall be taken against the validation/verification body 3) Project proponent may need to compensate for excess issuance (see Section 6.1.5) 4) No further VCU issuance is permitted

6.1.5 Where Verra determines that VCUs have been issued in excess of the correct amount, the following applies:

- 1) The project proponent is responsible for compensating for excess VCU issuance where Verra deems, acting reasonably, that there has been a material erroneous issuance of VCUs in respect of the project, as a result of the fraudulent conduct, negligence, intentional act, recklessness, misrepresentation or mistake of the project proponent, as set out further in the issuance representation.
- 2) Any compensation for excess VCU issuance shall be through the following, with Verra using reasonable efforts to work with the project proponent to ensure that any adverse impacts on the project proponent are minimized to the extent possible.
- 3) Where the excess VCUs remain in the project proponent's Verra registry account and it can be demonstrated that they have not been used for offsetting purposes, immediate cancellation of the VCUs.
- 4) Replacement of VCUs through immediate cancellation from subsequent issuances of VCUs to the project.
- 5) Purchase by the project proponent of an equivalent number of replacement VCUs, and cancellation of same, within 60 business days of receiving formal Verra notification of such required action.
- 6) Where the project proponent fails to compensate for excess VCU issuance, Verra may take action against the project proponent, including applying sanctions with respect to its registry account activities until such time as the excess issuance has been compensated.

7 FURTHER INFORMATION

7.1 Communications Agreement

7.1.1 The purpose of the communications agreement is to allow an authorized representative to interact with the Verra registry on behalf of the project proponent and designate the account into which VCUs may be deposited. Templates for Verra registry communications agreements are available on the Verra website. The following is provided by way of further clarification:

- 1) Where there are multiple project proponents stated in the project description a communications agreement shall be provided to the Verra registry signed by all project proponents. The communications agreement shall designate an authorized representative and the account into which any VCUs shall be issued. Where a subsequent registration representation is provided to the Verra registry for the purpose of switching the project proponent, a communications agreement shall also be provided in respect of designation of an authorized representative or the account into which any VCUs shall be issued. Such communications agreement shall supersede any prior communications agreement.
- 2) Where there is a single project proponent and a registration representation is provided to the Verra registry, a communications agreement may also be provided in respect of designation of an authorized representative or the account into which any VCUs shall be issued. Where a subsequent registration representation is provided to the registry for the purpose of switching the project proponent, a communications agreement may also be provided. Any such communications agreement shall supersede any prior communications agreement. Where a communications agreement is not provided, authorized representation reverts to the (new) project proponent.

7.2 Release and Accession of Project Proponents

7.2.1 Project proponents may join or leave a project subsequent to project validation and registration. Such accession and release is handled via representations made by acceding entities and project proponents as follows:

- 1) Where an entity wants to join a project, it and the existing project proponent(s) shall sign an accession representation, which shall be prepared using the *VCS Deed of Accession Template* and properly executed as a deed in accordance with applicable local laws and the organization's own constitutional documents. Where more than one entity wants to join the project, one accession representation shall be signed for each acceding entity.
- 2) Where a project proponent wants to leave a project (i.e., give up its rights and obligations in respect of the project), it, the remaining project proponent(s) and the Verra registry shall sign a partial release representation, which shall be prepared using the *VCS Deed of Partial*

- Release Template* and properly executed as a deed in accordance with applicable local laws and the organization's own constitutional documents. Where more than one project proponent wants to be released from the project, one partial release representation shall be signed for each project proponent that is leaving. Note that a project shall always have at least one project proponent, so there shall always be at least one remaining registration representor (project proponent) that signs the partial release representation.
- 3) The accession and/or partial release representations shall be submitted to the Verra registry, who shall upload the accession and/or partial release representations to the Verra registry and update the project record to reflect the change in project proponent.
 - 4) Once this process is complete, only the new project proponent or its authorized representative can initiate subsequent VCU issuance.

Note – Where a project has one project proponent only and the project proponent wants to leave the project in favor of another entity, this is handled by having the new entity accede to the project via an accession representation and the original project proponent released from the project via a release representation.

APPENDIX 1: DOCUMENT HISTORY

Version	Date	Comment
v4.0	19 Sep 2019	Initial version released under VCS <i>Version 4</i>



Standards for a Sustainable Future



**Verified Carbon
Standard**



**Climate, Community
& Biodiversity Standards**



**Sustainable Development
Verified Impact Standard**

[Overview](#)

[Projects & Programs](#)

[Rules & Requirements](#)

[Methodologies](#)

[Validation & Verification](#)

[VCU Labels](#)

[Registry System](#)

[Complaints and Appeals Policy](#)

The world's leading voluntary GHG program

EXPLORE VCS PROJECTS

CORSIA RESOURCES

The VCS Program

The VCS Program is the world's most widely used voluntary GHG program. Almost 1,600 certified VCS projects have collectively reduced or removed more than 450 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 not possible for these entities to meet their targets or eliminate their carbon footprint, at least in the near term, with internal reductions alone, and they need a flexible 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](#) 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](#), project developers can be issued tradable GHG credits that we call [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](#), 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](#) 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](#) 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+ \(JNR\)](#) 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](#) ([Español](#) | [Português](#) | [中文](#))
- [Agriculture Forestry & Other Land Use](#) ([Español](#) | [Português](#) | [中文](#))
- [Methodology Approval Process](#) ([Español](#) | [Português](#) | [中文](#))
- [Standardized Methods](#) ([Español](#) | [Português](#) | [中文](#))
- [Jurisdictional and Nested REDD+](#) ([Español](#) | [Français](#))

OTHER PROGRAMS



Jurisdictional and Nested REDD+ (JNR)

Driving private investment in REDD+ at multiple scales

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Climate, Community & Biodiversity Standards

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Plastic Waste Reduction Program

Plastic Waste Reduction Program The Plastic Waste Reduction Program (Plastic Program) aims to enable robust...

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VCS JOINT VALIDATION & VERIFICATION REPORT TEMPLATE

This template is for the joint validation and verification of projects under the VCS Program.

[Instructions for completing the Joint Validation and Verification Report:](#)

TITLE PAGE: Complete all items in the boxes on this title page using Arial or Century Gothic 10.5 point, black, regular (non-italic) font. All boxes must appear in the final document. Reports may also feature the title and preparers' name, logo and contact information more prominently on the title page, using Arial or Century Gothic 24 point font for title and Arial or Century Gothic 12 point, black font for all other information.

REPORT BODY: Instructions for completing the joint validation and verification report template are given under the section headings in this template. All instructions must be followed, as set out in the *VCS Standard*. Instructions relate back to the rules and requirements set out in the *VCS Standard* and accompanying program documents. As such, this template must be completed paying attention to the rules and requirements set out in such documents, and the validation/verification body (VVB) will need to refer to the VCS Program documents, and the methodology applied by the project, in order to complete the template. It is also expected that relevant guidance, such as that set out in the *Validation and Verification Manual*, is followed. Note that the instructions in this template are intended to serve as a guide and do not necessarily represent an exhaustive list of the information the validation/verification body should provide under each section of the template.

Complete all sections using Arial or Franklin Gothic Book 10.5pt, black, regular (non-italic) font. Where a section is not applicable, same must be stated under the section (the section must not be deleted from the final document).

Delete all instructions, including this introductory text, from the final document.



Verified Carbon Standard

PROJECT TITLE

Logo (optional)

Document Prepared by (individual or entity)

Contact Information (optional)

Project Title	<i>Name of project</i>
Report Title	<i>Title of this report</i>
Version	<i>Version number of this report</i>
Report ID	<i>Identification number of this document</i>
Verification Period	<i>DD-Month-YYYY to DD-Month-YYYY</i>
Client	<i>Client for whom the report was prepared</i>
Pages	<i>Number of pages of this report</i>
Date of Issue	<i>DD-Month-YYYY report issued</i>
Prepared By	<i>Validation/verification body that prepared this report</i>
Contact	<i>Physical address, telephone, email, website</i>
Approved By	<i>Individual at the validation/verification body who approved this report</i>
Work Carried Out By	<i>Individuals who conducted this joint validation and verification</i>

Summary:

Provide a brief summary of the following:

- *A description of the project*
- *A description of the validation and verification*
- *The purpose and scope of validation and verification*
- *The method and criteria used for validation and verification*
- *The number of findings raised during validation and verification*
- *Any uncertainties associated with the validation and verification*
- *Summary of the validation and verification conclusions*

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1 INTRODUCTION

1.1 Objective

Explain the purpose of the validation and verification.

1.2 Scope and Criteria

Describe the scope and criteria of the validation and verification.

1.3 Level of Assurance

Indicate the level of assurance of the validation and verification.

1.4 Summary Description of the Project

Provide a summary description of the project (no more than one page).

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

Describe the method and criteria, including the sampling plan, used for undertaking the validation and verification. Where sampling plans are used as a part of the validation or verification, include a description of the sampling approach, important assumptions and justification of the chosen approach.

2.2 Document Review

Describe how the joint validation and verification was performed as an audit where the project description, monitoring report and any supporting documents were reviewed, cross-checked and compared with identified and stated requirements.

2.3 Interviews

Describe the interview process and identify personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description, monitoring report and any supporting documents.

2.4 Site Inspections

Describe the method and objectives for on-site inspections performed. Include in the description details of all project activity locations visited, the physical and organizational aspects of the project inspected and the dates when such site inspections took place.

2.5 Resolution of Findings

Describe the process for the resolution of findings (corrective actions, clarifications or other findings) raised by the VVB during the validation and verification.

State the total number of corrective action requests, clarification requests, forward action requests and other findings raised during the validation and verification.

Provide a summary of each finding, including the issue raised, the response(s) provided by the project proponent, and the final conclusion and any resulting changes to project documents. Unless this fits on one page, put all findings in an appendix.

2.5.1 Forward Action Requests

Provide details of any forward action requests raised, for the benefit of subsequent project audits.

3 VALIDATION FINDINGS

3.1 Project Details

Identify, discuss and justify conclusions regarding the following:

- *Project type, technologies and measures implemented, and eligibility of the project*
- *Project design, including eligibility criteria for grouped projects*
- *Project proponent and other entities involved in the project*
- *Ownership*
- *Project start date*
- *Project crediting period*

- *Project scale and estimated GHG emission reductions or removals*
- *Project location*
- *Conditions prior to project initiation*
- *Project compliance with applicable laws, statutes and other regulatory frameworks*
- *Participation under other GHG programs:*
 - *Projects registered (or seeking registration) under other GHG program(s)*
 - *Rejection by other GHG programs*
- *Other forms of credit:*
 - *Emissions trading programs and other binding limits*
 - *Other forms of environmental credit sought or received and eligible to be sought or received*
- *Additional information relevant to the project, including:*
 - *Leakage management for AFOLU projects*
 - *Commercially sensitive information*
 - *Sustainable development contributions*

Provide an overall conclusion regarding whether the description in the project description is accurate, complete, and provides an understanding of the nature of the project, and whether the project has been implemented as described in the project description.

3.2 Participation under Other GHG Programs

For projects seeking registration under the VCS Program and an approved GHG program (e.g., CDM), provide a gap validation, including the following:

- *The name of the approved GHG program, and registration number and details of the project.*
- *A description of the steps taken to assess whether the project is eligible to participate under the VCS Program.*
- *A conclusion with respect to each of the relevant sections of the (additional/gap) project description provided by the project proponent.*

Provide an overall conclusion regarding whether the project is eligible to participate under the VCS Program.

3.3 Safeguards

3.3.1 No Net Harm

Identify and discuss any potential negative environmental and socio-economic impacts identified by the project proponent. Discuss whether reasonable steps have been taken to mitigate such impacts.

3.3.2 Local Stakeholder Consultation

Summarize any stakeholder input received during the local stakeholder consultation. Assess whether the project proponent has taken due account of all and any input, and provide an overall conclusion regarding local stakeholder input.

Include the project proponent's response to all input, describe any resultant changes to the project design and provide an explanation of how the project proponent's responses are appropriate.

For AFOLU projects, identify, discuss and justify a conclusion regarding whether the project communicated information about the project design and implementation, risks, costs and benefits, relevant laws and regulations and the process of VCS Program validation.

3.3.3 Environmental Impact

Identify and discuss the implications of any environmental impact assessments conducted with respect to the project.

3.3.4 Public Comments

Summarize any public comments submitted during the public comment period. Assess whether the project proponent has taken due account of all and any comments, and provide an overall conclusion regarding public comments.

Include the project proponent's response to each comment, describe any resultant changes to the project design and provide an explanation of how the project proponent's responses are appropriate.

3.3.5 AFOLU-Specific Safeguards

For AFOLU projects, describe the steps taken to assess:

- The local stakeholder identification process and the description of results.*
- Risks to local stakeholders due to project implementation and how the project will mitigate such risks.*
- Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including plans to ensure the project will not impact local stakeholders' property rights without the free, prior and informed consent.*

- *Processes to ensure ongoing communication and consultation, including a grievance redress procedure to resolve any conflicts that may arise between the project proponent and local stakeholders.*

Identify, discuss and justify a conclusion regarding whether the project has been designed and, as appropriate, is implementing, plans and processes to ensure the project will not create any negative impacts on local stakeholders or mitigates such impacts where necessary.

For AFOLU projects that have claimed to have no impacts on local stakeholders, provide an assessment of the evidence provided and identify, discuss and justify a conclusion as to whether the project has no impacts on local stakeholders.

For non-AFOLU projects, this section is not required.

3.4 Application of Methodology

3.4.1 Title and Reference

Provide the title and reference of the applied methodology and any tools. Note that the methodology and tools, and the specific versions of them applied by the project, must be valid at the time of validation.

3.4.2 Applicability

For each of the applied methodology's applicability conditions, describe the steps taken to assess compliance of the project with the applicability condition. Provide a conclusion with respect to each applicability condition.

Similarly, where the applied methodology provides the project with a number of tools or modules to choose from, describe the steps taken to assess that the appropriate tool or module has been selected. Provide a conclusion with respect to each selected tool or module.

Provide an overall conclusion regarding the applicability of the methodology, and any tools or modules selected by the project proponent.

3.4.3 Project Boundary

Identify the project boundary and describe the steps taken to validate it. Include details of documentation assessed (e.g., commissioning reports) and observations made during the site inspection.

For each GHG source, sink and reservoir, describe the steps taken to assess that it has been selected correctly in accordance with the applied methodology. Describe the steps taken to assess whether any relevant sources, sinks and reservoirs have not been selected.

Provide an overall conclusion regarding whether the project boundary and selected sources, sinks and reservoirs are justified for the project.

3.4.4 Baseline Scenario

Identify the baseline scenario determined for the project and describe the steps taken to validate it, including (as applicable) whether:

- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable.
- Documentary evidence used in determining the baseline scenario is relevant, and correctly quoted and interpreted in the project description.
- Relevant national and/or sectoral policies and circumstances have been considered and are listed in the project description.
- The procedures for identifying the baseline scenario have been correctly followed and the identified scenario reasonably represents what would have occurred in the absence of the project.

Provide details (including sources of information) of any steps taken to cross-check data used in identification of the baseline scenario.

Provide an overall conclusion regarding whether the identified baseline scenario is justified.

3.4.5 Additionality

Identify the method used by the applied methodology to demonstrate additionality. Describe in detail the steps taken to validate that the procedure for additionality (set out in the methodology or referenced tool) has been followed correctly and precisely.

For project methods, include at minimum information with respect to how the following have been assessed (as applicable):

- Adherence to regulatory surplus requirements.
- The appropriateness of data and parameters used in financial calculations and sensitivity analyses, including those taken from feasibility study reports.
- The suitability of the benchmark used for investment analysis.
- The credibility of each barrier identified in the barrier analysis.
- The appropriateness of the geographical region used in the common practice analysis.
- Information regarding similar projects identified in the common practice analysis, including essential distinctions between similar projects and the proposed project.
- The reasonableness of assumptions made in the demonstration of additionality.

For standardized methods, include at minimum information with respect to how the following have been assessed (as applicable):

- Adherence to regulatory surplus requirements.

- *For performance methods, the appropriateness of the performance benchmark selected and the ability of the project to achieve the level of the benchmark.*
- *Adherence to all other criteria and procedures set out in the standardized method.*

Provide an overall conclusion regarding whether additionality is justified for the project.

3.4.6 Quantification of GHG Emission Reductions and Removals

Identify the quantification methods that will be used for GHG emission reductions and removals generated by the project during the project crediting period. Describe the steps taken to validate the quantification methods, including all data and parameters used in the equations, and any references to any other data sources used. Include in the description, information with respect to how the following has been assessed:

- *Quantification of baseline emissions*
- *Quantification of project emissions*
- *Quantification of leakage*
- *Summary of net GHG emission reductions or removals*
- *Uncertainties associated with the calculation of emissions*
- *Documentation used as the basis for assumptions and sources of data*

Provide an assessment of the following with respect to the project description:

- *All relevant assumptions and data are listed in the project description, including their references and sources.*
- *All data and parameter values used in the project description are considered reasonable in the context of the project.*
- *All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.*

Provide an overall concluding statement regarding whether the methodology and any referenced tools have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals during the project crediting period.

3.4.7 Methodology Deviations

Identify any methodology deviations applied and describe the steps taken to validate each deviation. Include information with respect to how the following has been assessed:

- *Whether the deviation meets with the criteria and specifications for permitted methodology deviations.*

- *Whether the deviation negatively impacts the conservativeness of the quantification of GHG emission reductions or removals (except where they result in increased accuracy).*

Provide an overall conclusion regarding whether any methodology deviations applied to the project are valid.

3.4.8 Monitoring Plan

Identify the parameters monitored and describe the steps taken to validate the suitability of the implemented monitoring system (i.e., process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters).

Provide an overall conclusion regarding the adherence of the monitoring plan to the requirements of the applied methodology and any referenced tools.

3.5 Non-Permanence Risk Analysis

Where relevant, describe the steps taken to assess the non-permanence risk rating determined by the project proponent. For each risk factor, provide the following:

- *An assessment of all rationale, assumptions and justifications used to support the risk score.*
- *An assessment of any documentation and data provided to support the risk score.*
- *A conclusion regarding the appropriateness of the risk score.*

Provide a concluding statement regarding the determined value of the overall risk rating.

4 VERIFICATION FINDINGS

4.1 Accuracy of GHG Emission Reduction and Removal Calculations

Identify the data and parameters used to calculate the GHG emission reductions and removals for this verification period, and describe the steps taken to assess the following for each of them:

- *The accuracy of GHG emission reductions and removals, including accuracy of spreadsheet formulae, conversions and aggregations, and consistent use of the data and parameters.*
- *The appropriateness of any default values used in the monitoring report.*

Describe the steps taken to assess whether manual transposition errors between data sets have occurred.

Provide an overall conclusion regarding whether GHG emission reductions and removals have been quantified correctly in accordance with the monitoring plan and applied methodology for this verification period.

4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

Identify the evidence used to determine the GHG emission reductions and removals for this verification period and describe the steps taken to assess the sufficiency of quantity, and appropriateness of quality, of the evidence. Include details of any cross-checks performed on the reported data and how the following were assessed:

- The reliability of the evidence, and the source and nature of the evidence (external or internal, oral or documented) for the determination of GHG emission reductions or removals.*
- The information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report.*
- Where the monitoring plan does not specify calibration frequency of monitoring equipment, the appropriateness of implemented calibration frequency.*

Provide an overall concluding statement with respect to the sufficiency of quantity, and appropriateness of quality, of the evidence used to determine the GHG reductions and removals for this verification period.

5 VALIDATION AND VERIFICATION CONCLUSION

Clearly state whether the project complies with the validation and verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 4, and include any qualifications or limitations.

Provide a conclusion on the quantity of GHG emission reductions or removals in tCO₂ equivalents achieved by the project during the verification period. Include a confirmation and a breakdown of GHG emission reductions or removals by vintages within the verification period, where relevant.

Verification period: From [day-month-year] to [day-month-year]

Verified GHG emission reductions and removals in the above verification period:

For non-AFOLU projects, use the following table:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year A				
Year...				
Total				

For AFOLU projects, include quantification of the net change in carbon stocks. Also, state the non-permanence risk rating (as determined in the AFOLU non-permanence risk report) and include the total number of buffer credits that need to be deposited into the AFOLU pooled buffer account.

For AFOLU projects, use the following table:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)	Buffer pool allocation	VCUs eligible for issuance
Year A						
Year...						
Total						

APPENDIX: <TITLE OF APPENDIX>

Use appendices for supporting information. Delete this appendix (title and instructions) where no appendix is required.



VCS VERIFICATION REPORT TEMPLATE

This template is for the verification of projects under the VCS Program.

[Instructions for completing the Verification Report](#)

TITLE PAGE: Complete all items in the box on the title page using Arial or Century Gothic 10.5 point, black, regular (non-italic) font. This box must appear on the title page of the final document. Reports may also feature the title and preparers' name, logo and contact information more prominently on the title page, using the format below (Arial or Century Gothic 24 point and Arial or Century Gothic 12 point, black, regular font).

VERIFICATION REPORT: Instructions for completing the verification report template are given under the section headings in this template. Adhere to all instructions, as set out in the *VCS Standard*.

Instructions relate back to the rules and requirements set out in the *VCS Standard* and accompanying VCS Program documents. The preparer will need to refer to these documents in order to complete the template.

Where the validation/verification body has also, at the time of this verification, undertaken a gap validation of a project that is participating in an approved GHG program, or has validated a methodology deviation, project description deviation or inclusion of new project activity instances into a grouped project, the validation sections of this template must be completed. Further, the validation process must be described in the relevant sections of this template.

Note: The instructions in this template are to serve as a guide and do not necessarily represent an exhaustive list of the information the preparer must provide under each section of the template.

Unless applying a merited deviation, please complete all sections using Arial or Franklin Gothic Book 10.5 point, black, regular (non-italic) font. Where a section is not applicable, explain why the section is not applicable (i.e., do not delete the section from the final document and do not only write "not applicable"). Submit the project description as a non-editable PDF.

Delete all instructions, including this introductory text, from the final document.



Verified Carbon Standard

VERIFICATION REPORT TITLE

Logo (optional)

Document Prepared By (individual or entity)

Contact Information (optional)

Project Title	<i>Name of project</i>
Version	<i>Version number of this verification report</i>
Report ID	<i>Identification number of this verification report</i>

Report Title	<i>Title of this verification report</i>
Client	<i>Client for whom the report was prepared</i>
Pages	<i>Number of pages of this report</i>
Date of Issue	<i>DD-Month-YYYY report issued</i>
Prepared By	<i>Validation/verification body that prepared this report</i>
Contact	<i>Physical address, telephone, email, website</i>
Approved By	<i>Individual at the validation/verification body who approved this verification report</i>

**Work Carried
Out By***Individuals who conducted this verification***Summary:**

Provide a brief summary of the following:

- *A brief description of the verification and the project*
- *The purpose and scope of verification*
- *The monitoring period*
- *The method and criteria used for verification*
- *The number of findings raised during verification*
- *Any uncertainties associated with the verification*
- *Summary of the verification conclusion*

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1 INTRODUCTION

1.1 Objective

Explain the purpose of the verification.

1.2 Scope and Criteria

Describe the scope and criteria of the verification.

1.3 Level of Assurance

Indicate the level of assurance of the verification.

1.4 Summary Description of the Project

Provide a summary description of the project (no more than one page).

2 VERIFICATION PROCESS

Use this section to describe the verification process. Where validation activities have also been performed as part of the verification (e.g., validation of a project description deviation or inclusion of new project activity instances into a grouped project), also include details relevant to the validation process.

2.1 Method and Criteria

Describe the method and criteria, including the sampling plan, used for undertaking the verification.

2.2 Document Review

Describe how the verification was performed as an audit where the project description, monitoring report and any supporting documents were reviewed, cross checked and compared with identified and stated requirements.

2.3 Interviews

Describe the interview process and identify personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description, monitoring report and any supporting documents.

2.4 Site Inspections

Describe the methods and objectives for any on-site inspections performed. Include in the description details of all project activity locations visited, the physical and organizational aspects of the project inspected and the dates when such site inspections took place.

2.5 Resolution of Findings

Describe the process for the resolution of any findings (corrective actions and clarifications or other findings) raised by the verification team during the verification and, where applicable, outstanding forward action requests from the validation or previous verifications.

State the total number of corrective action requests, clarification requests and forward action requests and other findings raised during the verification.

Provide a summary of each finding, including the issues raised, the response(s) provided by the project proponent, and the final conclusions and any resulting changes to project documents. Unless this fits on one page, put all findings in an appendix.

2.5.1 Forward Action Requests

Provide details of any outstanding forward action requests raised during the verification, for the benefit of subsequent project audits.

2.6 Eligibility for Validation Activities

Where the validation/verification body has undertaken validation activities as part of the verification and does not hold accreditation for validation for the relevant sectoral scope, provide evidence that the eligibility requirements set out in the VCS Program Guide are met. Include the name and reference numbers of five registered projects the validation/verification body has validated under the VCS Program or an approved GHG program.

3 VALIDATION FINDINGS

Use this section to provide details of all validation activities that took place during the verification, such as gap validation, validation of methodology deviations and project description deviations, and the inclusion of new project activity instances into grouped projects.

3.1 Participation under Other GHG Programs

For projects seeking registration under the VCS Program and an approved GHG program (e.g., CDM) provide a gap validation, including the following:

- The name of the approved GHG program, and registration number and details of the project.
- A description of the steps taken to assess whether the project is eligible to participate under the VCS Program.
- A conclusion with respect to each of the relevant sections of the (additional/gap) project description provided by the project proponent.

Provide an overall conclusion regarding whether the project is eligible to participate under the VCS Program.

3.2 Methodology Deviations

Identify any methodology deviations applied to the project and describe the steps taken to validate each deviation. Include information with respect to how the following has been assessed:

- Whether the deviation meets with the criteria and specifications for permitted methodology deviations.
- Whether the deviation does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals (except where they result in increased accuracy).

Provide an overall conclusion regarding whether any methodology deviations applied to the project are valid.

3.3 Project Description Deviations

Identify any project description deviations applied to the project and describe the steps taken to validate each deviation. Assess whether the proposed deviation impacts any of the following, documenting the assessment of each separately:

- The applicability of the methodology.
- Additionality.
- The appropriateness of the baseline scenario.

Provide an assessment of whether the deviation is appropriately described and justified, and whether the project remains in compliance with the VCS rules.

Provide an overall conclusion regarding whether the project deviation is valid.

3.4 Grouped Project

Describe the steps taken to validate the inclusion of new project activity instances into the (grouped) project, including the following:

- *Sampling process for validation of new project activity instances.*
- *The number of new project activity instances added to the project in this verification period.*
- *Quality and completeness of evidence, data and documentation relating to the new project activity instances.*
- *Conformance of the new project activity instances with the eligibility criteria set out in the project description.*

Provide an overall conclusion regarding whether the inclusion of the new project activity instances is valid.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Identify the implementation status of the project activity(s) and describe the steps taken to assess the following:

- *The existence of any material discrepancies between project implementation and the project description.*
- *The implementation status of the monitoring plan and the completeness of monitoring, including the suitability of the implemented monitoring system (i.e., process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters).*
- *The existence of any material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology.*
- *Whether the project has participated or been rejected under any other GHG programs since validation or previous verification.*
- *Whether the project has received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification.*

- *Whether the GHG emission reductions or removals generated by the project have become included in an emissions trading program or any other mechanism that includes GHG allowance trading.*
- *Sustainable development contributions.*
- *For AFOLU projects, the implementation status of project activities that lead to the intended GHG benefit that commenced prior to the monitoring period.*

List any previously validated methodology deviations (each verification report must contain an exhaustive list of all methodology deviations applied to the project).

Provide an overall conclusion regarding whether the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 No Net Harm

Identify and discuss any potential negative environmental and socio-economic impacts identified by the project proponent. Discuss whether reasonable steps have been taken to mitigate such impacts.

4.2.2 Local Stakeholder Consultation

Summarize any stakeholder input received during ongoing communication with local stakeholders. Assess whether the project proponent has taken due account of all and any input, and provide an overall conclusion regarding local stakeholder input.

Include the project proponent's response to all input, describe any resultant changes to the project design and provide an explanation of how the project proponent's responses are appropriate.

For AFOLU projects, identify, discuss and justify a conclusion regarding whether the project continues to communicate the necessary relevant information about the project implementation, risks, costs and benefits, relevant laws and regulations and the process of VCS Program verification during the monitoring period.

4.3 AFOLU-Specific Safeguards

For AFOLU projects, describe the steps taken to assess the following:

- *Activities implemented by the project proponent to mitigate risks local stakeholders due to project implementation.*
- *Any updates to the property and land use rights of the local stakeholders and the evidence provided that the project has not negatively impacted such rights without first obtaining the free, prior and informed consent of the affected parties, and provided just and fair compensation if done so.*

- *The processes used by the project proponent to communicate and consult with local stakeholders during the monitoring period, including any information about any conflicts that arose between the project proponent and local stakeholders and whether any such conflicts were resolved via the established grievance redress procedure.*

Identify, discuss and justify a conclusion regarding whether the project proponent has taken the appropriate measures to ensure that the project has not created negative impacts on local stakeholders, or mitigated such impacts where necessary.

For AFOLU projects that have claimed to have no impacts on local stakeholders, provide an assessment of the evidence provided and identify, discuss and justify a conclusion as to whether the project has no impacts on local stakeholders.

For non-AFOLU projects, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Identify the data and parameters used to calculate the GHG emission reductions and removals, and describe the steps taken to assess the following for each of them:

- *The accuracy of GHG emission reductions and removals, including accuracy of spreadsheet formulae, conversions and aggregations, and consistent use of the data and parameters.*
- *Whether the methods and formulae set out in the project description for calculating baseline emissions, project emissions and leakage have been followed.*
- *The appropriateness of any default values used in the monitoring report.*

Describe the steps taken to assess whether manual transposition errors between data sets have occurred.

Provide an overall conclusion regarding whether GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Identify the evidence used to determine the GHG emission reductions and removals and describe the steps taken to assess the sufficiency of quantity, and appropriateness of quality, of the evidence. Include details of any cross-checks performed on the reported data and how the following were assessed:

- *The reliability of the evidence, and the source and nature of the evidence (external or internal, oral or documented) for the determination of GHG emission reductions or removals.*

- *The information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report.*
- *Where the project description does not specify calibration frequency of monitoring equipment, the appropriateness of implemented calibration frequency.*

Provide an overall concluding statement with respect to the sufficiency of quantity, and appropriateness of quality, of the evidence used to determine the GHG reductions and removals.

4.6 Non-Permanence Risk Analysis

Where relevant, describe the steps taken to assess the non-permanence risk rating determined by the project proponent. For each risk factor, provide the following:

- *An assessment of all rationale, assumptions and justification used to support the risk score.*
- *An assessment of the quality of documentation and data provided to support the risk score.*
- *A conclusion regarding the appropriateness of the risk rating.*

Provide a conclusion regarding the determined value of the overall risk rating.

5 VERIFICATION CONCLUSION

Clearly state whether the project complies with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 4, including any qualifications or limitations. Confirm that the project has been implemented in accordance with the project description and subsequently validated variations.

Where the audit has included validation activities, clearly state whether the project complies with the validation criteria for projects set out in VCS Version 4, including any qualifications or limitations.

Provide a conclusion on the quantity of GHG emission reductions or removals in tCO₂ equivalents achieved by the project during the verification period. Include a confirmation and a breakdown of GHG emission reductions or removals by vintages within the verification period, where relevant.

Verification period: *From [day-month-year] to [day-month-year]*

Verified GHG emission reductions and removals in the above verification period:

For non-AFOLU projects, use the following table:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year A				
Year...				
Total				

For AFOLU projects, include quantification of the net change in carbon stocks. Also, state the non-permanence risk rating (as determined in the AFOLU non-permanence risk report) and include the total number of buffer credits that need to be deposited into the AFOLU pooled buffer account.

For AFOLU projects, use the following table:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)	Buffer pool allocation	VCUs eligible for issuance
Year A						
Year...						
Total						

APPENDIX X: <TITLE OF APPENDIX>

Use appendices for supporting information. Delete this appendix (title and instructions) where no appendix is required.

BETHLEHEM AUTHORITY IMPROVED FOREST MANAGEMENT PROJECT 4TH VERIFICATION REPORT



Document Prepared By: Environmental Services, Inc.

Project Title	Bethlehem Authority Improved Forest Management Project
Version	V1.0
Report ID	VO13051.02ver

Report Title	Bethlehem Authority Improved Forest Management Project 4 th Verification Report
Client	Blue Source LLC 1935 E. Vine Street, Suite 300 Murray, UT 84121
Pages	43
Date of Issue	07 June 2016
Prepared By	Environmental Services, Inc. – Forestry, Carbon, and GHG Services Division
Contact	Corporate Office at: 7220 Financial Way, Suite 100, Jacksonville Florida 32256-USA; Phone: 904-470-2200 Fax: 904-470-2112; www.esicarbon.com
Approved By	Shawn McMahon – Lead Verifier and Janice McMahon – Sr. Vice President/Technical Director

Work Carried Out By	Lead Verifier – Shawn McMahon; Verification Team Members – Jonathan Pomp, Eric Jaeschke, and Matthew Perkowski; Verification Trainee – Aaron Holley; Sr. Independent Reviewer – Caitlin Sellers and QA/QC – Janice McMahon
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Summary:

Environmental Services, Inc., (ESI) was contracted by Blue Source, LLC. on 23 December 2015 to conduct the 4th monitoring period verification of the *Bethlehem Authority Improved Forest Management Project* [Project Description (PD) dated 18 March 2013]. The *Bethlehem Authority Improved Forest Management Project* is an Improved Forest Management (IFM) project implemented on 17,527 forested acres of a 22,536 acre split-parcel situated in Monroe County and Carbon Counties, Pennsylvania (PA). The project is achieving Greenhouse Gas (GHG) emission reductions through Extension of Rotation Age (IFM ERA). Through payments for ecosystem services, generated via the sale of Verified Carbon Units (VCUs), land managers are able manage the forest resource with sound conservation and sustainable management practices. Project activities are promoting the natural characteristics associated with the native forests, including: ecological, scientific and aesthetic values.

Blue Source, LLC. is responsible for the coordination, management, and development of this project on behalf of the Project Proponent (the Bethlehem Authority or “the Authority”). Woodland Management Services, LLC. conducted the inventory field work, and performs the on-the-ground forest management. The Project Proponent (the Authority) is the legal landowner and the signatory to a contract with Blue Source, LLC. Other entities involved in the project include The Nature Conservancy (TNC), Pennsylvania (Easement Holder/Forest Advisor) and Spatial Informatics Group (Modeling Consultants). Blue Source, LLC is responsible for project implementation and on-going monitoring throughout the project's lifetime.

The project is monitored annually, with monitoring activities assessing all of the Verified Carbon Standard (VCS) IFM ERA requirements (i.e. changes to project area/stratification, growth (sequestration) and losses (emissions) in forest carbon stocks (i.e. due to harvesting or natural disturbances), market leakage, and implementation of the forest management plan). For years where forest plots are not re-inventoried on-the-ground, changes in carbon stocks are monitored through forest growth and yield modeling using the US Forest Service's Forest Vegetation Simulator software. All sample plots will be re-inventoried at least once every ten years to calibrate forest growth models and allow for accurate forest carbon sequestration monitoring.

The verification assessed the Project's compliance with the VCS Version 3 (and all associated updates), the selected methodology (VM0003 v1.1 - Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)), and the validated PD. The methods employed by ESI in the verification process were derived from all items in ESI's internal verification process, which included utilizing VCS documents and ISO 14064-3 to develop and implement a Verification & Sampling Plan. This verification assessed the GHG emission removals through Agriculture, Forestry and Other Land Use (AFOLU) criteria, specifically, IFM ERA activities.

The scope of the verification included the assessment of the VCS Monitoring Report, and the implementation of GHG project as stated in the validated PD for the 01 January 2015 to 31 December 2015 monitoring period (fourth period).

The verification criteria followed ISO 14064-3 and the guidance documents provided by the VCS and included the following: VCS Standard (25 March 2015, v3.5), VCS Program Guide (08 October 2013, v3.5), Program Definitions (08 October 2013, v3.5), AFOLU Requirements (08 October 2013, v3.4), AFOLU Non-Permanence Risk Tool (4 October 2012, v3.2), and the VCS Methodology VM0003 (v1.1, 20 November 2012).

A summary of all findings is included in Appendix B. There are no restrictions of uncertainty.

ESI here confirms all verification activities including objectives, scope and criteria, level of assurance, monitoring and project documentation adhere to the selected methodology (VM0003, v1.1) and VCS Version 3 (and all associated updates) as documented in this report are complete. ESI concludes without any qualifications or limiting conditions that the *Bethlehem Authority Improved Forest Management Project Monitoring Report* (v3.0 dated 6 June 2016) meets the requirements of VCS Version 3 (and all associated updates) to a reasonable level of assurance for the fourth monitoring period.

The GHG assertion provided by Blue Source, LLC and verified by ESI has resulted in the GHG emissions reduction or removal of 37,030 tCO₂ equivalents by the project during the fourth monitoring period (01 January 2015 to 31 December 2015). This value is gross of the 10% (4,629 tCO₂ equivalents) buffer withholding based on the non-permanence risk assessment tool.

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1 INTRODUCTION

1.1 Objective

Blue Source, LLC. (Project Developer) commissioned Environmental Services, Inc. (ESI) (Verifier) to conduct the verification of Greenhouse Gas (GHG) emission reductions for the *Bethlehem Authority Improved Forest Management Project* reported under the Verified Carbon Standard (VCS), Version 3. The project type is “Improved Forest Management, Extended Rotation Age” (IFM ERA); specifically, this project utilizes VM0003 v1.1 (*Methodology for Improved Forest Management through Extension of Rotation Age*) within project scope 14: Agriculture, Forestry and other Land Use (AFOLU) Requirements.

The verification objective included an assessment of compliance with VCS Version 3 and all associated updates, the selected methodology (VM0003, v1.1), and the validated PD: *Bethlehem Authority Improved Forest Management Project* dated 18 March 2013 (v1.1). This verification assessed whether the AFOLU IFM ERA project resulted in the GHG emission removal enhancements as stated by the project developer (ISO 14064-3:2006).

1.2 Scope and Criteria

The scope of the verification included the assessment of the VCS Monitoring Report (MR), and the implementation of GHG project as stated in the validated PD for the 01 January 2015 to 31 December 2015 monitoring period (fourth period). The scope of the verification is re-defined below:

Baseline Scenario	A Legal/Common Practice Scenario consisting of commercial clear cuts down to an 8 inch diameter limit, with a matrix of complete patch cuts opportunistically interspersed amongst the greater harvest area, on a 30-year rotation.
Activities/Technologies/Processes	Utilization of VM0003, v1.1 Extension of Rotation Age
Sources/sinks/Reservoirs	Above-ground biomass Below-ground biomass Standing deadwood Wood products
GHG Type	CO ₂
Time Period	Fourth Monitoring Period: 01 January 2015 to 31 December 2015.
Project Boundary	17,527 forested acres (split parcel) Carbon and Monroe Counties, Pennsylvania (PA)

Total gross VCUs generated during Monitoring Period ¹	32,402 tCO ₂ e
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¹ Gross of the 10% (4,629 tCO₂ equivalents) buffer withholding based on the Non-Permanence Risk Assessment Tool

1.3 Level of Assurance

The level of assurance was used to determine the depth of detail that the Verifier placed in the Verification and Sampling Plan to determine if there are any errors, omissions, or misrepresentations (ISO 14064-3:2006). ESI assessed the project's implementation of general principles, data collection and processing, sampling descriptions, documentation, ex post calculations, etc., to provide reasonable assurance to meet the Project Level requirements of the VCS Program. The evidence used to achieve a reasonable level of assurance is specified in the following sections.

1.4 Summary Description of the Project

The *Bethlehem Authority Improved Forest Management Project* is an Improved Forest Management (IFM) project implemented on 17,527 forested acres of a 22,536 acre split-parcel situated in Monroe County and Carbon Counties, PA. The project is under a 60-year term conservation easement with The Nature Conservancy (TNC), PA, and is achieving Greenhouse Gas (GHG) emission reductions through Extension of Rotation Age (IFM ERA).

Through payments for ecosystem services (generated via the sale of Verified Carbon Units (VCUs), land managers are able manage the forest resource with sound conservation and sustainable management practices. Project activities are promoting the natural characteristics associated with the native forests, including: ecological, scientific and aesthetic values. The project area (forested acres owned by the Project Proponent) is primarily composed of native mixed hardwood forests (mixed oak (*Quercus* spp.) and northern hardwoods), natural conifer stands (white pine (*Pinus strobus*) and red spruce (*Picea rubens*)), and conifer plantations (Norway spruce (*Picea abies*)). Within the Project Proponent's larger landholdings, there are wetland habitats harboring rare species and natural communities.

The project is extending the rotation age of the forest resource by approximately 70 years compared to the common practice baseline scenario via sustainable forest management practices. Management practices are being applied across the landscape to enhance local ecological features, remain in compliance with the conservation easement, follow the forest management plan, and maintain Forest Stewardship Council (FSC) Certification.

Blue Source, LLC. is responsible for the coordination, management, and development of this project on behalf of the Project Proponent (the Bethlehem Authority or "the Authority"). Woodland Management Services, LLC. conducts the inventory field work, as well as on-the-ground forest management. The Project Proponent (the Authority) is the legal landowner and the signatory to a contract with Blue Source, LLC. Other entities involved in the project include TNC, PA (Easement Holder/Forest Advisor) and Spatial Informatics Group (Modeling Consultants). Blue Source, LLC is responsible for project implementation and on-going monitoring throughout the project's lifetime.

The project is monitored annually, with monitoring activities assessing all of the VCS IFM ERA requirements (i.e. changes to project area/stratification, growth (sequestration) and losses (emissions) in forest carbon stocks (i.e. due to harvesting or natural disturbances), market leakage, and implementation of the forest management plan). For years where forest plots are not re-inventoried on-the-ground, changes in carbon stocks are monitored through forest growth and yield modeling using the US Forest Service's Forest Vegetation Simulator software. All sample plots will be re-inventoried at least once every ten years to calibrate forest growth models and allow for accurate forest carbon sequestration monitoring.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification assessed the Project's compliance with the VCS Version 3 (and all associated updates), the selected methodology (VM0003 v1.1), and the validated PD. The methods employed by ESI in the verification process were derived from all items in ESI's internal verification process, which included utilizing VCS documents and ISO 14064-3 to develop and implement a Verification & Sampling Plan. This verification assessed the GHG emission removals through Agriculture, Forestry and Other Land Use (AFOLU) criteria, specifically, IFM ERA activities.

According to the ISO14064-3, the verification criteria are the "policy, procedure or requirement used as a reference against which evidence is compared". Therefore, the reported Project results and supporting evidence were assessed for compliance against the following criteria:

- VCS Program Guide (v3.5, 08 October 2013)
- VCS Standard (v3.5, 25 March 2015)
- VCS Program Definitions (v3.5, 08 October 2013)
- VCS AFOLU Requirements (v3.4, 08 October 2013)
- VCS AFOLU Non-Permanence Risk Tool (04 October 2012, v3.2)
- VM0003 v1.1 (20 November 2012)
- Validated PD (18 March 2013)

A project specific Verification and Sampling Plan was developed to guide the verification auditing process to ensure efficiency and effectiveness. The purpose of the Verification and Sampling Plan is to present a risk assessment for determining the nature and extent of verification procedures necessary to ensure the risk of auditing error is reduced to a reasonable level. Modifications to the Verification and Sampling plan were made based upon the conditions observed in order to detect the processes with highest risk of material discrepancy.

The Verification & Sampling Plan methodology was derived from all items in items in the verification criteria stated above. Specifically, the sampling plan utilized the VCS guidance documents and *ISO 14064-3*. For this verification, a field visit was not required as there were no significant natural disturbances. However, at this verification the project proponents elected to re-inventory plot 259 which occurred in a harvest during the reporting period. In previous reporting periods the changes in carbon stocks were monitored through growth and yield modeling using FVS). Re-inventory of harvest plots to true-up the on-site stock estimates is more precise than

modeling and represents a substantially more accurate approach to estimate on-site stocks. The desktop verification component included a full review of all project documentation/calculations received from the Project Proponent, including the VCS MR.

2.2 Document Review

A detailed review of all project documentation was conducted to ensure consistency with, and identify any deviation from VCS program requirements, the applied methodology (VM0003 v1.1), and the validated PD

Initial review focused on the validated PD and the MR, and included an examination of the project details, implementation status, data and parameters, and quantification of GHG emission reductions and removals. Along with a review of the MR, selected documentation was requested, provided, and subsequently reviewed for consistency, accuracy, and appropriateness with regard to VCS program requirements, methodological requirements, and the validated PD. Documents reviewed include, but are not limited to, land ownership documentation, carbon rights contracts, property boundaries, financial analyses, Non-Permanence Risk Analysis (see Section 4.4 below), maps and aerial images, data from monitoring, biomass and carbon calculation spreadsheets, and responses to Non-Conformity Reports (NCRs) and Clarifications (CLs). The process of verification involved two formal rounds of assessment by the verification team and resulted in a MR that was in conformance with VCS rules.

Please see Appendix A for a complete list of documents received and reviewed by ESI.

2.3 Interviews

Interviews and informal discussions were conducted via telephone with project staff throughout the verification. Information provided in the MR was supported through the comments from those interviewed. Meetings included discussions with:

Name	Title
Josh Strauss	Director – Forest Carbon Projects, Blue Source, LLC.
Dr. Charles Kerchner	Senior Scientist, Spatial Informatics Group
William VanDoren	Research Scientist, Spatial Informatics Group

2.4 Site Inspections

No site inspection was performed for this verification. Based on the prepared risk assessment, and evaluation of project changes through this fourth monitoring period there were no significant natural disturbances. Plot 259 was harvested during the reporting period and the inventory was updated appropriately. In contrast to previous reporting periods, changes in carbon stocks due to project harvesting were not monitored through growth and yield modeling using FVS. Based on this collective evidence, the verification team determined that an on-site inspection was not warranted. Further, through the course of verification activities, no information or important findings were discovered which required a site visit.

2.5 Resolution of Findings

During the verification process, if there was a risk that potential errors, omissions, and misrepresentations would be found. The actions taken when errors, omissions, and misrepresentations were found included: notifying the client of the issue(s) identified, and expanding our review/sample to the extent that satisfied the Lead Verifier's professional judgment.

This verification involved two formal rounds of assessment by the verification team and resulted in a MR that was in conformance with VCS rules. Where the Verification Team noted findings, the project developer implemented corrective actions by amending the MR and supporting documentation/calculations and providing written clarification responses. Types of findings were characterized in the following manner:

Non-Conformity Reports (NCRs) were, in general, issued as a response to material discrepancies when:

- MR, calculations, or other supporting documents were out of conformance with documents listed in Section 2.1 above
- Additional information was required by the validation team in order to confirm reasonable assurance for compliance

Clarifications (CLs) were, in general, issued when:

- Internal consistency among sections was lacking
- Mathematical formulae in sections were presented incorrectly
- Language within a section needed extra clarification to avoid ambiguity

Opportunities for Improvement (OFIs) were issued when the MR, calculations, or other supporting documents needed enhanced to benefit the general reader or to aid in the review process of the Verification Team.

During the course of the verification, several NCRs, CLs, and OFIs were identified. All were satisfactorily addressed by the project developer. These findings provided necessary clarity to

ensure the project was in compliance with the requirements of the VCS for GHG projects. For a complete list of all findings and their resolutions, please refer to Appendix B.

2.5.1 Forward Action Requests

No forward action requests were raised during the verification process.

2.6 Eligibility for Validation Activities

Validation activities were not undertaken as part of this verification assessment.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project has not been registered, and is not seeking registration, under any other GHG programs.

3.2 Methodology Deviations

The validated PD does not include any methodology deviations. However, during the course of the second verification, methodology deviations were applied by the project developer/identified by ESI. Findings related to those methodology deviations can be found in Section 3.2 of ESI's *Bethlehem Authority Improved Forest Management Project 2nd Verification Report* (dated 14 August 2014), available on the VCS website. The current verification (4th monitoring period) did not identify any additional methodology deviations. Evaluation of project changes for this verification did not result in any adjustments to the methodology deviations approved during the 2nd monitoring period verification.

3.3 Project Description Deviations

No PD deviations were noted during the project's initial verification (see 2012 Verification Report on VCS website). However, during the course of the second verification, PD deviations were applied by the project developer/identified by ESI. Findings related to those PD deviations can be found in Section 3.3 of ESI's *Bethlehem Authority Improved Forest Management Project 2nd Verification Report* (dated 14 August 2014), available on the VCS website. The current verification (4th monitoring period) did not identify any additional PD deviations. Evaluation of project changes for this verification did not result in any adjustments to the PD deviations approved during the 2nd monitoring period verification.

3.4 Grouped Project

Not applicable, as this is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activities, as described in the validated PD, have been fully initiated. The project is extending the rotation age of the forest resource, as compared to the common practice baseline scenario, via sustainable forest management practices. Management practices are being applied across the landscape to enhance local ecological features, remain in compliance with the conservation easement, follow the forest management plan, and maintain FSC certification.

An inventory update was performed in 2015 through re-inventory of harvested plot 259, which adequately captured the growth (sequestration) in forest carbon stocks. The associated losses (emissions) in forest carbon stocks, as well as the sequestration in harvested wood products, were appropriately accounted for. As this is the fourth verification, all activities have been fully implemented and confirmed by the Verification Team through the desktop verification effort. Monitoring activities were demonstrated to be in accordance with Section 3 of the MR for the fourth monitoring period.

The procedures outlined to estimate carbon stocks in specific pools within the project area, and the uncertainty of the estimate, have been implemented correctly. A minor error in quantification of net change in medium lived wood products following Equation 30 was discovered in 3rd verification quantification. The cell reference error resulted in a previous under-issuance and was confirmed to be well-below the VCS materiality threshold for a project less than 300,000 tCO₂e. The cell reference error was absent from 4th verification period quantification of Equation 30. Allometric equations were used appropriately and market leakage was calculated correctly. The result of the market leakage analysis indicated that additional specific leakage management activities are not required. Carbon stocks for all strata have been estimated in accordance with the methodology VM0003 v1.1.

No new methodology deviations were applied by the project developer/identified by ESI during this fourth monitoring period verification. Methodology deviations evaluated during the second monitoring period verification are described in Section 3.2 of ESI's *Bethlehem Authority Improved Forest Management Project 2nd Verification Report* (dated 14 August 2014), available on the VCS website. None of the verified methodology deviations negatively impact the conservativeness of the quantification of GHG emission reductions or removals for the fourth monitoring period. PD deviations are listed in Section 3.3 of ESI's *Bethlehem Authority Improved Forest Management Project 2nd Verification Report* (dated 14 August 2014), available on the VCS website, and none impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the project remains in compliance with VM0003 v1.1.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

ESI conducted an intensive review of all input data, parameters, formulae, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS Standard, the validated PD, and VM0003 v1.1. Data with associated conversion factors, formulas, and calculations were provided by the project proponent in spreadsheet format to ensure all formulae were accessible for review. The Verification Team recalculated subsets of the analysis to confirm correctness and assess if data transposition errors occurred. The project proponent also provided a step-by-step overview of calculations to ensure the verification team understood the approach and could confirm its consistency with the VM0003 v1.1 and the PD.

An overview of the data and parameters monitored, along with verification team findings, are included in the table below:

Data and parameters monitored

Data Unit / Parameter	Verification Findings
A ₁	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 1 was re-calculated by the verification team to confirm correctness.

A ₂	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 2 was re-calculated by the verification team to confirm correctness.
A ₃	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 3 was re-calculated by the verification team to confirm correctness.
A ₄	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 4 was re-calculated by the verification team to confirm correctness.
A ₅	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 5 was re-calculated by the verification team to confirm correctness.
A ₆	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 6 was re-calculated by the verification team to confirm correctness.
A ₇	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 7 was re-calculated by the verification team to confirm correctness.
A ₈	This parameter is relevant at the time of verification because it factors into the quantification of carbon stock changes, project emission/removals and, ultimately net GHG emission reductions during the monitoring period. Area of stratum 8 was re-calculated by the verification team to confirm correctness.
A _p	The area of sample plots was assessed and confirmed as part of the 2 nd monitoring period field verification site visit [Basal Area Factor (BAF) 10]. For this verification (3 rd monitoring period), the Verification Team confirmed that BAF 10 continued to be

	implemented properly in quantitative methods.
DBH	Diameter at Breast Height values were measured and assessed as part of the 2 nd monitoring period field verification site visit. For this verification (4 th monitoring period), the Verification Team confirmed that the previously collected inventory data was appropriately used for inventory update FVS modeling (input) and that resulting DBHs and carbon stocking values were reflective of correct FVS modeling procedures. Verifiers independently ran the 2013 inventory data through FVS to quantify carbon stocking via the imbedded allometric equations and achieved the same result.
Index	After addressing several findings (see Appendix B), the Verification Team confirmed this parameter was quantified correctly for all plots, and appropriately implemented for inventory update FVS modeling (calibration).
H	Height values were measured and assessed as part of the 2 nd monitoring period field verification site visit. For this verification (4 th monitoring period), the Verification Team confirmed that the previously collected inventory data was appropriately used for inventory update FVS modeling (input) and that resulting heights and carbon stocking values were reflective of correct FVS modeling procedures. Verifiers independently ran the 2013 inventory data through FVS to quantify carbon stocking via the imbedded allometric equations and achieved the same result.
PMP _i	Proportions of merchantable total biomass from FVS by stratum (an average) was checked for accuracy and found to be properly calculated as part of the comprehensive FVS data checks.
T	The number of years between monitoring time t and t1 ($T = t_2 - t_1$) was appropriately set to equal one (1) year.

The methods and formulae set out in the PD for calculating baseline emissions, project emissions, and leakage were followed with the exception of the PD deviations outlined in Section 3.3 of ESI's *Bethlehem Authority Improved Forest Management Project 3rd Verification Report* (dated 25 June 2015), available on the VCS website.

The total end of the 2015 monitoring period carbon stocks in all pools (i.e. above-ground biomass, dead wood, and wood products) resulting from carbon stock changes of 33,987 MtCO_{2e} were correctly quantified as 2,345,344 MtCO_{2e}. Please note that 3rd verification quantification resulted in a change of 25,508 MtCO_{2e} and quantified as 2,310,744 MtCO_{2e} and was the result of the error described in Section 4.1 of this report. The corrected values for 2014 are carbon stock changes of 26,121 MtCO_{2e} resulting in 2,311,358 MtCO_{2e}.

Uncertainty was assessed as required. The verification team reconfirmed the statistics from the 2013 inventory independently to confirm the accuracy of the reported precision and confirmed no confidence deduction was required. Analysis of project inventory data used appropriate formulas, conversions, and parameters, supported by scientific literature. Where ranges of parameters exist, or other types of formulaic uncertainty, appropriately conservative values were used in data analysis.

In conclusion, the quantification methods for GHG emission reductions and removals have been performed correctly and in accordance with the validated PD and VM0003 v1.1.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

During this verification assessment, the evidence provided by the project proponent was more than sufficient in both quantity and quality to support the determination of GHG emission removals reported by the project. Throughout the verification, the project proponent demonstrated a commitment toward conservativeness and took all measures appropriate to ensure the reliability of evidence provided.

The evidence provided to determine emission reductions reported in the MR included values, notations, units and sources. This evidence has been cross-checked with supplied emission reduction calculation spreadsheets and a comprehensive GIS dataset. The procedure for data recording, transfer and final transposition was also verified and found to be in compliance with the monitoring plan outlined in the PD. The verification team was able to confirm through cross checks that adequate monitoring mechanisms are in place where the required parameters need to be monitored.

Interviews conducted (oral evidence) are outlined in Section 2.3 above, and the final documents received from the Project Proponent supporting the determination of GHG removals can be viewed in Appendix A.

4.4 Non-Permanence Risk Analysis

The AFOLU Non-Permanence Risk Tool (04 October 2012, v3.2) was used by the Project Proponent to assess overall project risk. The verification team reviewed the Non-Permanence Risk Report v3.0 provided with the verification supporting documentation and confirmed that the Project adheres to the requirements set out in the VCS AFOLU Non-Permanence Risk Tool. Each risk factor was thoroughly assessed for conformance. Any identified NCR and/or CL findings related to the AFOLU Non-Permanence Risk Tool/Report are presented in Appendix B. The final score was calculated to be 8%, as such; the minimum 10% is utilized. A brief review of each factor is found in the table below:

Risk Factor	Rationale & Quality	Conclusion
Internal Risks		
Project Management	A) Species planted- will not be extensive and all species planted will be native or proven to be adapted to the site.	A risk rating of -4 is appropriate given the rationale

	<p>B) No history of illegal activities exists in the region</p> <p>C) The management team has significant experience conducting forest carbon projects and possesses the skills necessary to successfully undertake all project activities.</p> <p>D) The project's Adaptive Management Plan outlines the various processes associated with addressing issues to forest health on Bethlehem Authority lands.</p>	<p>provided and all statements made are substantiated.</p>
Financial viability	<p>The verification team reviewed the support documentation provided by the Project Proponent and found all calculations and assertions correct. The redacted "Confidential Purchase Agreement" was reviewed by verifiers and VCUs were confirmed to be sold at an appropriate rate per VCU. Breakeven occurred following the sale of the credits issued from the 2012 reporting period. Thus, the current monitoring year financial analysis indicates that sufficient funding has been received from previous VCU vintages to cover 64% of breakeven costs.</p>	<p>A risk rating of 1 is appropriate given the rationale provided and all statements made are substantiated.</p>
Opportunity Cost	<p>Baseline NPV was confirmed to encompass all 100 years of the crediting period and calculations performed are correct.</p>	<p>A risk rating of 0 is appropriate given the rationale provided.</p>
Project Longevity	<p>The project is without legal agreement or requirement to continue the management practice and this criterion is met.</p>	<p>A risk rating of 4 is appropriate given the rationale provided.</p>
Total Internal Risks		1
External Risks		
Land Tenure	<p>The risk report appropriately states "No disputes over land tenure or ownership exist on the project area."</p>	<p>A risk rating of 0 is appropriate given the rationale provided.</p>
Community Engagement	<p>As no households are located within the project area this criterion is not applicable.</p>	<p>A risk rating of 0 is appropriate given the rationale provided.</p>

Political Risk	The average World Governance Indices (WGI) score for the United States, based on the WGI's six governance categories, for 2008-2012 = 1.23.	A risk rating of 0 is appropriate given the rationale provided.
Total External Risks		0
Natural Risks		
Natural Risk	Significance of fire is minor in this part of USA and the likelihood is every 25 to 50 years. Beech bark disease, gypsy moth, and hemlock woolly adelgid have been sporadically present within the project region since the early 1980s. Throughout the project inventory, notes were taken at high conservation value plots defining plot condition in relation to forest stressors. Sites of concern will be regularly monitored to promote improved health and insure conditions do not worsen. As is stated in the project Forest Management Plan, an adaptive approach involving the use of FSC approved pesticides will be implemented to prevent pest/disease outbreak. A score of 5 is reasonable given the high risk of pests and disease in the project area.	A risk rating of 2.75 is appropriate given the rationale provided and all statements made are substantiated.
Total Natural Risks		2.75
Overall Risk Rating = 4%		

5 VERIFICATION CONCLUSION

After review of all project information, procedures, calculations, and supporting documentation, ESI confirms that the monitoring conducted by the project proponent, along with the supporting Monitoring Report, are accurate and consistent with all aforementioned VCS criteria, the validated PD, and the selected methodology (VM0003, v1.1). ESI confirms that the *Bethlehem Authority Improved Forest Management Project Monitoring Report* (v3.0 dated 6 June 2016) has been implemented in accordance with the validated PD.

ESI confirms all verification activities, including objectives, scope and criteria, level of assurance, monitoring and project documentation adherence to VCS Version 3 (and all associated updates), as documented in this report are complete. ESI concludes without any qualifications or limiting conditions that *Bethlehem Authority Improved Forest Management Project* meets the requirements of VCS Version 3 and all associated updates for the fourth monitoring period.

The GHG assertion provided by the Project Proponent and verified by ESI has resulted in the GHG emission reduction or removal of 37,030 tCO₂ equivalents by the project during the third monitoring/verification period (01 January 2015 – 31 December 2015). This value is gross of the 10% (4,629 tCO₂ equivalents) buffer withholding based on the non-permanence risk assessment tool.

Verification period: From 01 January 2015 to 31 December 2015

Verified GHG emission reductions and removals in the current and previous verification periods:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)*
5/29/2012-12/31/2012	-5,112	25,480	6,119	22,027
1/01/13-12/31/13	-10,821	24,306	7,025	24,589
1/01/14-12/31/14	-12,301	25,508	7,562	26,466 ²
1/01/15-12/31/15	-12,301	33,987	9,258	32,402
Total	-40,535	109,281	29,964	105,484

***Note 10% risk deduction accounted for.**

Submittal Information:

Report Submitted to:	Verified Carbon Standard Association 1730 Rhode Island Ave. NW, Suite 803, Washington, D.C. 20036 Stephen Repasch Executive Director Bethlehem Authority 10 East Church St. Bethlehem, PA 18018
Report Submitted by:	Environmental Services, Inc. - Corporate Office 7220 Financial Way, Suite 100 Jacksonville, Florida 32256

² Note 3rd verification/reporting period value reflects previously reported values and not new results as result of fixing quantitative error as described in Section 4.1 of this report.

<p>ESI Lead Verifier Name and Signature</p>	 Shawn McMahon Lead Verifier
<p>ESI Division Regional Technical Manager Name and Signature</p>	 Janice McMahon Vice President and Forestry, Carbon and GHG Division Regional Technical Manager
<p>Date:</p>	<p>7 June 2016</p>

SMM//JPM/rb/VO13051.02/VCS Verification Report-final_20160607.doc
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APPENDIX A – DOCUMENTS RECEIVED/REVIEWED

Documents received 29 February 2016

- Non-permanence_Risk_Report_2015.docx
- 2015_Harvests
 - Emails_between_W_VanDoren_R_Wildermuth_re_Bethlehem_CY2016_Verification_Data_QAQC.pdf
 - BA_Treatment_History_2015
 - BA_Treatment_History_2015.shx
 - BA_Treatment_History_2015.dbf
 - BA_Treatment_History_2015.prj
 - BA_Treatment_History_2015.sbn
 - BA_Treatment_History_2015.sbx
 - BA_Treatment_History_2015.shp
 - BA_Treatment_History_2015.shp.xml
 - BA_Treatment_History_2015_A
 - BA_Treatment_History_2015_A.xml
 - BA_Treatment_History_2015_A.dbf
 - BA_Treatment_History_2015_A.prj
 - BA_Treatment_History_2015_A.sbn
 - BA_Treatment_History_2015_A.sbx
 - BA_Treatment_History_2015_A.shp
 - BA_Treatment_History_2015_A.shx
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.xml
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.CPG
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.dbf
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.prj
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.sbn
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.sbx
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shp
 - BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shx
 - Carbon 2015 Reporting
 - CFI Remeasurements Plot 259.xlsx
 - BA_Treatment_History_2015
 - BA_Treatment_History_2015.shx
 - BA_Treatment_History_2015.dbf
 - BA_Treatment_History_2015.prj
 - BA_Treatment_History_2015.sbn
 - BA_Treatment_History_2015.sbx
 - BA_Treatment_History_2015.shp
 - BA_Treatment_History_2015.shp.xml
 - TK 17C3_39C4 Reporting
 - TK 17C3_39C4 Plantation Thin Reconciliation.xlsx
 - 39C4_17C3 Thin Estimates Volume Value.xlsx
 - BA Timber Treatment Plan TK 39C4_17C3.docx
 - WC 1C_2D Reporting
 - WC 1C_2D Reporting\WC 2D Reconciliation.xlsx

- WC 1C_2D Reporting\1C_2D Thin Volume Value.xlsx
- Treatment Plan WC 1C_2D.docx
- WC 1C Reconciliation.xlsx
- WC 2C Salvage Reporting
 - WC 2C Reconciliation 2015 Portion.xlsx
 - WC 2C Salvage Reporting\2C Volume Value.xlsx
 - Stand Table Wild Creek 2C TS.xlsx
 - Timber Harvest_Treatment Plan WC 2C.docx
- WC 6A_8A Reporting
 - WC 6A_8A Reporting\Stand Table Wild Creek 6A_8A TS.xlsx
 - Timber Harvest_Treatment Plan WC 6A 8A.docx
 - 6A_8A Volume Value.xlsx
- 2015 Carbon Reporting Notes.docx
- BA 2015 Treatments by Strata and Type.xlsx
- Budget Timber Harvest Year End 2015.xlsx
- TK 17C3_39C4 Reporting (this folder was empty)
- WC 1C_2D Reporting (this folder was empty)
- WC 2C Salvage Reporting (this folder was empty)
- WC 6A_8A Reporting (this folder was empty)
- BA 2015 Treatments by Strata and Type.xlsx
- BA_Treatment_History_2015.dbf
- BA_Treatment_History_2015.prj
- BA_Treatment_History_2015.sbn
- BA_Treatment_History_2015.sbx
- BA_Treatment_History_2015.shp
- BA_Treatment_History_2015.shp.xml
- BA_Treatment_History_2015.shx
- BA_Treatment_History_2015_A.dbf
- BA_Treatment_History_2015_A.prj
- BA_Treatment_History_2015_A.sbn
- BA_Treatment_History_2015_A.sbx
- BA_Treatment_History_2015_A.shp
- BA_Treatment_History_2015_A.shx
- BA_Treatment_History_2015_A.xml
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.CPG
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.dbf
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.prj
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.sbn
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.sbx
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shp
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shx
- BA_Treatment_History_2015_SIG_SELF_UNION_20160201.xml
- Budget Timber Harvest Year End 2015.xlsx
- CFI Remeasurements Plot 259 BVD notations 20160223.xlsx
- CFI Remeasurements Plot 259.xlsx
- Email_From_R_Wildermuth_Accompanying_Carbon_2015_Reporting_Data_20160112.pdf
- Blue Source TNC Project List
 - BlueSoucre_TNC_ProjectList.xlsx
- Confidential Redacted Credit Sales Agreements

- TNC Blue Source Amendment FINAL 9 30 13 Mutually Executed_Redacted.pdf
- Previous Redacted Sales Agreement
 - 4 Confidential Purchase Agreement.pdf
- Easement
 - Conservation Easement .pdf
- FSC
 - The Nature Conservancy FSC FM cert.pdf
 - Bethlehem FSC certificate letter.pdf
- General_Spatial
 - BA_GoogleEarth.kmz
 - Permanent Plots
 - CFI_FVS_PERM_PLOTS.shp.xml
 - CFI_FVS_PERM_PLOTS.shx
 - 2013_Verification_Plots.dbf
 - 2013_Verification_Plots.prj
 - 2013_Verification_Plots.sbn
 - 2013_Verification_Plots.sbx
 - 2013_Verification_Plots.shp
 - 2013_Verification_Plots.shp.xml
 - 2013_Verification_Plots.shx
 - CFI_FVS_PERM_PLOTS.dbf
 - CFI_FVS_PERM_PLOTS.prj
 - CFI_FVS_PERM_PLOTS.sbn
 - CFI_FVS_PERM_PLOTS.sbx
 - CFI_FVS_PERM_PLOTS.shp
 - project boundary
 - project boundary\FVS_Stands_2012.shx
 - BA_Strata_Layer_Updated_Jan28_2014.dbf
 - BA_Strata_Layer_Updated_Jan28_2014.prj
 - BA_Strata_Layer_Updated_Jan28_2014.sbn
 - BA_Strata_Layer_Updated_Jan28_2014.sbx
 - BA_Strata_Layer_Updated_Jan28_2014.shp
 - BA_Strata_Layer_Updated_Jan28_2014.shp.BLUESOURCEPC.2776.7180.sr.lock
 - BA_Strata_Layer_Updated_Jan28_2014.shp.BLUESOURCEPC.2776.rd.lock
 - BA_Strata_Layer_Updated_Jan28_2014.shx
 - FVS_Stands_2012.dbf
 - FVS_Stands_2012.prj
 - FVS_Stands_2012.sbn
 - FVS_Stands_2012.sbx
 - FVS_Stands_2012.shp
 - FVS_Stands_2012.shp.xml
- Leakage Calcs
 - Leakage Calculations 2015.xls
- Management Plan
 - Confirmation of Forest Management Activities Letter 2015.pdf
 - BA Adaptive Management Plan.docx
 - Bethlehem Authority Forest Management Plan 11july2012.pdf
- Project Description
 - Project Description.pdf

- risk tool docs
 - Worldwide_Governance_Indecator_calcs.xlsx
 - Invoices for Project Expenses
 - 7 Nature Conservancy invoices to Woodland_Mgmt.pdf
 - 1 Index of Covered Expenses.xlsx
 - 2 Bethlehem Inventory SIG Contract .pdf
 - 3 SIG paid invoices.pdf
 - 4 Third Party Forester Invoice .pdf
 - 5 Rainforest Alliance Contract.pdf
 - 6 Rainforest Alliance invoices.pdf
 - 2015_Q3rd_Pen_Pulp_Price.pdf
 - Bethlehem PA Woodlands Timber Prices RP4.xlsx
 - RiskTool_Financials 2015_022616.xlsx
- VCU_Calcs
 - VCU Calculations Vintage 2015 20160224.xlsx
- Verification_CY2016_FVS_Runs_Updated_Treelist_Plot259_20160223
 - suppose.loc
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223
 - suppose.loc
 - _001_Readme_20160223.txt
 - Bethlehem_Input_Plot259_Ver_CY2016_20160223.mdb
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.bat
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.chp
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.key
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.out
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.sum
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.tre
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.trl
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.xls
 - _001_Readme_20160223.txt
 - Bethlehem_Input_Plot259_Ver_CY2016_20160223.mdb
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.bat
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.chp
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.key
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.out
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.sum
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.tre
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.trl
 - Bethlehem_Ver_CY2016_Plot259_LetGrow_20160223.xls
- Wood_Product_Calcs
 - Table4_GTR-NE-319.pdf
 - 2015_Verification_Wood_Products_20160225.xlsx
- Monitoring_Report_2015.docx

Documents received 08 March 2016

- VCU Calculations Vintage 2015 20160306.xlsx
- Risk Tool Docs
 - Worldwide_Governance_Indecator_calcs.xlsx
 - Invoices for Project Expenses
 - 7 Nature Conservancy invoices to Woodland_Mgmt.pdf

- 1 Index of Covered Expenses.xlsx
 - 2 Bethlehem Inventory SIG Contract .pdf
 - 3 SIG paid invoices.pdf
 - 4 Third Party Forester Invoice .pdf
 - 5 Rainforest Alliance Contract.pdf
 - 6 Rainforest Alliance invoices.pdf
- 2015_Q3rd_Pen_Pulp_Price.pdf
- Bethlehem PA Woodlands Timber Prices RP4.xlsx
- RiskTool_Financials 2015_030816.xlsx
- TK 17C3_39C4 Reporting
 - BA Timber Treatment Plan TK 39C4_17C3.docx
 - 39C4_17C3 Thin Estimates Volume Value.xlsx
- WC 1C_2D Reporting
 - Treatment Plan WC 1C_2D.docx
 - 1C_2D Thin Volume Value.xlsx
- WC 2C Salvage Reporting
 - Timber Harvest_Treatment Plan WC 2C.docx
 - Stand Table Wild Creek 2C TS.xlsx
- WC 6A_8A Reporting
 - Timber Harvest_Treatment Plan WC 6A 8A.docx
 - Stand Table Wild Creek 6A_8A TSv2.xlsx
- Wood_Product_Calcs
 - able4_GTR-NE-319.pdf
 - 2015_Verification_Wood_Products_20160306.xlsx
- Monitoring_Report_2015.docx
- Non-permanence_Risk_Report_2015.docx

Documents received 04 May 2016

- Audit Scale Slips
 - WC 1C Reconciliation.xlsx
 - WC 2D Reconciliation.xlsx
 - Harvest Statement Summary 1C 2D.xls
 - scale slips Part 1 041816.pdf
 - Scale Slips Part 2 041916.pdf
 - Scale Slips Part3.pdf
- CL1
 - RiskTool_Financials_v2.xlsx
 - Confidential Redacted Credit Sales Agreements
 - TNC Blue Source Amendment FINAL 9 30 13 Mutually Executed_Redacted.pdf
 - Previous Redacted Sales Agreement
 - 4 Confidential Purchase Agreement.pdf
 - Pen_Pulp_Price
 - 39C4_17C3 Thin Estimates Volume Value.xlsx
 - PennStateReports
 - 2015_Q3rd_Pen_Pulp_Price.pdf
 - 2015_Q1_Pen_Pulp_Price.pdf
 - 2015_Q2_Pen_Pulp_Price.pdf
 - 1C_2D Thin Volume Value.xlsx
 - Bethlehem PA Woodlands Timber Prices RP4v2.xlsx

- Bethlehem_LetGrow20160429_Board-Foot_Summary_For_Species_Product_Breakdown_20160502.xlsx
- Density Values
 - 2015_Verification_Wood_Products_20160427.xlsx
- Maps
 - Bethlehem_Authority_WildCreek_Parcel_Map_ExhibitA2.jpg
 - Bethlehem_Authority_Tunkhannock_Parcel_Map_ExhibitA1.jpg
- Monitoring Report
 - Monitoring_Report_2015v2redline.docx
- Non-Permanence Risk Report
 - Non-permanence_Risk_Report_2015v2redline.docx
- Plot 109
 - VCU Calculations Vintage 2015 20160427_plot109.xlsx
- 051_01_Beth_4th_ver_NCRs_R1_FINAL.xlsx
- Monitoring_Report_2015v2redline.docx
- Non-permanence_Risk_Report_2015v2redline.docx
- VCU Calculations Vintage 2015 20160502.xlsx

Documents received 06 June 2016

- 051_02-Bethlehem-VCS_VerifSamplPlan-final-V2-20160603doc-signed.pdf
- Monitoring_Report_2015_060616.pdf

APPENDIX B – NCRs/CLs/OFls

Item Number	1
VCS Standard VCS Version 3 Requirements Document 08 October 2013, v3.4	3.16.6 The monitoring report shall include all the data and information as set out in the monitoring requirements of the project description and the applied methodology. It shall be prepared using the VCS Monitoring Report Template and shall include the following:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	MR General
ESI Findings - Round 1 (07 April 2016)	<p>Project is using the most recent version of the VCS Monitoring Report template and all sections of the MR are completed using Arial 10pt, black, regular (non-italic) font as required by the template. However there are black redacted style boxes to the left of some headings. Also, in Sections 3.1 and 3.2, the tables for Parameters Available at Validation and Parameters Monitored contain a field called "Any comment," which should be "Comments" per the most recent VCS Monitoring Report Template. Further, the table in Section 4.4 contains a field ("Net GHG emission reductions (tCO₂e) before risk deduction") that is not included in the VCS Monitoring Report Template.</p> <p>Specific issues related to the calculations are covered in more detail within the VM0003 tab of this checklist. Please refer there for related further information.</p>
Round 1 NCR/CL/OFl	NCR: Please address the findings and make the noted updates to the Monitoring Report.
Round 1 Response from Project Proponent (04 May 2016)	These findings have now been addressed in the monitoring report. Please note that the column titled "Net GHG emission reductions (tCO ₂ e) before risk deduction" in section 4.4 was originally added voluntarily to help display the credit issuance breakdown, but has now been removed.
ESI Findings - Round 2 (25 May 2016)	Verifiers reviewed the revised MR and confirmed that language "Any comment" was appropriately removed and replaced with "Comments." Verifiers also agree that including the field in Section 4.4 titled "Net GHG emission reductions (tCO ₂ e) before risk deduction" is appropriate. No further action is needed. The item is addressed.

Item Number	2
VCS AFOLU Requirements 25 March 2015, v3.5	3.6.1 The potential for leakage shall be identified, and projects are encouraged to include leakage management zones as part of the overall project design. Leakage management zones can minimize the displacement of land use activities to areas outside the project area by maintaining the production of goods and services, such as agricultural products, within areas under the control of the project proponent or by addressing the socio-economic factors that drive land use change. Activities to mitigate ecological leakage in WRC projects may include the establishment of a leakage management zone inside the project boundary.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	MR Section 2.1
ESI Findings - Round 1 (07 April 2016)	<p>From MR: "The applicability conditions of VM0003 and the VCS standard prohibit any activity shifting leakage as result of the implementation of an IFM project. As the Bethlehem project area is the only forestland owned/managed by BA, this requirement is automatically met." See also: VM0003, Section 8.6.1.</p> <p>The verification team attempted to assess whether the Bethlehem Authority had acquired any new forestland since the previous verification by accessing the assessor's office webpages for Carbon and Monroe Counties, PA, and comparing the list of parcels included in Exhibit A to the full list of parcels under the ownership of the Bethlehem Authority from the assessor's website. However, the list of parcels included in Exhibit A of the MR was illegible on account of pixilization.</p>
Round 1 NCR/CL/OFI	NCR: Please address the findings and provide a full and legible list of parcels included in the Project Area.
Round 1 Response from Project Proponent (04 May 2016)	Please find hi-resolution versions of the exhibit A1 and A2 maps in the Maps folder. These maps include tables legibly depicting the parcels included in the Project Area.
ESI Findings - Round 2 (25 May 2016)	Verifiers reviewed maps provided in response to this finding, "Bethlehem_Authority_Tunkhannock_Parcel_Map_ExhibitA1.jpg" and "Bethlehem_Authority_WildCreek_Parcel_Map_ExhibitA2.jpg." These maps sufficiently depict the parcels included in the project area. Verifiers contacted the Carbon County and Monroe County, PA Assessors office and confirmed that the Bethlehem Authority has not acquired any lands during the reporting period. This evidence is sufficient to confirm that the project area is the only forestland owned by Bethlehem Authority and this requirement under leakage is met. The item is addressed.

Item Number	3
VCS AFOLU Requirements 25 March 2015, v3.5	3.7.3 Projects shall prepare a non-permanence risk report in accordance with VCS document AFOLU Non-Permanence Risk Tool at both validation and verification. In the case of projects that are not validated and verified simultaneously, having their initial risk assessments validated at the time of VCS project validation will assist VCU buyers and sellers by providing a more accurate early indication of the number of VCUs projects are expected to generate. The non-permanence risk report shall be prepared using the VCS Non-Permanence Risk Report Template, which may be included as an annex to the project description or monitoring report, as applicable, or provided as a stand-alone document.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Non-permanence_Risk_Report_2015.docx; Risk Tool v3.2 tab of this workbook

ESI Findings - Round 1 (07 April 2016)	Refer to Risk Tool v3.2 tab of this workbook. Project has submitted an updated Risk Analysis and utilizes the V3.1 Risk Report Template. However, the "Document Prepared By" field of the title page contains bold font, when the V3.1 Risk Report Template specifically calls for regular font. Further, Section 2 contains a table with the heading "Land Ownership and Resource Access/Use Rights," which should be "Land Tenure and Resource Access/Impacts" according to the V3.1 Risk Report Template.
Round 1 NCR/CL/OFI	NCR: Please address the findings and update the title page and Section 2 of the Risk Report to conform to the requirements of VCS Non-Permanence Risk Report Template, v3.1.
Round 1 Response from Project Proponent (04 May 2016)	These findings have now been addressed in the project's Non-Permanence Risk Report.
ESI Findings - Round 2 (25 May 2016)	Verifiers reviewed the revised Risk Report provided in response to this finding and confirmed the appropriate formatting changes have been made. The item is addressed.

Item Number	4
VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)	H. There may be no leakage through activity shifting to other lands owned or managed by project proponents outside the bounds of the project area.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD, section 2.2; Monitoring_Report_2015.docx
ESI Findings - Round 1 (07 April 2016)	<p>Per the PD, the Bethlehem Authority does not manage or own any other working timberlands outside of the bounds of the VCS carbon project area, so no activity shifting leakage is possible.</p> <p>The Bethlehem Authority does own 4,945.4 acres not incorporated in the Project Area, but these acres represent farmland, water bodies, and ecologically sensitive areas of the property that will not be subject to any harvest activity and therefore should not be considered susceptible to activity shifting leakage.</p> <p>The monitoring report has a typo on page 35 which states "The project's Market effects leakage is re-assed" which should be "re-assessed".</p>
Round 1 NCR/CL/OFI	CL: Please correct the typo on page 36 to state "re-assessed".
Round 1 Response from Project Proponent (04 May 2016)	The spelling error has been corrected.

ESI Findings - Round 2 (25 May 2016)	Verifiers reviewed the revised MR supplied in response to this finding and confirmed that the spelling error is now corrected. The item is addressed.
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Item Number	5
VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)	<p>Where:</p> <p>ΔC_t Annual change in carbon stock in all selected carbon pools for year t; t C yr⁻¹</p> <p>$\Delta CAG_{i,t}$ Annual carbon stock change in above-ground biomass of trees for stratum i, (possibly average over a monitoring period); t C yr⁻¹</p> <p>$\Delta CBG_{i,t}$ Annual carbon stock change in below-ground biomass of trees for stratum i, (possibly average over a monitoring period); t C yr⁻¹</p> <p>$\Delta CDW_{i,t}$ Annual change in the dead wood carbon pool for stratum i, (possibly average over a monitoring period); t C yr⁻¹</p> <p>$\Delta CWP_{i,t}$ Annual change in the wood products carbon pool for stratum i, (possibly average over a monitoring period); t C yr⁻¹</p> <p>i 1, 2, 3 ... MPS strata in the project scenario</p> <p>t 1, 2, 3 ... t* years elapsed since the start of the IFM project activity</p>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	VCU Calculations Vintage 2015 20160306.xlsx - tab "Eq. 11,12,23,24,25,30 1-4verprd"
ESI Findings - Round 1 (07 April 2016)	<p>Verifiers reviewed quantification of individual pools by stratum in tab "Eq. 11,12,23,24,25,30 1-4verprd." However, an adjustment to plot 259 in stratum 7 could not be found as part of the 4th Crediting period accounting in appropriate pools. Results of FVS carbon quantification for this plot in tab "4thVerifprdFVSharvestplot_259" could not be traced to derivative quantification.</p> <p>The wood products pool included values correctly transcribed and no other carbon pools were excluded.</p>
Round 1 NCR/CL/OFI	CL: Please address the findings and clarify where inventory update procedures for Plot 259 as a result of harvesting are applied. If warranted please revise quantification for stratum 7 in the appropriate pools to account for harvest stock adjustments.
Round 1 Response from Project Proponent (04 May 2016)	<p>The adjustment to plot 259 in stratum 7 can be seen in cell U28 in the tab "3&4 Verified FVS Grow-output" in the VCU calc sheet "VCU Calculations Vintage 2015 20160502". The cell U28 in this tab sources the tab "4thVerifprdFVSharvestplot_259".</p> <p>Since plot 259 has an equivalent per acre weight as all the other plots in stratum 7, we used the growth per plot per year as run in an FVS let-grow scenario for all other plots and deducted harvest and growth for plot 259 as it was run separately in FVS.</p> <p>The tab "3&4 Verified FVS Grow-output" feeds into the cell K72 in the tab labeled "Eq. 11,12,23,24,25,30 1-4verprd".</p>

<p>ESI Findings - Round 2 (25 May 2016)</p>	<p>Verifiers reviewed the revised VCU calc worksheet supplied in response to this finding in addition to a modeling call held with project proponents on 4 May 2016. Verifiers agree with revised methods for building back the harvest accounting into the on-site stock estimates. Although at previous reporting periods this update was performed using FVS modeling, re-inventory of harvest plots represents a substantially more accurate method for estimates of on-site stocks.</p> <p>Verifiers traced quantification of harvest plot 259 and confirmed it was input into Equation 12 quantification correctly. The item is addressed.</p>
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Item Number	6
<p>VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)</p>	<p>Step 1: Determine based on available data, e.g. volume tables (ex ante) and measurements (ex post), the diameter (DBH, at typically 1.3 m [4.5 ft.] above-ground level), and also preferably height (H), of all the trees above some minimum DBH in the sample plots.</p>
<p>Evidence Used to Assess (Location in PD/MR or Supporting Documents)</p>	<p>Emails_between_W_VanDoren_R_Wilderemuth_re_Bethlehem_CY2016_Verification_Data_QAQC.pdf</p>
<p>ESI Findings - Round 1 (07 April 2016)</p>	<p>Allometric method used for the project, however step 1 is the same as in this BEF method. During general review of materials submitted at this 4th verification, verifiers noticed in an email exchange identification of issues by the project's technical consultant for infeasibly large tree diameters in the inventory data. Verifiers note that tree 4 for Plot 109 at 102" dbh was included in the inventory data modeled for the 2nd and 3rd verification project cases. This tree also appears to have been included in the FVS grown data for this 4th verification. No action may be necessary by the project proponent since this error is likely immaterial, as the project is under 300,000 MtCO_{2e}.</p> <p>Only the file, "PermPlots_Master Data Sheet_2013.xls" was mentioned in the email exchange but the tree diameter issue is reflected in previous verification worksheets.</p> <p>Revisiting of the baseline is outside the scope of this 4th verification.</p>
<p>Round 1 NCR/CL/OFI</p>	<p>CL: Please address the findings and confirm whether tree 4 in plot 109 was included in the Let Grow scenario and reflected in quantification for the project case at this 4th reporting period. Please also confirm whether other instances of infeasible tree diameters occurred in the inventory data carried forward to this reporting period. Finally, if the infeasible tree diameter issue persists in quantification for this reporting period, please provide a statement with supporting evidence as needed to clarify whether the error(s) meet VCS immaterial requirements.</p>

<p>Round 1 Response from Project Proponent (04 May 2016)</p>	<p>Tree 4 in plot 109 was included in the Let Grow scenario reflected in the quantification for the project case. To demonstrate the change was immaterial, we ran the FVS model with the corrected DBH of 1.2 and compared the results with FVS outputs for the tree with 102 DBH.</p> <p>The net effect is an increase from 32,402 to 32,421. The change for the fourth reporting period is both conservative and immaterial (change in .05% VCU). The calcs can be seen in "VCU Calculations Vintage 2015 20160427_plot109" workbook located in the Plot 109 Folder.</p> <p>As a separate note, the two other infeasible DBH inputs in plots 61 and 119 were dropped from the let grow runs because FVS drops DBH values greater than 999. Thus, FVS dropping the tree in plot 61 and tree in plot 119 resulted in conservative estimates of GHG reductions.</p>
<p>ESI Findings - Round 2 (25 May 2016)</p>	<p>Verifiers reviewed the demonstration for materiality of the large tree included in the dataset. It is reasonable that an adjustment down would occur for a 1.2 inch or 10.2 inch tree given the plot multiplier. The difference in crediting was confirmed to be immaterial and no action is needed. Verifiers also confirmed that FVS does drop trees larger than a 999 threshold because it accounts for tree diameters at 3 decimal places per the FVS Essentials document. The item is addressed.</p>

<p>Item Number</p>	<p>7</p>
<p>VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)</p>	<p>The Wood Products pool is calculated through the following general steps for each harvest period h:</p>
<p>Evidence Used to Assess (Location in PD/MR or Supporting Documents)</p>	<p>Email_From_R_Wildermuth_Accompanying_Carbon_2015_Reporting_Data_20160112.pdf</p>
<p>ESI Findings - Round 1 (07 April 2016)</p>	<p>Verifiers reviewed materials submitted as part of harvest record keeping for project accounting and verification purposes. One email chain "Email_From_R_Wildermuth_Accompanying_Carbon_2015_Reporting_Data_20160112.pdf" stated, "There were only 2 CFI plots to check and one of those was actually just out of the harvest area, so there was only one plot remeasured after treatment for this year." To enable reasonable assurance in the absence of a site visit for this 4th verification, verifiers request this plots identifier to be sure it was outside of the harvest boundaries and therefore appropriately not included in the inventory update.</p>
<p>Round 1 NCR/CL/OFI</p>	<p>CL: Please supply the plot identifier as noted in the finding.</p>

<p>Round 1 Response from Project Proponent (04 May 2016)</p>	<p>Head Bethlehem forester, Robin Wildermuth, was contacted in relation to this CL. He responded as follows:</p> <p>"There were 2 CFI plots that needed to be field checked. We knew CFI Plot 259 was in a treatment as we marked through it in preparing the sale. It is in stand 39C4, a thinned larch plantation. The second plot was 229, which fell very close to one of the cleared Met Towers. I had previously GPS'd the cleared perimeter and when I plotted this in the GIS system with the CFI layer displayed, I realized Plot #229 was very close. During my field visit on 12/29/2015 I verified that the plot was just out and all of the trees previously measured in the plot were still standing and undisturbed. I then proceeded to Plot #259 and remeasured the plot, submitting the results with the files for the 2015 audit."</p>
<p>ESI Findings - Round 2 (25 May 2016)</p>	<p>Verifiers re-checked the proximity of plot 259 to the reporting period harvest area and confirmed it is close as stated by Robin Wildermuth. This statement from Robin is sufficient to satisfy the clarification request. The item is addressed.</p>

<p>Item Number</p>	<p>8</p>
<p>VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)</p>	<p>The Wood Products pool is calculated through the following general steps for each harvest period h:</p>
<p>Evidence Used to Assess (Location in PD/MR or Supporting Documents)</p>	<p>"BA_Treatment_History_2015.shp," "BA_Treatment_History_2015_A.shp," and "BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shp"; Emails_between_W_VanDoren_R_Wildermuth_re_Bethlehem_CY2016_Verification_Data_QAQC.pdf</p>
<p>ESI Findings - Round 1 (07 April 2016)</p>	<p>Materials submitted for this 4th verification included several harvest shapefiles with slightly different attributes: "BA_Treatment_History_2015.shp," "BA_Treatment_History_2015_A.shp," and "BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shp". The verification team assumed that "BA_Treatment_History_2015_SIG_SELF_UNION_20160201.shp" was intended to be reflective of actual harvest acreage per the monitoring report and related wood products calculations. An email exchange was submitted in verification materials which suggested harvests in the reporting period may be "BA_Treatment_History_2015_A.shp," as noted by Robin Wildermuth.</p> <p>In the absence of a site visit to confirm physical presence of harvests, clarification is requested to describe the individual harvest shapefiles submitted.</p>
<p>Round 1 NCR/CL/OFI</p>	<p>CL: Please address the findings and describe the harvest shapefiles submitted. Please note this finding can be resolved through a walk-through modelling call between the verification team and developers.</p>
<p>Round 1 Response from Project Proponent (04 May 2016)</p>	<p>Resolved during modeling call. "BA_Treatment_History_2015_A.shp" is the correct file.</p>

ESI Findings - Round 2 (25 May 2016)	Verifiers confirm that this question was discussed during the modeling call on 4 May 2016. "BA_Treatment_History_2015_A.shp" is the correct harvest shapefile used in for the review and to confirm harvests during the reporting period. The item is addressed.
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Item Number	9
VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)	Where: $\Delta CWP,t1,t2$ Annual carbon stock change in wood products between time $t1$ and $t2$, (averaged over a monitoring period); t yr-1 $CWP,t2$ Carbon stock of wood products at time $t=2$; t C $CWP,t1$ Carbon stock of wood products at time $t=1$; t C T Number of years between monitoring $t2$ and $t1$ ($T =t2-t1$); yr. t 1, 2, 3 ... t years elapsed since the start of the IFM VCS project activity
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	VCU Calculations Vintage 2015 20160306.xlsx - tab "Eq. 11,12,23,24,25,30 1-4verprd"
ESI Findings - Round 1 (07 April 2016)	<p>The wood products overall accounting methods were adjusted from the previous 2 verifications. Previously the project updated the stocks on-site subject to harvests during the reporting period using FVS projections, and used scale receipts for HWP under the 1605(b) method. The developer now appears to attempt to use the re-measured plot data to "true-up" on-site stocks, HWP pool is quantified in same manner. As stated elsewhere in this review, it is unclear if/where this true-up occurs. The absence of FVS harvest estimates (i.e. tab "3rd Verifprd FVS-harvest") appears to inflate the net change in stock estimates from harvesting over this reporting period which is not conservative. The FVS harvesting outputs at previous reporting periods ensured conservative accounting through an appropriate update to the on-site stocks. Justification is requested for how the absence of a harvest inventory update is able to meet the VCS principles following Section 2.4.1 of the VCS Standard.</p> <p>Please also see related finding under Equation 12, Section 8.5.1.</p>
Round 1 NCR/CL/OFI	NCR: Please address all findings and justify the revised approach to reporting period harvest accounting true-up procedures in an inventory update for on-site stocks. If needed, please revise quantification procedures to bring the methods into alignment with previous reporting periods and following the VCS principles.

**Round 1
Response from
Project Proponent
(04 May 2016)**

The project proponents quantified carbon in onsite carbon pools (above-ground live, below-ground live, and dead wood) differently than harvested wood products as they are inherently different pools, requiring different calculation methods. Using inventory from CFI plots to update onsite stocks and harvest reports/scale slips for carbon stored in harvested wood products is the accepted approach for estimating carbon in the pools for IFM projects among all protocols and standards, including California's compliance market, VCS-VM0003 IFM methodology (methodology applied to this project), and for meeting the VCS principles under 2.4.1. of the VCS standard Version 3.

The VB requests justification for how the absence of a harvest inventory update is able to meet the VCS principles following Section 2.4.1 of the VCS Standard. Measuring onsite stocks is a more robust method than using a model to estimate net effect of removals for onsite stocks for all the principles under 2.4.1 in the VCS standard. For example, it is certainly more "accurate" because the project proponents are taking actual tree measurements on plots where removals occurred rather than using a model to forecast net harvest effects on GHG sinks. It is also more transparent, because we have the tree list from the CFI plots harvested.

Additionally, §8.5.1.1 of the Protocol indicates that the "mean carbon stock in aboveground biomass per unit area is estimated *based on field measurements* in sample plots". Thus it would seem that the protocol prefers (when available) estimation of onsite stocks from field measurements, not from modeled data. Calculating carbon stored in HWP's from harvest-specific data is also consistent with the principle of accuracy - using the best available data for its intended purpose.

§9.2.1 (ii) indicate that "Commonly accepted principles of forest inventory and management are implemented". Most small-scale (i.e., large areal-extent) CFI systems do not try to adjust estimates of standing stocks based on modeled data or censuses of harvest activity. For example, USFS CFI does not use TPO (Timber Products Output, estimates of primary wood processing based on surveys of processing facilities) data or reports to adjust estimates of standing stocks; nor do they model the effects of harvests on individual plots to estimate stocks going forward.

The shift from using FVS to estimate harvest effects to onsite stocks to actual measurements falls in-line with appropriate accounting principles. The only way to "true-up" estimates of onsite stocks is conduct an onsite inventory. Thus, the FVS harvest projections were used in previous reporting periods as a substitute for real measurements of CFI plots. It has always been the project's intention (and VCS's intention as inventory is required every 10 years) to true-up onsite stocks with an inventory. To be consistent with accepted accounting methods, VCS inventory requirements, and principles in Section 2.4.1 of the Standard, and other Section references, such as 8.5.1.1 and 9.2.1 of the Protocol, the project proponents decided to use measurements of CFI plots to estimate net effect of harvests to onsite stocks in this reporting period rather than a model.

Project proponents are unsure how the VB's statement "The FVS harvesting outputs at previous reporting periods ensured conservative accounting through an appropriate update to the on-site stocks" is accurate. In previous RPs, project proponents harvested more volume than indicated in the harvest reports per stratum and plot in an attempt to be conservative. However, FVS is an empirical, ecological model that tries to mimic growth and mortality through stand dynamics. FVS is not good at modeling merchantable specs (this has been fully

	<p>acknowledged by FVS staff) and is not an accurate timber yield model. Given the models uncertainty in accurately modeling merchantable timber, we believe it is much more accurate and appropriate to use actual plot measurements to estimate harvest effects on onsite stocks.</p> <p>The VB states the HWP pool is quantified in the same manner, which suggests we used CFI plot measurements to estimate carbon in HWP. This is not accurate. As stated above, project proponents used harvest reports to estimate carbon stored in HWP. See tab "4thverifwoodprod" in the "VCU Calculations Vintage 2015 20160502" workbook.</p> <p>The VB states the "absence of FVS harvest estimates (i.e. tab "3rd Verified FVS-harvest") appears to inflate the net change in stock estimates from harvesting over this reporting period which is not conservative". The project proponents are unsure how the VB has determined absence of FVS harvest estimates appear to inflate the net change of stocks. The VB refers to the 3rd Verified FVS-harvest, but this is the 4th reporting period. Thus, the VB should be looking at "4thverifwoodprod" for harvested wood products and "3&4 Verified FVS Grow-output" and "4thVerifprdFVSharvestplot_259" for net effect on carbon stocks.</p> <p>The "related finding under Equation 12, Section 8.5.1" is unclear. This equation relates to the annual change in carbon stock in all selected carbon pools for year t, and as is indicated in the heading of the section is related to the estimation of "verifiable changes in the carbon stock in tree above-ground biomass, dead wood and wood products". It is unclear how projecting the effects of a modeled harvest onto an estimate of onsite stocks would be more verifiable than re-measuring trees remaining in a plot post-harvest.</p>
<p>ESI Findings - Round 2 (25 May 2016)</p>	<p>Verifiers agree on all aspects of the project proponent's response that measuring onsite stocks is a better and more accurate method than using a model to estimate net effect of removals for onsite stocks. For reasons stated by the project proponent, the VCS Standard principles under Section 2.4.1 are adhered to. Field measurements are clearly a more precise method since the estimates are based on field data. The verifier should have been more clear in referring to the 3rd verification wood products accounting as a conservative approximation of actual volume harvested based on greater than actual harvesting modeled in FVS. Verifiers agree with project proponents that an appropriate true up involves re-inventory and quantification of stocks removed following the harvested wood product specific methods. The item is addressed.</p>

<p>Item Number</p>	<p>10</p>
<p>VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)</p>	<p>The method uses the Forestry Appendix of the Technical Guidelines of the US Department of Energy's Voluntary Reporting of Greenhouse Gases Program (known as Section 1605(b))17. All harvested wood will be categorized by species and wood product (sawnwood or pulpwood). Wood density values for each species in the project area will be used to determine carbon volume for each cubic volume of wood delivered to processing facilities.</p>
<p>Evidence Used to Assess (Location in PD/MR or</p>	<p>2015_Verification_Wood_Products_20160306.xlsx</p>

Supporting Documents)	
ESI Findings - Round 1 (07 April 2016)	Verifiers reviewed Wood Product Densities within "2015_Verification_Wood_Products_20160306.xlsx" tab - LUT-Wood product density and notes that density values sourced from Jenkins (able4_GTR-NE-319) were incorrect for the following species: Red Oak, Black Oak, Blackgum.
Round 1 NCR/CL/OFI	NCR: Please correct the noted incorrect wood density factors.
Round 1 Response from Project Proponent (04 May 2016)	The project proponents corrected the density values. See excel file "2015_Verification_Wood_Products_20160427" in the Density Values Folder. The wood product calcs were updated in the "VCU Calculations Vintage 2015 20160502" file accordingly.
ESI Findings - Round 2 (25 May 2016)	Verifiers reviewed the revised wood density values used in quantification and provided in response to this finding. Density values for Black Oak, Red Oak and Blackgum are now correctly transcribed from "Table4_GTR-NE-319.pdf." Further, these re-computed values are now appropriately used in the VCU calc worksheet. The item is addressed.

Item Number	11
VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)	Where: $EXCWP_{ty}$ The summed stock of extracted biomass carbon from within the project area by wood product disposition (hardwood sawnwood/hardwood pulpwood/softwood sawnwood/softwood pulpwood) ty ; t C $V_{ex,h,s p,j}$ The volume of timber extracted from within the project area during harvest h by species j and wood product disposition ty ; m^3 D_j Basic wood density of species j ; t d.m. m^{-3} CF_j Carbon fraction of biomass for tree species j ; t C t^{-1} d.m. (IPCC default value = 0.5 t C t^{-1} d.m.) h 1, 2, 3 ...number of harvests since the start of the IFM project activity j 1, 2, 3 ... SPS tree species in the baseline scenario $s p$ Wood product disposition – defined here as sawnwood or pulpwood
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	2015_Verification_Wood_Products_20160306.xlsx

<p>ESI Findings - Round 1 (07 April 2016)</p>	<p>Species specific wood densities are being utilized for all species and derived from Table 4-GTR-NE-319. MBF and green tons merch volumes are converted to cubic feet using conversion factors sourced from the American Forest and Paper Association. However, given that the harvest volumes are provided in spreadsheet format and none specify the log rule used, the verifier cannot be reasonably assured of the conversion factor used for MBF. previous verification evidence "Support for pulpwood tonnage breakdown.docx" from Robin Wildermuth, local Forester notes that reported harvests come from lump-sum bid sales and mill tickets.</p> <p>MBF and green tons merch volumes are converted to cubic feet using conversion factors sourced from the American Forest and Paper Association. The log rule used is Scribner.</p> <p>However, no mill or scaling receipts were provided. This additional documentation is needed for the verification team to reach reasonable assurance for this desktop verification review.</p>
<p>Round 1 NCR/CL/OFI</p>	<p>CL: Please provide scaling or mill receipts to substantiate harvest amounts presented in the individual timber sale reports.</p>
<p>Round 1 Response from Project Proponent (04 May 2016)</p>	<p>After a bit of follow-up communication regarding this CL, the verifier randomly selected the Wild Creek 2d Harvest as subject for the full scale slip/mill receipt review.</p> <p>The Audit Scale Slips folder contains a file titled "BA 2d Audit Scale Slips." As stands 1C and 2D were harvested under one contract, using one landing, the scale slips were all in one file so we have passed along the reports for both harvests. In the file you will find Reconciliation Reports for 1C (red pine plantation thin) and 2D (mixed oak TSI harvest). Also included is the Bethlehem Authority Manager's spreadsheet, "Harvest Statement Summary" where he logged every payment by the market and weight/scale. You will note his spreadsheet has 61 loads, which correlate with the 3 scanned packets of scale slips.</p> <p>In order to distribute the 61 loads between the 2 stands and summarize within the Reconciliation reports for the annual reporting, the following conversions/assumptions, etc. were made:</p> <ol style="list-style-type: none"> 1. All Jeld Wen loads are hardwood pulpwood and assigned to Stand 2D 2. All NE Wood Pellet Loads are hardwood and assigned to Stand 2D 3. All Glatfelter Loads are softwood and assigned to 1C, red pine plantation. (We noticed in putting this packet together that a load on 10/23/2015 was coded hardwood, this is a mistake or possibly logger had no hardwood quota left at Jeld Wen.) 4. Better hardwood logs from 2D were delivered and scaled Scribner at Diaz Forest Products 5. Low grade hardwood logs and most of red pine taken to Brojack sawmill and weighed/paid in tons. For Brojack, we assigned 2 loads (10/28/2015 & 11/3/2015) as all hardwood and 2 loads (11/6/2015 & 11/13/2015) as all red pine when in actuality 2 of the loads had a mix of pine and hardwood which was paid at the same price. A load of low grade hardwood was also sent to B&B Lbr to total 3 loads of low grade logs from Stand 2D. For hardwood we converted to Scribner Scale at 6.5 tons/Mbf since it was mostly oak and added this to the Diaz load to total 15.76 Mbf Scribner Scale from Stand 2D. 6. A few of the longer red pine logs went to Reining Forest Products and show up on that scale slip as a split load scaled at 1.535 bf Scribner. For the 2 red

	<p>pine loads to Brojack, we converted at 5.5 tons/Mbf and added to the Reining Scale to total 10.725 Mbf Scribner of softwood logs from the 1C harvest.</p> <p>This should account for how we handled all 61 loads/scale slips that are represented in the packet and it should match the reporting of Mbf and tons from both of these units.</p>
<p>ESI Findings - Round 2 (25 May 2016)</p>	<p>A complete package of mill and scaling receipts for the Wild Creek 2D harvest was provided in response to this finding. All records were reviewed and correctly correlate to sawtimber and pulpwood products removed from the sale. Some reasonable assumptions were made regarding species and product differentiations based on mill scaling and Bethlehem Forester compilations. Differences in the harvest summary worksheet from the Bethlehem Forester and wood product MBF and tons were a result of the assumptions stated in the response and conversions. The response and materials supplied are sufficient to satisfy the request. The item is addressed.</p>

Item Number	12
<p>VCS VM0003 v1.1 (20 November 2012) Methodology for Improved Forest Management Through Extension of Rotation Age (IFM ERA)</p>	ABSL,i
<p>Evidence Used to Assess (Location in PD/MR or Supporting Documents)</p>	MR section 3.1, BA_Strata_Layer_Updated_Jan28_2014.shp, Emails_between_W_VanDoren_R_Wildermuth_re_Bethlehem_CY2016_Verification_Data_QAQC.pdf
<p>ESI Findings - Round 1 (07 April 2016)</p>	<p>The areas of all 8 stratum were independently checked in GIS using supplied .shp file and confirmed to be calculated correctly. However, in following notes from an email exchange from the project's technical consultant, the project's strata shapefile does contain delineation errors as confirmed by the verification team. It is suggested that this item be discussed in greater detail on modelling call between ESI and the PP's technical consultants.</p>
<p>Round 1 NCR/CL/OFI</p>	<p>CL: Please note this clarification serves as a placeholder for a discussion between ESI and the PP's technical consultants for potential resolution of the project's geospatial boundary file. Actions may or may not need to be taken by the PP to correct significant discrepancies.</p>

<p>Round 1 Response from Project Proponent (04 May 2016)</p>	<p>Several shapefiles have been associated with calculating and reporting the area of the project's strata: <ul style="list-style-type: none"> •BA_Strata_Layer_Updated_Jan28_2014 •FVS_Stands_2012 <p>The project's technical consultant performed QA/QC checks on the shapefiles including self-unions and centroid matching, to identify overlaps, and unioning the shapefiles with a larger "background" polygon shapefile, to identify gaps or gores. The results of those checks indicated that:</p> <ul style="list-style-type: none"> •BA_Strata_Layer_Updated_Jan28_2014 had no overlaps, but there were gaps/gores between polygons representing stands that appeared to be in error (i.e., they did not represent roads, streams, or other valid, non-forested/non-project area gaps between the project area). •FVS_Stands_2012 had overlaps as well as gaps/gores. <p>Upon further research, it was determined that FVS_Stands_2012 was a legacy shapefile that has not been used in the calculation of the area of the project, for VCU calculations, or for other purposes.</p> <p>The area reported in the "Acres" field of the attribute table of the shapefile "BA_Strata_Layer_Updated_Jan28_2014", if summarized by the unique values in the "Strata" field, match the acres being reported and used for calculations for each strata in the VCU Calculation spreadsheet for the project, in the worksheet/tab "Eq. 11,12,23,24,25,30 1-4verprd", cells B26:C34, to within an appropriate tolerance (<0.05; or rounding to the nearest 0.1 ac.). Based on the QA/QC findings, it appears that there are only gaps between polygons, and the polygons were digitized in an environment where topological rules (e.g., polygons must share edges/vertices/etc. where appropriate) were not enforced. Thus, based on the geometry of the shapefile, the project area is being (slightly) under-reported. There are no overlaps and thus, based on that geometry, the project area is not being artificially inflated. The project's consultants are aware of these issues and improvements/corrections are consistently made to the project's data at the appropriate time.</p> </p>
<p>ESI Findings - Round 2 (25 May 2016)</p>	<p>ESI appreciates the fully developed and transparent response to this finding. Verifiers duplicated the QA/QC checks as described by the project proponent's technical consultant and confirmed that the current project area/strata shapefile represents an underestimate of acreage due to the gaps between shapefiles. Verifiers agree that no action is needed at this time and boundaries can be adjusted at the next baseline revision to fix topological errors. The item is addressed.</p>

<p>Item Number</p>	<p>13</p>
<p>VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012</p>	<p>Project cash flow breakeven point is less than 4 years from the current risk assessment</p>
<p>Evidence Used to Assess (Location in PD/MR or Supporting Documents)</p>	<p>Non-permanence_Risk_Report_2015.docx</p>

<p>ESI Findings - Round 1 (07 April 2016)</p>	<p>Project cash flow breakeven has already taken place and the project has remained positive.</p> <p>The Risk Report states "An average pulp stumpage price of \$2.66 per green short ton in 2015 was utilized, based on the most recent pulp pricing data available from Penn State Extension for south-eastern PA."</p> <p>A. The spreadsheet provided "RiskTool_Financials 2015_030816.xlsx" shows a value of \$2.66 for hardwood and softwood pulp which did not appear reflective of the "2015_Q3rd_Pen_Pulp_Price.pdf" document and could not be reproduced.</p> <p>B. Further, the only softwood values in the "2015_Q3rd_Pen_Pulp_Price.pdf" document appear to be from the northwest, while the values were taken from southeast during the last verification and the Risk Report similarly states they were derived from the southeast for this reporting period.</p> <p>C. Additionally, for the previous verification the prices for pulpwood were averaged over the previous 3 quarters while this value appears to be derived from just one quarter.</p> <p>D. The Risk Report states " An average stumpage price for hardwoods as well as softwood was calculated and weighted based on the volume of timber species from on both timber tracks, Wild Creek and Tunkhannock. The property's hardwood timber species mix consisted of 57% oak species, 11% cherry, 1% ash, 23 % maple, and 8% other hardwoods." however the calculation providing the weighting could not be found.</p> <p>E. The Risk Report states "Forest carbon offset prices were based on Blue Source's pre-existing sales agreements and the Forest Trends' State of the Forest Carbon Market 2015." As the price has increased from \$12 in the previous verification to \$12.50 in this verification, please show how the sales agreements and Forest Trends were used to derive the price.</p> <p>The risk report states "The real discount rate was set at 3.3% based on the average 10-year US Treasury rate since 1994." however the document "RiskTool_Financials 2015_030816.xlsx" states "(a) Discount rate based on average real 10-year US treasury rate over the last decade (3.28%)" Further when calculated both ways we could not reproduce the 3.3% value. As the discount rate has been adjusted since the last verification, please indicate which approach was used and show the calculations or provide the direct reference/link to the source where the value was found.</p> <p>All items above need clarity and all calculations need to be provided as some steps appear to have been omitted.</p>
<p>Round 1 NCR/CL/OFI</p>	<p>CL: Please address the findings.</p>

**Round 1
Response from
Project Proponent
(04 May 2016)**

A,B,&C. The original \$2.66 value appears to have been a typo. The updated value, \$2.40, is now applied in the "RiskTool_Financialsv2" workbook provided in the CL 1 folder. As Penn State pricing data was not available for pulpwood in South Eastern Pennsylvania for quarters 1-3 of 2015 (see "Pen_Pulp_Price" file in the CL1 folder), a weighted average of the actual pulpwood sales prices from the Tunkhannock 39C4/17C3 tract and the Wild Creek 1C/2D tract harvests (only these two harvests had pulpwood pricing because the other harvests were lump-sum sales) was applied. (For your convenience, copies of the Tunkhannock and Wild Creek harvest summary sheets, "39C4_17C3 Thin Estimates Volume Value" and "1C_2D Thin Volume Value" respectively, have been added to the "Pen_Pulp_Price" file in the CL 1 Folder, though they were already present in the "2015 Harvest Summary" folder provided at first project submission).

D. The calculations used to determine the proportion of board-foot volume in the project area, by species group, can be found in the "Summary" tab of the excel file labeled "Bethlehem_LetGrow20160429_Board-Foot_Summary_For_Species_Product_Breakdown_20160502" in the CL1 folder. Please note, the % values per species group in the previous version of the Risk Report were from an older iteration of the calculations, and were in error. The corrected % values have now been added to the Risk Report and are reflected in the updated "Bethlehem PA Woodlands Timber Prices RP4v2" and "RiskTool_Financialsv2" workbooks provided in the CL 1 folder.

E. The redacted sales contract in question was previously available in the "Confidential Redacted Credit Sales Agreements" folder provided to ESI, but can now be found in the CL1 folder for your convenience. The previous reporting period's credit price was listed as \$12.00 because a portion of the credits were sold at \$9.00 (this sales contract is also in the folder mentioned above) while the majority were sold at \$12.50, resulting in an average price of \$12.00/VCU. 100% of the current reporting period's credits were sold under the "TNC Blue Source Amendment FINAL 9 30 13 Mutually Executed_Redacted" contract, for a price of \$12.50/VCU.

The language in the Risk Report, sighting the treasury rate since 1994 is incorrect, the report has now been modified to say "over the last decade," in conformance with the "RiskTool_Financials 2015v2" workbook. The calculation of the discount rate can be seen in cell C2 of the Treasury Tab of the "Bethlehem PA Woodlands Timber Prices RP4v2" workbook (which can be found in the CL1 folder), and the reference to the source of the values applied can be found in cell E2 of the same tab. 3.3% was used simply as a result of rounding 3.28% up. The Risk Report has now been modified to use the unrounded 3.28% figure.

ESI Findings - Round 2 (25 May 2016)

A,B & C. Cell D\$ of the Timber Pricing Tab of the Risk Tool Financials spreadsheet reports \$2.40/gt, however this cell formula states "=(('K:\Dropbox (Blue Source)\Bethlehem Verifications\Bethlehem_2015_Vintage_Verification\2015_Harvests\TK 17C3_39C4 Reporting\39C4_17C3 Thin Estimates Volume Value.xlsx)\VolVal Est!\$D\$14*'K:\Dropbox (Blue Source)\Bethlehem" and only appears to reference the sale "39C4_17C3 Thin Estimates Volume Value" spreadsheet and not the "1C_2D Thin Volume Value". Further the formula for this cell references a location/spreadsheet that does not appear to be available to the verifiers and appears to provide a price adjustment for the Penn State reports. A call with the project proponent is needed to clarify and confirm pulp pricing. Update: The project proponent walked ESI through calculation which clarified that the equation was calculated appropriately. The item is addressed.

D.The calculations used to determine the weighting are located in row 32 of the summary tab of the file "Bethlehem_LetGrow20160429_Board-Foot_Summary_For_Species_Product_Breakdown_20160502" and were recalculated and determined to be appropriate. Further these weightings are resummarized for HW in the tab "SoutheastPricing" row 99, and again appear appropriate. The value for average sw saw price does not follow the same convention as it appears to use second quarter hemlock and 3rd quarter white pine, however this is because there is no value available for 3rd quarter hemlock, which is acceptable. The hw and SW values are also now consistent with the risk tool. Item addressed.

E. Justification provided is sufficient to explain current price of \$12.50 per ton. Contract reviewed and page 5 confirms the price at \$12.50. Item addressed.

F. The risk report has been confirmed to have been modified to remove the term "since 1994" and been replaced with "over the last decade". Values from the website "<https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldAll>" were confirmed for the 10-year t-bill for the years 2005-2015. Appropriate average now used (3.28%). Item addressed.