CLIMATE ACTION RESERVE

SDG and CORSIA Software Updates

CLIMATE ACTION RESERVE

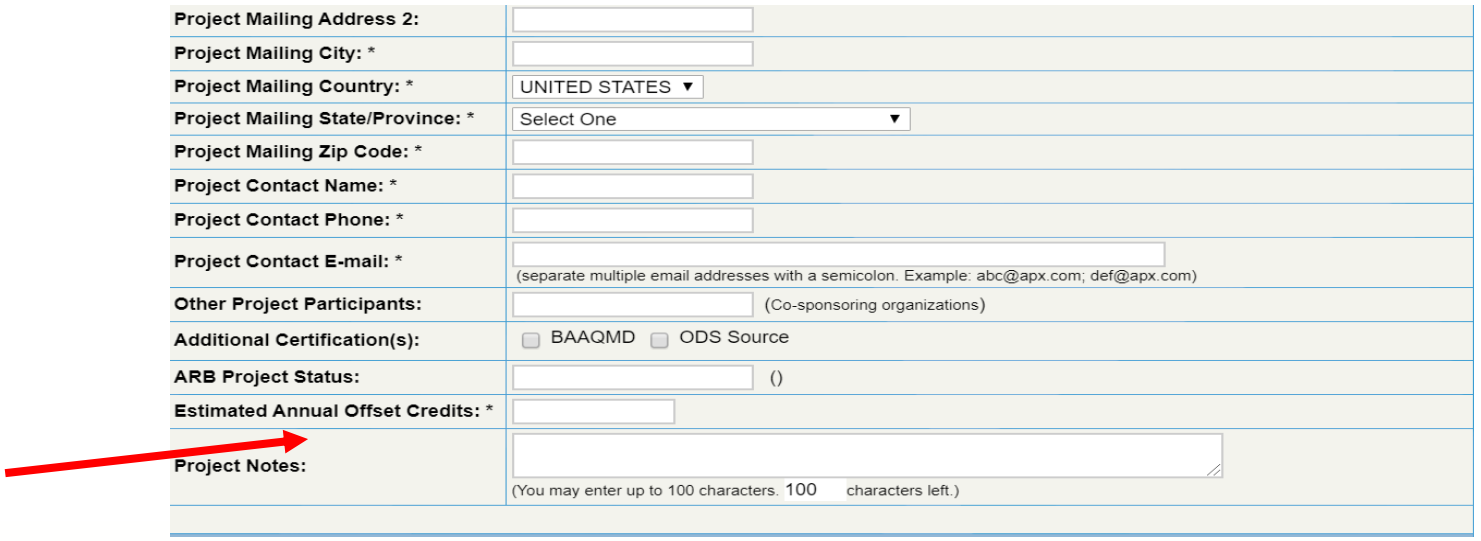
May 1, 2020

Rules to be Implemented in the Registry

- To be CORSIA eligible:
  - Initial reporting period must be on or after 1/1/2016
  - Reporting period of issuance must be between 1/1/2016-12/31/2020
  - Must report SDG contributions

Project Setup Page

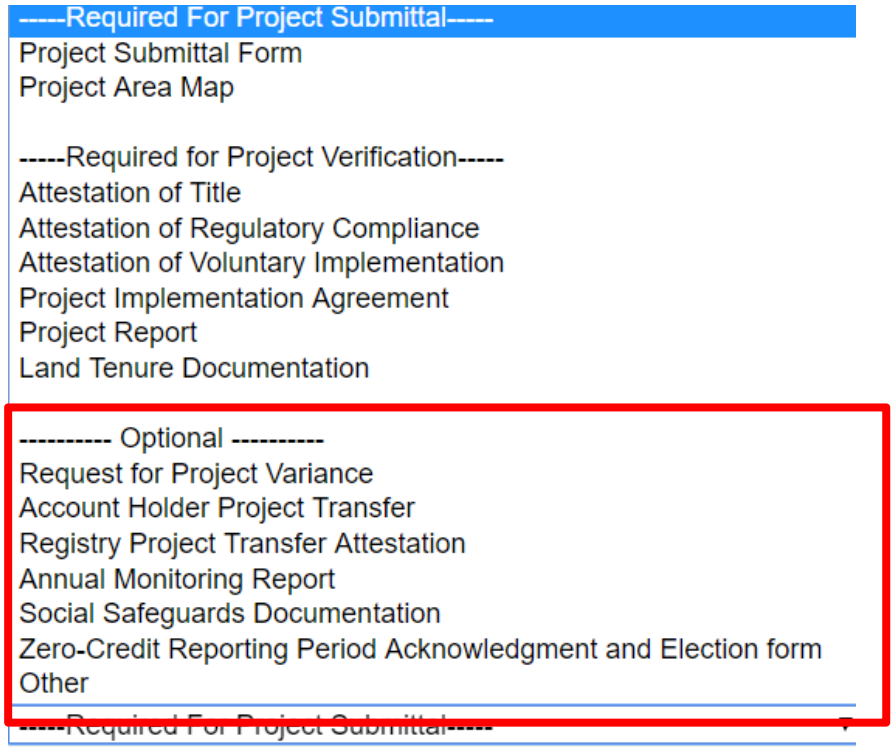
- Addition of SDG Contribution checkboxes for voluntary projects
- Section title: “SDG Contributions (optional):”



Project Mailing Address 2:	
Project Mailing City: *	
Project Mailing Country: *	UNITED STATES ▼
Project Mailing State/Province: *	Select One ▼
Project Mailing Zip Code: *	
Project Contact Name: *	
Project Contact Phone: *	
Project Contact E-mail: *	(separate multiple email addresses with a semicolon. Example: abc@apx.com; def@apx.com)
Other Project Participants:	(Co-sponsoring organizations)
Additional Certification(s):	BAAQMD ODS Source
ARB Project Status:	()
Estimated Annual Offset Credits: *	
Project Notes:	(You may enter up to 100 characters. 100 characters left.)

SDG Reporting Tool Document Type

- Add “SDG Reporting Tool” as document type under Optional
- Once uploaded, SDG Contribution selections will be locked for editing
- Once uploaded, Reserve Administrator is notified
- Can be “approved” and made public



Retirement Reason: CORSIA

- CORSIA added to Retirement Reason dropdown in Transfer Offset Credits module
- When selected, fields will pop up for retiror to fill in:
  - Initial reporting period start date
  - Reporting period start and end dates
- SDG reporting tool will also need to have been approved

Reports

- Project Report (both public and admin)
  - Addition of “SDG Impact” column
  - “View” will link to pdf of SDG reporting tool
- Project Offset Credits Issued
  - Addition of “CORSIA Eligible” column
- New Public Report: SDG Impacts
  - Identical to the public Projects report with SDG Impact column
  - Will only populate with projects that fulfill CORSIA eligibility rules

CLIMATE ACTION RESERVE

Verification Program Manual

2020 DRAFT

NOTE TO USERS:

From time to time, the Climate Action Reserve may update this manual. Please make sure you are using the latest version, available at www.climateactionreserve.org.

For information, comments, or questions, please email reserve@climateactionreserve.org.

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Released Date XX, 2020

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Climate Action Reserve
Verification Program Manual

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1 Introduction

Verification plays a vital role in upholding the integrity and quality of the data reported to both mandatory and voluntary GHG programs across the world. The Climate Action Reserve (Reserve) created this Verification Program Manual to detail the requirements of its verification program and provide approved verification bodies with a standardized approach to the independent and rigorous verification of GHG emissions reductions and removals reported by project developers into its offset program. Project developers should also use this document to help prepare them for the reporting and verification process.

This standardized approach to verification promotes the relevance, completeness, consistency, accuracy, transparency and conservativeness of emissions reductions data reported in the Reserve. This is an accompanying document to the Reserve Offset Program Manual, which presents the Reserve's policies, processes and procedures for registering projects and generating offset credits with the Reserve.

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

- Climate Action Reserve Offset Program Manual
  http://www.climateactionreserve.org/how/program/program-manual/ Field Code Changed
- Climate Action Reserve User Guide
  http://www.climateactionreserve.org/open-an-account/ Field Code Changed
- Climate Action Reserve Terms of Use
  http://www.climateactionreserve.org/open-an-account/

Verification is an integral part of the Reserve's voluntary offset program. The key objectives of the verification program and guidelines found in this manual are to:

- Ensure projects are real, additional, permanent, verifiable and enforceable
- Minimize the risk of erroneously crediting or double counting of Climate Reserve Tonnes (CRTs)
- Ensure projects meet minimum eligibility requirements
- Support the transparency and integrity of the data contained within Reserve
- Maintain that verifications are conducted in a consistent and comparable manner across projects
- Ensure projects' on-going compliance with the Reserve's protocols and program rules

The Reserve requires third-party verification of all GHG projects as specified in each project protocol. CRTs are issued only after a Verification Report and a Verification Statement attesting to the accuracy of reported emission reductions have been submitted by the verification body and accepted by the Reserve. The Reserve relies upon these documents to attest to the legitimacy of the CRTs issued. The verification body is held accountable to the Reserve for the quality and independence of the report and statement submitted to the Reserve.

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

- Climate Action Reserve California Compliance Offset Program website
  http://www.climateactionreserve.org/how/california-compliance-projects/ Field Code Changed

- California Air Resources Board Compliance Offset Program website http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm

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1.1 The Climate Action Reserve

The Climate Action Reserve is a pioneer in carbon accounting and the most experienced, trusted and efficient offset registry to serve the carbon markets. With deep roots in California and a reach across North America, the Reserve encourages actions to reduce greenhouse gas emissions and works to ensure environmental benefit, integrity and transparency in market-based solutions to address global climate change. For the voluntary market, the Reserve establishes high quality standards for carbon offset projects, oversees independent third-party verification bodies and issues and tracks the transaction of carbon credits (CRTs) generated from such projects.

At the heart of the Reserve is a publicly accessible web-based system where owners and developers of carbon offset projects can register project information along with verification reports demonstrating GHG emission reductions. Emission reductions are certified as CRTs (equal to one metric ton of GHG reduced/sequestered), which provide title assurance and unique serial number identifiers to ensure that each metric ton is counted and retired only once.

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 guideline as deemed necessary. Where a departure is necessary, the Reserve will provide public notification of significant changes on its website and will notify verification bodies 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 verification guidance that accompany each Reserve project protocol and the International Organization for Standardization (ISO) 14064 series on GHG emission reductions and removals. In the instance that the applicable protocol differs from guidance given in this document, the Reserve project protocols 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 Verification Program Manual

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

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

Part 2, Standard of Verification 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 Verification focuses on how a verification body becomes accredited to perform verification under ISO 14065, outlines obligations and requirements of

verification bodies under the Reserve, provides specific and detailed training requirements, and details required administrative activities prior to beginning verification activities, which include: roles and responsibilities, conflict of interest, providing required notifications, and designing appropriate verification activities.

Part 4, Project Verification Activities provides guidance on conducting verification activities, such as: assessing eligibility criteria, identifying sources, reviewing management systems and methodologies, and verifying emission reductions and removals.

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

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

1.4 Reserve GHG Accounting Principles

Verification 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 verification 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.

Relevance. Project eligibility and compliance status shall be measured in accordance with applicable reporting boundaries and performance standards.

Completeness. Verification shall identify and account for all emissions, reductions or removals within the GHG assessment boundary that may have occurred in the baseline and project scenarios.

Consistency. Methodologies shall be consistent and uniform. Measurements, source data, data sampling, and tests shall be applied equally so that performance can be compared over time and across similar projects.

Accuracy. Projects shall meet a minimum materiality threshold to ensure accuracy. See Section 2.3 from more information.

Transparency. Verification shall be conducted in a transparent manner. The data used for verification and the verification activities shall be clearly and thoroughly documented to allow replication and outside review by the Reserve or other oversight bodies.

Conservativeness. GHG reductions or removals should not be overstated. Calculations, values and procedures should always be applied in a conservative manner, particularly when there are limitations to certainty.

Implementing these standards in the verification process will help to ensure comparable and consistent reporting to the Reserve. These standards will also help verifiers make the reliable, dependable decisions discussed further in the core verification process (see Section 4.6).

1.5 Overview of Verification Process

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

1. **Verification body receives accreditation:** Verification body meets all accreditation requirements and two Lead Verifiers successfully complete required project verification training (see Section 3.4.2).
2. **Project developer selects approved verification body:** Project developer contacts one or more approved verification bodies listed on the Reserve to discuss verification activities. Project developer 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. **Verification body submits project-specific Notification of Verification Activities and Conflict of Interest (NOVA/COI) Form:** After a project developer chooses a verification body, the verification body must submit a NOVA/COI Form to the Reserve outlining the proposed scope of the planned verification. This document provides insight into the likelihood of a conflict of interest between parties (see Section 3.6).
4. **Reserve sends approval to proceed to verification body:** The Reserve reviews the NOVA/COI Form and supporting information to determine the level of risk associated with the proposed project developer/verifier relationship, then notifies the Lead Verifier of its determination.
5. **Verification body conducts verification activities:** Verification body develops a risk-based verification plan and conducts verification following the guidance in the Verification Program Manual and the applicable project verification guidance. The verification must evaluate a project's ongoing eligibility and the GHG emissions reductions or removals reported to the Reserve (see Section 4.6).
6. **Verification body shares List of Findings with the project developer:** A confidential list of material and immaterial findings is sent to the project developer. This gives the project developer the opportunity to correct any errors found (see Section 5.1).
7. **Verification body prepares the verification documentation for project developer:** Verification body prepares the final List of Findings Verification Report, and the Verification Statement for project developer's review prior to uploading electronically to the Reserve software (see Section 5).
8. **Project developer uploads documents to the Reserve:** Project developer then submits all final documentation to the Reserve - the List of Findings, the Verification Report and Verification Statement (see Section 5.6).

2 Standard of Verification

The Reserve requires that verification bodies use the following standards when conducting verification:

- The applicable Reserve project protocol and any relevant errata and clarifications
- The Reserve Offset Program Manual and any relevant policy memos
- This Verification Program Manual
- ISO 14064-3:2006

Verification must adhere to each of these standards, but in instances where standards conflict, the Reserve protocols shall take precedence, followed by the Reserve Offset Program Manual, the Verification Program Manual, and then ISO 14064-3:2006.

ISO 14064-1:2006 and ISO 14064-2:2006 cover both conformance with the standard and the criteria for establishing that the GHG assertion is reliable and correctly stated based on the agreed level of assurance, materiality, criteria, objectives and scope. The applicable verification standards must be stated in each Verification Report.

2.1 Principles of Verification

An essential element of project verification is to ensure that all verification bodies and verifiers conducting work under the Reserve uphold the basic verification principles laid out in ISO 14064-3:2006. Namely, verification bodies and verifiers shall demonstrate independence from the activity being verified (interpreted in Section 3.6 under Conflict of Interest). Verification bodies must also demonstrate ethical conduct and fair presentation of findings, conclusions and reports throughout the verification process. All projects undergoing verification must be treated equally, with all appropriate procedures followed. Finally, verification bodies must conduct verifications with due professional care, demonstrating the skill, diligence and competence necessary to perform the verification (see Section 3).

2.2 Level of Assurance

The concept of level of assurance is derived from financial auditing and corresponds to the likelihood that a material misstatement has gone undetected. With reasonable or “positive” assurance, the verification body provides a direct factual statement expressing the outcome of the verification. Providing a reasonable level of assurance confirms the accuracy of the GHG assertion. Absolute assurance is the highest form of assurance, but does not allow for professional judgment, sampling and inherent limitations. For reasonable assurance, the verification body must confirm the accuracy of reported data to a reasonable level. The Reserve requires reasonable assurance to uphold the integrity and high quality of verifications conducted under its program.

Under the ISO 14064 standards, the level of assurance determines the depth of detail and rigor that a verifier designs into the verification plan used to identify any material errors, omissions or misstatements. The level of assurance refers to the degree of confidence a verification body is able to provide regarding the accuracy of the asserted GHG removals or reductions. The Reserve requires that reasonable, but not absolute, assurance be obtained by the verification body prior to the execution of a positive Verification Statement, which ensures that the verification body is able to “verify without qualification” and attest to the accuracy of the number of CRTs being issued to the project developer.

2.3 Materiality Threshold

The concept of materiality is fundamental in executing GHG verification. Information is considered material if its omission or misstatement could be seen to influence any resulting decisions or actions. In order to reach a conclusion on the veracity of data used to support assertions, a verification body must form a view on the materiality of all identified errors or uncertainties.

Issues identified during verification must be classified by verification bodies as either material (significant) or immaterial (insignificant). To be verified 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 developer. 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 project reporting to the Reserve.

2.3.1 Quantitative Materiality Threshold

The quantitative materiality threshold sets a numeric cap on the magnitude of cumulative error in stated reductions permissible under the Reserve as a percent of the verifier's recalculated emission reductions. Error leading to misstatement may be introduced through incorrect application of protocol calculations, transcription errors, or the use of incorrect default values. Immaterial misstatements identified during verification may go uncorrected and the project may receive a positive Verification Statement from the verification body. All material errors must be corrected prior to a project receiving a positive Verification Statement.

A verification body must recalculate the total quantity of GHG emission reductions reported to the Reserve for any given reporting period in order to determine if the project meets the Reserve's designated materiality threshold.[1]

In determining whether a material misstatement has occurred, the verification body must compare the aggregate total of misstatements against the materiality threshold for the total GHG emission reductions reported to the Reserve. 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 reported emission reductions. The materiality threshold shall be used to inform the design of a verification body's sampling plan.

If errors are discovered, the verification 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, the Reserve defines the quantitative materiality threshold for all projects as follows:

[1] In GHG inventory reporting, the notion of *de minimis* threshold is in relation to a section of a reporter's inventory that is allowed to be excluded from their reported total. The *de minimis* threshold does not apply to Reserve projects unless explicitly stated in the project protocol.

- Projects registering ≤25,000 CRTs over a 12-month period shall achieve a >95% level of accuracy (<5% error) relative to the verification body's calculated emission reductions
- Projects registering >25,000 CRTs but ≤100,000 CRTs over a 12-month period shall achieve a >97% level of accuracy (<3% error) relative to the verification body's calculated emission reductions
- Projects registering >100,000 CRTs over a 12-month period shall achieve a >99% level of accuracy (<1% error) relative to the verification body's calculated emission reductions

This materiality threshold is set on a 12-month basis to ensure that projects verifying sub-annually do not receive any advantage over those verifying annually. For sub-annual reporting, the quantity of CRTs must be pro-rated based on the verification period length in order to determine the appropriate materiality threshold. For example, if a project registers 20,000 CRTs for a 3-month verification period, then the materiality threshold is <3% error: (20,000 CRTs / 3 months) x 12 months = 80,000 CRTs; >97% accuracy required).

To determine the materiality threshold for projects with verification periods longer than 12 months, the quantity of reported CRTs must be pro-rated in the same fashion. For example, if a project reports 30,000 CRTs for an 18-month verification period, then the materiality threshold is <5% error relative to the verification body's calculated emission reductions: (30,000 CRTs / 18 months) x 12 months = 20,000 CRTs; >95% accuracy required.

The percent error is defined by the following:

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

The accuracy level is defined by the following:

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

The Reserve allows for under-reporting of total CRTs as that is considered conservative and in line with the Reserve's key principles. Under-reporting errors are not required to be corrected. The quantitative materiality threshold only applies to mistakes that result in over-reporting.

Example 1: A verification body, Verification Pro, recalculates a project's total emission reductions over a 12-month period and notes a quantitative error made by the project developer, LFG Unlimited.

- LFG Unlimited's reported emission reductions = 9,900 metric tons CO_2e
- Verification Pro's recalculated emission reductions = 10,000 metric tons CO_2e
- Percent Error = 1.00%

Given the above information, LFG Unlimited is not required to fix the error. The project is under-reporting its emission reductions and it meets the quantitative materiality threshold of >95% accuracy.

Example 2: Verification Pro recalculates a project's the total emission reductions over a 12-month period and notes two quantitative errors made by the project developer, Worldwide Dairy.

- Worldwide Dairy's reported emission reductions = 55,000 metric tons CO_2e
- Verification Pro's identified errors = -1,000 metric tons CO_2e due to monitoring, +2,000 metric tons CO_2e due to data processing
- Percent Error = 1.79%

Correction is not required as the errors result in a total discrepancy of 1,000 metric tons CO_2e. The project meets the quantitative materiality threshold of >97% accuracy.

Example 3: Verification Pro recalculates a project's total emission reductions over a 3-month period and identifies a quantitative error made by the project developer, ODS Destroyers.

- ODS Destroyers' reported emission reductions = 1,000,000 metric tons CO_2e
- Verification Pro's recalculated emission reductions = 980,000 metric tons CO_2e
- Percent Error = 2.04%

This error requires correction, as it does not meet the >99% materiality threshold and is therefore considered material.

2.3.2 Qualitative Materiality Threshold

A qualitative non-conformance occurs when a prescriptive protocol requirement (e.g., metering, monitoring, management systems, record-keeping, etc.) is not met. Every qualitative non-conformance identified by the verification body is considered material and must be corrected by the project developer before a positive Verification Statement can be issued. A prescriptive requirement is defined as any specific guidance mandated by the protocol that does not allow for deviation, variance or verifier professional judgment.

Take for instance a project developer who neglects to quantify a small source of project emissions. Leaving out that source does not result in a quantitative material misstatement, but the protocol states that all emission sources related to project activities must be accounted for in the emissions calculations. The omission of this source would be considered a qualitative non-conformance because of the protocol requirements and the 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 emission reductions does not exceed the quantitative materiality threshold. If a Reserve protocol prescribes that a specific emission factor be used and that emission factor is not correctly applied by the project developer, the result is a qualitative misstatement because the non-conformance directly defies a protocol requirement.

Any identified qualitative non-conformances must be documented by the verification body and presented to the project developer in the List of Findings prior to issuance of the Verification Statement and Report (see Section 5.1). All qualitative non-conformances must be corrected in order for the verification body to be able to issue a positive Verification Statement.

3 Requirements to Perform Verification Activities

3.1 Verification Body and Lead Verifier Requirements Overview

In order to conduct verification for the Reserve program, there are requirements for both verification bodies and individual verifiers that must be met. Table 3.1 summarizes the necessary criteria for both entities acting as verification bodies and individuals acting as lead verifiers. Additional information on these requirements can be found below.

Table 3.1: Verification Body and Lead Verifier Requirements

VERIFICATION BODY REQUIREMENTS
Accreditation under International Organization for Standardization (ISO) 14065: 2013 with conformance to all accreditation requirements under ISO 14065, ISO 14064-3: 2006, IAF MD 6: 2014 and all other accreditation requirements, or Acceptance in the ANSI National Accreditation Board (ANAB), Entidad Mexicana de Accreditacion (ema), or Standards Council of Canada (SCC) accreditation program, having filed a full application for ISO 14065: 2013
Demonstration of a thorough understanding and competency with the Climate Action Reserve program manuals and project protocols
Employment of a minimum of two staff members (or contracted personnel) designated as Lead Verifiers who have successfully completed the training required by the Reserve
LEAD VERIFIER REQUIREMENTS
Employment or a contract with a verification body that is accredited under ISO 14065: 2013, ISO 14064-3: 2006 or ISO 14064-3:2019, and IAF MD 6: 2014
Successful completion of Climate Action Reserve training(s) pertaining to each project type for which they wish to perform verifications
Successful completion of the General Project Verification training course
Fulfilment of internal training requirements, following proper processes and procedures under the ISO 14065: 2013, ISO 14064-3: 2006 or ISO 14064-3:2019, and IAF MD 6: 2014 accredited verification body
Identification as a Lead Verifier in the Verification Staff Reporting Form submitted by the verification body to the Reserve

Trainings are scheduled as demand or need arises based on feedback from bi-annual surveys by the Reserve. When a new protocol is developed, an inaugural verification training will be provided after the adoption date in order to accommodate verification bodies seeking to practice in that sector.

A verifier can complete Reserve trainings prior to its verification body achieving ISO accreditation or during the accreditation process itself. However, priority for available spaces at

the trainings will be given to individuals representing accredited companies, followed by individuals representing companies already enrolled in the accreditation process.

Once a verification body has achieved its ISO 14065 accreditation in accordance with the appropriate scoping policy and has personnel that have completed the training requirements, it may advertise that it is recognized and qualified as a verification body for the Climate Action Reserve and may use the Reserve logo to promote its services in accordance with the Reserve's style guide. All recognized verification bodies are listed on the Reserve's website along with all applicant entities currently undergoing the accreditation process.

Two of the steps in the ISO 14065 accreditation process are an on-site assessment at the verification body's main offices and a witness assessment performed by the accreditation body. The accreditation body must witness the verification activities in order to assess the competency of the verification team as well as the procedures and systems in place at the organizational level. The on-site assessment is designed to ensure that the verification body conforms to ISO 14065 and ISO 14064-3, displays the competency to act in the specific sector, and has the capacity to perform the activities related to the scopes of accreditation for which it has applied.

Over the course of the witness assessment, the accreditation body will observe the verification body performing the tasks related to the verification process for the scope (or group of sectoral scopes) of accreditation for which it has applied. The purpose of the witness assessment is to assess whether verification activities are in line with its documented quality procedures and to assess the capability to conform to the applicable sectoral scope(s).

Verification body applicants that are currently undergoing but have not yet completed the accreditation process are allowed to perform verification activities for Reserve projects if they have met the Reserve training and personnel requirements. A list of the applicant verification bodies that have successfully met the Reserve's training requirements and submitted the Verification Policies Acknowledgement and Agreement form are posted on the Reserve's website. However, CRTs generated by a project verified by a verification body applicant will not be issued to the project developer until the verification body receives its formal accreditation. The verification body should inform the project developer of the circumstances surrounding its expected accreditation, and the issue should be addressed in the verification contract.

Verification bodies that have met Reserve training requirements may conduct one additional verification in each appropriate sector for the purpose of accreditation renewal. There is no deadline for this requirement and CRTs will not be withheld for that verification. The additional verification shall be used for the purpose of obtaining the required witness assessment and finalizing a sector-specific group accreditation. If a verification body fails to obtain its sector-specific accreditation using this additional verification, no future CRTs can be verified in that sector until the verification body has obtained its sector-specific accreditation.

3.2 Obligations and Requirements to the Reserve

Verification bodies and verifiers must follow all applicable Reserve program rules and adhere to the guidance laid out in the Reserve project protocols and program manuals when performing verification activities. In addition, a verification body and its verifiers must always demonstrate ethical conduct and competence, exercise due professional care, and adhere to the remaining verification principles throughout the verification process.

In addition to Reserve rules, the verification bodies under the Reserve have certain duties and obligations. The Reserve also has the discretion to exercise certain powers.

Verification body obligations include (but are not limited to) the following:

- Compliance with any guidelines or policies notified to them by the Reserve in writing.
- A minimum of 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. These roles may be filled by either employees or contracted personnel (see Section 3.8).
- Ensuring that all Lead Verifiers are competent and have successfully completed internal, general and protocol-specific training required by the Reserve.
- Ensuring that a Lead Verifier directs, supervises and leads the undertaking of the verification services, including signing all written reports and statements.
- Ensuring 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.
- Ensuring that all verification body personnel working on project verification activities have agreed to be bound by confidentiality obligations and understand that the verification body accepts liability for any breach of confidentiality by its employees, agents or contracted personnel.
- Submitting a signed and duly executed Verification Policies Acknowledgment and Agreement to the Reserve on an annual basis. As staff and roles fluctuate over time, the verification body must ensure that up-to-date information is provided to the Reserve.
- Submitting 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 observe any part of the verification activities it chooses.
- Not entering into any agreement or participating in any activity that could create a conflict of interest with a verification client without first notifying the Reserve in writing in order to allow the Reserve to evaluate and mitigate any potential risks.
- Maintaining 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.
- Retaining 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 verification period, whichever is longer. Records to be retained shall include all relevant evidence to support said Report.
- Providing full and free access to the Reserve to obtain all records, documents, accounting and other information maintained by the verification body that relate to Reserve projects.

The Reserve has certain powers that at any time and at its sole discretion it may employ, including (but not limited to):

- Directing the verification body and the project developer to refrain from entering into any agreement that may amount to a conflict of interest in relation to Reserve projects. The verification body must comply with any such direction.
- Determining that a verification of a Reserve project should not proceed or that a person should be removed and/or suspended as a Lead Verifier or key personnel.
- Conducting audit or oversight activities and sending its staff, partners or consultants to attend and oversee verification activities.
- Determining that a verification body should be suspended and/or requiring said verification body to purchase and retire CRTs.
- Compelling the project developer or the verification body to submit all project documents in relation to the GHG assertions made to the Reserve.
- Amending these rules as it deems necessary.

3.3 ISO 14065 Accreditation

The International Organization for Standardization is a recognized institution that developed GHG standards as various schemes emerging in international, national and voluntary sectors began using different sets of guidance or rules for GHG accounting. ISO created a series of standards intended to incorporate best practices and provide consistency and confidence in GHG assertions or claims.

ISO 14065 is the international standard that specifies processes and requirements for accrediting verification bodies to perform GHG validation and verification services. The accreditation process provides criteria for assessing and recognizing the competence of verification bodies, thereby allowing for a consistent and comparable scheme across GHG programs. Accreditation reduces the risk to GHG programs like the Reserve by providing assurance that verification bodies are competent, and it helps establish trust within the voluntary carbon market by ensuring impartiality in the verification process.

The objectives of the ISO 14064 series and ISO 14065 standards are to:

- Develop flexible, regime-neutral tools for use in voluntary or regulatory GHG schemes
- Promote and harmonize best practice
- Support the environmental integrity of GHG assertions
- Assist organizations to manage GHG-related opportunities and risks
- Support the development of GHG programs and markets[2]

The Reserve has partnered with ANSI National Accreditation Board (ANAB) to accredit independent third party verification bodies to ISO 14065:2013 and the International Accreditation Forum, Inc. (IAF) guidance as well as their accompanying protocols. Verification bodies accredited by ANAB or those undergoing the ANAB accreditation process may provide verification services to Reserve project developers. Verification bodies accredited by Entidad Mexicana de Acreditacion, A.C. (ema) or those undergoing the ema accreditation process may provide verification services to Reserve projects located in Mexico. Verification bodies accredited by Standards Council of Canada (SCC) or those undergoing the SCC accreditation

[2] ISO Press Release on 14065:2007 (4/17/2007) Ref 1054: New Tool for International Efforts to Address Greenhouse Gas.

process may provide verification services to Reserve projects located in Canada. The Reserve may partner with other IAF national standards organizations to provide accreditation services in the future.

The accreditation process is very rigorous, and verification bodies should undertake it only after understanding and implementing all procedures required under the ISO standards. Verification bodies approved under IAF national standards organizations are granted accreditations that are recognized worldwide.

The following resources provide further information on the principles and standards governing GHG verification and accreditation.[3] Verification bodies should cross reference these documents with the rules detailed in each project protocol and accompanying verification guidance in order to ensure the GHG project meets all applicable rules for a specific project type.

Table 3.2: ISO Documents and References

REFERENCE	APPLICABLE TO
ISO 14064-3:2006 or ISO 14064-3:2019 – Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions	Verification body
ISO 14065:2013 – Greenhouse Gases – Requirements for greenhouse gas validation and Verification Bodies for use in accreditation or other forms of recognition	Verification body
ISO 17011:2004 – Conformity Assessment – General requirements for Accreditation Bodies accrediting conformity assessment bodies	Accreditation body
IAF MD 6: 2014 – IAF Mandatory Document on the Application of ISO14065:2013	Accreditation body
ISO 14064-2:2006 - Greenhouse Gases – Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emissions reductions or removals	Project developer, verification body

3.3.1 Obtaining Accreditation

The full accreditation process under ISO 14065 entails:

- Submitting the preliminary application to an approved accreditation body (e.g., ANAB, ema, or SCC)
- Submitting the full application
- Preparing for assessment
- Undergoing initial onsite and witness assessments
- Addressing corrective actions identified
- Undergoing committee review
- Receiving accreditation
- Participating in annual surveillance
- Participating in the three-year cycle of reassessment (onsite and witness assessment)

[3] Available at www.iso.org.

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3.3.2 Costs of Accreditation

The cost of accreditation is determined by the accreditation body and generally includes an initial non-refundable application fee, an assessment fee for the surveillance performed by the assessors, and an annual accreditation fee. There is also an additional fee to extend the scope of accreditation, which is collected when verification bodies seek eligibility to perform verifications for new sectors.

More information on the ANAB accreditation program is available here:
https://anab.ansi.org/greenhouse-gas-validation-verification/

More information on ema accreditation is available here:
ema.org.mx/portal/index.php/Acreditacion/conozca-el-proceso-de-acreditacion.html

More information on SCC accreditation is available here:
https://www.scc.ca/en/accreditation/get-accredited/steps

3.3.3 ISO Conformance

The Reserve project protocols are generally consistent with international standards and best practice within the GHG offset industry.

Due to ISO copyrights, the text of the relevant sections of ISO standards cannot be reproduced in this document. Therefore, the Reserve has summarized its interpretation of key elements that verification bodies must address to comply with ISO standards and adhere to Reserve protocols, processes and procedures throughout this manual. This manual should not be used as a substitute for any of the ISO standards during accreditation or when planning for project verification activities.

There are some minor differences between the Reserve and ISO 14064 series that are program specific. In areas where other GHG program protocols or ISO standards differ from guidance provided in the Reserve project protocols or program manuals, the Reserve project protocols take precedence, followed by the program manuals.

The language in Reserve protocols is ISO conformant when possible. Where the Reserve protocols presently use non-ISO terminology, the Reserve will attempt to identify and detail its meaning in relation to both Reserve and ISO standards. The Reserve expects that verification bodies will comply with both ISO standards and Reserve requirements when undertaking verifications.

3.3.4 Validation

Under ISO 14065:2013 and IAF Mandatory Document guidance, validation is the process by which an independent validation body assesses a project plan for GHG reductions or removals and deals with the assessment of potential future outcomes. Validation is typically conducted on projects that do not follow standardized protocols. The validation process occurs prior to project implementation in order to establish the project developer's methodology, scope and eligibility to create GHG reductions or removals.

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The Reserve does not require that validation be conducted as a separate step in project development. Instead, when a project is first verified, the verifier must affirm the project's eligibility according to the rules defined in the relevant project protocol. Under the Reserve, the project's eligibility criteria are developed through a transparent, stakeholder-driven process that lays out the design and scope for each project type prior to project implementation through the application of performance-based standards and other standardized criteria. The project protocols provide eligibility rules, methods to calculate reductions, performance-monitoring instructions, and procedures for reporting project information to the Reserve. Further, the project developer completes a standard project submittal form and is reviewed by Reserve staff for compliance with the eligibility criteria prior to the project being publicly listed on the Reserve.

By reviewing project submittal forms, Reserve staff conduct an initial screening to check whether, on the basis of the information provided, the project meets the eligibility rules established in the project protocol. However, the Reserve performs no substantiation of claims made in the submittal forms; that task is left to the verifier. Because the Reserve's eligibility criteria are mostly standardized, determination of eligibility is usually straightforward and requires minimal interpretative judgment by verifiers. Verifiers must ensure that the project developer has provided sufficient evidence to prove that the project meets the eligibility criteria.

Project developers may choose to have a project verified during its initial reporting period without verifying total emission reductions in order to establish the project's eligibility for registration and provide more certainty to potential CRT buyers or sellers. This de-facto validation process is permitted. In addition, the Reserve does not consider validation services conducted under other GHG registries or programs to be a conflict of interest, as validations and verifications are both independent third-party assessments.

3.4 Training Requirements and Qualifications for Lead Verifiers

The Reserve recognizes the verification body as the responsible party under its program, rather than an individual verifier. Verification bodies are obligated to ensure that individual verifiers are qualified with the proper training and skills to conduct verification activities. For individual verifiers to be recognized as Lead Verifiers by the Reserve, they must have completed the training requirements as detailed below.

A Lead Verifier is any verifier from the accredited verification body who directs, supervises and leads verification services and has the authorization from the verification body to sign written reports or statements. A Lead Verifier is someone who has completed the verification body's internal training processes and procedures to achieve this designation, and passed the Reserve training course(s) on the appropriate project protocol(s) as well as the general project verification training.

Each verification body must employ a minimum of two Lead Verifiers for every approved sector accreditation. This policy ensures that the verification team for every project includes at least two Lead Verifiers, one to serve as the Lead Verifier and one to serve as the Senior Internal Reviewer. These Lead Verifiers may be employees of the verification body or contracted personnel.

A Senior Internal Reviewer is any Lead Verifier from the accredited verification body selected to perform a final quality assurance and quality control (QA/QC) review on the project data and verification documentation. The Senior Internal Reviewer must also sign the Verification Statement attesting to the accuracy of reported data. The Senior Internal Reviewer shall remain

independent of all verification 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 NOVA/COI Form and also be designated as a Lead Verifier on the annually submitted Verification Staff Reporting form, which is an exhibit to the Verification Policies Acknowledgement and Agreement form.

3.4.1 Internal Training

Qualification as a Lead Verifier begins with the verification body's internal training procedures and programs that instruct staff on how to conduct verifications and lead verification activities. Verification bodies must have a formal process in place for the initial qualification, training, and ongoing monitoring of all personnel verifying a Reserve project. The verification body is responsible for ensuring the verification team has the proper skills, competency and collective capability to conduct verification activities under the Reserve.

In order to be eligible to take the Reserve's Lead Verifier trainings, a verifier 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.

3.4.2 Reserve Training

In addition to internal training, Lead Verifiers must successfully complete a Reserve-administered General Project Verification Training course and one or more project protocol verification trainings. This requirement ensures that the individuals leading verification activities under the program have a high level of sector-specific knowledge and training.

At the completion of a Reserve training, verifiers must take a Reserve-administered exam that consists of multiple choice, short answer, and quantification questions. To prepare for the exam, the verifier should study the protocols and the ISO 14064 series, complete the homework assignment, and undertake the practical exercises provided within the training. After passing the general project verification exam and a protocol-specific exam (and meeting the criteria above), the individual becomes a Reserve-recognized Lead Verifier. Following the training, the Reserve provides the recognized verifiers with a notification and a certificate that allows them to act as Lead Verifiers under the Reserve.

Verifiers who do not pass the exam, choose not to take the exam, or are unable to complete the exam on the date it is given receive a certificate of training attendance but will not have met the Reserve's Lead Verifier training requirements. These verifiers have one year from the original date of the course to re-take the exam. There is an administrative fee to retake the exam. If more than one year has passed or a verifier does not pass the exam on the second attempt, the verifier must retake both the training and the exam. The Reserve encourages verifiers who fail the exam to assist on additional verifications in order to gain practical experience before retaking the exam. Please note that for confidentiality purposes, the Reserve does not distribute copies of the verification exam.

An individual's recognition as a Lead Verifier under a specific protocol is generally valid for three years after the date that the training certificate is issued, at which point the Lead Verifier must meet one of the following requirements:

1. The Lead Verifier must retake and pass the appropriate exam to demonstrate that they have sufficiently maintained knowledge of the protocol and is well-versed in any relevant

protocol or programmatic updates made in the interim. This will renew the certification for another three-year period.

2. The certification(s) of Lead Verifiers can be automatically extended for one additional year (without retaking the exam) if the following requirements are met:

- The Lead Verifier has successfully passed the relevant exam at least twice
- For the general verification certification, the Lead Verifier serves as a Lead Verifier or Senior Internal Reviewer on at least two verifications that started verification services within the last 12 months
- For protocol-specific certifications, the Lead Verifier serves as a Lead Verifier or Senior Internal Reviewer on at least two verifications under the relevant protocol that started verification services within the last 12 months
- The relevant protocol has not undergone a policy revision since the Lead Verifier last passed the exam

Option 2 may be used indefinitely, so long as each of the requirements is met. If at any time one or more of the requirements is not met, the exam must be re-taken.

A Lead Verifier is not required to re-take a training course in its entirety unless significant changes to the Reserve program or relevant protocol dictate that a full training is necessary. Verification Statements signed by Lead Verifiers or Senior Internal Reviewers with expired certifications will not be accepted by the Reserve. If a Lead Verifier's general or protocol-specific certification expires during verification services, they must pass the exam before the project can be registered.

The Reserve offers public certification exam dates throughout the year. Lead Verifiers seeking to renew their certification(s) are free to take any exams on these dates. Lead Verifiers may also schedule private certification exams through the Reserve Events webpage, but a 10 business day notification period is required. Note that the Lead Verifier certification is tied to the individual and will therefore be recognized regardless of which verification body provides employment.

Unlike the Lead Verifier and the Senior Internal Reviewer, other team members (verifiers, technical experts, administrative staff, etc.) are not required to complete Reserve training or exams, unless the verifier is conducting a site visit (see Sections 4.5.1 for further guidance on verifier training requirements for conducting site visits).

3.4.3 ARB Training

For the purpose of verifying voluntary Reserve projects, the Reserve will accept the California Air Resources Board (ARB) verification trainings for the Mine Methane Capture[4], Forest[5], Livestock, Ozone Depleting Substances[6], and Rice Cultivation compliance protocols in lieu of the Reserve's project protocol verification trainings. However, the successful completion of the

[4] Equivalent to the Reserve's Coal Mine Methane Project Protocol

[5] ARB verification trainings will only be accepted for verifiers of forest projects using the Reserve's Forest Project Protocol (FPP) v2.1 – v3.3. Verifiers of forest projects using later versions of the FPP must successfully pass a Reserve protocol training and exam.

[6] ARB's Urban Forest verification training cannot be used in lieu of the Reserve's project protocol training, since the Reserve Urban Forest Management Project Protocol includes significant updates not covered by the ARB verification training.

Reserve's General Project Verification Training is required for all Lead Verifiers and/or verifiers conducting site visits, regardless of project type.

It is the responsibility of the Lead Verifier to demonstrate to the Reserve the successful completion of the ARB compliance offset protocol training.

3.5 Verification Policies Acknowledgment and Agreement Form

Verification bodies must have a duly authorized representative of its organization sign and submit the legally binding Verification Policies Acknowledgment and Agreement form to the Reserve on an annual basis. This required agreement between the Reserve and verification bodies ensures that personnel performing verification activities are aware of their roles, responsibilities and obligations under the program. It asserts that the verification body will follow proper processes and procedures as laid out in the project protocols, the Reserve Offset Program Manual and Verification Program 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 verification activities.

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

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

Further, the agreement asserts that the verification 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 offset credits between a verification body and a project 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 3.6.3.

The agreement also requires that, in the instance where the Reserve determines an error made by the verification body resulted in the issuance of CRTs not in compliance with Reserve protocols or Reserve policy, the verification body deemed responsible will replace or replenish an equal value of CRTs 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 verification body has occurred.

Failure to submit the Verification Policies Acknowledgment and Agreement form could result in suspension from the Reserve program.

3.5.1 Verification Staff Reporting Form

Verification bodies must identify to the Reserve all staff members who are designated as verifiers and serve as key personnel in Exhibit A of the Verification Policies Acknowledgment

and Agreement form, i.e., the Verification Staff Reporting form.[7] This form must to be updated and electronically submitted to reserve@climateactionreserve.org whenever new staff members are designated as verifiers on a NOVA/COI form or once per year, whichever is more frequent.

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A verification body may add or delete staff to its roster at any time. To add or delete designated staff, the verification body should resubmit the form with the names and contact information for any personnel changing from the roster and note if said personnel are to be removed, added, or their status updated. For each individual identified on the form, the firm shall describe his or her job classifications, relevant experience, education, academic degrees, professional licenses (for technical staff), and role for the Reserve's records. Failure to submit the Verification Staff Reporting form could result in suspension from the Reserve program.

3.6 Conflict of Interest

When conducting verification activities for Reserve project developers, verification bodies must work in a credible, independent, nondiscriminatory and transparent manner that is in compliance with applicable legislation and relevant ISO standards. A conflict of interest (COI) is defined as any situation that compromises a verification body's ability to perform a wholly independent verification. In order to ensure the credibility of the emissions data reported to the Reserve, it is crucial that the verification process be completely independent from the influence of the project developer. The verification team must act objectively and exercise professional skepticism while conducting verification activities. Conflict of interest is a difficult and dynamic issue and is therefore assessed by Reserve staff on a case-by-case basis.

The COI review process gives the verification body the ability to demonstrate that its organization is capable of identifying and mitigating situations that would impair its ability to render an impartial Verification Statement. Any pre-existing relationship between the verification body/verification team and project developer 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.

3.6.1 Reserve COI Review

Each verification body must provide information to its accreditation body about its organizational relationships, internal structures, and management systems for identifying potential conflicts of interest (organizational COI). Then, on a case-by-case basis, the Reserve will review any pre-existing relationship between a verification body and project developer and assess the potential for conflict of interest in light of the individuals involved. The Reserve staff base the review on the verification body's self-reported information submitted against the criteria laid out below. The verification body must assess all potentially conflicting services it has provided to the project developer, specifying the nature, timing, location, financial value, etc. This information is evaluated and cross-checked against the Reserve's internal records.

If the Reserve finds that there is low risk of COI, a determination is made in writing and sent to the verification body allowing verification services to proceed. After that point, the project developer and verification body may finalize negotiations of their contract and begin verification activities. Following completion of the verification, the verification body must monitor for COI through the next 12 months, as any new business relationship could increase the potential for COI (known as emerging COI).

[7] Available at http://www.climateactionreserve.org/how/verification/verification-documents/.

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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) in order to discuss the issue. The determination will be communicated to the verification body, the project developer, and any relevant body performing oversight. If the verification body disagrees with the determination, it may appeal (the appeals process is detailed in Section 6.5~~6.4~~).

In the event that a verification body violates COI procedures, the Reserve, in consultation with the accreditation body and at its discretion, may disqualify an approved verification body from providing services under the Reserve.

Note that this conflict of interest clause does not preclude a verification body from engaging in consulting services for other clients that participate in the Reserve for whom the verification body does not provide any verification activities.

3.6.2 Notification of Verification Activities and COI Form

To obtain an approval for verification activities to proceed, the verification body must submit a Notification of Verification Activities and Request for Evaluation of Potential for Conflict of Interest (NOVA/COI) form[8] detailing the specifics of its relationship with the project developer and the scope and plan for verification activities. The Reserve will determine the risk for COI and can seek further information from the verification body to satisfy itself that no conflict exists or will arise and the proposed services are appropriate.

The verification body must conduct an internal review of previous relationships and services provided to the proposed project developer in order to determine the potential for COI before submitting the NOVA/COI form. The form must be submitted to the Reserve a minimum of 10 business days prior to the beginning of verification 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 verification oversight. More information on the verification oversight process can be found in Section 6.1. If the Reserve approves verification activities to proceed without oversight, project verification may begin on the date that approval is received by the verification body. The verification body may need to revise and resubmit the NOVA/COI form to include a mitigation plan, correct errors, or include any additional information per the Reserve's request.
No verification activities may occur prior to NOVA/COI approval.

A verification body that does not provide proper notification to the Reserve could be denied the right to conduct verification services for the proposed verification and may be disqualified or suspended as a recognized verification body. Note that a NOVA/COI form must be submitted for each verification period, even if a verification body has verified a previous vintage for the project and is within the allowed verification cycle timeline.

3.6.3 Potentially Conflicting Services

A verification body will have a high risk of COI if it or one of its contracted personnel shares any management with the potential client or if any of the potential client's staff working on GHG-

[8] Available at http://www.climateactionreserve.org/how/program/documents/

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related activities were previously employed by the verification body within the last three years, or vice versa. A verification body will have a high risk of COI if it or its related companies (e.g., parent company, subsidiaries of a parent company, affiliates) has provided any GHG management, consulting or advocacy services (as identified on the list below) to the potential client within the last three years. Such services would indicate the verification body could be: 1) verifying their own work, 2) performing management functions for the client, and/or 3) acting as an advocate for the client.

Verification bodies may not conduct both GHG consultancy services and verification services for the same project. A verification body may offer both types of services in general, but for any particular project it must choose which of the two services it wishes to offer. A verification body is strictly prohibited from consulting on any project it wishes to verify and can never verify a project that it has designed, developed, implemented or consulted on, regardless of when it provided that service.

Validation of a project prior to verification is considered an independent third party assessment service, not consulting. All instances of work in relation to validation and consulting should be disclosed on the NOVA/COI form.

Where a high risk of COI is determined to exist and mitigation is not possible, the verification body will not be approved to conduct the verification.

The following lists contain services that are considered potentially conflicting and therefore incompatible with the provision of GHG verification activities. Services of this nature must be declared on the NOVA/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 developer and the verification body, or previous employment of the senior management staff by the verification 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 developer in the same sector
- Owning, buying, selling, trading or retiring shares, stocks or offset credits 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 developer

Medium risks for COI:

- Developing GHG emissions factors or other related engineering analyses for the project developer
- Designing energy efficiency, renewable energy, or other projects for the project developer 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 developer
- Providing legal services

- Providing expert services for a legal purpose or advocating for the project developer
- Providing other GHG-related fee-paying services to the project developer during the course of project verification services
- Members of proposed verification team have a close personal or familial relationship with the project developer
- Any regulatory enforcement action, including citations and fines
- Other services as determined by the Reserve

Depending on the nature of the services provided, it is possible that a COI could be alleviated with a proper mitigation plan. If the verification body identifies a potential high or medium COI risk on the NOVA/COI form, the verification body must submit a plan to avoid, neutralize, or mitigate the COI. The Reserve will review the submitted documents to determine if sufficient information has been provided. If not, the Reserve will request additional information. Once the information is found to be sufficient, the Reserve will review the case and issue a written determination within 10 business days.

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

- **Time of service:** Any services delivered between the project developer and the verification 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. 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 developer located outside of North America 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 verification body's provision of other services with a small monetary value relative to the value of verification is viewed as a lower risk by the Reserve. Cases where the total value of services provided to the project developer is a very small percentage of the verification body's revenue over the same period may be less cause for concern as well. The size of the verification team is also a factor into the determination of financial value of services. The percentage of annual revenue of verification services conducted by the company's North American Greenhouse Gas Business Management Unit (GHG Business Unit)[9] for the project developer in question must be provided on the NOVA/COI form. This information will be treated confidentially by the Reserve.

3.7 Organizational COI and the Verification Cycle

There is no limit on the number of projects that a verification body may work on for a project developer. However, if the verification body has performed verification activities for more than 10 projects over a 12-month period for a single project developer[10], the Reserve may require further information to inform its COI determination.

[9] The term "GHG Business Unit" refers to the verification body's staff and offices within the corporate structure that offer climate change and greenhouse gas services (validation, verification, consulting, etc.) in North America.
[10] Cooperatives and aggregates will be viewed as a singular verification effort for the sake of this evaluation, rather than counting each cooperative or aggregate participant as a separate project

A verification body may verify any number of reporting periods for a project for a maximum of six consecutive years. After the six-year period, the project developer must engage a different verification body to verify the project. The original verification body may continue to provide verification services for other projects developed by the same project developer, but it cannot provide verification services for the project in question for at least three years.

The cycling and rotation of verification bodies helps avoid COI situations that could arise from lengthy and ongoing business relationships. In addition, this process guarantees that another firm reviews previously verified reporting periods, thus providing another check on the consistency and appropriateness of protocol interpretation and professional judgment. The new verification body must re-check eligibility criteria per the protocol requirements, but it is not required to perform an additional verification of data that was verified in previous reporting periods (see Section 4.6.1).

The original verification body may again provide verification services to the project after a lapse of at least three years. This three-year suspension may be triggered earlier if the verification body has conducted a substantial amount of other services for the project, depending on their nature. These services must be disclosed in the NOVA/COI form and will be assessed by the Reserve on a case-by-case basis. The three-year suspension period begins the day after the project's most recent registration date.

The potential for COI between a project developer and a verifier who works for multiple verification bodies is reviewed on a case-by-case basis. Individual verifier relationships, non-project related consulting services or employment by the project developer or another verification body (also non-project related) may trigger the requirement for a verifier to wait at least three years before performing verification for a particular project in order to mitigate the potential for COI. All personal and business relationships must be disclosed on the NOVA/COI. These cases proceed directly to a Reserve COI Committee for review.

The verification cycle applies to verification services performed during the entire life of the project, which includes verifications performed under another GHG registry or program.

If for any reason the Reserve determines that a relationship constitutes a conflict of interest that cannot be mitigated, the Reserve will require the project developer to select a new verification body. The Reserve may also require re-verification of any verification results from the time at which the conflict of interest arose and could not be mitigated.

Example 1: Verification Pro provided GHG inventory verification services for a Climate Registry member, MacDonald Dairy, from 2016-2019. MacDonald Dairy now has a Reserve livestock project in 2020 and would like to hire Verification Pro.

While Verification Pro has provided verification services for MacDonald Dairy in the recent past, it has never verified this specific project. Verification Pro may verify this project for up to six consecutive years.

Example 2: Verification Pro provided validation services for a LFG Unlimited landfill project under the Verified Carbon Standard from 2016 through 2019 (4 years). The project transferred to the Reserve in 2020.

LFG Unlimited may contract with Verification Pro for verification services for 2019 through 2021 (2 additional years), at which point LFG Unlimited must select a different verification body.

3.8 Technical Consultants and Contracted Verifiers

Technical consultants that are hired by the project developer to provide technical assistance in any capacity, including helping the project developer compile data or manage a project, are not required to complete training or become accredited under ISO 14065. However, a technical consultant that participated in the development of a project cannot provide verification services for that same project, as this is a clear COI. Development services include designing, implementing, or maintaining a GHG emissions reductions or removals project as well as setting up GHG management or information systems for the project. The history and relationships between the technical consultant(s) and the verification body must also be disclosed on the NOVA/COI form.

A verification body is allowed to use contracted verifiers to fill any role on the verification team. Contracted verifiers acting as the Lead Verifier or Senior Internal Reviewer are subject to all training requirements described in Section 3.4. Any contracted verifiers performing verification activities must be included on both the NOVA/COI form and the Verification Staff Reporting form, and per the requirements of ISO 14065, verification bodies must take full responsibility for verification activities performed by contracted verifiers.

Under ISO 14065, contracting is distinct from outsourcing[11]; outsourcing is described as the practice of an organization setting a contract arrangement with another organization to provide services tasked to the original organization. While verification bodies may not outsource the Lead Verifier or Senior Internal Reviewer roles to another organization, verification bodies are allowed to outsource other roles on the verification team, provided no COI exists between the outsourced party and the project developer. Like contracted verifiers, individuals in outsourced positions must be included on both the NOVA/COI form and the Verification Staff Reporting form.

3.9 Confidentiality

Verification bodies must keep sensitive information encountered while conducting verification activities confidential in order to uphold the integrity of data reported within the Reserve. Verification 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. Due to the fact that market-sensitive information may be encountered while conducting project verification activities, the verification body must agree to maintain strict confidentiality in its findings prior to the public availability of the Verification Report. Confidentiality arrangements and requirements should be addressed in the contract between the project developer and the verification body.

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

Once a verification body is selected by a project developer, the two parties should negotiate contract terms. This contract should be between the project developer and the verification body exclusively, with the particulars of the contract at the discretion of the two parties. While the

[11] ISO 14065:2013, Note under 6.4.

commercial arrangements surrounding the timing of the verification and the payment of fees are negotiated between the two parties, these details must be disclosed in the NOVA/COI form. As previously stated, the NOVA/COI form is not made public and no verification activities can take place until it has been approved.

4 Project Verification Activities and Expectations

4.1 Overview

The ultimate objective of verification is to provide assurance that GHG reductions or removals are real, additional, verifiable, permanent, and owned unambiguously. To do this, verification bodies must develop a risk-based verification plan that takes into account the size and complexity of the GHG project, the verification team's knowledge of the project, and the relevant sector, technology and processes. The verification plan must identify areas of key reporting risks to support to a reasonable level of assurance that the claimed GHG reductions or removals are materially correct.

Verification bodies must verify a project's GHG reductions or removals by:

- Implementing a risk-based approach to verification
- Ensuring verifications are conducted in a systematic and comparable way
- Ensuring Verification Reports, List of Findings and Verification Statements are independent and robust

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

- Notification of verification activities and case-by-case evaluation of conflict of interest
- Scoping and planning of project verification activities
- Desk review and initial site visit to conduct project verification activities:
    - Confirmation of eligibility criteria
    - Identifying emissions sources, sinks and reservoirs and assessing risk of material misstatements
    - Reviewing methodologies and management systems
    - Verifying emission reduction calculations
- Preparing a Verification Report, List of Findings and Verification Statement and submitting them to the Reserve

Upon completion of the above steps, Reserve staff reviews the relevant documents and reported data before registering the project and issuing CRTs. The Reserve relies upon the Verification Report to attest to the accuracy and legitimacy of the CRTs issued and the verification body is held accountable to the Reserve for the quality and independence of the Verification Report and Statement. See Section 5 for further guidance on the materials Reserve staff reviews prior to CRT issuance.

4.2 Risk-Based Verification

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

During the scoping and planning phases (Section 4.3), the verification team shall conduct a preliminary risk assessment in order to establish a verification approach based on areas of highest perceived risk. This assessment should include the project type, size, complexity, and length of verification period, 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 verification process.

Identified areas of risk may include any aspect of the project. Where the verification team identifies significant risk, it shall review those project components with increased care exceeding the minimum requirements provided in this document and the appropriate project protocol.

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
- Project compliance with relevant regulations
- Maintenance and appropriate operation of project hardware
- Adequacy and QA/QC of data collection processes
- Training of project personnel
- Data transcription and handling
- Data calculations

4.3 Scoping and Planning Project Verification Activities

Prior to entering into an engagement to provide verification services for a Reserve project developer, the Reserve must review the composition of the verification team and the scope of verification activities. This information is submitted to the Reserve for its approval in the NOVA/COI form (see Section 3.6).

4.3.1 Verification Team

The verification body is responsible for assembling a competent and qualified verification team to undertake verification activities before beginning any verification work. It must consider the capabilities and capacities of its staff when building the team. The verification team must have sector-specific competency in relation to the type of project being verified, and all team members and their respective roles must be disclosed on the NOVA/COI form. The verification team shall consist of a minimum of two individuals with Lead Verifier qualifications: one to serve as the Lead Verifier and one to serve as the Senior Internal Reviewer.

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

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

See Section 3.4 for more detailed information on individual verifier training requirements.

4.3.2 Developing a Verification Plan

Prior to the kick-off meeting, the verification team shall develop an initial verification plan outlining the scope and nature of verification activities to be conducted for the specific project. In developing this plan, it shall consider the key requirements and objectives of the project developer, compliance with the relevant Reserve project protocol, the information to be reported to the Reserve, and the verification team members' capabilities and sector competencies.

The verification 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 reported to the Reserve~~evidence-gathering plan[12] (often referred to as a sampling plan), and a site visit itinerary (if necessary). The ~~data sampling plan~~evidence-gathering plan should be created in line with the requirements of Section 4.4.3 of ISO 14064-3:2006 or Section ~~4.3.3~~6.1.6 of ISO 14064-3 2019 (as applicable). The ~~, which stipulates the different types of sampling and the typical conditions that apply to each sampling type. The~~ verification plan should evolve as the verification progresses and the verification team obtains more information on potential areas of risk and supporting evidence to substantiate the GHG emission reductions assertion. The Reserve may request a copy of the verification plan at any time.

After the Reserve has been notified of planned verification activities and issued approval for verification to proceed, contract terms may be finalized. At that point, the verification team shall conduct a kick-off meeting with the project developer. This meeting can be held either in person or remotely. The agenda for the meeting should include:

- Introduction of the verification team, overview of roles and responsibilities
- Review of verification activities, plan and scope
- Transfer of background information and underlying activity data
- Review and confirmation of the verification process schedule

Based on the information provided during the kick off call, the verification team should determine the most effective, efficient, and credible verification approach tailored to the particular characteristics of the project. If a project has been selected by the Reserve for verification oversight, Reserve staff may participate in all or some of the verification activities.

4.4 Verification Cycle

A reporting period is a period of time over which a project developer quantifies and reports GHG reductions/removals for the project. The verification period is the period of time over which GHG reductions/removals from said reporting period(s) are verified. Reporting periods must be contiguous in the Reserve program; there can be no time gaps in reporting during the crediting period of a project once the initial reporting period has commenced. Gaps in recorded data or activity within the crediting period must be included within the reporting period and verified accordingly. The verification body must confirm that no reductions are claimed for any period that is missing data within a reporting period. Alternatively, if the time periods with missing data cannot be included within the reporting period, the project can opt to take a zero-credit reporting period. Section 3.4.5 of the Reserve Offset Program Manual includes full details related to a zero-credit reporting periods. Refer to Section 4.9 below for guidance on how to verify zero-credit reporting periods.

[12] An evidence-gathering plan is the functional equivalent of what was previously referred to as a sampling plan.

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All projects must complete their initial verification within 12 months of the end of the initial reporting period. To satisfy this verification deadline, a completed Verification Report and signed Verification Statement must be submitted to the Reserve.

After a project is registered, a Verification Statement and Verification Report must be submitted within 12 months of the end of each subsequent verification period. The maximum allowed length of the verification period is specified in each protocol, but project developers may choose to verify more frequently than required. For example, a Verification Statement and Report for GHG reductions achieved between January 1, 2020 and December 31, 2020 would have to be submitted by December 31, 2021 if a project was required to verify annually. The only exceptions to the verification deadline are if the project developer has received a project registration extension (see Section 3.4.7 of the Reserve Offset Program Manual) or is taking a zero-credit reporting period (see Section 3.4.5 of the Reserve Offset Program Manual).

The following flow charts provide an overview of the NOVA/COI approval and verification processes.

Figure 4.1: NOVA/COI Approval

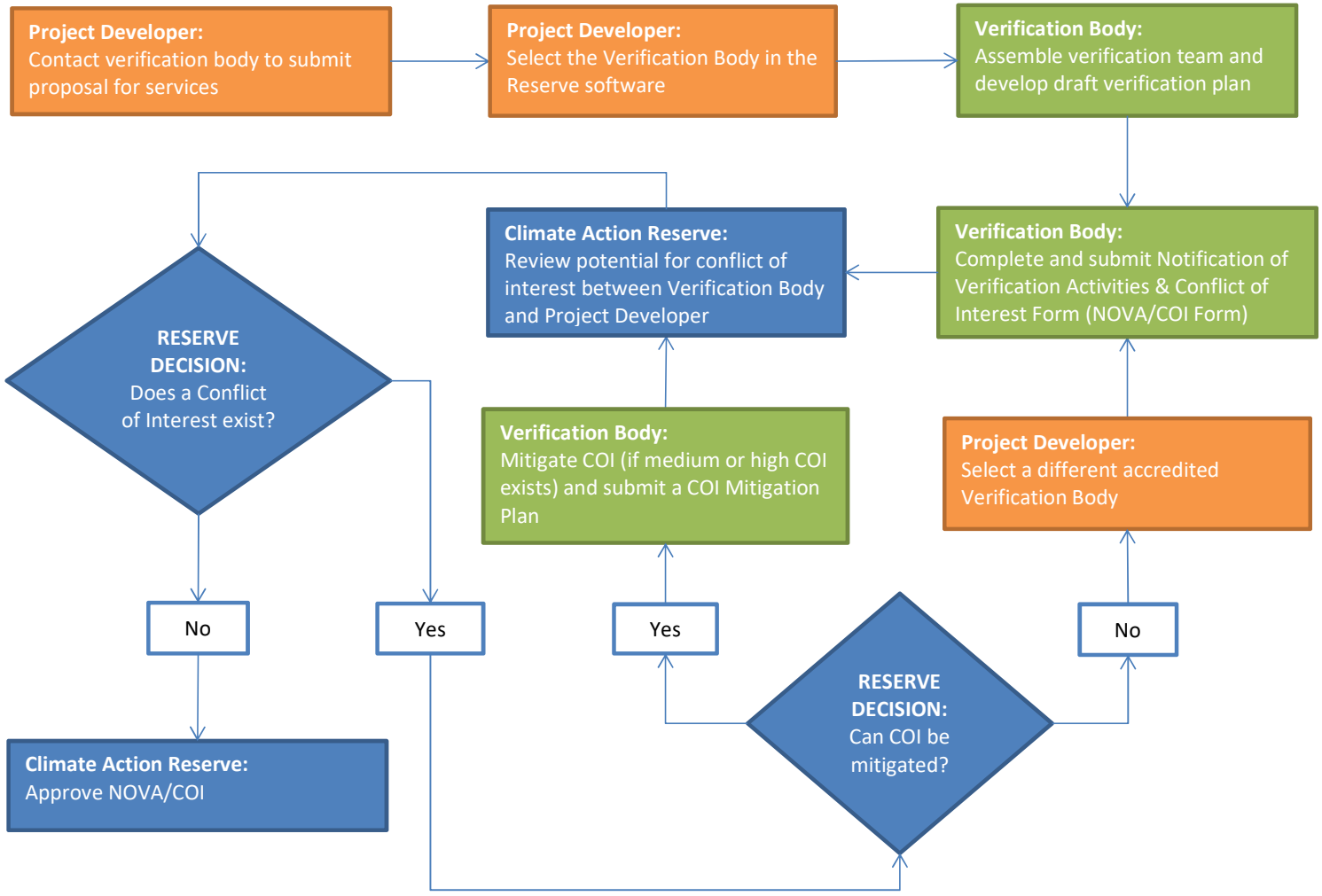

Figure 4.2: Project Verification and Registration

4.5 Desktop Verification vs. Full Verification

The following activities are expected to occur during a desktop verification and a full verification (desktop verification and a site visit), respectively. Please note that these lists are not comprehensive. Requirements differ by project type, and the project protocols note the exact requirements. The depth and breadth of verification activities shall also be guided by the project-specific risk assessment (see Section 4.2).

A desktop verification must, at minimum, consist of:

- Assessment of project eligibility criteria
- Review of required attestations
- Re-calculation and review of the data calculations and information presented in order to verify completeness
- Review of the monitoring plan and monitoring methodology for conformance with protocol requirements
- Evaluation of data management, QA/QC systems, and general procedures in the context of their influence on the generation and reporting of reductions or removals

A full verification must, at minimum, consist of the above-listed desktop verification activities as well as:

- Site visit(s) as required by the relevant protocol
- Assessment of the implementation and operation of the project activity
- Review of information flows for generating, aggregating and reporting the monitoring 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 are implemented in accordance with the project monitoring plan and the protocol requirements
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the applicable protocol requirements
- Identification of QA/QC procedures in place to prevent or identify the possibility of misstatements

4.5.1 Site Visits

A significant portion of the verification activities are conducted during the desktop review of calculations made by the project developer, GHG emissions data, and supporting documentation. However, a site visit can be critical to properly assess project operations, functionality, and data control systems; confirm the project boundaries and assessment area; and review measurement/monitoring techniques and onsite record-keeping practices.

Unless otherwise specified in a protocol, the verification body must conduct a site visit at least once for every 12 months of data verified. It is recommended, but not required, that the site visit occur after the conclusion of the reporting period under verification. It is required that either the lead verifier or an otherwise eligible verifier (see below) be present during the site visit. If the

verification body is unsure whether the site visit will meet this requirement, they may submit the verification plan to the Reserve for prior review and approval.

A verifier who is not yet a lead verifier is eligible to conduct site visits if one of the following requirements are met:

- The verifier has had protocol specific training and certification, via the Reserve training program and/or ARB training program, as specified in Section 3.4
- The verifier has had General Verification Training and certification through the Reserve, in addition to demonstrating prior experience verifying projects of the specific type under any offset program

To demonstrate prior experience, a verifier must have attended two or more site visits as part of the verification team for an offset project within the same sector as the project currently undergoing verification. Prior offset projects must have been verified under a reputable offset program. The Reserve retains sole and exclusive discretion in determining what is considered a reputable offset program for the purpose of meeting this requirement.

For sub-annual reporting and verification periods for which the same verification body has been on site within the last 12 months, site visits are not required unless significant changes to the project are identified during the desk review. The verification body may use professional judgment to determine if there have been significant changes to the project.

4.5.2 Virtual Site Visits

In the event of an extraordinary event or circumstance (See Section 6.2 – Managing Extraordinary Events or Circumstances), the Reserve may accept a virtual site visit in lieu of an on-site visit. Virtual site visits may include the use of Information and Communication Technology (ICT) to facilitate tours of the project area, relevant facility, interviews with site personnel, and demonstrations of data management. Virtual site visits will only be accepted if the verification body can confirm the accuracy of reported data to a reasonable level, and meet program and protocol requirements. The verification body must also ensure their risk assessment considers the potential issues and risks associated with a virtual site visit.[13] In order to perform a virtual site visit, the verification body must request the Reserve's approval at the time of COI submittal. Some project types may permit virtual site visits outside of extraordinary events or circumstances. Please refer to the relevant protocol for more details.

4.6 Core Verification Activities

The core verification activities of the Reserve program encompass a risk assessment and data sampling effort used to determine that the project is eligible, no relevant sources, sinks or reservoirs (SSRs) identified in the project protocol 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 verification activities shall include the following core steps:

[13] ANSI National Accreditation Board (2020, March 23) *ANAB's Guidance and Expectations for the Increased Use of IAF MD 4 During the COVID-19 Pandemic.* https://anab.qualtraxcloud.com/ShowDocument.aspx?ID=17626

Field Code Changed

1. Confirm eligibility criteria
2. Review data and identify SSRs
3. Review management systems
4. Verify emissions estimates

4.6.1 Step 1: Confirm Eligibility Criteria

Every project must meet the eligibility criteria established in the Reserve Offset Program Manual and relevant project protocol in order to qualify for project registration. There can be no deviation from these rules. The Reserve conducts a preliminary review of project information provided in the project submittal form to assess eligibility. This review is not a final determination of the eligibility of the project, nor does it guarantee CRT issuance or CRT ownership.

Upon initiation of verification activities, it is the responsibility of the verification body to assess these claims and confirm that a project meets the eligibility criteria in the initial verification period. For subsequent verification periods, the verification body must confirm that the project continues to meet eligibility requirements. The eligibility check includes, but is not limited to, reviewing the required attestations described in the following sections.

While the structure of the project eligibility criteria is shared amongst the Reserve protocols, the specific requirements can vary. Please refer to the relevant protocols and accompanying verification guidance for more information on the eligibility criteria and required frequency of verification for each criterion. Whenever a verification body verifies a registered project for the first time, it must review all applicable eligibility criteria rather than relying on the determination of the previous verification body.

The verification body must explicitly state in the Verification 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.

4.6.1.1 Location

Each project protocol limits project activities to an explicitly defined geographic boundary. Verification 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.

4.6.1.2 Project Start Date

As defined in the Reserve Offset Program Manual and project protocols, the project start date initiates the project crediting period. Verification bodies must verify that:

- The project start date reported in the Reserve software is correct
- The project start date is eligible per the applicable protocol and the policy laid out in the Reserve Offset Program Manual

Verification bodies shall review supporting documentation to ensure the start date established by the project developer 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 every Verification Report for the project.

4.6.1.3 Crediting Period

Verification bodies shall verify that the reporting period falls within the project's crediting period as defined in the applicable protocol. Verification bodies shall also confirm that the crediting period and the reporting period entered in the Reserve software are accurate and the underlying activity or source data supplied by the project developer directly corresponds to these dates.

It should be noted that all data must be contiguously reported and verified, even if no credits are being claimed for a given time within a particular reporting period (see Section 4.4).

Project transfers are allowed in accordance with the guidelines outlined in Sections 3.6, 3.7, and 3.8 of the Reserve Offset Program Manual. Transfers from another GHG registry shall be reviewed by the verification team, and the verification body must ensure that no double-counting has occurred by cross-checking the previous registry's records with the Reserve software.

4.6.1.4 Additionality

The Reserve incorporates standardized additionality tests in all of its protocols. These tests generally have two components that must be confirmed by the verification body: a legal requirement test and a performance standard test.

The Legal Requirement Test

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

Verification of the legal requirement test requires:

1. **Review of the Attestation of Voluntary Implementation form:** The Attestation of Voluntary Implementation states that the project was implemented, established, operated, and conducted voluntarily and for the carbon benefit. Verifiers must confirm that this form has been properly executed by a qualified representative of the project developer.
2. **Risk-based review of relevant legal requirements:** The verification body must conduct a review of applicable local, state or federal regulations in order to reach reasonable assurance that there are no specific mandates for the project's implementation.

In addition, most protocols specify that the project's Monitoring Plan must include the procedures that the project developer must follow to ascertain and demonstrate that the project passes the legal requirement test at all times. If the verification risk assessment determines that there is a low risk of the project failing the legal requirement test, then the reviews of the Attestation of Voluntary Implementation and the evidence that the project's Monitoring Plan has been properly implemented may be sufficient.

However, if significant risk of failure is present, verification bodies shall use their professional judgment to determine the depth and scope of the review required to confirm that the project

passes the legal requirement test. Project developers are expected to provide evidence if requested by the verifier.

The Performance Standard Test
Projects that are not legally required may still be non-additional if they would have been implemented for reasons other than generating revenue from the sale of carbon offsets or simply to reduce GHG emissions. Performance standards are designed to screen out this potential set of projects. In developing performance standards, the Reserve considers financial, economic, social, and technological drivers that may affect decisions to undertake a particular project activity. These standards are tailored such that the large majority of projects that meet them are unlikely to have been implemented due to other drivers. In other words, incentives created by the carbon market are likely to have played a critical role in decisions to implement each project in the Reserve program.

Verification bodies must verify that the project meets or exceeds the protocol-specific performance standard. This determination is not subjective.

The applicable performance standard is applied by the project developer at the time the project commences. In most protocols, projects that have been registered do not need to be evaluated against the performance standard in future verifications for the duration of the first crediting period.

4.6.1.5 Regulatory Compliance

The verification body shall confirm that the project being verified was in material compliance with all applicable laws, including environmental regulations, during the verification period; no CRTs may be issued for periods when a project was not in material compliance with all applicable laws. The protocol-specific regulatory compliance requirement is generally limited to project activities at the host site, but it may extend to the entire facility or additional holdings. This requirement is verified through a review of the Attestation of Regulatory Compliance, as well as a risk-based review of project documentation.

Project developers are required to disclose to the verifier all instances of non-compliance of the project with any law. To confirm regulatory compliance, the verifier must assess 1) whether a violation is related to the project or project activities, and 2) whether the violation is material.

Before assessing materiality, the verifier must first assess whether a violation is related to the project or project activities. A violation should be considered to be “caused” by project activities if it can be reasonably argued that the violation would not have occurred in the absence of the project activities. It is important to note that the scope of regulatory compliance may be different for different project types. For example, there are many activities and pieces of equipment at a dairy operation, in a forest or at a coal mine that are completely unrelated to project activities occurring at the same site. However, activities at a composting facility, nitric acid facility or ODS destruction facility are inherently more connected to the project.

It is also important to review the timing of the violation. Many facilities do not receive documentation of a violation until well after the violation has actually occurred. If a violation was to affect CRT crediting, it would be for the time period when the violation occurred, which is not necessarily when notice of the violation is received.

Once the verifier has determined that the violation is related to the project or project activities and the reporting period being verified, he/she shall then assess the materiality of the violation.

The concept of materiality is found throughout the Reserve's program. Generally, the term is used to indicate something significant (material) as opposed to insignificant (immaterial). This manual discusses materiality with respect to verifying an emissions report in terms of a materiality threshold (Section 2.3), a quantitative materiality threshold (Section 2.3.1), and a qualitative materiality threshold (Section 2.3.2).

The materiality thresholds to assess an emissions report described in previous sections are not appropriate to use when assessing the materiality of regulatory violations. The Reserve introduced the concept of materiality to regulatory compliance in order to differentiate between violations that could bring into question the integrity of the project and violations that are strictly administrative or due to acts of nature. Violations that are administrative (such as an expired permit without any other associated violations or tardiness in filing documentation) are not considered material and do not affect CRT crediting. Any other type of violation that is project-related is generally considered material.

Any violation that is found by the verifier to be caused by the project or project activities shall be brought to the Reserve as soon as possible for assessment on a case-by-case basis. Verifiers should continue to use professional judgment to assess the violation and gather the necessary information and documentation they feel is required to make a determination of materiality. Verifiers should provide relevant details on the violation, including copies of the notice of violation, communication between the regulator and the project developer or verification body, and any other relevant documents when the verification report and statement are submitted, if not before. The Reserve shall utilize this information and the recommendation of the verifier to make such a determination.

4.6.1.6 Ownership

One of the fundamental principles of the Reserve program is the unambiguous ownership of GHG reductions/removals. Project developers must have exclusive ownership rights to the GHG reductions or removals associated with the project and for which the Reserve will issue CRTs. In addition, the project developer must agree that ownership of the GHG reductions or removals will not be sold or transferred except through the transfer of CRTs in accordance with the Reserve Terms of Use policies.

It is essential that the verification body determines the appropriate individual or entity is the proper owner of a project's potential CRTs early in the verification process. The ownership requirement is verified through review of the Attestation of Title and an accompanying review of available ownership documentation. The owner of the CRTs must be the account holder in the Reserve software; the owner must also be the signatory to the Attestation of Title.

The verification body must confirm that the project developer has signed the Attestation of Title and is the owner of full, legal and beneficial title to the GHG reductions or removals generated within the Reserve. Although several parties may be involved in a single project, the party that signs the Attestation of Title must be the party that has beneficial ownership rights in relation to the CRTs registered in the Reserve.

If the verification body determines a different organization has ownership of the CRTs, the verification body may proceed with verification activities as long as the rightful owner is clearly

identified in the verification documentation, all involved organizations are informed, and a COI evaluation between that party and the verification body has been approved by the Reserve. The project could also be moved to a different account within the Reserve software.

In addition to the Attestation of Title, verification bodies should review relevant contracts, agreements, and/or supporting documentation between project developers, facility owners, utilities, and other parties that may have a claim to the CRTs generated by the project. Verification bodies must review these contracts in a risk-based context and use professional judgment to determine the depth and breadth of the review. In order to issue a positive Verification Statement, the verification body must conclude with reasonable assurance that the project developer has title of the GHG reductions/removals.

In some instances, ownership will be straightforward and easy to identify (see Example 1). In other instances, particularly those involving multiple parties, a more careful analysis will be required (see Example 2).

Example 1: A forest owner with complete title and beneficial rights in certain real property and its timber designs and implements an Improved Forest Management project to sequester carbon without any outside assistance. In this situation, the future owner of the CRTs is clear, absent any further documentation or assertions to the contrary.

Discussion: In this case, the verifier should be able to establish ownership through a site visit, geographic search mapping of the project boundary, and a thorough review of the deed and/or title to the land.

Example 2: A private company, X Co, pays for the installation of GHG emissions-capturing equipment at a landfill owned by the local county waste authority in exchange for rights to any GHG offset credits derived from such activities.

Discussion: In this case, the proper owner and appropriate Reserve account holder is not immediately clear without reviewing the underlying contractual arrangements between the two parties, since both are involved in the activities leading to the emission reductions.

Upon review of the underlying documents, the verification body should be able to reasonably conclude that X Co is the proper project developer and account holder to which any CRTs would be issued. Even though the waste authority could have potentially laid claim to the emission reductions, it most likely conceded such rights, often noted as "environmental attributes," to X Co via a contract prior to the implementation of the project.

Although the above examples require some review of contractual terms, the parties with potential interest in the project are still fairly straightforward. However, in some cases, a project developer may try to open an account for an affiliated entity or under a different name and have the CRTs issued directly into that account. In the Reserve program, CRTs can only be issued to the account of the legal entity that owns the rights to those CRTs. Thus, the account holder must be the same legal entity as the project developer in order to be issued the CRTs.

Separate legal entities may include limited liability companies (LLCs), corporations, and other business organizations, regardless of whether these entities are 100% related to the project developer (e.g., parent, subsidiary, affiliate, etc.). Even if a project developer is 100% owned by its parent company, its parent or any other related company cannot be considered the project developer or be designated as the account holder unless they are the same legal entity, e.g., the project developer is a division within the parent LLC or corporation. This is true regardless of

the reasoning behind the creation of the organizational structure of the larger corporate family, whether it be for tax purposes, administrative convenience, efficiency, or any other purpose.

If there is any question as to whether the project developer is the same legal entity as the rightful owner of CRTs, then the verifier may ask for the formation documents of each entity, e.g., LLC operating agreement, certificate of incorporation, etc., and/or request each entity's tax identification number (TIN) issued by government authorities. If the entities have separate formation documents but the TIN is the same number for both, they are likely the same legal entity. If they both have separate formation documents and/or different TINs, then they are not the same legal entity.

Table 4.1~~Table 4.1~~ contains some examples of different corporate structures that can be considered when assessing legal entities:

Table 4.1: Corporate Structure of Legal Entities

Scenario	Likely Outcome
Names of X Co and Other Named Entity each end in "LLC", "Inc.", "Corp." or other legal entity designation	Separate legal entities
X Co is doing business as (DBA) Other Named Entity	Unclear → check formation docs and TINs
No clear relationship between X Co and Other Named Entity	Unclear → check formation docs and TINs
X Co is a division of Other Named Entity, not a separate LLC, corporation, or other legally formed entity and same TIN	Same legal entity

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

4.6.2 Step 2: Review Reported Data and Identify Sources, Sinks and Reservoirs

Verification 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 protocol. The review must also include the reporting and monitoring parameters for the project.

The 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 operation of the project activity.

As part of this process, verification bodies shall review the project's Monitoring Plan to verify that all required SSRs and project activities are measured, modeled or calculated appropriately and with the correct frequency. Verification bodies must also review the project's GHG reduction assertions, data collection and storage methods, and QA/QC measures.

Once all reporting parameters and SSRs have been identified and any issues addressed, the verification body may proceed to Step 3 to review the project's calculation methodologies and management systems.

4.6.3 Step 3: Reviewing Management Systems and Methodologies

After the project SSRs have been confirmed, verification bodies shall review the methodologies and management systems used to generate, compile, transcribe, and store project data. This is principally a risk assessment exercise in which the verification body must weigh the relative complexity of the scope of the project's emissions operations and activities, the project developer's methodologies and management systems used to report GHG reductions, and the likelihood of calculation error as a result of reporting uncertainty or misstatement. The verification body must determine the presence and level of inherent and management type risks and focus its verification 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 protocol could be identified.

Through this review, the verification body shall determine the appropriateness of the management systems, IT systems, staff competency, internal audits, record keeping arrangements, and documentation processes to understand the risk of systemic errors as a result of reporting uncertainty or misstatement. A review of records and management systems onsite helps to ascertain the adequacy of the management system relative to protocol requirements.

A verification body's general review of a project's GHG management systems should document whether methodologies/procedures are appropriate given the inherent uncertainty/risk; the likelihood that the data is correctly aggregated, monitored, and measured; and whether a qualified individual is responsible for managing and reporting GHG reductions or removals. The verification body shall also check that the correct metering equipment is used, inspected, cleaned and calibrated in accordance with the applicable project protocol. The verification body is responsible for ensuring that all metered and modeled (if applicable) data are accurate.

4.6.4 Step 4: Verify Emissions Estimates

Based on a project's SSRs, management systems, and corresponding risk profile, verification bodies must ensure that the calculations 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 activity data. All emission or efficiency factors used in the applicable protocol equations must also be checked. Cross-checking calculated emissions reductions and performing data reconciliation in line with the methodologies outlined in the applicable protocol is vital to ensure quantitative material misstatements are identified and resolved.

Verification bodies shall also trace activity and/or monitoring data compiled by the project developer back to the original source and perform re-calculations in accordance with a sampling plan that focuses on high-risk data. Verification bodies shall review all relevant physical and documentary evidence.

In order for verification bodies to verify the reductions or removals entered in the Reserve software, the sample of recalculated project data must be free of material misstatement. It is possible that the overall GHG reductions or removals calculated by the project developer will differ from those estimated by the verification body. A discrepancy is considered material if the difference between the reported GHG reductions and the verifier's estimate surpasses the materiality threshold defined in Section 2.3.1. Immaterial discrepancies are those that fall within the materiality threshold and are not required to be corrected.

Note that, per Section 2.3.1, the Reserve allows for under-reporting of emission reductions/removals 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 verification body shall include this information in the List of Findings and complete the sampling effort of other sources. Once the verification body has confirmed that the data sample is free of material misstatements, it is ready to complete verification activities.

Examples of directly monitored and measured data or supporting evidence that should be reviewed during verification include (but are not limited to):

- Flow meter, electricity meter, and continuous emissions monitoring system (CEMS) data
- Outputs from gas collection, destruction or abatement systems
- Electricity use or fossil fuel combustion records, invoices, purchases and sales orders
- Onsite fuel stocks
- Data recording devices and portable monitoring equipment
- Maintenance and calibration records, log books, and system operations manuals
- Laboratory test results or third party reports
- Manufacturer specifications and reports
- Raw material inputs, production output, and hours of operation
- Field check reports, sampling exercises, and analysis reports
- Emission factors (if not default), combustion efficiency, and oxidation factors
- Certificates of destruction, weight tickets, and customs documents
- Calculation spreadsheets and electronic files

It is a verification body's duty to identify errors during the verification process. Common errors include, but are not limited to:

- Calculation errors: equations used by project developer do not match those specified by the protocol
- Incompleteness: incorrect inclusion or exclusion of SSRs within the GHG Assessment Boundary, exclusion of significant sources and/or leakage effects
- Inaccuracy: manual data transfer and transcription errors, double counting, and use of incorrect emission or destruction efficiency factors

Any of the above errors could result in the project developer materially over-estimating GHG reductions or removals.

4.7 Professional Judgment

By design, Reserve protocols are not entirely prescriptive, which necessitates that verification bodies use their best professional judgment when executing certain verification activities. Verification bodies must demonstrate, through their staff's professional qualifications and relevant GHG experience, their ability to render sound professional judgment in relation to Reserve projects.

Application of professional judgment is expected in the following areas:

- Implementation of verification activities with appropriate rigor for the size and complexity of the project and the uncertainty of calculations associated with the project's SSRs
- Review of the capability of a project developer's GHG emissions tracking, monitoring, and management systems to provide accurate information
- Determination of the amount of data that constitutes a representative sample
- Assessment of methods used for calculations where the protocol does not provide prescriptive guidance
- Appraisal of assumptions, estimation methods and emission factors that are selected as alternatives to protocol guidance, where allowed

In areas where the Reserve project protocols are prescriptive, as with monitoring or calibration frequency, verification bodies are not permitted to use professional judgment. Projects must follow the prescriptive requirements of the protocols, where available. The verification section of each protocol provides guidance on areas where professional judgment is allowed/expected and areas where it is not.

The Reserve maintains the right to question any and all decisions made by the verification body. However, in areas where the project protocols explicitly state that professional judgment can be used, the Reserve expects that the verification body has the competency and knowledge to make these decisions, will err on the side of conservativeness, and will follow industry best practice.

4.8 Variances

The Reserve may, at its discretion, grant variances with regard to the manner in which specific projects meter, measure or monitor GHG reductions or removals where Reserve staff determines that such variances are acceptable. Only with explicit, written acceptance of the variance may a project developer apply alternate methods not contained in the applicable protocol. In most cases, a variance will be granted only for a specified time period or portion of the project data. Verification bodies must ensure that the project developer has met the Reserve's requirements and correctly applied the variance determination. Once a variance is granted, the variance determination is available publicly in the Reserve software.

4.8.1 Verification Body Application of Variance Determinations

Verification bodies must adhere to any instructions laid out within the variance determination and ensure that all other relevant criteria in the protocol have been met. Like the listing process, receiving a positive variance determination does not guarantee that a project will be successfully verified, nor that a project complies with other aspects of a given project protocol; variance determinations do not qualify projects for registration prior to completing the verification process.

Projects continue to be subject to verification body review after a variance has been granted. The burden remains on the project developer to provide supporting evidence to the verification body that all aspects of its project are in compliance with the variance determination and the project protocol. Variance determinations allow for minor alterations to the protocol and are based on the initial information provided in the Variance Request Form. Verification bodies must confirm the underlying facts that were presented to the Reserve. Variances do not exempt the project from protocol requirements that are not specifically referenced in the variance determination.

A verification body shall not make specific recommendations to the project developer in relation to what could qualify for a variance. This would be considered consulting and is explicitly prohibited. Verification bodies shall not recommend that project developers seek variances from the Reserve, but can note sections or guidance of the protocol with which the project is not in conformance. The verification body can refer the project developer to seek assistance from the Reserve in determining how best to proceed with the project.

4.9 Verification of Zero-Credit Reporting Periods

To ensure that project emissions were not greater than baseline emissions during a zero-credit reporting period, monitoring data collected during the zero-credit reporting period must be verified the next time the project undergoes verification. While the project is not required to conform to the protocol's monitoring and QA/QC procedures during a zero-credit reporting period, the verification body must be able to confirm with reasonable assurance that project emissions were less than baseline emissions during the zero-credit reporting period. Project developers shall provide project documentation and calculations for zero-credit reporting period emissions to the verifiers. The following non-comprehensive list includes examples of information that may be requested by verifiers, but verifiers should use their professional judgement to determine appropriate data requests:

- Photographs of relevant equipment or project components
- Aerial photos of the project facility (highlighting the location of equipment or project components, as relevant)
- Flow meter/totalizer data (if applicable)
- Continuous Emissions Monitoring Systems (CEMS) outputs (if applicable)
- Contracts or tax records indicating land use (if applicable)
- Attestations from staff or contractors unaffiliated with the Project Developer

Where appropriate, refer to project protocols for specific guidance on verifying zero-credit reporting periods. If the verifier cannot confirm with reasonable assurance that project emissions were less than or equal to baseline emissions, the Reserve will make a determination of action on a case by-case basis.

The Reserve views a zero-credit reporting period as a separate reporting period from the one undergoing verification for CRT issuance; to that end, the zero-credit reporting period should not be represented as part of the verification period that will be issued CRTs. For example, the dates of the verification period being issued CRTs shall not include the dates of the zero-credit reporting period.

4.10 Errata and Clarifications

The Reserve utilizes Errata and Clarifications documents to correct and/or clarify issues in previously issued protocols. Errata are issued to correct typographical errors in text, equations or figures. Clarifications are issued to ensure consistent interpretation and application of the protocol.

Errata and Clarifications documents become effective on the date they are first posted on the Reserve website. Listed and registered projects must adhere to all errata and clarifications issued for the applicable protocol version when they undergo verification. Thus, verification bodies must refer to and follow the corrections and guidance presented in Errata and

Clarifications documents as soon as they are effective, even if they are issued during an ongoing verification.

The Reserve does not require verification bodies to attend trainings specific to errata and clarifications. Rather, the Reserve expects that verification bodies refer to these documents immediately prior to uploading any Verification Statement to ensure all relevant guidance is properly addressed and incorporated into verification activities.

4.11 Joint Verification

Certain project protocols allow for "joint verification" when a project developer has multiple projects operating on a single site. In these instances, project developers have the option to hire a single verification body to assess the projects concurrently. This is intended to provide economies of scale for the project verifications and improve the efficiency of the verification process.

Under the joint project verification process, each project, as defined by the protocol and the project developer, must be submitted and registered separately in the Reserve software. However, the verification body may submit a single NOVA/COI form that details and applies to all of the projects at a site that it intends to verify.

Additionally, a verification body may conduct a single site visit and prepare a single Verification Report summarizing the verification results from multiple projects. However, the verification body must develop a separate verification plan, sampling plan, and Verification Statement for each project, i.e., each project is assessed by the verification body separately as if it were the only project at the site. In addition, a copy of the Verification Report must be uploaded to each project's Project Documents page in the Reserve software.

If, during joint project verification, the verification activities of one project are delaying the registration of other projects, the project developer may choose to forego joint project verification. There are no additional administrative requirements of the project developer or the verification body if a joint project verification is terminated.

4.12 Aggregation and Cooperatives

Certain Reserve protocols allow projects to aggregate or form cooperatives for reporting and registration purposes. This can help reduce transaction costs for individual project developers. The requirements in relation to verification periods, desktop reviews and site-visit verifications may vary. See specific protocols for reporting and verification guidelines.

4.13 Verification of Sustainable Development Goals and Co-benefits

The Reserve Voluntary Offset Program is in conformance with the requirements of the CORSIA program's Emissions Unit Eligibility Criteria, including the program design elements and the carbon offset credit integrity assessment criteria.[14] Projects under the Reserve Voluntary Offset Program seeking eligibility under CORSIA are required to report their alignment with Sustainable Development Goals (SDGs) and/or any additional co-benefits.

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[14] For more information on CORSIA's Eligible Emission Units criteria, please visit https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx

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The Reserve has developed an SDG Reporting Template to facilitate reporting of Reserve project SDGs. Verifiers who are verifying projects seeking eligibility under CORSIA are expected to review the completed SDG template. The Reserve does not expect the verifiers to investigate each input, but rather to provide a cursory review for completeness and accuracy. The verifiers should evaluate if the SDGs and co-benefits identified in the template are reasonable for the particular project type, but are not required to make a determination on the verifiability of the claims. The Reserve retains sole and final discretion in making determinations on the appropriateness of a project's SDG and/or co-benefit claims. It is recommended, but not required, for the verifiers to discuss their review of the project's SDG and co-benefit claims in the verification report.

5 Documenting and Reporting Verification Activities

After a verification body has completed its review of a project developer's estimated GHG reductions or removals, it must take the following steps to document the verification process:

1. Complete a detailed List of Findings containing both immaterial and material findings (if any) and deliver it to the project developer, allowing the opportunity for corrective actions (private document).
2. Complete a detailed Verification Report and deliver it to the project developer (public document).
3. Complete a Verification Statement detailing the vintage and the quantity of verified GHG reductions or removals and deliver it to the project developer (public document, standard form).
4. Conduct an exit meeting with the project developer to discuss the Verification Report, List of Findings, and Verification Statement and determine if material misstatements (if any) can be corrected. If so, the verification body must continue the verification after the project developer has made the necessary revisions.
5. If a reasonable level of assurance is successfully obtained, upload electronic copies of the Verification Report, List of Findings, and Verification Statement in the Reserve software.
6. Return important records and documents to the project developer for retention.

The List of Findings, Verification Report and Verification Statement shall be submitted at the conclusion of verification activities. If a project is deemed ineligible or non-compliant with a protocol to the extent that the verification body cannot reach reasonable assurance, the verification body shall submit only the adverse Verification Statement and List of Findings.

5.1 List of Findings

The List of Findings is a private document that details all material and immaterial findings identified by the verification team throughout the verification. These findings shall be distinguished by materiality and whether they were qualitative non-conformances or quantitative misstatements. The List of Findings shall be delivered first to the project developer in order to provide an opportunity to correct the issues that might impact CRT issuance. The List of Findings submitted to the Reserve should provide a summary of all findings and resolutions that arose during the verification process.

The List of Findings shall accompany the Verification Report and must include a record of all corrections or corrective actions made by the project developer to address the identified issues. A correction made by the project developer resolves an error and fixes the identified problem, while a corrective action fixes the cause of the problem in order to prevent its reoccurrence in future verifications. Each finding shall detail and list the identified issue and refer to the relevant section of the protocol, but shall not provide any solutions or potential remedies for resolution. Resolutions constitute consulting advice and thus create a conflict of interest.

The List of Findings should also include opportunities for improvement (OFIs) to help the project developer streamline future verifications. OFIs can consist of recommend improvements that cite sections of the protocol or reference public documents, but they may not provide advice on how to resolve the issues noted. A verification body may enumerate any shortcomings in a

project developer's GHG tracking and management systems as related to the specific protocol requirements.

If no findings are issued for a reporting period, the List of Findings does not need to be submitted, but the lack of findings should be noted in the Verification Report. A standardized format for the List of Findings is not currently required - Table 5.1~~Table 5.1~~ contains a sample List of Findings. Detailed findings shall not be included in the Verification Report as that document is made public.

Table 5.1: Sample List of Findings

Category	Verification Findings	Correction/Corrective Action
Material Non-Conformance	The landfill protocol states the monitoring plan must include a mechanism to demonstrate that the project passes the Legal Requirement Test. The project's monitoring plan has no reference or application of this requirement.	Corrective action required. Project Developer (PD) updated its monitoring plan to include the current procedures used to demonstrate that the project is not required by federal, state, or local regulations or other legally binding mandates. PD will contact regulatory agencies, keep records and information surrounding its LFG system, and engage a consultant to perform a bi-annual review of applicable statutes.
Material Misstatement and Non-Conformance	GHG reduction calculations submitted to the Reserve do not apply the correct methane destruction efficiency. As prescribed by the landfill protocol, the default destruction efficiency for a lean-burn internal combustion engine is 0.936. An official source-tested destruction efficiency was not available, but PD used a factor of 0.995. This destruction efficiency increases the total reported CRTs to the Reserve by 4%, which is above the allowable materiality threshold (3%) for total reported CRTs.	Correction required. The protocol clearly states that the default factor must be applied if source data is not available. PD has now applied the appropriate factor.
Immaterial Misstatement	Indirect project emissions were calculated using electricity consumption billing history from the utility. Minor differences found in the total kWh purchased as listed in the billing history result in a slight discrepancy of 3%. This decreases the overall reported reductions by less than 0.01%.	Correction not required. PD chose not to fix the error for this reporting period as it has a minor impact on the reported CRTs. PD will ensure correct calculation of kWh consumed in future reporting periods.
Opportunity for Improvement	PD could strengthen its management and record keeping systems by automating the weekly logs and maintenance plans in order to reduce the risk of transcription error.	No corrective action required. Current system acceptable but could be improved for future verifications.

5.2 Verification Report

The Verification Report is a transparent, overarching document that is produced by the verification body for the project developer and is also made available to the Reserve and the

general public. The Verification Report must contain a detailed summary and scope of verification activities undertaken. It is made public in order to uphold the integrity of the Reserve program and to establish the veracity of the CRTs issued. As such, the Verification Report must provide positive assertion that the project met all eligibility requirements, followed all monitoring requirements, applied the appropriate calculation methodologies, and is free of material errors for the reporting period in question. In addition, the Verification Report must include a discussion of how the perceived areas of risk were incorporated into verification activities and project data review.

Verification bodies have the ability to construct the Verification Report in a manner that they feel best communicates the activities undertaken and the results of the verification. However, all Verification Reports must incorporate the elements discussed below; otherwise, the Reserve will request revision and resubmittal. It is important to note that persistent spelling and grammatical errors may also trigger resubmittal. Verification Reports are public documents and should be treated as such.

The Reserve expects all Verification Reports to make explicit, positive assertions of the conclusions drawn. For example, it is insufficient for a Verification Report to simply indicate that no regulatory non-compliances were identified. The report must explicitly state that the verification body has concluded to a reasonable level of assurance that the project met regulatory compliance requirements and identify the evidence examined to reach that determination.

The following sections are not intended as an outline for Verification Reports. These elements may be presented in any fashion deemed appropriate by the verification body, but the report must include, at a minimum, the items indicated.

5.2.1 Verification Report Content

The Verification 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 verification process must be fully documented, with particular focus on the risk-assessment and development of the verification plan. This documentation shall include a description of the verification activities based on the size and complexity of the project developer'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 Verification Report. For all projects, the standard must include, at a minimum, this document, the Reserve Offset Program Manual, the applicable version of the project protocol, the latest version of Errata and Clarifications, any approved variances, and ISO 14064-3. The quantitative materiality threshold for verification must also be included. Verification bodies are required to adhere to all rules and guidelines relevant to the protocol version under which the project is being verified.

5.2.2 Eligibility

For all project types, the Verification Report must include a description of the eligibility criteria, i.e., start date, location, the legal requirement test, the performance standard test, and regulatory compliance. The report must make an explicit and positive assertion as to whether each eligibility criterion has been met and explain the basis of this determination. The

supporting documentation should not be attached to the verification report, but the basis of the successful verification of the eligibility criteria must be explicitly stated.

The Verification Report must describe the project definition and scenario as well as indicate any review conducted to verify the project's asserted baseline status, as this impacts eligibility.

The report must indicate how the verifier'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 verify. In particular, verifiers must indicate whether the risk assessment indicated that reliance on the Attestation of Voluntary Implementation, 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; verification body conclusions must be explicitly stated, e.g., "Based on the aforementioned review, we conclude that the project satisfies the legal requirement test".

5.2.3 Conformance with the Protocol

As prescribed by the applicable project protocol, all projects must adhere to certain operational, record-keeping, and methodological requirements. The Verification 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 verification body conclusions.

In particular, the following areas must be reviewed (if applicable) and the project's conformance or non-conformance explicitly stated in the Verification Report:

- Existence of an appropriate monitoring plan
- Data was collected in accordance with monitoring plan (frequency, whether collection was continuous, any discounts applied, etc.)
- Equipment operation and QA/QC meets protocol requirements
- Meter and analyzer cleaning, maintenance, and calibration meets protocol requirements
- Data transcription, management, and QA/QC meets protocol requirements
- Calculations and equations applied in accordance with protocol requirements
- All individuals properly trained for the functions performed
- Accuracy of calculated GHG reductions

The Verification Report must contain explicit, conclusive, and unequivocal statements as to the project's conformance with relevant requirements.

5.2.4 Calculation Review and Sampling

The Verification 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 verification team must note the recalculation and verification of the total number of GHG reductions generated and reported to the Reserve within the given reporting period. It may utilize appropriate risk-based sampling techniques for underlying source data that factor into the final GHG reduction calculation.

The Verification Report must summarize the sampling techniques used, the verification 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 such as destruction efficiency must also be disclosed, and the appropriateness of the chosen parameters must be asserted.

The Verification 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 verifier's recalculation.

5.2.5 Findings and Basis of Opinion

The Verification Report should support the Verification Statement by summarizing the results of the verification in a general conclusion. A positive Verification Report must contain, at a minimum, the following assertions:

- The project meets all eligibility requirements
- The project was conducted in accordance with all monitoring and record-keeping requirements
- There are no existing material non-conformances or misstatements in the reported data

5.3 Verification Statement

The Verification Statement presents the official results of the verification process. It details the amount of CRTs issued, their vintage(s), and the verification standard. The Verification Statement confirms the verification activities and outcomes for all stakeholders: project developers, verification bodies, the Reserve, and the public.

The Reserve relies on the Verification Statement provided by the verification body as the basis for issuing CRTs. A positive Verification Statement indicates that the project and its reported emission reductions meet the Reserve standards, including the verification standards contained in this manual.

Unlike other verification documentation, the Verification Statement is a standardized, mandatory form that is available on the Reserve website.[15]

5.3.1 Preparing a Verification Statement

The Verification Statement must be signed by the Lead Verifier and Senior Internal Reviewer designated in the NOVA/COI form on file with the Reserve. No deviations are allowed. Verification Statements may be positive or negative. Positive statements provide the required reasonable assurance to the Reserve that the amount of CRTs to be issued is materially correct and the project is in compliance with the appropriate protocol. A positive Verification Statement may only be issued if the verification body determines with a reasonable level of assurance that the stated emission reductions are materially accurate.

[15] Available at http://www.climateactionreserve.org/how/verification/verification-documents/.

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5.3.2 Negative Verification Statement

If a project cannot be successfully verified, a negative Verification Statement shall be issued. The verification body shall grant the project developer a reasonable amount of time to implement corrective actions prior to issuing a negative statement. If, after issuing the List of Findings and allowing a sufficient amount of time for corrective actions, a project remains unverifiable due to material misstatements or inability to meet the eligibility criteria, the verification body shall issue a negative Verification Statement to the Reserve. The issuance of a negative Verification Statement does not mean that the project is not eligible or that it cannot be successfully verified. A negative Verification Statement signifies that the engagement between verification body and the project developer has concluded without the issuance of a positive statement.

Different types of unresolvable issues may arise between the verification body and the project developer during the verification process. Any time an issue of this nature arises, the verification body shall notify the Reserve and follow the process outlined below:

- If a verification body is unable to confirm that the project meets the required eligibility criteria or if there are material non-conformances with the protocol that the project developer cannot or will not correct, then the verification body must submit a negative Verification Statement and List of Findings to the Reserve electronically. The verification body must state that it is unable to verify the project and therefore cannot meet the required level of reasonable assurance. It shall detail the issues noted in the List of Findings. Reserve staff will then conduct a review in order to make a determination. Both the verification body and project developer will be notified of the Reserve's determination.
    - If the Reserve determines that the project is ineligible, the project will be de-listed. The verification documents and supporting information will be archived but not made public.
    - If the Reserve determines that the project is eligible and that further actions could be taken to resolve the issues, then the project may remain listed on the Reserve and the project developer may proceed with further verification activities and corrective actions if it chooses. The project remains subject to all deadlines and must be registered within 12 months of the end of the reporting period. If that deadline is not met, the project will be de-listed per the Reserve Offset Program Manual, Section 3.4.3.
- If a verification body has found that a project has not remedied material issues identified and communicated to the project developer in the List of Findings after a reasonable amount of time, it must notify the Reserve of the inaction and submit the List of Findings. The Reserve staff will then contact the project developer and attempt to address the issues noted.

Some verification activities are halted due to lack of knowledge on how to resolve non-conformances, insufficient funding, or inactivity on identified corrective actions. If issues cannot be resolved with Reserve assistance, the verification body may be given permission by the Reserve to cease verification activities rather than issuing a negative Verification Statement. The project remains subject to all Reserve deadlines and must be registered within 12 months of the end of the reporting period.

5.4 Senior Internal Review

The Verification Report, Verification Statement and the List of Findings must be reviewed by an independent Senior Internal Reviewer for a quality assurance check. As stated in previous sections, the Senior Internal Reviewer must conduct an objective and impartial review of the verification team's work, which should include a risk-based analysis of the project documentation and data. No Verification Report shall be forwarded to a project developer until it has undergone this internal review. The Senior Internal Reviewer is also a signatory to the Verification Statement.

5.5 Exit Meeting

Project developers should be allowed at least 30 days to review and comment on the Verification Report. At the end of that review, the Lead Verifier and the appropriate project developer representative should hold an exit meeting to discuss the nature of any material or immaterial misstatements and review any required corrective actions.

Verification bodies should prepare a brief summary presentation of the verification findings for the project developer's key personnel. At the exit meeting, verifiers and project developers are encouraged to exchange lessons learned about the verification process and share thoughts for improving the process with the Reserve.

The goals of this meeting should be:

- Acceptance of the Verification Report, List of Findings, and Verification Statement (unless material misstatements still exist but can be remediated, in which case the verification contract may need to be revised and additional verification services scheduled)
    - If the project developer does not wish to retain the verification body for the additional verification services, the verification body should return all relevant project documentation to the project developer within 30 days and submit a negative Verification Statement to the Reserve
- Authorization for the verification body to complete the verification and upload the necessary documents to the Reserve

If the verification body is under contract for verification activities in the future, the verification body and project developer may wish to establish a schedule for the upcoming verification activities.

5.6 Submitting the Verification Documentation to the Reserve

Once the Verification Statement, the List of Findings and the Verification Report are complete, the verification body must electronically submit these documents into the Reserve software. The project developer will then submit the project for final approval and Reserve staff will receive an email notification that triggers a review of the documents by the Reserve.

Reserve staff will also review the data entered in the Reserve software and compare it to the uploaded Verification Report, Verification Statement and List of Findings to ensure that all proper procedures were undertaken by both the project developer and the verification body.

In this review process, Reserve staff will ensure consistency between projects and verification bodies as well as compliance with Reserve protocols, processes and procedures. Reserve staff

may request corrections or clarifications from either the verification body or the project developer. The Reserve staff aim to be as timely as possible with their requests and responses to verifiers and project developers.

If all outstanding issues can successfully be resolved, the project will be registered, CRTs will be issued to the project developer, and the Verification Report and Verification Statement will be made public.

6 Administration and Reserve Intervention

6.1 Verification Oversight and Audits

Oversight is conducted by the Reserve to provide quality assurance and control on verification activities performed by accredited verification bodies. Oversight consists of a comprehensive examination and evaluation of project verification activities in order to assess verification body performance. 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 developer 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 verification body as well as participate in certain stages of the verification. The verification body will be notified that it has been selected for oversight upon the approval of the NOVA/COI form. Reserve attendance in the following activities must be accommodated:

- Kick-off meeting between the verification team and the project developer – in-person or conference call
- Project site visit
- Closing meeting between the verification team and the project developer – in-person or conference call

In addition, the Reserve must review or observe all issues and findings-related discussions between the verification body and project developer during the verification. This can be achieved through conference calls, copying the Reserve staff member or representative on emails, or, if necessary, forwarding all correspondence at the conclusion of verification activities. Including the Reserve in calls and emails allows for real-time review and will decrease the duration of the oversight process.

Oversight can be triggered at random; however, a verification body can expect oversight to occur in the following instances:

- The first verification of a newly released project type
- A verification body's first verification under a specific protocol
- The first verification managed by a newly-approved Lead Verifier
- When issues, warnings or complaints regarding the verification body or project developer arise

Audits are also conducted by the Reserve and may be initiated under similar circumstances. They are limited to a desktop review and are performed upon the completion of verification activities. While oversight covers the entirety of a verification body's processes and qualifications, an audit consists solely of an investigative review of the project data and documentation, as well as the verification 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 verification 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. Entities that may perform or participate in oversight activities or audits on behalf of the Reserve include regulatory agencies, accreditation bodies, third-party observers (for learning or educational purposes), or contractors hired by the Reserve. The Reserve staff or representative will make every effort to not impede the verification 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 verification body or project developer require.

Travel and time costs for Reserve staff conducting oversight are covered by the Reserve. To minimize costs associated with reproduction or shipping, records should be shared electronically when possible. If electronic document sharing is not possible, the project developer may incur costs associated with providing requested documentation.

A staff member, partner or consultant performing oversight for the Reserve will observe and evaluate:

- The overall performance of the verification body by reviewing its processes and procedures while conducting verification activities
- Whether the project activities meet the protocol requirements
- Whether the GHG reductions data reported to the Reserve can be verified to a reasonable level of assurance

The Reserve representative performing oversight or conducting an audit may discuss preliminary observations with the verification body and project developer 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 verification body, usually upon conclusion of verification activities.

The Reserve will make an effort to clearly coordinate and communicate planned oversight activities to verification bodies and project developers, but it reserves the right to adjust verification activity dates in order to accommodate the schedules of all relevant parties.

6.2 Managing Extraordinary Events or Circumstances

The Reserve recognizes that extraordinary events or circumstances beyond its control may occur, which may impact its normal business functions or a verification body's normal business functions. Extraordinary events or circumstances are also known as "Force Majeure" or "acts of God", and examples may include war, strike, pandemic, flooding, earthquake, other natural disasters, man-made disasters. In either case, the relevant organization should disclose how the particular extraordinary event impacts the scope of their affected services, the number of affected account holders, and how long it expects the business to be impacted. Additionally, the organization should prepare a programmatic response that outlines changes to its processes and procedures during the extraordinary event, and communicate the response proactively to affected organizations.[16] In the case where extraordinary events or circumstances prevent the

[16] International Accreditation Forum, Inc. (2011, November 8) *IAF Informative Document for Management of Extraordinary Events or Circumstances Affecting ABs, CABs and Certified Organizations* https://www.iaf.nu/upFiles/IAFID32011_Management_of_Extraordinary_Events_or_Circumstances.pdf

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verification body from conducting scheduled site visits, a virtual site visit using Information and Communication Technology (ICT) may be conducted with the permission of the Reserve (see Section 4.5.2 for more information on virtual site visits).

6.3 Warnings, Suspensions, Notices to Correct

If the Reserve finds that a verification body has failed to meet the Reserve's standards, it may require the verification body to undertake specified corrective actions. The Reserve may, at its own discretion, issue warnings, temporary suspensions, and notices to correct. It may also disqualify verification bodies or individual verifiers from future verification activities.

In instances where a verification body and a project developer find themselves in disagreement, the two parties should attempt to reach a resolution, relying first on the verification body's internal dispute resolution process (as required by ISO 14065). Either party may contact the Reserve for assistance in resolving issues that require guidance on the project protocols, COI determinations, or verification findings.

If a resolution cannot be reached in a disagreement related to project activities, the verification must be completed prior to the initiation of any dispute resolution process detailed in Section 6.4. The verification body must issue the List of Findings, Verification Statement and Verification Report to the project developer and upload the documents in the Reserve software. The Reserve staff will conduct an internal review of the verification documentation as well as any additional supporting documentation, claims and information related to the disagreement that substantiate the opinions of the verification body or the assertions of the project developer. 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.

6.4 Rescission of Verifier or Verification Body Approval

The Reserve maintains the right to rescind or suspend its recognition of an individual verifier or verification body for any period of time 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 verification body or individual verifier 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 verification bodies on its website. However, suspensions of individual verifiers, including Lead Verifiers, will not be publicly noticed.

Verification bodies could also be subject to suspension of their ISO 14065 accreditation issued by the accrediting body and must adhere to the rules and procedures surrounding that process.

6.5 Dispute Resolution Process

Verification bodies and project developers 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 developer or the verification 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 verification body from conducting verification activities under the Reserve Program.

6.6 Record Keeping and Retention

The verification body must retain sufficient records to enable an ex-post verification of the project's emissions. The Reserve requires that the following Reserve project-related records be retained by the verification body in line with the time period specified in the relevant protocol or for a minimum of seven years after the end of the reporting period, whichever is longer. 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.

Verification bodies shall retain electronic copies, as applicable, of:

- The project developer's Monitoring Plan
- The project developer's SSR and/or project activity data as well as evidence cited
- The verification plan
- The sampling plan
- The Verification Report
- The List of Findings
- The Verification Statement

Each verification 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, as these records are necessary to perform an ex-post verification or audit. The Reserve may at any time request access to the record-keeping system or any supporting documentation for oversight, monitoring, and auditing purposes.

Glossary

Accreditation body	Under ISO 14065, this is the authoritative body that assesses a verification body's competence to perform GHG verification activities.
Aggregation	Where smaller projects can register jointly as a group. Does not apply to all project types.
Climate Action Reserve	A North American offsets program that establishes standards for quantifying and verifying GHG emission reduction projects, issues carbon credits generated by said projects, and tracks the transfer and retirement of in a publicly-accessible online system.
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_2e reduced or sequestered.
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 Verification Statement of a potential client's GHG reductions or the person or firm's objectivity in performing verification activities is otherwise compromised.
Continuous Emissions Monitoring System (CEMS)	The monitoring system required for all projects under the Nitric Acid Project Protocol for the direct measurement of the N_2O concentration and flow rate of the stack gas.
Contracted verifier	Under ISO 14065, this is a verifier who is independently contracted to operate as part of a verification team under the supervision of a verification body on specific verification activities. The contracted verifier is not a full-time employee of said verification body, but acts as the verification body's agent and representative while under contract. The use of contracted verifiers under such agreements does not constitute outsourcing.
Inherent uncertainty	Scientific uncertainty associated with measuring GHG emissions due to limitations on monitoring equipment or methodologies.
Joint verification	In cases where a project developer has multiple projects operating on a single site, the project developer has the option to hire a single verification body to assess the projects concurrently. Does not apply to all project types.
Lead Verifier	Employee or contracted verifier to a verification body who is primarily responsible for directing, supervising and the quality of verification activities undertaken on behalf of the Reserve. Each Lead Verifier must be designated as such on the COI Form and the Verification Policies Acknowledgment and Agreement form, and they must successfully complete sector-specific project verifier training. Each verification body

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	operating within the Reserve program must employ or have under contract a minimum of two Lead Verifiers for each project type in which it conducts verification services.
Listed	A 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.
Onsite assessment	A two- to three- day assessment at the site of the verification body's main office(s) that is conducted by the accreditation body (ANAB). The purpose of the onsite assessment is to confirm whether the operational capability of the verification 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 verification 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 verification bodies to outsource verification 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 developer	An organization or individual that registers projects for the purpose of generating GHG emission reductions or removals. Under the Reserve program, project developers may be issued CRTs for the verified emission reductions/removals achieved through project activities. They can also transfer and manage CRTs in the Reserve software. Protocols may instead use other terms, such as Project Owner or Project Operator to denote the entity with ownership of CRTs.
Project protocol	Document developed by the Reserve that contains the eligibility rules, GHG Assessment Boundary, quantification methodologies, monitoring and reporting parameters, and other guidelines for a specific project type. Project protocols are akin to the "methodologies" developed by other offset programs.
Reduction	A verified decrease in GHG emissions caused by project activity, as measured against an appropriate forward-looking estimate of baseline emissions for the project.

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 verified by an approved third-party verification body, submitted by the project developer to the Reserve for final approval, and accepted by the Reserve.
Removal	A verified increase in carbon stocks caused by a forest or urban forest project, as measured against an appropriate forward-looking estimate of baseline carbon stocks for the project.
Retired	CRTs transferred to a retirement account in the Reserve software are considered retired. Retirement accounts are permanent and locked in order to prevent the transfer of a retired CRT. Each retired CRT represents the offset of an equivalent tonne of CO_2 emissions, and is removed from further transactions on behalf of the environment.
Senior Internal Reviewer (SIR)	The Senior Internal Reviewer must be an active Lead Verifier who is designated on the NOVA/COI Form, is listed in the Verifier Acknowledgement and Agreement form, and has successfully completed project-specific verifier training. The Senior Internal Reviewer must remain independent of all verification activities; perform a final quality assurance review on the project data, the Verification Report, and the List of Findings; and sign the Verification 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 CRTs 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 CRTs in its account or, with respect to CRTs 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 CRTs.
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.

Verification	The process used to ensure that a given project developer's reported GHG emissions reductions or removals have met a minimum quality standard and complied with the Reserve's procedures and protocols.
Verification Body	An ISO-accredited organization that has been approved by the Reserve to perform GHG verification activities for specific project protocols.
Verified	A project is considered "verified" once the project verifier has submitted the project's Verification Statement and the Verification Report in the Reserve software.
Verifier	An individual that is employed by or under contract to an ISO-accredited and Reserve-approved verification body and is qualified to provide verification services for specific project protocols.
Witness assessment	Observation of the verification body by the accrediting body in the performance of tasks related to the verification process for the scope (or group of sectoral scopes) of accreditation for which the verification body has applied. The purpose of the witness assessment is to determine whether verification activities are in line with the verification body's documented quality procedures and to assess its capability to conform to the applicable sectoral scope(s).

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RESERVE

Reserve Offset Program Manual

November 12, 2019

NOTE TO USERS:

From time to time, the Climate Action Reserve updates this manual. Please make sure you are using the latest version, available at www.climateactionreserve.org.

For information, comments or questions, please email reserve@climateactionreserve.org.

Climate Action Reserve
www.climateactionreserve.org

Released November 12, 2019

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1 Introduction

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

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

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

- Climate Action Reserve User Guide
  http://www.climateactionreserve.org/open-an-account/
- Climate Action Reserve Terms of Use
  http://www.climateactionreserve.org/open-an-account/
- Climate Action Reserve Verification Program Manual
  http://www.climateactionreserve.org/how/program/program-manual/

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

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

1.1 The Climate Action Reserve

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

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

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

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

1.2 Reserve Program Principles

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

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

In addition, the Reserve strives to ensure that the offset projects it registers are **not harmful**. Project activities should not cause or contribute to negative social, economic or environmental outcomes and ideally should result in benefits beyond climate change mitigation. Projects are encouraged to identify, measure, and report on any non-GHG benefits of the project activities, such as alignment with the United Nations' Sustainable Development Goals or other identified co-benefits.[1]

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

[1] More information on the UN Sustainable Development Goals may be found at: https://sustainabledevelopment.un.org/sdgs.

2 Program Level GHG Reduction Accounting Guidelines

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

2.1 General Approach, Principles, and References

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

2.1.1 Standardized Offset Crediting

A core objective of the Climate Action Reserve is to adopt "standardized" approaches to offset crediting. Standardized offset crediting has two main elements:[2]

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

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

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

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

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

which it applies. In adapting protocols for other geographic regions, the Reserve engages in a full stakeholder process designed to assess and incorporate region-specific benchmarks and factors.

Third, not all possible offset project types are equally amenable to standardized crediting.[3] For some types of projects, determining additionality and estimating baseline emissions cannot be done credibly and accurately on a standardized basis. In general, the Reserve will avoid developing protocols for these project types. Alternatively, the Reserve may incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of protocols to address only activities and conditions for which standardized approaches are feasible.

2.1.2 Reference Standards

The Reserve's offset project protocols are designed to be consistent with the principles, requirements, and guidance of two overarching standards for project-based GHG accounting:[4]

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

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

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

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

2.2 GHG Accounting Principles

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

[3] *Ibid*.
[4] International Organization for Standardization, 2019. *ISO 14064, Part 2*: *"Specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal enhancements."* International Organization for Standardization, Geneva, Switzerland; World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

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

2.3 Project Definition

A GHG project is a specific activity or set of activities intended to reduce GHG emissions, increase the storage of carbon or enhance GHG removals from the atmosphere.[5] A GHG project is considered to be a "carbon offset" project if the GHG reductions or removals it generates are used to compensate for GHG emissions occurring elsewhere.[6] Projects that meet

[5] World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), 2005. *The GHG Protocol for Project Accounting*. World Resources Institute, Washington, D.C.
[6] Offset Quality Initiative, 2008. *Ensuring Offset Quality: Integrating High Quality Greenhouse Gas Offsets Into North American Cap-and-Trade Policy*. Available at: http://www.offsetqualityinitiative.org/.

the Reserve's standards are issued emission reduction or removal credits, and those credits act as offsets when they are certified and retired in the Reserve's online registry. The Reserve's primary purpose is to certify GHG reductions as carbon offsets.

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

2.3.1 Project Types

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

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

2.4 Project Eligibility Criteria

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

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

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

2.4.1 Additionality Determinations

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

are required by law or regulation are excluded. Other criteria and conditions are specified in each project protocol.

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

Box 1. Project-Specific vs. Standardized Additionality Tests

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

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

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

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

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

2.4.1.1 Legal Requirement Test

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

or other legally binding mandates requiring its implementation, or requiring the implementation of similar measures that would achieve equivalent levels of GHG emission reductions.

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

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

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

2.4.1.2 Performance Standard Test

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

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

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

- *Emission rate thresholds*. For some project types, a performance standard may be specified in terms of a rate of GHG emissions (usually per unit of production of some product or service, e.g., tonnes of CO_2 per megawatt-hour). Generally, the threshold rate would be based on a level of performance that is significantly better than average for the industry or sector. Projects that have lower emission rates than the threshold, for example, would be considered additional.
- *Practice- or technology-based thresholds*. Performance standards may also be specified in terms of a specific practice or technology that is rarely or never implemented in the absence of a carbon offset market. Such standards are generally based on surveys of

the market penetration rates of candidate practices or technologies. Projects employing a qualifying technology or practice are automatically considered additional.

- *Other qualifying conditions or criteria*. Performance standards may also incorporate, or be based on, other specific qualifying conditions that a project must meet in order to be considered eligible. Conditions may include characteristics related to the project site, specifications for a particular eligible technology or practice, or other contextual factors. Projects meeting the conditions would be considered additional.

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

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

The Reserve has no predefined threshold for determining an acceptable performance standard. Rather, establishing performance standards involves balancing the need to restrict eligibility for non-additional projects with the goal of allowing additional (and otherwise eligible) projects to participate. Setting a threshold always involves making tradeoffs between these two goals and may also involve considerations about the size of the market for carbon credits and the potential supply of reductions available from certain project types.[7] See Box 2 for further discussion and a hypothetical example.

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

Box 2. Determining Acceptable Performance Standard Thresholds

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

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

2.4.2 Project Location

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

2.4.3 Project Start Date

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

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

1. For qualifying projects that have not previously been listed or registered on a greenhouse gas registry or program:

    a. For a period of 12 months following the adoption by the Reserve Board of any new protocol, the Reserve will accept projects for listing with start dates (as defined in the protocol) that are no more than 24 months earlier than the date of the Reserve protocol's adoption. These are considered pre-existing projects.

    b. After the 12-month period following the date of the Reserve protocol's adoption, the Reserve will accept projects for listing with start dates (as defined in the protocol) that are no more than six months prior to the date on which they are submitted. A project submitted within six months of its start date is considered a "new" project.

2. For qualifying projects that have previously been listed or registered on a greenhouse gas registry or program:

    a. Projects with start dates (as defined in a relevant Reserve protocol) on or after January 1, 2001 but more than 24 months earlier than the date of adoption of a relevant new Reserve protocol – and which were listed or registered with another registry or program at least 24 months earlier than the date of adoption of the new Reserve protocol – may apply for transfer to the Reserve. These are considered pre-existing projects.

    b. Projects with start dates (as defined in a relevant Reserve protocol) that are no more than 24 months before and no more than 12 months after the date of adoption of a relevant new Reserve protocol – and that were listed or registered with another registry or program no more than 12 months after the date of adoption of the new Reserve protocol – may apply for transfer to the Reserve.

    c. Projects with start dates (as defined in a relevant Reserve protocol) that are more than 12 months after the date of adoption of a relevant new Reserve protocol, and that were listed or registered with another registry or program within six months of the project start date, may apply for transfer to the Reserve.

The Reserve considers a protocol to be "new" if it:

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

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

2.4.4 Project Crediting Period

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

The length of a project's crediting period is defined in each project protocol. For most non-sequestration projects registered with the Reserve, there is a 10-year crediting period that may be renewed one time for a maximum of two 10-year crediting periods. For sequestration projects, the crediting period may be up to 100 years. Refer to each project protocol for specific details on allowable crediting periods. A non-forest project may end its crediting period at any time prior to the limit specified in the protocol, but must abide by any monitoring requirements necessary to ensure permanence, if applicable.

If a project wishes to apply for eligibility under a renewed crediting period, it must do so by re-submitting project submittal forms no sooner than six months before the end of the project's

ongoing crediting period and paying the project submittal fee. The project must meet all of the eligibility requirements of the most current version of the applicable protocol at the time of re-submittal to be eligible for a renewed crediting period.

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

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

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

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

2.4.5 Bundling of Projects

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

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

2.4.6 Regulatory Compliance and Environmental and Social Safeguards

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

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

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

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

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

Common Agency

Environmental and social harms will only be considered in determining project eligibility[8] to the extent that they can be attributed to the same agents (e.g., project developers, implementers or operators) in charge of implementing the project. Harms that may occur concurrently with a project, but are caused by other actors, will not be a factor in determining eligibility. The agents responsible, individually or collectively, for implementing projects will be determined during the protocol development process in consultation with stakeholders.

Proximity

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

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

[8] Either initial eligibility or eligibility to receive credits.

- Harms caused by agents in charge of implementing a project that occur at sites or facilities not linked or co-located with the project will *not* be a factor in determining eligibility.

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

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

Legal Obligation

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

"Do No Harm" Beyond Legal Requirements

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

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

2.5 Defining the GHG Assessment Boundary

The GHG Assessment Boundary delineates the GHG sources, sinks, and reservoirs (SSRs)[9] that must be assessed in order to determine the total net change in GHG emissions caused by a GHG reduction project.[10] GHG Assessment Boundaries are defined for each type of project activity addressed in a Reserve protocol.

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

SSRs are only included in the GHG Assessment Boundary if a project activity will have a *significant* effect on their associated GHG emissions or removals. The Reserve determines significance based on an assessment of the range of possible outcomes for a relevant SSR.

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[9] Terminology is from International Organization for Standardization, 2005. *ISO 14064, Part 2*: *"Specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal enhancements."* International Organization for Standardization, Geneva, Switzerland.

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

There is no numerical threshold for significance. Inclusion or exclusion of SSRs is determined for each protocol based on the principles of completeness, accuracy, and conservativeness, and the need for practicality (e.g., related to measurement and monitoring costs). In general, relevant SSRs will only be excluded from the GHG Assessment Boundary if:

1. Projects are likely to reduce GHG emissions (or increase removals) at a SSR, so that excluding the SSR would be conservative (i.e., doing so would result in an underestimation of total net GHG reductions for the project); or
2. The total increase in GHG emissions from *all* excluded SSRs is likely to be less than five percent of the total GHG reductions achieved by a project.[11]

For each included SSR, the protocols:

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

Each protocol contains a table that:

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

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

The Reserve does not restrict the GHGs that may be considered within the GHG Assessment Boundary. Any gas that has been determined by the IPCC to have a radiative forcing effect on the atmosphere may be considered for inclusion in a protocol. Reserve protocols may address gases other than the six GHGs regulated under the Kyoto Protocol (i.e., CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs).

2.5.1 Physical Project Boundaries

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

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

projects, where the amount of carbon stored by a project depends on the area of land on which the project activity takes place.

2.5.2 Leakage Accounting

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

Where helpful for conceptual understanding, Reserve protocols may organize SSRs according to whether they are associated with a project's "primary" or "secondary" effects. A project's primary effect is its intended effect on GHG emissions (i.e., intended GHG reductions). Secondary effects are unintended effects on GHG emissions, often associated with leakage.[12]

2.6 Quantifying GHG Reductions

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

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

2.6.1 Global Warming Potentials for Quantifying GHG Reductions

Under the Climate Action Reserve's offset project protocols, projects convert quantities of non-CO_2 greenhouse gases (GHGs) into a quantity of CO_2-equivalent (CO_2e) using the 100-year global warming potential (GWP) values from the Intergovernmental Panel on Climate Change (IPCC).[13] Reserve project protocols currently reference the Fourth Assessment Report (AR4) of the IPCC, released in 2007. At the time that the Reserve was launched, the AR2 was the most

[12] The terms "primary effect" and "secondary effect" are from the World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

[13] Assessment Reports of the IPCC may be accessed at: https://www.ipcc.ch/reports/

widely-used source for GWP values, underpinning activities under the Kyoto Protocol, as well as the U.S. EPA's GHG reporting and inventory efforts. At this time, the IPCC AR4 has become the industry standard for most applications relevant to the Reserve's voluntary offset protocols. All projects using Reserve protocols – regardless of version – shall use AR4 GWP values. While it is the Reserve's policy for protocols to take precedence over the Reserve Offset Program Manual in instances where the standards conflict, this policy is an exception to that rule. In future protocol updates, the Reserve will make clear that GWP values are not fixed and may be updated at a later date. Note that this policy may be superseded by a future policy memo as GHG accounting practices progress. It is anticipated that the program will move to application of the GWP values from the Fifth Assessment Report (AR5) in the near future, in accordance with industry best practice.

2.6.2 Estimating Baseline Emissions

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

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

2.6.3 Quantifying Project Emissions

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

2.6.4 Quantification Methods

The Reserve develops methods to calculate baseline and project emissions that meet an acceptable level of accuracy. As a general rule, methods should ensure 95% confidence that actual emissions are within +/- 5% of measured or calculated values, although required levels of

accuracy will often depend on the specific magnitudes involved and their materiality. Methods may employ one or more of the following approaches:

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

2.6.4.1 Quantification Uncertainty and Conservativeness

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

2.6.5 Calculating GHG Reductions or Removals

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

The general formula for calculating GHG reductions is:

GHG Reductions = Baseline Emissions – Project Emissions

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

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

GHG Removals = (Incremental Project Sequestration – Incremental Baseline Sequestration) + (Baseline Emissions – Project Emissions)

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

2.6.6 Immediate Crediting for Future Avoided Emissions

In accordance with recognized principles for carbon offset quality, the Reserve has upheld a general policy against "forward crediting" of GHG emission reductions. Forward crediting occurs when credits are issued for GHG reductions before such reductions have occurred and before the activities that caused such reductions have been verified.[14] Subject to certain conditions, however, the Reserve does credit reductions upfront when a verified action results in the immediate avoidance of a future stream of GHG emissions. Please see the Reserve's policy memo on this subject, available at http://www.climateactionreserve.org/how/program/program-manual/.

Separate from its *ex post* offset crediting program, the Reserve has developed a program, Climate Forward, for the purpose of recognizing and crediting anticipated future streams of emission reductions. This program specifically issues GHG emission reduction credits (not offsets) on an *ex ante* basis. Climate Forward provides a practical solution to companies and organizations seeking cost-effective mitigation of anticipated (i.e., future) operational and/or project-related GHG emissions. Climate Forward facilitates investments in GHG reduction activities that are practical, scientifically-sound, transparent, and aligned with forward-looking mitigation needs. For more information, please visit the Climate Forward website at https://climateforward.org/.

2.7 Project Monitoring

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

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

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

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

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

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

2.8 Ensuring Permanence of GHG Reductions

Because CO_2 and other GHG emissions remain in the atmosphere for very long periods of time, offsetting reductions in GHG emissions must effectively be permanent. The Reserve defines "permanence" as being equivalent to the radiative forcing benefits of removing CO_2 from the atmosphere for 100 years. Some types of offset projects, however, cause GHG reductions by removing CO_2 from the atmosphere and storing it in a reservoir (e.g., in trees or other organic materials, or in geologic formations). In these cases, there is a risk that CO_2 may be re-emitted to the atmosphere, leading to a "reversal" of GHG reductions. A reversal occurs when the total amount of CO_2 stored by a project becomes less than the total number of CRTs issued to the project. This can happen, for example, if some or all of the trees associated with a forest project are destroyed by fire, disease or intentional harvesting.

The Reserve requires that reversals be compensated for in order to ensure the integrity of CRTs and to maintain their effectiveness at offsetting GHG emissions. Specific rules and conditions for reversal compensation are detailed in individual protocols. Generally, the Reserve requires that CRTs be retired in proportion to any reversals, such that the total number of issued CRTs does not exceed the total quantity of CO_2 stored by a project over a sufficiently long period of time.

In some individual protocols, the Reserve may offer the option of "Tonne-Year Accounting" as an alternative mechanism to ensure the permanence of CRTs related to reversible emission reductions. In those cases, the protocol will specify when a project is subject to reversal risk, and how any reversal is to be quantified and compensated.

2.8.1 Maintenance and Disposition of the Buffer Pool

The Reserve maintains a buffer pool composed of credits from project types with identified risk of unavoidable reversal. Credits within the buffer pool from different project types are functionally distinct, despite the buffer pool being administered in one comprehensive account in the Reserve registry. For example, grassland credits in the buffer pool will be used to compensate for reversals of grassland projects, while forest credits in the buffer pool will be used to compensate for reversals of forest projects. Similarly, credits that have been granted eligible status for use in programs outside of the Reserve, but for which the Reserve follows a formal eligibility or qualification process, will be used to compensate for reversals of credits with the same status. The Reserve will retire credits out of the buffer pool to compensate for reversals on a First In First Out (FIFO) basis, after identifying which credits meet the aforementioned criteria for reversal compensation.

Buffer pool contributions are established by each protocol, in accordance with the best available literature. In the highly unlikely event that the buffer pool does not contain sufficient supply of

credits for a certain project type or program eligibility qualification to compensate for identified, unavoidable reversals for that same project type or program eligibility qualification, the Reserve may opt to retire buffer pool credits of another type. If the aggregate buffer pool still is not sufficient for addressing any identified unavoidable reversals, a situation the Reserve believes to be close to impossible (or indicative of an environmental catastrophe hard to imagine), the Reserve will assess the situation and pursue one or more of the following options depending on what is most suitable:

- Require an increased buffer pool contribution from existing projects
- Revise reversal risk ratings within relevant protocols upwards for future reporting to compensate for the unavoidable reversals
- Purchase and retire an adequate amount of similar credits through the Reserve's Blind Trust
- Consult with affected project developers to determine an appropriate course of action

2.9 Avoiding Double Counting of Emission Reductions

Double counting is "a situation in which a single greenhouse gas emission reduction or removal is counted more than once towards achieving climate change mitigation. Double counting can occur through double issuance, double use, and double claiming."[15] The Reserve program guards against each form of possible double counting in different ways. The combination of these safeguards should mitigate the risk of double counting in all its forms.

The first layer of safeguards to avoid double counting is applied at the level of project protocols. The initial safeguard is through the process for screening project protocols for development and adoption by the Reserve. Section 4.1 provides details regarding the selection of project types with low risk of double counting. The next safeguard to avoid double counting is via the act of protocol development. During this process, decisions are made regarding the determination of additionality and the defining of the GHG Assessment Boundary. Both of these processes can reduce the risk of double counting where project activities or GHG sources are covered by other programs.

The next layer of safeguards is implemented at the program level. When a project is submitted for listing with the Reserve, staff conduct a review of other carbon project registries to ensure that the project is not seeking GHG credits for a concurrent period of time. There are specific circumstances under which a project may be listed in multiple registries at the same time without risk of double counting. For example, a project may have transferred to the Reserve from another registry without any temporal overlap in crediting. When a project is submitted for registration, following review of the verification report, Reserve staff will once again conduct a review of other carbon project registries. Project developers also sign a legal Attestation of Title prior to each registration. Through this form they attest, and thus accept liability, that the relevant emission reductions are not registered in any other program, or in the Reserve under another project.

The registry itself is designed to mitigate the risk of double counting through transparency. Each CRT has a unique serial number, identifying, among other things, the location of the project, the relevant protocol, and the vintage year of the GHG reductions. All issuances and retirements

[15] *Guidelines on Avoiding Double Counting for the Carbon Offsetting and Reduction Scheme for International Aviation*. June 2019. Available online at: https://www.adc-wg.org/.

are immediately public. Cancellations for other programs are made public. Any user may review all CRT retirements and view the serial numbers, as well as the reason for retirement. In addition, verification reports are made public, providing an additional source of detailed information regarding the generation of the GHG reductions.

Additional guidance will be added to this document at a later date to address the risk of double claiming between international reporting mechanisms under the Paris Agreement and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), once the international community provides more details on how these commitments will be implemented.

3 Program Rules and Procedures

3.1 Reserve Offset Program Manual

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

3.1.1 Revisions to the Reserve Offset Program Manual

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

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

3.2 Start Date

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

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

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

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

3.3 Project Registration

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

Detailed information on the Reserve's software operating procedures, including step-by-step instructions for creating accounts, entering information, receiving CRTs, and transferring CRTs among accounts can be found in the Reserve's User Guide: http://www.climateactionreserve.org/how/program/documents/.

3.3.1 Fee Structure Summary

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

Reserve Account Fees (Effective July 1, 2017) [16]	
Account Setup Fee	$500
Account Maintenance Fee (annual per project)	$500
Account Re-activation Fee	$500
Project Owner Account Setup Fee (for aggregated projects/cooperatives only)	$200
Project Owner Account Maintenance Fee (annual, for aggregated projects/cooperatives only)	$80
Project Submittal Fee under a Reserve Project Protocol (per project)	$500
Project Variance Review Fee (per request)	$1350
Project Transfer Fee (per project transferred between account holders, paid by the transferee)	$500
Project Registration Extension (per request)	$200
CRT Issuance Fee (per CRT issued)	$0.19
CRT Transfer Fee (per CRT transferred between account holders, paid by the transferor)	$0.03
Retirement (per CRT retired)	no charge

3.3.2 Account Registration

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

[16] All fees in this table are limited to the Reserve's voluntary offset program. Fees related to the Reserve's work as an Offset Project Registry (OPR) under the California Cap-and-Trade system can be found at http://www.climateactionreserve.org/how/program/program-fees/

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

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

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

3.3.2.1 Types of Accounts

There are six types of accounts in the Reserve:

1. **Project Developer**. An account type for organizations that wish to register projects that generate GHG reductions or removals. This account type can also be used to transfer and manage CRTs. Users of this account type are also able to function as project aggregators or cooperative developers, enabling the management of CRTs on behalf of multiple projects formally registered as part of an aggregation or cooperative, as allowed under certain protocols.
2. **Trader/Broker/Retailer**. This type of account allows the transfer and management of CRTs, but not registration of projects.
3. **Verifier**. An account type for verification bodies that have been trained and authorized by the Reserve to verify projects. There is no annual account fee for verification bodies.
4. **Reviewer**. This account type is only for those who have been asked by the Reserve to serve as a project reviewer. There is no annual account fee for reviewers.
5. **Client**. This type of account is for any individual or entity that wishes to retire CRTs but not develop its own projects.
6. **Project Owner (limited)**. This account type is designated for use by project participants participating in a cooperative or aggregate according to protocol-specific rules and procedures. This account type allows the registration of projects that are formally part of a cooperative or an aggregation. It is intended for use when the owner of the GHG reduction rights (the Project Owner) is not the entity carrying out project development activities in the registry system. This account type may also be used for limited transfers of CRTs under the terms and restrictions imposed by the relevant project protocol and/or aggregation guidance and does not include privileges for retiring CRTs.

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

3.3.2.2 Designation of Authority

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

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

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

3.3.3 Project Submittal

Project developers must complete and upload the appropriate project submittal forms for the project type and pay a project submittal fee to the Reserve. Submittal forms are specific to the project type and include project descriptions and preliminary information used to assess eligibility. The submittal forms for each type of project are available for download at http://www.climateactionreserve.org/how/program/documents/. A project is considered "submitted" when all of the appropriate forms have been completed, uploaded and submitted through the Reserve software.

3.3.4 Requests for Variances from Protocol Requirements

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

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

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

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

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

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

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

3.3.5 Project Listing

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

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

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

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

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

3.3.6 Attestation of Title

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

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

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

3.3.7 Attestation of Voluntary Implementation

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

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

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

3.3.8 Attestation of Regulatory Compliance

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

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

3.3.9 Conflict of Interest Evaluation and Initiation of Project Verification

As described in Section 3.4, the Reserve requires third-party verification of all GHG reductions by an ISO-accredited and Reserve-approved verification body. Once the project developer has

selected a verification body, the verification body must submit a Notice of Verification Activities and Conflict of Interest (NOVA/COI) evaluation form to the Reserve at least 10 business days prior to the commencement of verification activities. This form includes the scope of proposed verification activities and other required information used to assess the potential for conflict of interest between the verification body and the project developer. In order for verification activities to begin, the Reserve must determine that the potential for conflict of interest between the project developer and the verification body is low or can be mitigated. The conflict of interest evaluation must be completed before verification activities can begin. The NOVA/COI form is available for download at http://www.climateactionreserve.org/how/program/documents/.

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

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

3.3.10 Approval of Verification and Project Registration

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

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

3.3.11 Project Completion

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

3.3.12 Record Keeping

According to the Terms of Use, the Reserve has the right to examine, audit, and obtain copies of users' records from the most recent 12-month period. The Reserve does not anticipate this being a routine need, but rather a rare event to verify the accuracy of any attestation, transfer or

statement, or to review account holders' performance of obligations under the protocols, the Terms of Use or the Reserve's Operating Procedures.

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

3.3.13 Publicly Available Information

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

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

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

Information that is never shared with the public includes:

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

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

3.4 Project Verification

The Reserve requires periodic third-party verification of all GHG projects, as specified in each project protocol. This provides an independent review of data and information used to register CRTs. For every project, a third-party verification body reviews documentation, monitoring data,

and procedures used to estimate GHG reductions or removals. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of CRTs that can be issued to the project. The Reserve makes these documents publicly available. Verifiers conducting verification activities for projects listed or registered on the Reserve must be trained by the Reserve or its approved designees and employed by or subcontracted to an accredited verification body. A list of accredited verification bodies is available at http://www.climateactionreserve.org/how/verification/connect-with-a-verification-body/.

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

3.4.1 Validation

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

3.4.2 Reporting Period and Verification Period

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

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

Reporting periods must be contiguous; there can be no time gaps in reporting during the crediting period of a project once the initial reporting period has commenced.[17] Gaps in monitoring data or activity must be included in reporting periods and verified accordingly. The verification body must confirm that no reductions are claimed for any period for which a gap in monitoring data exists or for which a project was non-operational.

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

3.4.3 Initial Verification and Registration

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

For project types that require annual verification at a minimum, the Verification Statement and Report may cover a maximum of 12 months of project activity, with the following exceptions. A pre-existing project (see Section 2.4.3) undergoing its initial verification and registration with the Reserve may submit a Verification Statement and Report that cover multiple years, back to the project's start date. This data is considered "historic data." Historic data may only be registered during a pre-existing project's initial verification with the Reserve. The Reserve also allows project developers to register more than 12 months of data during a project's initial verification period while still meeting the 12-month verification deadline (based on the maximum initial reporting period specified by each protocol), or register a project's initial verification period as a zero-credit reporting period (see Section 3.4.5).[18]

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

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

If a project misses its initial verification deadline, the project is "de-listed"[19] in the Reserve software and is no longer viewable by the public. The Reserve will contact the project developer to inform them they must re-submit under the latest version of the protocol within 60 calendar days of notification.

If the project developer re-submits the project within 60 calendar days, the project is "re-listed"[20] under the same project ID and the project maintains its original start date. The project is given a new listing date.

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

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

[18] Forest and urban forest projects are not eligible for zero-credit reporting periods.
[19] "De-list" is not a phase in the Reserve software. De-listed projects will no longer appear to the public in the software.
[20] "Re-list" is not a phase in the Reserve software. Projects will be identified as "listed" in the software with the same project ID.

eligible for zero-credit reporting periods and therefore must complete initial verification within 12 months of re-submittal.

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

3.4.4 Subsequent Verification

After a project is registered, a Verification Statement and Verification Report must be submitted within 12 months of the end of each subsequent verification period. The maximum allowed length of a verification period is specified in each protocol. For example, a Verification Statement and Report for GHG reductions achieved between January 1, 2015 and December 31, 2015 would have to be submitted by December 31, 2016. The only exception to the verification deadline is if the project developer has successfully applied for an extension or is taking a zero-credit reporting period (see Section 3.4.5 below).

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

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

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

If a project developer chooses Option B, they are required to submit a Zero-Credit Reporting Period Acknowledgment and Election form and a monitoring report to retroactively cover the time period since the end date of the last successful verification period (see Section 3.4.5). Thus, the project developer acknowledges that CRTs will not be issued for any GHG reductions or removals achieved by the project since its last successful verification. They are also required to verify the project to the latest version of the relevant protocol.

A project utilizing Option B maintains its original project start date, and thus maintains the crediting period defined by that start date. This option may be used across two crediting periods should the project protocol allow for that.

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

3.4.4.1 Subsequent Verification for Forest or Urban Forest Projects

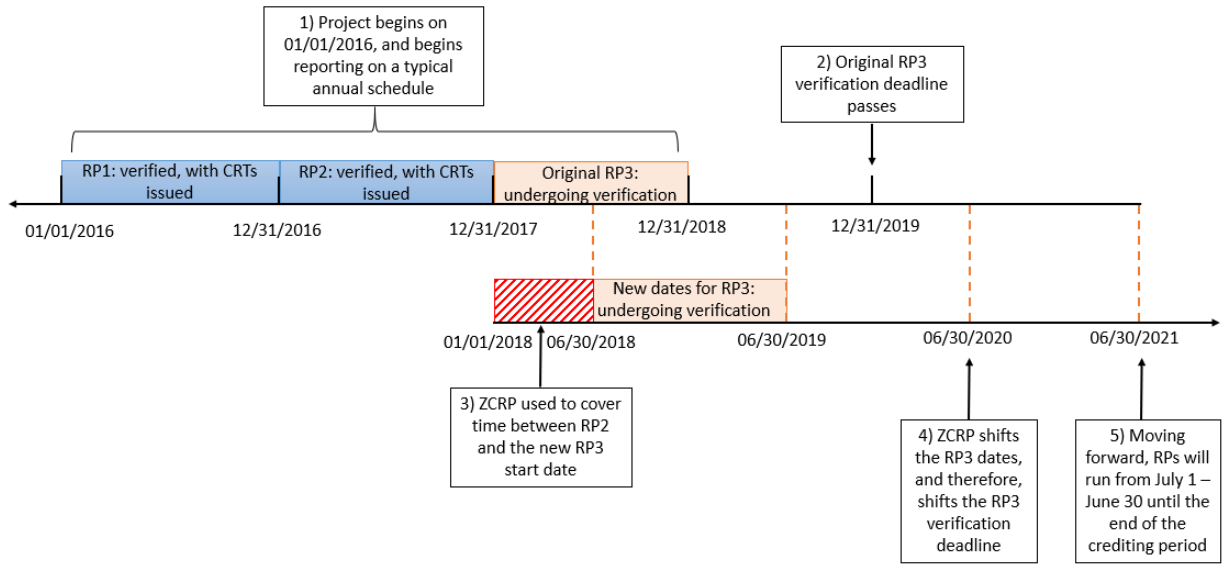
The only exceptions to the options regarding a missed verification deadline detailed above are for forest and urban forest, as these project types are not eligible for a zero-credit reporting

period. If a registered forest or urban forest project misses a subsequent verification deadline, project account activities will be suspended until the verification is complete. The project developer has 36 months from the end of the reporting period(s) being verified to complete verification. Otherwise, the project will be terminated.

3.4.5 Zero-Credit Reporting Period (ZCRP)

To provide flexibility for project developers in instances where verification is not practical or economical for a specific reporting period/verification period, developers of projects *other than forest and urban forest projects* may choose to delay verification on the condition that they acknowledge no CRTs will be issued for any period of time that falls outside the standard window for completing verification of project information and monitoring data. Such a period is referred to as a "zero-credit reporting period." In such cases, zero-credit reporting periods can be used to cover any time that falls between reporting periods that undergo verification. For most eligible project types, the maximum length of a verification period is 12 months, allowing CRTs to be issued only for GHG reductions achieved up to 24 months prior to submission of a Verification Report. See Figure 1 below for an example of a project using a ZCRP to cover time that falls between reporting periods, in order to extend the deadline for submission of a Verification Report.

Figure 1: Zero-Credit Reporting Period for a Project with a 12 Month Maximum Verification Period



For any zero-credit reporting period, the project developer must sign a Zero-Credit Reporting Period Acknowledgment and Election form (Acknowledgment and Election form) acknowledging that CRTs will not be issued for any GHG emission reductions or removals achieved by the project during the zero-credit reporting period. Along with the Acknowledgment and Election form, the project developer must also submit a monitoring report to the Reserve that covers data for the zero-credit reporting period.

The Acknowledgment and Election form and monitoring documents shall be submitted via the Reserve software within 12 months of the end date allowed for a verification period (i.e., by the

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

If neither a Verification Report nor an Acknowledgment and Election form is submitted within 12 months of the end date allowed for a verification period, the project is either de-listed or cancelled (see Section 3.4.3, 3.4.2, and 3.4.4). Under certain circumstances, after a project has been de-listed or cancelled, it may re-enter the program, using zero-credit reporting periods to cover the time period when the project was not actively reporting. This is also possible in cases where the failure to maintain contiguous reporting has extended through the end of the crediting period if allowed by the relevant project protocol. In these cases, the zero-credit reporting period may cover a period of time spanning two crediting periods, and the second crediting period will be considered to have begun on the day following the end date of the initial crediting period. There is no limit to the amount of time a zero-credit reporting period may cover, and a project may have contiguous zero-credit reporting periods. Project developers may also declare a project's initial verification period as a zero-credit reporting period.

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

3.4.6 Zero-Credit Reporting Period Verification

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

More information on the verification of zero-credit reporting periods can be found in the Verification Program Manual and the relevant project protocols. If the verifier cannot confirm with reasonable assurance that project emissions were less than or equal to baseline emissions, the Reserve will make a determination of action on a case by-case basis.

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

3.4.7 Verification Deadline Extension Request

The Reserve allows project developers to request a project verification deadline extension. No extension requests are granted unless the project has commenced verification and has

undergone the site visit for the current verification period (if applicable)[21] and all outstanding invoices for the project and account holder have been paid. The following extensions may be granted:

- Forest (U.S. and Mexico), grassland (U.S. and Canada), and urban forest projects may be granted a 12-month extension.
- Livestock (U.S. and Mexico), landfill (U.S. and Mexico), and nitrogen management projects may be granted a six-month extension.
- All other project types may be granted a 30-day extension if the account holder can demonstrate to the Reserve's satisfaction that they will miss the deadline due to extraordinary circumstances. The Reserve holds the right to determine what rises to the level of an extraordinary circumstance.

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

The Request for Verification Deadline Extension form can be downloaded at http://www.climateactionreserve.org/how/program/documents/.

3.5 Stakeholder Input for Individual Projects

Direct and indirect stakeholder interaction is an integral part of the process for developing offset project protocols (see Sections 4.2 and 4.4). This includes comment periods that are open to the general public. At the project level, interactions generally involve those stakeholders with a commercial interest in the projects (e.g., facility owners, project developers, verifiers, consultants, CRT buyers, regulators, etc.). This section details avenues for non-commercial stakeholders to interact with the Reserve in relation to individual projects (rather than project protocols).

3.5.1 Local Stakeholder Consultations

Every Reserve protocol includes requirements to ensure that credits are only issued for emission reductions at projects that are in compliance with applicable regulations, and do no net environmental harm. In some cases, offset projects may have the potential to create social impacts on the local community, either positive or negative, which may not be appropriately handled by other, existing government structures. In those cases, the individual protocol may include additional requirements for local stakeholder consultations. In addition, every protocol development process, as well as every major protocol update, involves at least one public comment period, with a public webinar. Local stakeholders are welcome to participate in any of these public events.

For example, the Mexico Forest Protocol provides social safeguards through prescriptive guidance about obtaining free, prior, and informed consent; meeting notification, participation, and documentation; and project governance. This ensures that the local community is able to participate in the offset project.

[21] If the registration extension is being requested for a non-site visit year, evidence must be provided to show that the project developer has provided requested documentation to the verification team to allow them to commence the desk review.

3.5.2 Feedback and Grievance Process

For any project type, it is possible that a stakeholder may want to contact the Reserve to provide feedback, either positive or negative. For general feedback or inquiries, stakeholders may contact the Reserve at reserve@climateactionreserve.org, or call the Reserve office at (213) 891-1444. For questions or comments related to a specific protocol, current points of contact are listed on our website at http://www.climateactionreserve.org/contact-us/.

The Reserve strives to avoid adopting protocols for activities that present a risk of negative environmental or social impacts. However, if a stakeholder has a grievance about a specific project, the initial point of contact would be the same as described above. The staff member receiving this initial contact will collect as much information as possible from the stakeholder about the specific project and grievance. This will then be communicated to the senior management at the Reserve, including the President. The specific action taken will depend on the nature of the grievance.

- For cases of a potential over-issuance, Reserve staff will conduct a thorough review and analysis, then ensure that the system is "made whole," according to the process detailed in Section 3.6.2 below.
- For disputes related to ownership of the GHG emission reductions, the Reserve senior management and legal counsel will review the positions and documentation of the parties involved and determine the appropriate owner (based on existing Reserve guidance related to ownership of GHG emission reductions), as well as whether any additional action against the project or the project developer is warranted. The Reserve will not be party to any disputes where the involved parties pursue actions beyond the Reserve issuing a determination as previously described.
- For grievances related to potential negative social or environmental impacts related to a Reserve project, which are not in violation of existing regulations (and thus handled by the relevant government agency), the Reserve senior management will conduct a finding of facts and consider the stakeholder's position. Such instances may be referred to the Board of Directors for a decision on project eligibility.

3.6 Climate Reserve Tonnes (CRTs)

In the Reserve, GHG reductions and removals are recognized as Climate Reserve Tonnes or CRTs, which are equal to one metric ton of carbon dioxide equivalent (CO_2e) reduced or sequestered. After projects are registered, CRTs are issued based on the GHG reduction or removal amount reported by the project developer and confirmed by an approved verification body. CRTs are issued only on an *ex post* basis (i.e., after verification that reduction activities have actually occurred) and only for GHG reductions or removals that occur within the project crediting period. For transparency, each CRT has a unique serial number with embedded information that identifies the project type, location, developer, and vintage. The unique serial number persists as CRTs are transferred between accounts or are retired and become offsets.

3.6.1 Issuance of CRTs

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

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

3.6.2 Over-Issuance of CRTs

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

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

Within 30 days, the project account holder must:

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

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

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

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

3.6.3 Transfer of CRTs

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

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

3.6.4 Retirement of CRTs

CRTs may be "retired" to indicate that the emission reductions or removals they represent have been used to satisfy a voluntary GHG emission reduction claim or to offset other emissions. To support such claims, CRTs are taken out of circulation so that they cannot be used to support

any further claims. The Reserve retires CRTs by transferring them to a locked retirement account where they remain permanently and in perpetuity, precluding further use or transfer to other parties. Each account holder has its own associated retirement account. Information about retired CRTs is publicly available and includes details like project type, location, serial number, date issued, reason for retirement, etc. to support the transparency of the offsets within the Reserve. There is no charge to retire CRTs.

For the greatest level of transparency, Account Holders are encouraged to provide complete details of the purpose of the CRT retirement in the "Retirement Reason Details" field.

3.6.5 Holding and Retirement of CRTs on Behalf of Other Parties

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

3.6.6 Transferring Credits from the Reserve

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

3.6.6.1 VCS

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

3.6.6.2 The California Compliance Offset Program

The Reserve is an approved Offset Project Registry (OPR) under the California Compliance Offset Program. Projects wishing to receive credits under one of the ARB's approved Compliance Offset Protocols (COPs) may do so through the Reserve's project registry. Registry Offset Credits (ROCs) are issued to projects in the Reserve's registry that have been listed under a COP. Following the issuance of ROCs, project proponents may request issuance of ARB Offset Credits (ARBOCs) from the California Air Resources Board. Upon approval, the Reserve is notified, and ROCs are cancelled and then re-issued as ARBOCs in the Compliance Instrument Tracking System Service (CITSS). The exported ROCs have "ARB" noted as the cancellation reason in the Reserve software and public reports.

3.7 Transferring Projects into the Climate Action Reserve

Existing projects that have been registered with other carbon offset programs may be transferred to the Reserve if they meet, and are successfully verified against, the Reserve's protocol requirements, and if they meet the project start date requirements detailed in Section 2.4.3. Such projects must submit a Registry Project Transfer Form, available for download at http://www.climateactionreserve.org/how/program/documents/. The Registry Project Transfer Form requires additional information and documentation to determine the status of the project and any offset credits issued for it under other programs.

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

emission reductions or removals for the project will be verified or registered under the other program.

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

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

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

3.8 Transferring Projects from the Climate Action Reserve

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

Once a project is transferred, no future reductions or removals from that project will be registered as CRTs. Project information and previously issued CRTs will remain in the Reserve system under their given serial numbers. Previously issued CRTs may be transferred to other accounts on the Reserve system and retired on the Reserve system, as long as the project developer maintains an account with the Reserve. Section 3.6.3 of this manual describes how to transfer CRTs to other Reserve accounts.

3.9 Transferring Projects between Account Holders in the Reserve

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

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

3.10 Relationships to Other GHG Programs

The Climate Action Reserve operates as a stand-alone voluntary offset registry. However, the Reserve program does interact with other GHG programs in various ways. Relationships with several, major programs are detailed in this section.

3.10.1 Voluntary Carbon Offset Programs

Registration of projects using project protocols developed by the Reserve is limited to the Reserve's voluntary offset program and other carbon offset programs that have pre-existing

agreements in place with the Reserve. If a project developer is seeking crediting under a project protocol developed by the Reserve under a different program, it is the project developer's responsibility to notify the Reserve and to ensure that there is such a pre-existing agreement in place.

It may be possible for a voluntary Reserve offset project to be simultaneously listed under another voluntary offset program, provided that there is no overlap in the GHG Assessment Boundaries of the relevant protocol(s) or methodology. All project developers wishing to take advantage of any such opportunity should seek guidance from the Reserve, and staff of the other voluntary offset program, as early as possible in that process, to ensure best chances for approval and avoidance of any double counting. Reserve staff will work directly with the project developer, and likely also staff from the other voluntary program in question, to ensure there is no double counting in such circumstances. Generally speaking, where GHG accounting boundaries do not overlap, it may be possible for a project to enroll in multiple offset programs, undertake one set of activities, and receive crediting from those multiple programs. However, such a determination shall be made on a case-by-case basis for each combination of Reserve protocol and external protocol or methodology.

3.10.1.1 The Verified Carbon Standard

The Reserve is the first recognized independent GHG offset program under the Verified Carbon Standard, a global standard and program for approval of credible voluntary offsets. As an approved VCS program, offset projects that meet the Reserve's protocols can generate VCS credits, known as VCUs. CRTs issued by the Reserve can also be converted to VCUs and transferred to a VCS registry (see Section 3.6.6). However, VCUs cannot be converted to CRTs; only projects registered with the Reserve using Reserve protocols are able to generate CRTs.

For more information on Verra's VCS Program, visit https://verra.org/project/vcs-program/.

3.10.2 The California Compliance Offset Program

The California Air Resources Board (ARB) administers a Compliance Offset Program for use under the state's economywide cap and trade program for GHG emissions. The project registry functions for this program are administered by approved Offset Project Registries (OPRs). The Reserve is an approved OPR. Projects wishing to receive credits under one of the ARB's approved Compliance Offset Protocols (COPs) may do so through the Reserve's project registry. Reserve staff are experts in the OPR procedures, as well as the application of the COPs, most of which are adapted from the Reserve's voluntary offset protocols. The Reserve issues Registry Offset Credits (ROCs), which are ultimately canceled and then reissued by the ARB as ARB Offset Credits (ARBOCs). The Reserve does not issue ARBOCs and does not have a connection with the Compliance Instrument Tracking System Service (CITSS) (the registry used by the Western Climate Initiative for tracking compliance instruments). In instances where a project does not seek the issuance of ARBOCs for a given reporting period, the project may retire the ROCs for voluntary purposes (see Section 3.6.4) or seek the conversion of ROCs into CRTs.

For information on the Reserve's role as an Early Action Offset Program and Offset Project Registry for the California Compliance Offset Program, please see the following resources:

- Climate Action Reserve California Compliance Offset Program website http://www.climateactionreserve.org/how/california-compliance-projects/

- California Air Resources Board Compliance Offset Program website http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm

3.10.3 The California Low Carbon Fuel Standard Program

The California Air Resources Board (ARB) administers a Low Carbon Fuel Standard (LCFS) Program for use under the state's plan for reducing GHG emissions. Certain project types that are eligible for CRTs and ROCs under the Reserve's voluntary and compliance offset project registry programs are also potentially eligible to receive LCFS credits for the generation and delivery of transport fuels (such as biogas) into California. This includes livestock anaerobic digestion projects and landfill gas capture and destruction projects. The Reserve does not issue or verify LCFS credits. Nor can CRTs or ROCs be directly converted into LCFS credits. However, in some cases the process of verifying and registering offsets through the Reserve may be a component of the project's process toward receiving and verifying LCFS credits. In cases where a Reserve offset project is also seeking LCFS credits, Reserve staff will work with ARB staff and the project developer to ensure that CRTs or ROCs are appropriately cancelled to reflect overlapping issuance in the LCFS program. In instances where a project cancels some, but not all ROCs from a given reporting period, in order to receive benefit in the LCFS program, the project may be able to retire the remaining ROCs or seek the conversion of those ROCs into CRTs.

In all cases, project developers must disclose to their verifiers the existence of any additional crediting or payment programs in which the project is participating concurrently with its registration through the Reserve.

3.10.4 The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and Sustainable Development Goals (SDGs)

The International Civil Aviation Organization (ICAO), a special body of the United Nations, adopted a global carbon offsetting mechanism, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), to address GHG emissions from international aviation beyond reductions to be achieved from advancements in fuel efficiency, technology, operations and infrastructure. The offsets portion of this program is designed to be decentralized, allowing for airlines to comply with their offsets obligations via retirement of eligible emission units issued by approved GHG programs.

The Reserve Voluntary Offset Program is in conformance with the requirements of the CORSIA program's Emissions Unit Eligibility Criteria, including the program design elements and the carbon offset credit integrity assessment criteria. Projects reporting under the Reserve Voluntary Offset Program seeking eligibility under CORSIA are required to report their alignment with United Nations Sustainable Development Goals (SDGs) and co-benefits by using the Reserve's SDG Reporting Template. The Reserve encourages users to perform their own research to understand SDGs and impact reporting best practices prior to completing the template. The Reserve retains sole and final discretion in making determinations on the appropriateness of a project's SDG and/or co-benefit claims. Projects must use the most current version of the SDG Reporting Template and must report impacts according to the guidance in the tool. The tool will be made publicly available on the Reserve registry in order to ensure transparency.

For more information on CORSIA and SDGs, please visit:

- ICAO's website: https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx
- The Reserve's website: www.climateactionreserve.org/CORSIA/.
- The Sustainable Development Goal indicators website: https://unstats.un.org/sdgs/

3.10.5 Green-e Climate

Green-e Climate is a "global third-party certification program for carbon offsets," operated by the Center for Resource Solutions (CRS). This program could be viewed as a "meta" certification, applying its label to offsets issued by specific GHG programs it has decided to endorse. The Climate Action Reserve's voluntary offsets program is one such endorsed program. Thus, CRTs may be certified as Green-e Climate carbon offsets. Regardless of this additional certification, CRTs remain within the Reserve's registry, with the original serial numbers and no additional requirements from the Reserve program.

For more information on the CRS's Green-e Climate program, visit https://www.green-e.org/programs/climate.

4 Project Protocol Development Process

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

4.1 Screening Process

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

- Does the project type create direct or indirect emission reductions? All else equal, the Reserve will focus on project types that result in direct reductions. Direct emission reductions are generally easier to verify because the sites where they occur can be directly monitored. When emission reductions occur at sites or sources owned by the project developer, there is also less risk that an entity other than the project developer will claim ownership of the reductions. Thus, these projects are unlikely to be at risk for double counting or ownership issues.

- How amenable is the project type to standardized additionality and baseline determinations? For some types of projects, it is difficult to credibly and accurately determine additionality and estimate baseline emissions on a standardized basis. In general, the Reserve will avoid developing protocols for these project types. Alternatively, the Reserve may incorporate project-specific methods or variables into standardized protocols as appropriate, or limit the scope of protocols to address only activities and conditions for which standardized approaches are feasible.

- What is the likelihood that the sector where the project activity occurs will be covered under a future cap-and-trade system? Since issuing offset credits for reductions that occur at capped emission sources would result in double counting, the Reserve prefers to focus on projects affecting GHG emissions that are unlikely to be capped.

- What are the total potential GHG reductions that could result from this type of project? As it takes significant effort and resources to produce a standardized project protocol, there should be large and geographically diverse potential reduction opportunities.

- Are there potential positive or negative environmental or social impacts from this type of project activity or the operations, facilities or sectors with which this type of project may be associated? Negative effects should be avoided. All else equal, the Reserve will prioritize sectors and project types that can create significant co-benefits for the habitats and communities where projects take place. Where necessary, the Reserve will also consider developing additional criteria for ensuring environmental and social safeguards.

- Are there existing methodologies or protocols that could serve as a starting point? Standardized protocols are more easily developed where sound scientific methods already exist to determine baselines and quantify emission reductions.

- Are there high quality datasets to evaluate "business as usual" activities for the sector in which the project activity occurs? Setting performance thresholds and other standardized tests for additionality requires defensible data on the current state of the sector.

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

4.1.1 Issue Paper

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

4.1.2 Scoping Meeting

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

4.2 Development Process

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

4.2.1 Workgroup Assembly

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

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

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

4.2.2 Options Paper

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

4.2.3 Draft Protocol for Workgroup Review

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

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

4.2.4 Public Review Period and Public Workshop

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

4.2.5 Board Approval

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

4.2.6 Ongoing Public Feedback and Comments

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

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

4.3 Revisions to Project Protocols

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

4.3.1 Policy Revisions

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

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

4.3.2 Program Revisions

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

4.3.3 Grace Period for Registration under Prior Protocol Versions

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

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

4.3.4 Errata and Clarifications

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

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

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

4.4 Communication with the Public

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

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

5 Glossary

Business day	Any day except Saturday, Sunday or a Federal Reserve Bank holiday. A business day shall open at 8:00 a.m. and close at 5:00 p.m. Pacific Prevailing Time.
Client	In the Reserve software system, a "client" is an organization or individual who wishes to retire CRTs but does not develop its own projects.
Climate Action Reserve	The national offsets program that establishes standards for quantifying and verifying GHG emission reduction projects, issues carbon credits generated from such projects, and tracks the transfer and retirement of credits in a publicly-accessible online system.
Climate Reserve Tonne or CRT	The unit of offset credits used by the Climate Action Reserve. One Climate Reserve Tonne is equal to one metric ton of CO_2e reduced or sequestered.
Completed	A project is considered "completed" when it is no longer reporting to the Reserve. A project is completed if it reaches the end of its crediting period(s), becomes ineligible, or if the project developer chooses not to continue reporting. The "completed" designation is also used for certain early action projects to indicate that the monitoring, reporting, and verification (MRV) requirements under the Reserve's Early Action Offset Program have been satisfied, and that the project will continue MRV requirements under the Compliance Offset Program. The reason for the completed status is noted in the Reserve's public reports. Once a project is completed, project information remains publicly available indefinitely.
Group Retirement Subaccount	The subaccount for the retirement of CRTs that are held by an account holder on an omnibus basis on behalf of one or more third parties that hold legal title and/or beneficial ownership rights in those CRTs.
Listed	A project is considered "listed" once the Reserve has satisfactorily reviewed all project submittal forms. The project will then appear in the public interface of the Reserve system.
Offset	A reduction or removal of GHG emissions from the atmosphere that is used to compensate for an equivalent amount of emissions from another GHG emitting activity occurring elsewhere. For the purposes of the Reserve program, a CRT becomes an offset when it is retired.
Project developer	An organization or individual that registers projects for the purpose of generating emission reductions or removals. In the Reserve software system, project developers may be issued CRTs for the verified emission reductions or removals that their projects achieve. They can also transfer and manage CRTs.
Project owner (limited)	An organization or individual representing a landowner participating in a cooperative or aggregate according to protocol-specific rules and procedures. In the Reserve software system, project owners may register projects that are formally part of a cooperative or an

	aggregation. This account type may also be used for limited transfers of CRTs under the terms and restrictions imposed by the relevant project protocol and/or aggregation guidance and does not include privileges for retiring CRTs.
Project protocol	A Reserve-developed document that contains the eligibility rules, GHG Assessment Boundary, quantification methodologies, monitoring and reporting parameters, etc. for a specific project type. Project protocols are akin to "methodologies" in other offset programs.
Reduction	A verified decrease in GHG emissions caused by a project, as measured against an appropriate forward-looking estimate of baseline emissions for the project.
Registered	A project is considered "registered" when the project has been verified by an approved third-party verification body, submitted by the project developer to the Reserve for approval, and accepted by the Reserve.
Removal	A verified increase in carbon stocks caused by a forest project, as measured against an appropriate forward-looking estimate of baseline carbon stocks for the project.
Reporting period	A discrete period of time over which a project developer quantifies and reports GHG reductions to the Reserve.
Retired	When CRTs are transferred to a retirement account in the Reserve system, they are considered retired. Retirement accounts are permanent and locked, so that a retired CRT cannot be transferred again. CRTs are retired when they have been used to offset an equivalent tonne of emissions or have been removed from further transactions on behalf of the environment.
Submitted	A project is considered "submitted" when all of the appropriate forms have been completed, uploaded, and submitted to the Reserve software.
Trader/Broker/Retailer	An organization or individual that transfers and manages CRTs in the Reserve system, but does not develop its own projects.
Transitioned	An early action project is considered "transitioned" when the project has been listed and successfully completed a verification under the Compliance Offset Program, but has any number of early action-eligible CRTs remaining active or retired in the Reserve program. The project is no longer reporting or seeking credits under the requirements of the relevant Reserve protocol, but is required to meet the MRV requirements of the California Cap-and-Trade Regulation.
User	An individual or entity that holds an account with the Reserve and has agreed to the Terms of Use and shall include such representative as the entity shall appoint and designate by completing the Designation of Authority form.
Verified	A project is considered "verified" when the project verification body has submitted the project's Verification Statement and the Verification Report in the Reserve system.
Verification body	An organization or company that has been ISO-accredited and

	approved by the Reserve to perform GHG verification activities for specific project protocols.
Verification period	A discrete period of time over which a project's GHG reductions are verified. Under some protocols, a verification period may cover multiple reporting periods. The end date of a verification period must correspond to the end date of a reporting period.
Verifier	An individual that is employed by or subcontracted to an ISO-accredited and Reserve-approved verification body and is qualified to provide verification services for specific project protocols.

Project Contributions to Sustainable Development Goals - Reporting Template

Version 1.0 (beta)

OVERVIEW

Climate Action Reserve projects that wish to report their alignment with the United Nation's Sustainable Development Goals must use this template. We encourage users to perform their own research to understand SDGs and impact reporting best practices prior to completing this form, by referring to official SDG metadata repository at https://unstats.un.org/SDGs/metadata/. Reserve recommendations are not intended to be comprehensive, but are intended as a starting point for SDG impact reporting. Each project is unique; it is the responsibility of project developers and proponents to accurately identify and report on relevant SDGs in good faith. Where possible, quantitative information is strongly encouraged to ensure integrity when reporting on project co-benefits.

CORSIA eligibility

To qualify CRTs as CORSIA Eligible Emissions Units, Climate Action Reserve projects must complete this form. More information on the Reserve's process can be found at www.climateactionreserve.org/CORSIA/.

NAVIGATION

Worksheet tabs are color coded. The following colors have been used:

Introduction	Refer to this tab for information on template use
User Template	This is the reporting template, requiring user input
References	Green tabs include reference information and these sheets may not be modified by users.

For convenience of use, cells within the worksheets are defined such that:

Cells in blue requre direct user input or user selection from drop down lists. Banded coloring is used for readability.

Cells in gray or white are auto-populated and are locked for editing. Banded coloring is used for readability.

SDG colors are automatically populated upon user selection from drop down list.

Reporting Template Organization:

- Worksheet I — Introduction - Provides introduction to the template, including Overview, Navigation, and User Instructions.
- Worksheet II — User Template - Please enter all SDG project data, including SDG official co-benefits and other co-benefits.
- Worksheet III — Example User Template - Please use this tab as a reference for your entries to Worksheet III
  Please note: Examples provided here are based on a mock project and do not reflect any specific project listed or registered in the Reserve's registry.
- Worksheet IV — Reserve Guide - Includes the Reserve's recommendations for potential SDG impact relevance by protocol and methodology type.
  Please note: These recommendations are not intended to be comprehensive, but are intended as a starting point for SDG impact reporting.
- Worksheet V — SDGs_Targets - Provides a reference list of SDG targets. Use this reference tab for determining the "SDG Name" and "SDG Target" in User Template.
- Worksheet VI — SDGs_Indicators - Provides a reference list of SDG indicators. Use this reference tab for determining the "SDG Indicator" in User Template.

INSTRUCTIONS

Getting Started

1. Review Reference Tabs to assess relevant SDG Goals, Targets and Indicators. The "Reserve Guide" tab includes the Reserve's recommendations for potential SDG impact relevance by protocol and methodology type.
   - *Please note: If any discrepancies between the Reserve's given indicators and those provided by CORSIA, please refer to the official indicators provided by the United Nations (https;//unstats.un.org/sdgs/).*
2. Complete the General Information table in the User Template (Rows 6-13)
3. Complete the Description of SDG Contributions table in the User Template (Columns A-K, beginning with Row 25)
   - *Where project contributions do not directly align at the SDG Target or Indicator level, users should describe the net project impact relevant to the SDG Goal. See Row 30 in the Example User Template. This approach recognizes that SDG 13 Climate Action does not include specific GHG reduction metrics at the Target or Indicator level. However, GHG reductions as a result of the carbon project directly contributes to SDG 13 "Climate Action."*
4. If the project produces additional co-benefits that are not aligned with SDG Indicators, enter these under "ADDITIONAL CO-BENEFITS GENERATED BY THE PROJECT (NOT INCLUDED IN SDG CONTRIBUTIONS)"
5. Once the form is completed, save the User Template worksheet as a PDF with the naming convention "YYYY-SDG-REPORTING-TEMPLATE-CARXXXX". To save the worksheet, navigate to the User Template worksheet, print using the Adobe PDF Printer, select "Print Active Sheets", select "Landscape" orientation, then print.
   - Example: 2020-SDG-REPORTING-TEMPLATE-CAR1234"

Project Contributions to Sustainable Development Goals - Reporting Template

Version 1.0 (beta)

GENERAL INFORMATION

Reserve Project ID (CAR####)	
Project Name	
Project Developer/Owner/Operator	
Protocol	
Project Location (City, Region, Country)	
Project Start Date	
Project Crediting Period End Date	
Project Implementation Partners	

DESCRIPTION OF PROJECT SDG CONTRIBUTIONS

Expected Project Contribution by the End of Project Lifetime: Users should begin with a brief description of how projects contribute to SDGs by identifying project characteristics that align with relevant SDG Indicators. This should be estimated for the lifetime of the project. Users are encouraged to consider the project's crediting period when making this assessment.

SDG Name: Select the relevant SDG from the drop down list.

SDG Target and SDG Indicator: Select the relevant SDG Target and Indicator from drop down lists. Where project contributions do not directly align with specific SDG Targets or Indicators, users should describe the net project impact relevant to the SDG Goal. See Row 30 of the Example User Template for guidance.

Net Impact on SDG Indicator: At a minimum, users should indicate either an increase or decrease in terms on impact against an SDG Indicator. Quantitative information is strongly encouraged to ensure reporting integrity.

Project Document Reference Section: If applicable, users should identify the section in the PDD that corresponds with the expected project contribution to SDGs description.

Additional Monitoring/Reporting or Impact Measurement Activity: Some projects may be performing additional monitoring or impact measurement outside the scope of the carbon project and/or the Reserve's Programs. If this is the case, please describe how projects are engaging in additional reporting or impact measurement. Links or references to the work are encouraged.

DESCRIPTION OF PROJECT SDG CONTRIBUTIONS

Expected Project Contribution by the End of Project Lifetime	SDG Name	SDG Number	SDG Description	SDG Target	SDG Indicator	Net Impact on SDG Indicator (Increase or Decrease)	Project Document Section Reference	Additional Monitoring/Reporting or Impact Measurement Activity

ADDITIONAL CO-BENEFITS GENERATED BY THE PROJECT (NOT INCLUDED IN SDG CONTRIBUTIONS)

Additional Co-Benefit	Description

Project Contributions to Sustainable Development Goals - Reporting Template

Version 1.0 (beta)

GENERAL INFORMATION

Reserve Project ID (CAR####)	CAR3000
Project Name	SDG Mexico Forest Project
Project Developer/Owner/Operator	CDMX
Protocol	Mexico Forest
Project Location (City, Region, Country)	Mexico City, CDMX, Mexico
Project Start Date	01/01/2018
Project Crediting Period End Date	01/01/2048
Project Implementation Partners	Carbon Projects, Inc.

DESCRIPTION OF PROJECT SDG CONTRIBUTIONS

Expected Project Contribution by the End of Project Lifetime: Users should begin with a brief description of how projects contribute to SDGs by identifying project characteristics that align with relevant SDG Indicators. This should be estimated for the lifetime of the project. Users are encouraged to consider the project's crediting period when making this assessment.

SDG Name: Select the relevant SDG from the drop down list.

SDG Target and SDG Indicator: Select the relevant SDG Target and Indicator from drop down lists. Where project contributions do not directly align with specific SDG Targets or Indicators, users should describe the net project impact relevant to the SDG Goal. See Row 30 for example.

Net Impact on SDG Indicator: At a minimum, users should indicate either an increase or decrease in terms on impact against an SDG Indicator. Quantitative information is strongly encouraged to ensure reporting integrity.

Project Document Reference Section: If applicable, users should identify the section in the PDD that corresponds with the expected project contribution to SDGs description.

Additional Monitoring/Reporting or Impact Measurement Activity: Some projects may be performing additional monitoring or impact measurement outside the scope of the carbon project and/or the Reserve's Programs. If this is the case, please describe how projects are engaging in additional reporting or impact measurement. Links or references to the work are encouraged.

DESCRIPTION OF PROJECT SDG CONTRIBUTIONS

Expected Project Contribution by the End of Project Lifetime	SDG Name	SDG Number	SDG Description	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Project Document Section Reference	Additional Monitoring/Reporting or Impact Measurement Activity
This project will train and employ 6 ejido members as forest technicians to support project inventory development, monitoring, and reporting. This will increase participants' income to more than 50% above the international poverty line, and 25% above the ejido's average monthly income for skilled workers. Additionally, it will enable participants to seek additional employment opportunities.	No Poverty	1	End poverty in all its forms everywhere	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	Decrease	Monitoring Report Section 3	
One third of the ejido's water is sourced from streams and waterways within the carbon project area. By promoting older tree growth and enhancing the forest's natural and diverse tree composition, this project will enhance water capture and storage while improving fresh water quality.	Clean Water and Sanitation	6	Ensure availability and sustainable management of water and sanitation for all	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.2 Proportion of bodies of water with good ambient water quality	Increase		This project is partnering with a water monitoring organization to implement water quality monitoring and testing.
All 320 ejido members participated in public meetings prior to enrolling ejido-owned land into the carbon project. Further, 112 ejido members participated in 3 full-day training sessions on climate change, carbon markets, and carbon project commitments and requirements.	Sustainable Cities and Communities	11	Make cities and human settlements inclusive, safe, resilient and sustainable	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	Increase		
By improving forest management of the ejido's working forest, this project will remove 65,000 tonnes of CO2e from the atmosphere, supporting Mexico's Nationally Determined Contributions.	Climate Action	13	Take urgent action to combat climate change and its impacts			This project will sequester 65,000 tC02e over its lifetime		
10% of the project area will be managed for recreation and open to tourism. MRV for the carbon project will ensure the areas open to tourism are managed sustainably and will increase/maintain level of carbon sequestration.	Responsible Consumption and Production	12	Ensure sustainable consumption and production patterns	12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	12.b.1 Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools	Increase		
This project will create 3 full-time jobs for project management and administration, paying at least $300/week per employee.	Decent Work and Economic Growth	8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	Increase		

ADDITIONAL CO-BENEFITS GENERATED BY THE PROJECT (NOT INCLUDED IN SDG CONTRIBUTIONS)

Additional Co-Benefit	Description
Peer-to-peer learning among community members that does not generate offsets	Ejido members that adopt sustainable practices much earlier than a project start date or adoption of a protocol cannot get credit for such early activities. Those people are often critical in helping disseminate information amongst their peers. This type of peer-to-peer learning is critical in promoting practice change amongst ejidos. Early adopter ejidos serve a critical role for capacity building amongst other ejidos and communities, as ambassadors showing them what is possible. They also contribute to significant emission reductions that will never be credited with offsets.
Example 2	

Please note: Reserve recommendations are not intended to be comprehensive, but are intende responsibility of project developers and proponents to accurately identify and report on relevan to ensure integrity when reporting on project co-benefits.

		RGB codes	229:35:61	221:167:58	76:161:70
		SDG	1	2	3
		Description	No Poverty	Zero Hunger	Good Health and Well-Being
OFFSET PROJECT PROTOCOLS	Coal Mine Methane				
	Forest				
	Grassland				
	Mexico Boiler Efficiency				
	Mexico Forest				
	Mexico Landfill				
	Mexico Livestock				
	Mexico Ozone Depleting Substances				
	Nitric Acid Production				
	Nitrogen Management				
	Organic Waste Composting				
	Organic Waste Digestion				
	U.S. Ozone Depleting Substances				
	Article 5 Ozone Depleting Substances				
	Rice Cultivation				
	Urban Forest Management				
	Urban Tree Planting				
	U.S. Landfill				
	U.S. Livestock				

d as a starting point for SDG impact reporting. Each project is unique; it is the
t SDGs in good faith. Where possible, quantitative information is strongly encouraged

199:33:47	*239:64:45*	*39:191:230*	*251:196:18*	*163:28:68*	*242:106:46*
4	**5**	**6**	**7**	**8**	**9**
Quality Education	**Gender Equality**	**Clean Water and Sanitation**	**Affordable Clean Energy**	**Decent Work and Economic Growth**	**Industry, Innovation and Infrastructure**

224:20:131	*248:157:42*	*191:141:44*	*64:127:70*	*31:151:212*	*89:186:71*
10	**11**	**12**	**13**	**14**	**15**
Reduced Inequalities	**Sustainable Cities and Communities**	**Responsible Consumption and Production**	**Climate Action**	**Life Below Water**	**Life on Land**

19:106:159 *20:73:107*

16	17	
Peace, Justice and Strong Institutions	Partnerships for the Goals	OTHER (specify)

No Poverty	Zero Hunger	Good Health and Well-Being	Quality Education
Goal 1. End poverty in all its forms everywhere	**Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture**	**3. Ensure healthy lives and promote well-being for all at all ages**	**4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions	2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries	3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round	3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
	2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all

3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States
3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	

3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

Gender Equality	Clean Water and Sanitation	Affordable Clean Energy	Decent Work and Economic Growth
5. Achieve gender equality and empower all women and girls	**6. Ensure availability and sustainable management of water and sanitation for all**	**7. Ensure access to affordable, reliable, sustainable and modern energy for all**	**8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**
5.1 End all forms of discrimination against all women and girls everywhere	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	7.3 By 2030, double the global rate of improvement in energy efficiency	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead
5.5 Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training

5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

6.b Support and strengthen the participation of local communities in improving water and sanitation management

8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries

8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

Industry, Innovation and Infrastructure	Reduced Inequalities	Sustainable Cities and Communities	Responsible Consumption and Production
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	**10. Reduce inequality within and among countries**	**11. Make cities and human settlements inclusive, safe, resilient and sustainable**	**12. Ensure sustainable consumption and production patterns**
9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	12.2 By 2030, achieve the sustainable management and efficient use of natural resources

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets	10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States	10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities
9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020	10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements	11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes

11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production

10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent

11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Climate Action	Life Below Water	Life on Land	Peace, Justice and Strong Institutions
13. Take urgent action to combat climate change and its impacts	**14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development**	**15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**	**16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	16.1 Significantly reduce all forms of violence and related death rates everywhere
13.2 Integrate climate change measures into national policies, strategies and planning	14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	16.5 Substantially reduce corruption and bribery in all their forms

14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation[b]	15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	16.6 Develop effective, accountable and transparent institutions at all levels
14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance

14.b Provide access for small-scale artisanal fishers to marine resources and markets	15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	16.9 By 2030, provide legal identity for all, including birth registration
14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of “The future we want”	15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements
	15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime

15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	16.b Promote and enforce non-discriminatory laws and policies for sustainable development

Partnerships for the Goals

17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

17.3 Mobilize additional financial resources for developing countries from multiple sources

17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress

17.5 Adopt and implement investment promotion regimes for least developed countries

17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation

17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda

17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020

17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence

17.14 Enhance policy coherence for sustainable development

17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

17.16 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries

17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

No Poverty	Zero Hunger	Good Health and Well-Being	Quality Education
Goal 1. End poverty in all its forms everywhere	**Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture**	**3. Ensure healthy lives and promote well-being for all at all ages**	**4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**
1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	2.1.1 Prevalence of undernourishment	3.1.1 Maternal mortality ratio	4.1.1 Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex
1.2.1 Proportion of population living below the national poverty line, by sex and age	2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	3.1.2 Proportion of births attended by skilled health personnel	4.2.1 Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex
1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	2.2.1 Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age	3.2.1 Under-5 mortality rate	4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex

1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable	2.2.2 Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)	3.2.2 Neonatal mortality rate	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex
1.4.1 Proportion of population living in households with access to basic services	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill
1.4.2 Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure	2.3.2 Average income of small-scale food producers, by sex and indigenous status	3.3.2 Tuberculosis incidence per 100,000 population	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated

1.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	2.4.1 Proportion of agricultural area under productive and sustainable agriculture	3.3.3 Malaria incidence per 1,000 population	4.6.1 Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex
1.5.2 Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)	2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities	3.3.4 Hepatitis B incidence per 100,000 population	4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
1.5.3 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	2.5.2 Proportion of local breeds classified as being at risk, not at risk or at unknown level of risk of extinction	3.3.5 Number of people requiring interventions against neglected tropical diseases	4.a.1 Proportion of schools with access to (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)
1.5.4 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	2.a.1 The agriculture orientation index for government expenditures	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	4.b.1 Volume of official development assistance flows for scholarships by sector and type of study

1.a.1 Proportion of domestically generated resources allocated by the government directly to poverty reduction programmes	2.a.2 Total official flows (official development assistance plus other official flows) to the agriculture sector	3.4.2 Suicide mortality rate	4.c.1 Proportion of teachers in: (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country
1.a.2 Proportion of total government spending on essential services (education, health and social protection)	2.b.1 Agricultural export subsidies	3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	
1.a.3 Sum of total grants and non-debt-creating inflows directly allocated to poverty reduction programmes as a proportion of GDP	2.c.1 Indicator of food price anomalies	3.5.2 Harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol	
1.b.1 Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups		3.6.1 Death rate due to road traffic injuries	
		3.7.1 Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods	

3.7.2 Adolescent birth rate (aged 10–14 years; aged 15–19 years) per 1,000 women in that age group

3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)

3.8.2 Proportion of population with large household expenditures on health as a share of total household expenditure or income

3.9.1 Mortality rate attributed to household and ambient air pollution

3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)

3.9.3 Mortality rate attributed to unintentional poisoning

3.a.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older

3.b.1 Proportion of the target population covered by all vaccines included in their national programme

3.b.2 Total net official development assistance to medical research and basic health sectors

3.b.3 Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis

3.c.1 Health worker density and distribution

3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness

Gender Equality	Clean Water and Sanitation	Affordable Clean Energy	Decent Work and Economic Growth
5. Achieve gender equality and empower all women and girls	**6. Ensure availability and sustainable management of water and sanitation for all**	**7. Ensure access to affordable, reliable, sustainable and modern energy for all**	**8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**
5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex	6.1.1 Proportion of population using safely managed drinking water services	7.1.1 Proportion of population with access to electricity	8.1.1 Annual growth rate of real GDP per capita
5.2.1 Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age	6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water	7.1.2 Proportion of population with primary reliance on clean fuels and technology	8.2.1 Annual growth rate of real GDP per employed person
5.2.2 Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence	6.3.1 Proportion of wastewater safely treated	7.2.1 Renewable energy share in the total final energy consumption	8.3.1 Proportion of informal employment in non-agriculture employment, by sex

5.3.1 Proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18	6.3.2 Proportion of bodies of water with good ambient water quality	7.3.1 Energy intensity measured in terms of primary energy and GDP	8.4.1 Material footprint, material footprint per capita, and material footprint per GDP
5.3.2 Proportion of girls and women aged 15–49 years who have undergone female genital mutilation/cutting, by age	6.4.1 Change in water-use efficiency over time	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	7.b.1 Investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities

5.5.1 Proportion of seats held by women in (a) national parliaments and (b) local governments

6.5.1 Degree of integrated water resources management implementation (0–100)

8.5.2 Unemployment rate, by sex, age and persons with disabilities

5.5.2 Proportion of women in managerial positions

6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation

8.6.1 Proportion of youth (aged 15–24 years) not in education, employment or training

5.6.1 Proportion of women aged 15–49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care

6.6.1 Change in the extent of water-related ecosystems over time

8.7.1 Proportion and number of children aged 5–17 years engaged in child labour, by sex and age

5.6.2 Number of countries with laws and regulations that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information and education

6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan

8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status

5.a.1 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure

6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

8.8.2 Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status

5.a.2 Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control

8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate

5.b.1 Proportion of individuals who own a mobile telephone, by sex

8.9.2 Proportion of jobs in sustainable tourism industries out of total tourism jobs

5.c.1 Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment

8.10.1 (a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults

8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider

8.a.1 Aid for Trade commitments and disbursements

8.b.1 Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy

Industry, Innovation and Infrastructure	Reduced Inequalities	Sustainable Cities and Communities	Responsible Consumption and Production
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	**10. Reduce inequality within and among countries**	**11. Make cities and human settlements inclusive, safe, resilient and sustainable**	**12. Ensure sustainable consumption and production patterns**
9.1.1 Proportion of the rural population who live within 2 km of an all-season road	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies
9.1.2 Passenger and freight volumes, by mode of transport	10.2.1 Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP
9.2.1 Manufacturing value added as a proportion of GDP and per capita	10.3.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law	11.3.1 Ratio of land consumption rate to population growth rate	12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

9.2.2 Manufacturing employment as a proportion of total employment	10.4.1 Labour share of GDP, comprising wages and social protection transfers	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	12.3.1 (a) Food loss index and (b) food waste index
9.3.1 Proportion of small-scale industries in total industry value added	10.5.1 Financial Soundness Indicators	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement
9.3.2 Proportion of small-scale industries with a loan or line of credit	10.6.1 Proportion of members and voting rights of developing countries in international organizations	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

9.4.1 CO_2 emission per unit of value added	10.7.1 Recruitment cost borne by employee as a proportion of monthly income earned in country of destination	11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters	12.5.1 National recycling rate, tons of material recycled
9.5.1 Research and development expenditure as a proportion of GDP	10.7.2 Number of countries with migration policies that facilitate orderly, safe, regular and responsible migration and mobility of people	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	12.6.1 Number of companies publishing sustainability reports
9.5.2 Researchers (in full-time equivalent) per million inhabitants	10.a.1 Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff	11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	12.7.1 Number of countries implementing sustainable public procurement policies and action plans
9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure	10.b.1 Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance, foreign direct investment and other flows)	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

9.b.1 Proportion of medium and high-tech industry value added in total value added	10.c.1 Remittance costs as a proportion of the amount remitted	11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	12.a.1 Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies
9.c.1 Proportion of population covered by a mobile network, by technology		11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city	12.b.1 Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools
		11.b.1 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels
		11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	
		11.c.1 Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials	

Climate Action	Life Below Water	Life on Land	Peace, Justice and Strong Institutions
13. Take urgent action to combat climate change and its impacts	**14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development**	**15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**	**16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**
13.1.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	14.1.1 Index of coastal eutrophication and floating plastic debris density	15.1.1 Forest area as a proportion of total land area	16.1.1 Number of victims of intentional homicide per 100,000 population, by sex and age
13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	14.2.1 Proportion of national exclusive economic zones managed using ecosystem-based approaches	15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	16.1.2 Conflict-related deaths per 100,000 population, by sex, age and cause
13.1.3 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations	15.2.1 Progress towards sustainable forest management	16.1.3 Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months

13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)	14.4.1 Proportion of fish stocks within biologically sustainable levels	15.3.1 Proportion of land that is degraded over total land area	16.1.4 Proportion of population that feel safe walking alone around the area they live
13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula	14.5.1 Coverage of protected areas in relation to marine areas	15.4.1 Coverage by protected areas of important sites for mountain biodiversity	16.2.1 Proportion of children aged 1–17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month
13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions	14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	15.4.2 Mountain Green Cover Index	16.2.2 Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation

13.a.1 Mobilized amount of United States dollars per year between 2020 and 2025 accountable towards the $100 billion commitment	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries	15.5.1 Red List Index	16.2.3 Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18
13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities	14.a.1 Proportion of total research budget allocated to research in the field of marine technology	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	16.3.1 Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms
	14.b.1 Degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries	15.7.1 Proportion of traded wildlife that was poached or illicitly trafficked	16.3.2 Unsentenced detainees as a proportion of overall prison population
	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources	15.8.1 Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	16.4.1 Total value of inward and outward illicit financial flows (in current United States dollars)

15.9.1 Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020	16.4.2 Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments
15.a.1 Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems	16.5.1 Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months
15.b.1 Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems	16.5.2 Proportion of businesses that had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months
15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked	16.6.1 Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)
	16.6.2 Proportion of population satisfied with their last experience of public services

16.7.1 Proportions of positions in national and local public institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups

16.7.2 Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group

16.8.1 Proportion of members and voting rights of developing countries in international organizations

16.9.1 Proportion of children under 5 years of age whose births have been registered with a civil authority, by age

16.10.1 Number of verified cases of killing, kidnapping, enforced disappearance, arbitrary detention and torture of journalists, associated media personnel, trade unionists and human rights advocates in the previous 12 months

16.10.2 Number of countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information

16.a.1 Existence of independent national human rights institutions in compliance with the Paris Principles

16.b.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law

Partnerships for the Goals

17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

17.1.1 Total government revenue as a proportion of GDP, by source

17.1.2 Proportion of domestic budget funded by domestic taxes

17.2.1 Net official development assistance, total and to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)

17.3.1 Foreign direct investment (FDI), official development assistance and South-South cooperation as a proportion of total domestic budget

17.3.2 Volume of remittances (in United States dollars) as a proportion of total GDP

17.4.1 Debt service as a proportion of exports of goods and services

17.5.1 Number of countries that adopt and implement investment promotion regimes for least developed countries

17.6.1 Number of science and/or technology cooperation agreements and programmes between countries, by type of cooperation

17.6.2 Fixed Internet broadband subscriptions per 100 inhabitants, by speed

17.7.1 Total amount of approved funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies

17.8.1 Proportion of individuals using the Internet

17.9.1 Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries

17.10.1 Worldwide weighted tariff-average

17.11.1 Developing countries' and least developed countries' share of global exports

17.12.1 Average tariffs faced by developing countries, least developed countries and small island developing States

17.13.1 Macroeconomic Dashboard

17.14.1 Number of countries with mechanisms in place to enhance policy coherence of sustainable development

17.15.1 Extent of use of country-owned results frameworks and planning tools by providers of development cooperation

17.16.1 Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the sustainable development goals

17.17.1 Amount of United States dollars committed to (a) public-private partnerships and (b) civil society partnerships

17.18.1 Proportion of sustainable development indicators produced at the national level with full disaggregation when relevant to the target, in accordance with the Fundamental Principles of Official Statistics

17.18.2 Number of countries that have national statistical legislation that complies with the Fundamental Principles of Official Statistics

17.18.3 Number of countries with a national statistical plan that is fully funded and under implementation, by source of funding

17.19.1 Dollar value of all resources made available to strengthen statistical capacity in developing countries

17.19.2 Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration