

CLIMATE FORWARD ►

Climate Forward Program Manual

Version 1.0
November 2018

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Abbreviations and Acronyms

C	Carbon
CEQA	California Environmental Quality Act
CH ₄	Methane
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Climate Reserve Tonne
FMU	Forecasted Mitigation Unit
GHG	Greenhouse gas
lb.	Pound
N ₂ O	Nitrous oxide
Reserve	Climate Action Reserve

1 Introduction

The Climate Action Reserve (Reserve) is an environmental nonprofit organization that promotes and fosters the reduction of greenhouse gas (GHG) emissions through credible market-based policies and solutions. Based in Los Angeles, the Reserve is the foremost carbon offset registry in North America with internationally recognized expertise in project-level GHG accounting.

The Reserve establishes regulatory-quality standards for the development and quantification of GHG emission reduction projects; issues GHG emission reduction credits for use in compliance and voluntary carbon programs; and tracks the transaction of credits over time in transparent, publicly-accessible systems. Adherence to the Reserve's standards ensures that emission reductions associated with projects are real, permanent, and additional, thereby instilling confidence in the environmental benefit, credibility, and efficiency of carbon markets.

1.1 Climate Forward

Climate Forward, a greenhouse gas mitigation program of the Climate Action Reserve, provides a practical solution to companies and organizations seeking cost-effective mitigation of anticipated (i.e., future) operational and/or project-related GHG emissions. Climate Forward (the "Program") facilitates investments in GHG reduction¹ activities that are practical, scientifically-sound, transparent, and aligned with forward-looking mitigation needs such as the California Environmental Quality Act (CEQA). Climate Forward will drive forward-looking investment into actions expected to result in GHG reductions, with a goal of expanding the scope and scale of feasible emission reduction project types.

The Program enables companies and organizations to invest proactively in projects that reduce GHG emissions in order to mitigate forecasted GHG emissions from business-as-usual operations. The Program provides a transparent and trusted resource for users to reduce their GHG footprints in a manner that is responsible, administered in a consistent manner, and ensures accountability. By following standardized and conservative quantification methodologies approved by the Reserve, project proponents are issued high quality credits to reward the mitigation measures identified. The intent of this program is to recognize investments now that will reduce greenhouse gas emissions in order to mitigate emissions that will occur in the future from new types of economic activity (e.g., a new manufacturing facility, distribution center, housing development, construction project, etc.).

A sub-component of Climate Forward, the CEQA Program (CEQA Program), applies to activities requiring permitting by the State of California. The CEQA sub-component of Climate Forward is intended to provide entities subject to CEQA GHG mitigation requirements with a cost effective and environmentally rigorous option for GHG mitigation. The CEQA subcomponent is intended to be consistent with established CEQA mitigation requirements for any new project that will produce greenhouse gases, as approved by relevant lead agencies.

This manual describes the framework, criteria, and process for:

- 1) GHG reduction methodology submission and review,

¹ Throughout this document, the term 'reduction' is intended to address both GHG emission reductions that are the result of activities designed to reduce emissions, and GHG removals, which are those activities aimed at removing atmospheric CO₂ at rates that exceed business as usual sequestration.

- 2) Project submission and implementation,
- 3) Issuance of Forecasted Mitigation Units (FMUs), and
- 4) Retirement of FMUs against anticipated future streams of GHG emissions including, but not limited to, those subject to CEQA GHG mitigation obligations.

Guidance in this manual is limited to the Reserve's Climate Forward Program and does not apply to any other Reserve program.

Offsets vs. FMUs. *The Reserve's Climate Forward program issues Forecasted Mitigation Units (FMUs) on an ex ante basis. It is not to be confused with carbon offsets, which are credits that are established after rigorous, ex post monitoring and verification of project activities. Offsets can be used for compliance and voluntary purposes and are typically applied against past emission-producing activities (e.g., a company's carbon footprint in the previous year). The Program targets mitigation actions now that will produce a future stream of emission reductions, which can be applied against new investments that will create a future stream of greenhouse gas emissions. Climate Forward projects are eligible to transition into the Climate Action Reserve voluntary offset program if there exists an applicable offset protocol, as long as the project meets protocol-specified transition rules at the time of transition (See Section 1.4.2.2 and Section 4.9).*

1.2 Program Objectives

This Program is designed to provide companies, organizations, developers, and other entities with a conservative, robust, and methodologically rigorous option to mitigate an estimate of expected GHG emissions, on a voluntary or compliance basis, using FMUs generated from mitigation projects under this program. This program fundamentally differs from existing carbon credit programs through its focus on projecting and crediting estimated emission reductions on an *ex ante* basis. The Program was developed to meet the following standards and objectives:

Program Standards

- **Real:** Estimated GHG reductions must be real and not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions must be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage"). It is acceptable to use methodologies that are based on predictive *ex ante* approaches so long as probabilities of non-achievement are included in the estimated credit yield.
- **Additional:** GHG-reducing actions must be additional to any that would have been taken in the absence of the Program, or in the absence of a market for GHG reductions generally.
- **Permanent:** In the context of project activities that protect existing carbon reservoirs or sequester new carbon, in order to function as mitigation units, GHG reductions must effectively be "permanent." Permanence under this Program means that the carbon remains out of the atmosphere at least 100 years. Methodologies that cannot reasonably assure the carbon remains out of the atmosphere for the entire 100-year standard may only receive a proportional quantity of mitigation credits relative to the amount of time that storage is likely to be achieved. Appropriate discounts must be built into any methodology to account for the risk that a given GHG reduction will not remain out of the atmosphere for the 100-year permanence period.

For project activities that achieve mitigation through avoided emissions, permanence is enforced through conservative crediting periods and quantification that account for project degradation and anticipated changes to markets and technologies.

- **Confirmable:** *Ex ante* methodologies provide credits based on a conservative estimation of expected emission reductions. Activities must be confirmed by a Climate Action Reserve approved third-party Confirmation Body to ensure that they have been properly implemented per the terms of the forecast methodology and this Program Manual. That is, credits will only be recognized once the funds for any proposed mitigation activity have already been committed and the mitigation activity is operating as proposed. *Ex post* credits may also be issued based on verification of GHG reductions achieved that are in addition to any credits issued on an *ex ante* basis.
- **Enforceable (where applicable):** If an entity's GHG mitigation efforts are legally mandated, enforcement is handled by the lead approving agency. Once a project has been agreed upon by an agency as adequately mitigating an impact and implemented by the relevant entity, the agency may require that the entity seeking mitigation has retired an appropriate quantity of credits on the registry. Each methodology accepted under this program will incorporate clear and enforceable safeguards to ensure project activities are carried out as described in the methodology, and that ownership rights to resulting emission reductions are unambiguous and enforceable in these circumstances.

Program Objectives

- **Integrity:** GHG emission reduction accounting must be based on credible evidence and sound science, and credits must not have been issued for the same GHG emission reductions in any other program, whether voluntary or mandatory.
- **Transparency:** Mitigation activities conducted under this program will be documented on a public registry, available to responsible agencies and stakeholders.
- **Open and scalable:** The Program is open to all stakeholders to allow for voluntary mitigation measures to be taken. Methodologies developed under this program ideally have broad geographic flexibility and demonstrable cost effectiveness to incentivize investment in and development of projects.
- **Expand GHG mitigation market:** There are many creative, innovative mitigation activities that could be considered under this Program. The Program is designed to expand the scope of feasible GHG mitigation project types by encouraging third parties to submit their own methodologies for mitigation activities. Methodologies and projects under the program are encouraged (but not required) to demonstrate that they expand the scope of GHG mitigation options currently available under existing incentive programs (such as existing offset protocols).
- **Consistency with Requisite Regulatory Frameworks:** The use of FMUs must be compatible with existing regulatory frameworks, such as for CEQA mitigation obligations. For end users subject to CEQA mitigation requirements, the Program is designed to be consistent with established CEQA mitigation requirements for a project, as approved by the relevant lead agency.

1.3 Use of Forecasted Mitigation Units

Under this program, estimated GHG reductions from the mitigation project are recognized as Forecasted Mitigation Units (FMUs), which are each equal to one metric ton of carbon dioxide equivalent (CO₂e) expected to be reduced or sequestered. FMUs can be retired for multiple purposes, including for CEQA mitigation or for other voluntary mitigation purposes, as described in Sections 1.3.1 and 1.3.2 below.

1.3.1 For Voluntary Use

Companies, entities, or individuals seeking to address anticipated emissions from future activities may retire FMUs to proactively mitigate those anticipated emissions. The purpose of FMU retirement is publicly disclosed by the retiring entity upon retirement in the registry. The Reserve encourages the use of FMUs for accounting for anticipated, or projected emissions. Companies, entities, and individuals should use Climate Reserve Tonnes (CRTs) issued under the Reserve's voluntary offset program to offset past emissions. As Forecasted Mitigation Units, FMUs are intended to mitigate forecasted emissions from new economic activity.

1.3.2 Under the California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires companies and other entities to identify the environmental impacts of their actions, and California agencies and municipalities may require that those impacts be mitigated. Both FMUs generated through the Climate Forward Program as well as CRTs generated through the voluntary offset program can be used for CEQA GHG mitigation obligations.

The Reserve does not guarantee the use of FMUs or CRTs will be accepted as a means to meet CEQA GHG mitigation obligations where required by an approving agency(ies). It is the responsibility of developers to ensure the lead approving agency(ies) will accept the use of FMUs and/or CRTs to meet relevant CEQA GHG mitigation obligations, and it would be in the developers' best interests to do so prior to securing procurement of FMUs or CRTs.

1.4 Programmatic Concepts and Issuance Options

Under this program, FMUs are issued up front after a project's initial implementation confirmation ("Confirmation") for the project's entire crediting period, with certain deductions applied based on estimated project performance and estimated project abandonment (see Section 3.1.12). Confirmation refers to an independent third party ("Confirmation Body") conducting a site visit and desk audit to confirm the mitigation project has been implemented as described in the relevant approved forecast methodology, this Program Manual, and the Confirmation Manual.

1.4.1 Project Confirmation

The *ex ante* nature of this program necessitates the introduction of different terminology to clearly describe how this program differs from existing *ex post* emissions reporting and carbon crediting programs. Those who are familiar with carbon markets and emissions reporting should note the introduction of the concept of "project confirmation," which is different from "project verification." The term "verification" has an existing and widely understood definition, suggesting *ex post* substantiation of claims made by the project undergoing verification, while "confirmation" refers to the confirmation by an accredited, independent third-party that a project has been implemented in accordance with the requirements established by this Program Manual and the relevant approved forecast methodology. A "confirmation" is designed to demonstrate that a proposed mitigation project has been implemented according to an approved methodology and

will generate FMUs to mitigate future greenhouse emissions from new economic activity. Further details regarding project confirmation can be found in the Confirmation Manual.

1.4.2 Crediting Options

If a project proponent believes that their project will generate more GHG emission reductions than credited up front, they may opt to submit periodic monitoring and reporting data to the Reserve in accordance with frequencies described in the relevant forecast methodology. This data will be subject to an *ex post* verification (see Glossary) upon the completion of the crediting period and the project may be issued additional FMUs based on the results of that verification, in accordance with Section 3.1.16. This voluntary option provides the program with greater assurance of the environmental integrity of underlying projects by creating an incentive for ongoing monitoring, reporting, and verification, while also allowing project proponents the opportunity to generate additional downstream credits from their projects.

1.4.2.1 Initial Crediting Period

Within the initial crediting period, a project has two options for FMU issuance. A project may either: (1) receive upfront crediting upon successful project implementation and confirmation, or (2) opt in to the optional voluntary monitoring incentive program. For further explanation, see Figure 1.1 and Figure 1.2 below, as well as Section 3.1.16.

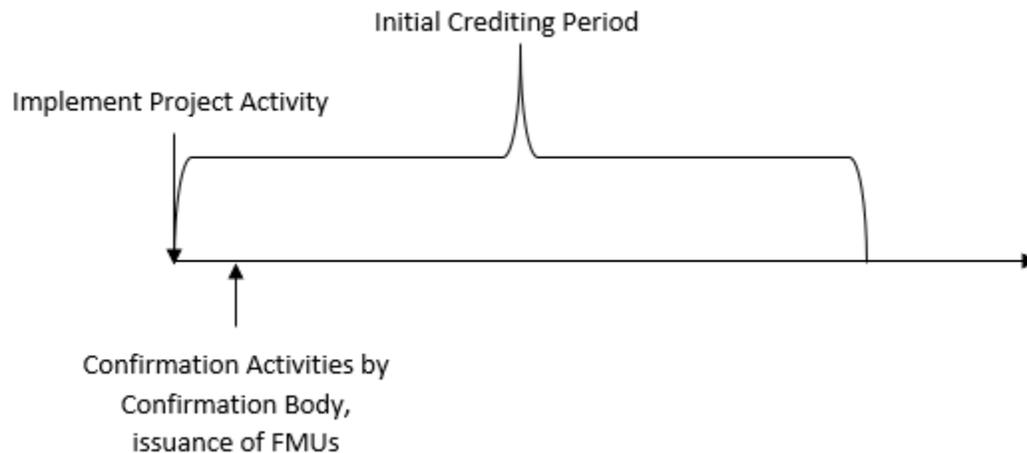


Figure 1.1. Upfront Crediting Upon Successful Confirmation

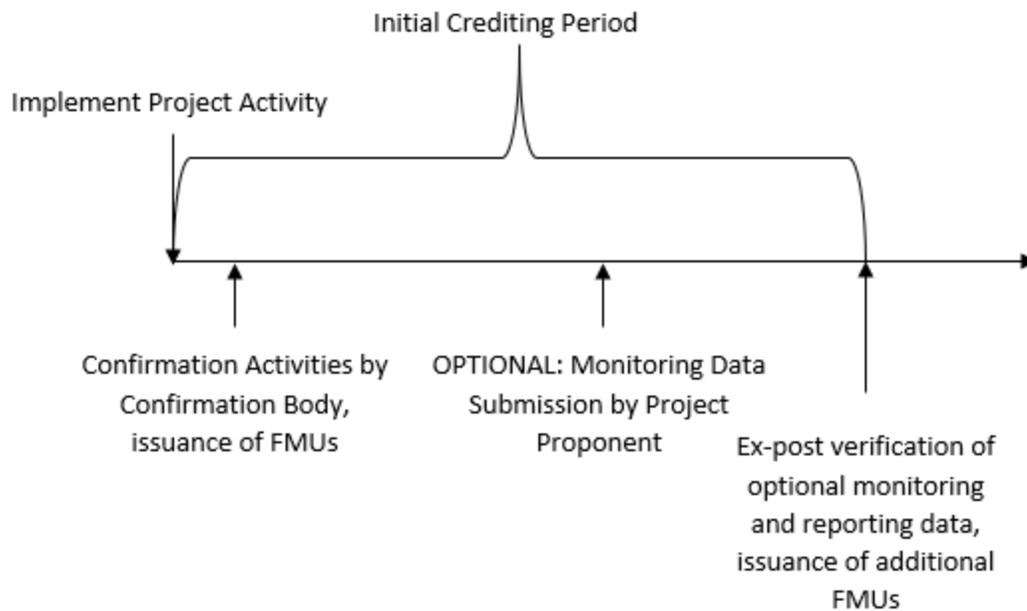


Figure 1.2. Voluntary Opt-In to Ongoing Monitoring and Reporting
(See Section 3.1.16)

1.4.2.2 Crediting Period Renewal

Upon completion of the initial crediting period, a project may cease further crediting, or it may transition the project to periodic *ex post* monitoring, reporting, and verification as established in the relevant forecast methodology. Transitioning to *ex post* monitoring, reporting, and verification may occur under the Climate Forward program for issuance of FMUs (see Figure 1.3), or the project may apply to transition into the voluntary offset program for issuance of CRTs under an applicable offset protocol.

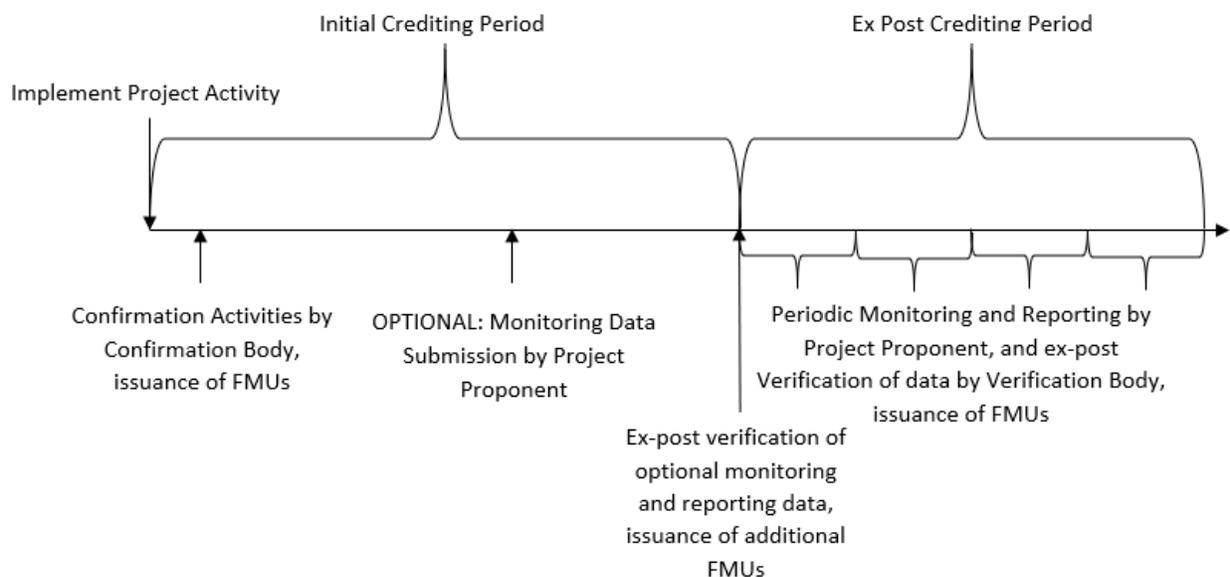


Figure 1.3. Transition to *Ex Post* Monitoring, Reporting, and Verification After Opt-In to Voluntary Monitoring Incentive

1.5 Program Manual

This manual contains details on the Reserve's Climate Forward program, policies, and requirements. Users of this program, including Confirmation Bodies, are subject to the requirements and guidance specified in the most recent version of this document. This manual is considered effective as of the date it is posted on the Reserve website. All account holders and Confirmation Bodies are notified when an update to the manual is released, and the manual is available on the Program webpage at www.climateactionreserve.org.

1.5.1 Revisions to the Program Manual

Between updates, the Reserve may release memos that update or replace guidance in this manual or approved forecast methodologies. These memos are considered effective on the date they are posted on the Reserve website; users of the Program and Confirmation Bodies must follow the guidance specified in the memo from that date forward. All account holders and Confirmation Bodies are notified when a policy memo is released, and memos are posted on the Program webpage at www.climateactionreserve.org. In most cases, the contents of the memos are incorporated into the next update of the Program Manual.

1.6 Pilot Phase

The Program engaged in a "pilot" phase. The purpose of this pilot phase was to allow the Program rules, criteria, and procedures to be developed within a pre-defined "sandbox" to allow for sufficient testing of program procedures before the program is launched more broadly. A preliminary set of methodologies and associated projects was identified for inclusion within the pilot phase.

The methodologies approved as part of the pilot phase were only allowed for use with specific, pre-identified projects. Methodologies that were approved as part of the pilot phase were not guaranteed approval when the program exited the pilot phase. All pilot methodologies must be re-assessed for adherence to Program standards and criteria at the time the Program exits the pilot phase.

2 Program Principles and Criteria

This section describes the general criteria and requirements against which mitigation projects and forecast methodologies will be assessed. This includes criteria to assess eligibility, additionality, and the accuracy and conservativeness of the quantification approach.

There is strong international consensus around a core standard set of overarching principles to guide decisions about the accounting, quantification, and reporting of project-based GHG reductions. These consensus principles are listed and defined in both the International Organization for Standardization (ISO) 14064-2: 2006 and The World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) Greenhouse Gas Protocol for Project Accounting². Definitions of these principles differ slightly between the two standards; for this program, the Reserve interprets the principles as follows:

- **Relevance:** Data, methods, criteria, assumptions, and accounting boundaries should be chosen based on their “intended use.” For this program, this means forecast methodologies are designed around practical, conservative approaches that adhere to core accounting principles and support environmental integrity.
- **Completeness:** All relevant GHG emissions and removals should be accounted for and all relevant information should be considered. Forecast methodologies shall use all relevant information to comprehensively identify the GHG sources, sinks, and reservoirs affected by mitigation projects and account for all significant changes in GHG emissions or removals that may result from a mitigation project.
- **Consistency:** Data, methods, criteria, and assumptions should allow meaningful and valid comparisons of the GHG reductions achieved by different mitigation projects, forecast methodologies, and different activity types.
- **Transparency:** Sufficient information should be disclosed to allow reviewers and stakeholders to make decisions about the credibility and reliability of GHG reduction claims with reasonable confidence. Access to sufficient and appropriate GHG-related information is critical for assuring that a mitigation project’s GHG reduction claims are credible.
- **Accuracy:** Uncertainties and bias should be reduced as far as is practical. Greater accuracy in estimating GHG emissions and reductions will help ensure credibility of GHG reduction claims. Where accuracy is sacrificed, data and assumptions used to estimate GHG reductions should be conservative. Sampled data used to establish forecast methodology parameters or project inputs must achieve a minimum statistical confidence of +/- 5% at 1 Standard Error.
- **Conservativeness:** Conservative assumptions, values, and procedures should be used to ensure that GHG reductions are not over-estimated. Because the GHG reductions

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

under this program will be estimated and credited at the point of activity implementation, approved forecast methodologies must employ conservative estimation methods. Where project benefits are based on projections of project activities, the projections of project benefits must be justified through scientific literature or defensible direct analysis.

Forecast methodologies must establish an empirical approach to demonstrating conservative forecasting or apply a methodology specified discount to the total projected quantity of GHG emission reductions. This is required to account for potential performance uncertainties as well as the likelihood of project non-performance and project abandonment. Each proposed forecast methodology must provide summary statistics around each default value or quantitative assumption that goes into the overall FMU issuance estimation.

These principles underpin all aspects of the Program and will guide decisions where the program affords flexibility or discretion, or where the requirements or guidance are ambiguous. These principles should guide the development of the forecast methodologies and will guide the Reserve's review and approval of such methodologies.

3 Forecast Methodologies

Forecast methodologies contain the eligibility rules, quantification methods, documentation requirements, and confirmation requirements that ensure the consistency and rigor of GHG reduction accounting for a specific mitigation project. When the Reserve has not already approved a forecast methodology applicable to a mitigation project a project proponent wants to undertake, the project proponent will need to develop a forecast methodology and submit it to the Reserve for approval. The Reserve will only issue FMUs for forecasted GHG reductions estimated and confirmed, as well as *ex post* reductions that are quantified and verified under an approved forecast methodology.

This section details the specific eligibility criteria, including but not limited to a rigorous additionality evaluation that each proposed forecast methodology will be evaluated against, as well as the principles that a proposed forecast methodology will be required to meet. It is expected that the forecast methodology will be developed at the project level and will consider existing methodologies for that activity type.

3.1 Criteria for Forecast Methodologies

Forecast methodologies shall contain the following sections, each of which are described in more detail below:

1. Definition of the mitigation project
2. Start date
3. Demonstration of additionality
 - a. Meeting the Legal Requirement Test
 - b. Description and discussion of the performance standard test(s)
4. Description of market expansion focus
5. Discussion of environmental and social safeguards (if applicable)
6. Demonstration of *ex ante* suitability
7. Crediting period and rationale
8. Bundling and aggregation of Projects
9. GHG Assessment Boundary
10. Leakage accounting
11. Description and justification of chosen baseline scenario
12. Estimation of GHG reductions, including assumptions to ensure conservativeness
13. *Ex ante* risk pool contribution
14. Ensuring permanence (if applicable)
15. Project implementation and confirmation
16. Voluntary ongoing monitoring incentive
17. Confirmation activities

3.1.1 Definition of Mitigation Project

A GHG mitigation project is a specific activity or set of activities intended to reduce GHG emissions or increase the storage of carbon or enhance GHG removals from the atmosphere.³ Under this program, a mitigation project is the undertaking or funding of activities that directly

³ World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), 2005. *The GHG Protocol for Project Accounting*. World Resources Institute, Washington, D.C.

reduce or sequester GHG emissions (mitigation projects) at a location other than the site of a project with anticipated GHG emissions.

Every forecast methodology shall clearly define the type of activity (or activities) that constitute the proposed mitigation project type. Methodologies shall be designed to be as widely-applicable as possible within the target sector, rather than being limited to the specific characteristics of an individual project. A clear definition ensures that GHG quantification methods prescribed by the forecast methodology are applied only where they are relevant and appropriate (e.g., location, required pre-existing conditions, etc.).

The definition section should also include any specific relevant exclusions where required conditions could not be met, or the forecast methodology would not be applicable. It is also possible for a “project” to be defined in a way that allows for the implementation of the same activity at multiple sites over a finite period of time. Such “batch” projects shall be clearly defined within the applicable forecast methodology.

3.1.2 Start Date

Start dates are often defined by reference to a discrete action undertaken by the project to create reductions. Each methodology must outline what action, or set of actions, defines the start date. Some methodologies will include some flexibility, in the form of a staged and finite start-up period, allowing projects to test out equipment and processes, intermittently or at a small scale, before being considered operational. For other project types, the start of a project may be defined by the entering into force of a particular legal agreement, such as a contract to initiate project activities or the recordation of an easement.

Projects are only eligible if the project is submitted to the Reserve no more than one year after the mitigation project start date.⁴ Projects may always be submitted prior to the start date. Specific requirements for what denotes a project start date are detailed in each Reserve approved methodology.

3.1.3 Demonstration of Additionality

The Reserve requires a standardized approach to determining additionality for this program, where methodology developers will propose in the forecast methodology a set of criteria designed to exclude non-additional mitigation projects and include additional ones on a sector-wide basis.⁵

All forecast methodologies should incorporate standardized additionality tests, rather than providing rationale for additionality based only on project-specific implementation barriers and/or expected benefits. Two elements must be included in the forecast methodology: demonstration that the mitigation project is not mandated by law (the Legal Requirement Test) and the development of an appropriate performance standard test(s) that demonstrates the mitigation

⁴ A mitigation project is considered “submitted” when all appropriate forms have been completed, and all applicable fees have been paid to the Reserve.

⁵ Within existing carbon offset programs, there are two basic approaches to determining “additionality”: project-specific and standardized. The Reserve has built its reputation and gained prominence by pioneering standardized approaches to crediting GHG reductions. For example, standardized tests could involve determinations that a project: (1) is not mandated by law; (2) exceeds common practice; (3) involves a particular type of high-performing technology relative to the common practice; and/or (4) has an emission rate lower than most others in its class (e.g., relative to a performance standard).

project would not have been implemented under a conservative business-as-usual baseline scenario. These are described in more detail below, in Section 3.1.3.

Two elements must be included in the forecast methodology: demonstration that the mitigation project is not mandated by law (the Legal Requirement Test) and the development of an appropriate performance standard test(s) that demonstrates the mitigation project would not have been implemented under a conservative business-as-usual baseline scenario.

3.1.3.1 Legal Requirement Test

Mitigation projects are very likely to be considered non-additional if their implementation is required by law. The Legal Requirement Test ensures that eligible mitigation projects would not have occurred anyway in order to comply with national, regional, state, local, or other relevant regulations, or other legally binding mandates. For the purposes of the Program, a mitigation project passes the Legal Requirement Test when there are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions, or other legally binding mandates requiring its implementation.

Under this program, the specific provisions of the Legal Requirement Test may differ depending on the mitigation project. The Reserve expects the project proponent to perform a review of existing and pending regulations to identify any specific regulatory requirements that would mandate the implementation of mitigation projects covered by the methodology, including local agency ordinances or rulings. In evaluating a proposed forecast methodology, the Reserve will consider any adopted, but not yet effective, law, regulation, order, or other legal requirements legally mandating implementation of the proposed mitigation activity.

Depending on the location of the mitigation project, there may be insufficient compliance and/or enforcement of national, regional, state, local, or other regulations. The level of compliance and enforcement of relevant regulations is something that can be explored and assessed within each proposed forecast methodology. It may be possible for a mitigation project to pass the Legal Requirement Test even if there is a law that requires its implementation given the reality of the lack of compliance and enforcement on the ground. Forecast methodologies must describe how the proposed project type meets the legal requirement test.

3.1.3.2 Performance Standard Test

Mitigation projects that are not legally required may still be non-additional if they would have been implemented for other reasons, including, for example, because they are economically-attractive investments irrespective of the value of their GHG reductions (and don't face other significant barriers). Performance standard tests are intended to screen out this type of mitigation project. In developing performance standards, project proponents must consider financial, economic, social, technical, and technological drivers and barriers that may affect decisions to undertake a mitigation project. Standards are specified such that, to the maximum extent feasible, mitigation projects that meet the standard would not have been implemented due to these other drivers. In other words, incentives created by the GHG mitigation market are highly likely to have played a critical role in decisions to implement mitigation projects that meet the performance standard.

Although performance standard tests do not require individual assessments of financial returns and implementation barriers, they are designed to reflect these factors in determining which mitigation projects are additional. Mitigation projects that pass a performance standard test

should be those that – in the absence of their GHG reduction value – would have insufficient financial returns or would face other types of insurmountable implementation barriers.

Performance standard tests are developed through analysis of standard practices and technology deployment in industry sectors related to a specific mitigation project. They may also be based on an assessment of “typical” financial, implementation, and operating conditions facing a certain type of mitigation project.

Under this program, performance standards may be specified in several ways – for example:

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

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

This program has no predefined threshold for determining an acceptable performance standard. Rather, establishing performance standards involves balancing the need to prohibit eligibility for non-additional mitigation projects with the goal of allowing additional (and otherwise eligible) mitigation projects to participate. Setting a threshold always involves making tradeoffs between these two goals and may also involve considerations about the size of the market for mitigation credits and the potential supply of reductions available from certain mitigation project types. See Box 3.1 for further discussion and a hypothetical example.

Box 3.1. Determining Acceptable Performance Standard Thresholds

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

For example, suppose a particular emission-reducing technology has a market penetration rate of five percent, and there is no indication that it is increasing in any appreciable way. In most instances, such a technology would not be considered “common practice.” However, if a threshold were established allowing all instances of this technology to be eligible for crediting, we could expect existing users of the technology to apply for credit even though they were employing it already, without any incentives from the value of the GHG reduction. This will have adverse consequences for the integrity of the Program. Whether such consequences are serious depends on the potential supply of reductions from this technology compared to overall demand for reductions. If five percent of the market would result in hundreds of millions of metric tons of GHG reductions, for example, then a simple technology-based threshold would be too lenient, and the Reserve would explore using additional criteria that could further exclude “business-as-usual” instances of the technology despite its relative rarity. If five percent of the market would result in only a few thousand metric tons of GHG reductions, then the Reserve may consider a simple technology-based threshold acceptable. In addition, the performance standard works in concert with other additionality criteria, such as the acceptability of certain project start dates.

3.1.4 Market Expansion Objective

All submitted projects under an approved forecast methodology are encouraged to demonstrate how the methodology encourages actions leading to GHG reductions that are generally not feasible under existing GHG crediting or incentive programs (See Section 3.2.4). Forecast methodologies may provide a general overview of project characteristics that would make projects under the proposed forecast methodology meet this concept, as well as guidance for how projects can demonstrate that they have those characteristics. See Box 3.2 for an illustrative example.

Box 3.2. Example of Market Expansion Objective

Mitigation projects under this Program are developed with the intent of expanding the scope of GHG mitigation project types through innovative methodologies that expand the breadth of activities occurring under current programs, such as the offset market. To that end, forecast methodologies for project types that have been adopted on a wide scale in existing offset programs should provide a general description of characteristics that outline how the activities expand opportunities for GHG mitigation.

For example, livestock dairy digester projects have been adopted on a large scale in existing offset programs. However, there may be practical size limitations that prevent all dairies from participating in these programs. The forecast methodology should provide a brief description of the general size that a dairy farm must exceed before a dairy digester project would be feasible under an offset program, such that specific projects that are submitted to this Program can demonstrate that they are smaller than the described size threshold. Forecast methodologies should endeavor to describe a comprehensive set of criteria that a given individual project can use to demonstrate market expansion beyond existing programs.

3.1.5 Discussion of Environmental and Social Safeguards

The Reserve requires project proponents to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice. When registering a project, the project proponent must attest that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting period. Methodologies and/or projects that can demonstrate quantifiable, direct social and environmental co-benefits resulting from project implementation may be granted discounted fees on a case by case basis.

The project proponent must provide a list of all applicable laws related to initial and ongoing implementation of the project and provide a narrative of measures enacted to comply with each as part of the Project Implementation Report (see Section 3.1.15). Implementation of these measures are subject to confirmation by the Confirmation Body. Determination of whether the measures are sufficient to reasonably mitigate the risk of regulatory non-compliance is at the sole and final discretion of the Reserve. Individual forecast methodologies may be required to include measures for projects designed to ensure specific environmental and social safeguards are in place.

All forecast methodologies that involve local communities and indigenous peoples must ensure their values and rights are recognized and respected throughout the project life, and that project design, implementation, and any ensuing confirmation or verification is established and executed in accordance to the spirit of Free, Prior and Informed Consent, in an inclusive and transparent manner sensitive to all concerned stakeholders, and in particular all marginalized and vulnerable groups.

3.1.5.1 Criteria Applied for Environmental and Social Safeguards

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

Legal Obligation

The Reserve will rely first and foremost on legal requirements within the jurisdiction(s) where the project is implemented.

“Do No Harm” Beyond Legal Requirements

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

The forecast methodology shall contain a narrative describing an evaluation of any potential adverse environmental, social, or economic impacts that may be caused by the mitigation project, and actions that must or should be taken to avoid adverse impacts.

In some cases, the Reserve may determine, in consultation with experts, that additional safeguards are needed to protect against important environmental and social harms. In these cases, the project proponent may be required to include additional criteria in the forecast methodology to ensure that mitigation projects will not give rise to these harms or may screen out certain activity types from eligibility under a forecast methodology altogether.

3.1.6 Demonstration of *Ex Ante* Suitability

To ensure that any issued FMUs have a reasonable expectation of being realized over time, methodologies must demonstrate that the type of project activity described in the methodology is suited for *ex ante* crediting. To do this, the methodology must provide guidance for establishing cost estimates for the initial implementation of the mitigation project, and cost estimates for ongoing maintenance, upkeep, and operation to maximize the likelihood that the mitigation project is operational for the lifetime of its crediting period. Further, all submitted forecast methodologies must provide justification showing that the proposed project type, once implemented, is likely to continue, and continue at the levels forecast. Project types that are unlikely to continue without sufficient ongoing incentives to the project proponents are not suitable for an *ex ante* crediting framework. As a general principle, project types that have relatively high initial implementation costs and relatively low ongoing maintenance, upkeep, and operation costs are better suited for *ex ante* crediting. Mitigation activities that provide additional co-benefits beyond greenhouse gas emission reductions may provide increased incentive for continued implementation through the entire crediting period.

3.1.7 Crediting Period and Rationale

The mitigation project “crediting period” defines the period of time over which GHG reductions from a mitigation project are estimated and eligible to be confirmed as mitigation credits. Because of the *ex ante* nature of crediting under this program, the forecast methodology must set criteria for project proponents to define and justify the proposed crediting period. Reference to any analysis and supporting datasets shall be included in this section of the forecast methodology, and such analysis will generally be included as an appendix. The default crediting period for sequestration-based project types is set at 25 years with the option to renew the crediting period up to 100 years in cases where sequestration can be demonstrated to be sufficiently secured to the Reserve’s discretion. Under no circumstances will the combined total of crediting periods for sequestration-based project types exceed 100 years. Mitigation projects that are implemented in batches may quantify crediting periods on a batch-specific basis, such that the overarching mitigation project generates credits for a period of time greater than 25 years, but no single project installation is credited with *ex ante* crediting for greater than 25 years.

Forecast methodologies must establish the rules and requirements for *ex ante* crediting period renewal. If desired, the methodology must also establish rules and requirements for *ex post* monitoring, reporting, and verification if it can be determined that the project type is suitable for transitioning to *ex post* monitoring, reporting, and verification upon the conclusion of the initial *ex ante* crediting period. If a project pursues further crediting beyond the crediting period through *ex post* monitoring, reporting, and verification, verification must be conducted in accordance with the procedures and frequencies established by the forecast methodology. If a given forecast methodology is silent on verification procedures for *ex post* crediting, the Reserve shall work with the interested project proponent to develop appropriate verification guidelines.

3.1.8 Bundling/Aggregation of Projects

Aggregation of multiple projects of the same type together for reporting purposes is allowed for only certain project types, with bundling and aggregation rules described within specific methodologies. Generally, each mitigation project, as defined by the project definition and/or project boundary (described in each forecast methodology), must register separately with the Reserve. However, forecast methodologies for certain project types may allow project boundaries to span multiple activities or locations. A single mitigation project may be defined as

a pre-determined batch of discrete installations (e.g., a batch of solar PV panel installations may constitute one mitigation project).

Proponents of mitigation projects should check specific forecast methodologies and associated guidance documents for direction on whether and how aggregation is allowed.

3.1.9 GHG Assessment Boundary

The GHG Assessment Boundary⁶ delineates the GHG sources, sinks, and reservoirs (SSRs)⁷ that must be quantified by the methodology to determine the total net change in GHG emissions caused by a mitigation project.

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

SSRs are only included in the GHG Assessment Boundary if a mitigation project will have a *significant* effect on their associated GHG emissions or removals. The project proponent shall propose significance based on an assessment of the range of possible outcomes for a relevant SSR. Inclusion or exclusion of SSRs is determined for each forecast methodology based on the principles of completeness, accuracy, and conservativeness, and the need for practicality (e.g., related to measurement costs). In general, relevant SSRs should only be excluded from the GHG Assessment Boundary if:

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

If excluding SSRs is unavoidable for practical reasons, then calculation and estimation methods related to included SSRs must be made suitably conservative to avoid overestimating total net GHG reductions or removals. All SSRs determined to be within the GHG Assessment Boundary shall be identified in the calculation of GHG reductions.

The forecast methodology shall:

- List all SSRs potentially affected by a mitigation project
- Explain or describe the SSR
- Identify whether the SSR is present in the baseline, project case, or both
- Indicate whether each SSR is included in the GHG Assessment Boundary
- Justify instances where a SSR is excluded from the GHG Assessment Boundary

⁶ See World Resources Institute and World Business Council for Sustainable Development, 2005. *The GHG Protocol for Project Accounting*, World Resources Institute, Washington, DC.

⁷ Terminology is from International Organization for Standardization, 2005. ISO 14064, Part 2: "Specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal enhancements." International Organization for Standardization, Geneva, Switzerland.

- Identify whether and how GHG emissions, removals, or storage from the SSR will be estimated
- If GHG emissions, removals or storage will be estimated, justify why values will be estimated rather than measured (or calculated from other measurements) and how measures will be taken to ensure estimates are conservative

This Program does not restrict the GHGs that may be considered within the GHG Assessment Boundary. Any gas that has been determined by the IPCC to have a radiative forcing effect on the atmosphere may be considered for inclusion in a protocol. Forecast methodologies may address gases other than the six GHGs regulated under the Kyoto Protocol (i.e., CO₂, CH₄, N₂O, SF₆, HFCs, and PFCs). All non-CO₂ GHGs will be normalized into tonnes of CO₂e through the use of 100-year global warming potential (GWP) values published by the IPCC. Projects shall apply the same GWP values as specified for the Reserve's offset program (the IPCC 4th Assessment Report, as of this writing), unless otherwise specified in the forecast methodology or public communications from the Reserve.

3.1.9.1 Physical Project Boundary

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

3.1.10 Leakage Accounting

The term "leakage" is often used to refer to unintended increases in GHG emissions that may result from a mitigation project. Generally, leakage occurs at SSRs that are physically distant from the mitigation project itself or otherwise outside the mitigation project's physical boundaries. To the extent that any proposed methodology may introduce leakage of claimed environmental benefits, i.e., directly result in emissions sources increasing outside of the project boundary, proper accounting of any leakage impacts shall be included in the methodology.

3.1.11 Description and Justification of Chosen Baseline Scenario

Baseline emissions are always subject to uncertainty because they are counterfactual, i.e., they are an estimate of GHG emissions or removals that would have occurred in the absence of the mitigation project. This notion is especially true in the context of *ex ante* mitigation. Depending on the mitigation project type and SSRs involved, many methods can be used to try to estimate baseline emissions. The Reserve requests that project proponents use standardized baselines in forecast methodologies to the extent possible, meaning that the same conservative assumptions, emission factors, and calculation methods would be applied to all registered projects within a mitigation project type. Standardized baseline approaches seek to avoid case-by-case analysis of individual mitigation projects while maintaining overall levels of estimation accuracy and environmental integrity. Project-specific calculations and emission factors may be used wherever necessary to ensure accuracy, or where standardized methods would result in estimates that are overly conservative in many cases. It is common for methodologies to utilize both standardized assumptions and project specific calculations and factors.

Standardized baselines are developed by considering broad trends (economic, technological, regulatory, and policy) in the industry or sector relevant to a mitigation project type and determining what future “business-as-usual” alternative activities are likely to be. To develop standardized baselines, the methodology developer should determine the most likely alternative technologies or practices. In many cases, a single practice, activity, or technology is assumed to be the common baseline alternative for a class of mitigation projects. In some cases, the performance threshold developed for additionality may also be used as an emissions baseline.

The narrative describing and defending the chosen baseline scenario should address if the baseline represents a fixed baseline over the duration of the crediting period, or if it considers projected changes in baseline conditions over time. A dynamic baseline may be necessary to ensure conservativeness of the baseline over time. For example, if a project type is related to implementation of an energy efficiency measure, baseline quantification should account for anticipated changes to the underlying marginal grid emission factors.

3.1.12 Conservative Estimation of GHG Reductions

GHG reductions are calculated by comparing the forecasted baseline to the forecasted mitigation project performance over a certain time period. GHG reductions are achieved when the mitigation project results in lower GHG emissions to the atmosphere over a certain time period compared to what would have happened absent the mitigation project. The general formula for calculating GHG reductions is:

$$\text{GHG Reductions} = (\text{Forecasted Baseline Emissions} - \text{Forecasted Mitigation Project Emissions})$$

For biological carbon sequestration mitigation projects, GHG removals are achieved when the forecasted mitigation project performance results in more carbon sequestered in biological carbon stocks over a certain time period than would have been in the absence of the mitigation project. The general formula for calculating GHG removals is:

$$\text{GHG Removals} = [(\text{Incremental Forecasted Mitigation Project Sequestration} - \text{Incremental Forecasted Baseline Sequestration}) + (\text{Forecasted Baseline Emissions} - \text{Forecasted Mitigation Project Emissions})]$$

The forecast methodology shall contain a detailed quantification methodology for both baseline and project emissions in order to calculate the estimated emission reductions associated with all SSRs for the mitigation project. The forecast methodology must account for the risk that the emission reductions might not be achieved as forecasted. As a result, the methodology will be conservative in terms of estimating total GHG reductions achieved.

Where default values are proposed, the source/reference for the default value must be included. Examples of evidence that may satisfy this requirement include independent studies conducted in the past 10 years, literature reviews, independent expert testimony, or values utilized in active projects issuing carbon credits under reputable carbon crediting programs such as the Clean Development Mechanism (CDM) or similar programs in the region or country concerned. All assumptions should be clearly described and defended, and references provided for any relevant datasets, studies, or methodologies to be used.

If any proposed default values are independently developed and do not meet the standards as described above, the following general principles apply. If the proposed default value is independently developed and has a positive correlation with FMU issuance, that value should

be no greater than the 25th percentile of the sampled data points. If the default value is independently developed and has a negative correlation with FMU issuance, that value should be no less than the 75th percentile of the sampled data points. These guidelines are to be followed unless statistical justification is provided that there is sufficient certainty regarding variable estimation. To demonstrate that a default value should be greater than the 25th percentile or less than the 75th percentile, respectively, analysis must be provided showing that variance does not exceed 10% of the proposed value. See Box 3.3 for further discussion and a hypothetical example.

Box 3.3. Acceptable Parameters for Default Values

Where default value inputs to the overall GHG Estimation quantification for a mitigation project are required, and no reputable values are available for use in developing the relevant forecast methodology, the methodology developer may propose their own default values for GHG reduction estimation. To do this, the methodology developer must engage with an independent third party to conduct an independent study to propose an evidence-based default value for use in the methodology. For example, if the forecast methodology in development is for methane destruction at a dairy farm, and the methodology does not have a reputable source for modeling the methane generated by the average population of livestock at the dairy, the methodology developer must engage with a third party to conduct an independent survey that establishes a formula for estimating methane generated per head of livestock. This formula must be calibrated to the 25th percentile, as an increase in the assumed methane generated per head of livestock would also lead to an increase in estimated FMU generation (positive correlation with FMU issuance).

3.1.12.1 Estimating Performance Decline

The quantification approach must explicitly describe how mitigation project efficiency is expected to change over the crediting period, and what assumptions are built into the calculations to account for any decreasing performance over time (e.g., declining conversion efficiency of PV panels over time). Performance decline assumptions built into the forecast methodology must be supported by current peer reviewed academic literature or other similar sources.

3.1.12.2 Estimating Abandonment Rates

The quantification approach must explicitly describe and account for any expected mitigation project abandonment over the crediting period (e.g., rate of abandonment of energy efficient lighting over time). Project abandonment rates built into the forecast methodology must be supported by current peer reviewed academic literature or other similar sources.

3.1.13 Ex Ante Risk Pool Contribution

All forecast methodologies must propose a standard contribution of FMUs to a risk pool. This contribution is to be inclusive of FMU discounts applied to account for performance decline and abandonment rates. This risk pool will ensure that the FMUs issued to the project are conservative beyond the estimation calculations as described in Section 3.1.12, mostly to address potential concerns over project performance falling below the levels assumed using conservative assumptions (e.g., catastrophic project failure such as a forest fire or complete shutdown of a project). *Ex post* issuance of FMUs that have been deposited to the risk pool is possible if the project proponent engages in ongoing monitoring and reporting, with periodic verification. The frequency of verification is established on a methodology-specific basis and must be followed if the project wishes to be issued any amount of FMUs from the risk pool at a later date. There must be at least one verification conducted upon the conclusion of the

crediting period to ensure ongoing project implementation through the entire duration of the crediting period. The option for issuance of FMUs from the project specific risk pool, as well as details regarding verification is described in further detail in Section 3.1.16.

3.1.14 Ensuring Permanence

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

If a mitigation project type has a risk for reversal, it must be described and addressed in the forecast methodology. This will most likely be in the form of a discount on mitigation credits issued depending on the assumed risk of reversal for a given mitigation project or mitigation project type. Discounts due to the risk of reversal are not eligible to be issued through the Voluntary Ongoing Monitoring Incentive described in Section 3.1.16.

3.1.15 Project Implementation and Confirmation

Summary project information, input data, estimation summaries, and continued implementation measures should be submitted in the form of a Project Implementation Report prepared by the project proponent. The forecast methodology must detail what information should be included in such a Project Implementation Report.

Beyond criteria for the confirmation of initial implementation, the forecast methodology shall describe and address any Project Resilience Measures that will be undertaken to continue the implementation of the mitigation project for the duration of its crediting period. All proposed methodologies must thoroughly identify risk factors that negatively affect project performance or cause project abandonment and describe Project Resilience Measures. Such measures will need to be methodology-specific for a proposed project type. For example, a forecast methodology might include a funding mechanism to ensure the mitigation project is managed appropriately into the future or require a conservation easement to ensure land conservation in perpetuity.

3.1.16 Voluntary Ongoing Monitoring Incentive

As described in Section 3.1.13, all projects are required to contribute a methodology specific percentage of anticipated GHG reductions to the *ex ante* risk pool. The Reserve recognizes that project proponents may believe that submitted projects can exceed the FMU issuance granted upon initial registration due to this contribution. To the extent that projects can demonstrate that actual GHG reductions have exceeded the original quantity of FMUs recognized by the project, this program is structured to allow project proponents to receive credit for additional reductions beyond the initial *ex ante* crediting by submitting documentation verifying the additional quantity of GHG reductions produced.

Forecast methodologies must specify the monitoring information and data required for submittal to the Reserve on an ongoing basis to be eligible for crediting from the project’s contribution to the risk pool. All submitted monitoring information and data must be verifiable and will require

periodic third-party verification to confirm the veracity of reported data and continued operation of the project, the frequency of which is set by the relevant methodology. The project proponent must also provide a final data report, subject to verification, describing how the monitoring information demonstrates that project performance exceeded anticipated GHG reductions to justify issuance of some portion of a project's contribution to the risk pool.

All monitoring and reporting, inclusive of the final data report, are subject to verification. As this ongoing monitoring is voluntary in nature, the project proponent may decide to cease ongoing monitoring and reporting to the Reserve at any point in time prior to the conclusion of the crediting period without penalty but would then forfeit the right to be issued any credits from the risk pool.

3.1.16.1 Voluntary Monitoring Incentive for Sequestration Based Projects

Sequestration based projects (or other project types that can accurately quantify total GHG emission reductions at a given point in time) may be issued the full quantity of FMUs warranted upon successfully completing an *ex post* verification. The verification must be conducted in accordance with verification rules established within the relative methodology.

See Box 3.4 for further discussion and a hypothetical example.

Box 3.4. Rationale and Example of Ongoing Monitoring Incentive

Recognizing that mitigation projects under this Program are developed with the intent of generating credits on an *ex ante* basis, the inclusion of a voluntary incentive for ongoing monitoring of project data creates greater assurance of environmental integrity of underlying GHG reduction claims. All projects must contribute a pre-determined percentage of anticipated FMU issuance to a risk pool. Projects that wish to recover any amount of the contributed FMUs must submit monitoring information and data related to the project on an ongoing basis to the Reserve, as specified by the relevant forecast methodology.

For example, suppose a forecast methodology is related to reforestation projects with a 25-year crediting period. In year 1, after confirmation, the project is issued 80,000 FMUs. In year 25, the project proponent hires a third-party verifier to conduct a full site inventory using inventory methods from the approved methodology, and the verifier concludes that the project area has sequestered 120,000 MT CO₂e (after accounting for permanence). The project proponent would then be issued an additional 40,000 FMUs.

3.1.16.2 Voluntary Monitoring Incentive for Non-Sequestration Based Projects

For project types where GHG reductions are not generated through biological sequestration, the opportunity for additional issuance of FMUs is limited to the amount contributed to the *ex ante* risk pool. This is because the standard of reporting to satisfy the voluntary ongoing monitoring incentive is not meant to ensure an accurate ton for ton accounting of GHG reductions, but rather to ensure that project performance is better than estimated by the applicable methodology, as well as to ensure that the overall program maintains an overall buffer of emission reductions.

3.1.17 Confirmation Activities

There is no requirement for ongoing verification of the mitigation project under this program. This program requires a one-time implementation confirmation by an independent third party to confirm the mitigation project has been implemented as described in the forecast methodology.

The confirmation incorporates both a desktop documentation review and a site visit assessment of the mitigation project. The forecast methodology shall describe what type of documentation and data the independent third party should expect to review as part of the confirmation activities, and what criteria/activities the independent third party shall confirm when on site after mitigation project implementation. Confirmation bodies should also consult the Climate Forward Confirmation Manual for further requirements related to project confirmation and Confirmation Body rules and requirements.

3.2 Criteria for Mitigation Projects

Eligibility criteria specify essential characteristics that a GHG mitigation project must have to register under this program. These criteria must be detailed in each forecast methodology and any subsequent project submittal. To be eligible, the project proponent must demonstrate that the mitigation project will:

1. Be additional, i.e., it would not have happened in a conservative business-as-usual scenario.
2. Be unique, i.e., not be listed, registered, or credited through another GHG reduction scheme.
3. Be conservatively estimated.
4. Have characteristics that expand the accessibility of actions available under existing GHG reduction incentive programs (such as existing offset protocols).
5. Not cause adverse environmental, social, or economic impacts.

Each of these criteria is discussed further below.

3.2.1 Additionality

It is important to credit only GHG reductions from mitigation projects that are additional to their business-as-usual baseline scenarios. Baselines represent counterfactual scenarios in which the Program does not exist to provide incentives to implement the mitigation project. Ensuring that the activity would not have taken place in the absence of the Program ensures that FMUs issued for the mitigation activities are additional. Additionality is critical to the success and integrity of Programs that recognize project-based GHG reductions. The Reserve requires a standardized approach to determining additionality under this program, where performance standards and other conditions or criteria that mitigation projects must meet will be assessed by a Confirmation Body and ultimately approved by the Reserve.

3.2.1.1 Project Submission Deadline

To be eligible as a mitigation project, the project must be submitted to the Reserve no more than one year after the mitigation project start date, as defined in the relevant approved forecast methodology. Projects may always be submitted prior to the mitigation project start date.

3.2.2 Double Counting

To ensure the integrity of the mitigation credits issued and avoid any issues of double counting, the mitigation project must not be concurrently listed, registered, or earning credits under any other GHG reduction scheme. It may be possible for a mitigation project that has previously been credited under another scheme to transfer into this program, but no previously credited reductions will be recognized by this program.

3.2.3 Conservative Quantification

This Program is premised on the idea that mitigation activities, including CEQA mitigation, often allow for the forecast of GHG emissions from certain development projects and activities and allows emitters to quantify and address the impact of those emissions on an *ex ante* basis. The program is designed to mirror this forward-looking approach. The program aims to provide documentation that will demonstrate to a high degree of transparency that a quantity of forecasted emission reductions from a mitigation project (*i.e.*, FMUs) have been issued and retired which the developer can then balance against the mitigation of forecasted emissions associated with a specific project approval.

3.2.4 Market Expansion Objective

Mitigation projects submitted to the Program are required to describe, in accordance with the guidance set forth in the relevant forecast methodology, how the project supports the Program's objective of market expansion. This description may be qualitative in nature.

3.2.5 Regulatory Compliance and Environmental and Social Safeguards

The Reserve requires project proponents to demonstrate that their GHG projects will not undermine progress on other environmental issues such as air and water quality, endangered species and natural resource protection, and environmental justice. When registering a project, the project proponent must attest that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting period. Moreover, preference will be given to methodologies and/or projects that deliver other direct social and environmental benefits.

The project proponent must provide a list of all applicable laws related to initial and ongoing implementation of the project and provide a narrative of measures enacted to comply with each as part of the Project Implementation Report (see Section 3.1.15). Implementation of these measures are subject to confirmation by the Confirmation Body. Determination of whether the measures are sufficient to reasonably mitigate the risk of regulatory non-compliance is at the sole and final discretion of the Reserve. Individual forecast methodologies may be required to include measures for projects designed specifically to ensure environmental and social safeguards.

3.3 Methodology Approval

When the Reserve has not already approved a forecast methodology applicable to a mitigation project, the project proponent will need to propose a forecast methodology for approval. The Reserve will only issue mitigation credits for forecasted GHG reductions estimated and confirmed under an approved forecast methodology. The Reserve reserves the right to reject any submitted methodology that does not meet the standards for high environmental integrity described in this manual. The decision to approve or reject a methodology is solely at the discretion of the Reserve.

Proposed forecast methodologies are reviewed by the Reserve and by third party technical experts (peer reviewers), if necessary, and will also undergo a public comment review process (see Figure 3.1). The process for third party technical expert review is to be initiated as soon as the Reserve determines that third party technical expert review is warranted. The Reserve will work with the project proponent to revise the forecast methodology to meet the principles of the Program (see Section 1.6). Once a forecast methodology has been approved by the Reserve, mitigation projects may be submitted and issued mitigation credits using that approved

methodology. See below for an overview of the forecast methodology approval process. For a more detailed description of the forecast methodology approval process, please see the Forecast Methodology Approval Manual.

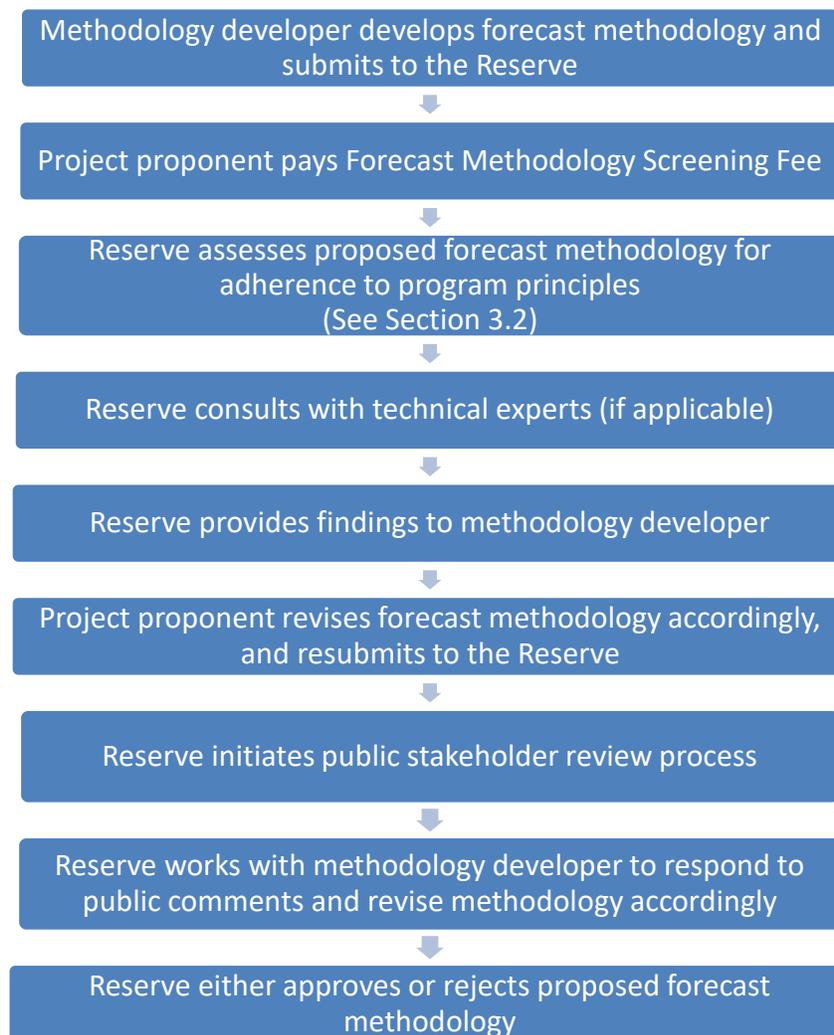


Figure 3.1. Summary Overview of the Forecast Methodology Approval Process
For more details regarding the process, please see the Forecast Methodology Approval Manual.

3.3.1 Methodology Approval Costs

The cost of the methodology approval process consists of a screening fee and a variable peer review fee for the technical expert review of the forecast methodology. The forecast methodology proponent is responsible for all fees associated with methodology review, and all fees must be paid before the review process begins. Payment of all fees is final and is not contingent on whether or not the methodology is ultimately accepted by the Reserve. Please refer to the Climate Forward Fee Schedule for specific fees.

3.3.2 Reserve Review

Once a forecast methodology has been submitted to the Reserve and the appropriate fees have been paid, the Reserve will conduct a review of the forecast methodology for adherence to methodology requirements detailed in the Section 3.1.

The Reserve will provide its findings to the project proponent. The project proponent must respond to all findings, which may require amendment of the forecast methodology.

In recognition that the Reserve may not have sufficient experience or expertise regarding the submitted forecast methodology, the Reserve may engage with one (or more) third party technical expert(s) to assist in assessing forecast methodologies for their adherence to Program requirements. Technical experts will document their assessment of the proposed forecast methodology to the Reserve. This assessment will address each of the sections listed above and the technical expert's opinion on whether the forecast methodology presents an approach to estimating emission reductions from the mitigation projects that is in line with this Program's principles and reflects the latest scientific understanding and sector-based best practices.

4 Project Cycle

This section summarizes the administrative steps a project proponent must follow to register a mitigation project under this Program. Each phase of the cycle denotes a milestone that the mitigation project has reached on the pathway to mitigation credit issuance. The project cycle can be summarized into the following steps:

- **Account registration:** Entities or individuals that wish to undertake a mitigation project (a project proponent) request an account on the Program.
- **Submittal:** The project proponent submits the mitigation project to the Reserve, using a previously approved forecast methodology (see Section 3.3).
- **Listing:** The mitigation project is publicly posted on the Program. This means that the project has passed an initial review for completeness and consistency with the Program and the forecast methodology requirements.
- **Project implementation:** The project proponent implements the mitigation project and estimates the forecasted emission reductions according to the requirements of the approved forecast methodology.
- **Implementation confirmation:** Subject to approval by the Reserve, the project proponent retains an accredited independent third-party to confirm that the mitigation project has been implemented, the forecasted emission reductions have been estimated appropriately, and that the project has met all requirements of the applicable forecast methodology. Confirmation activities may not commence prior to one year following the project start date, unless otherwise specified by the forecast methodology.
- **Project verification (Optional):** For projects seeking additional crediting beyond the initial FMU issuance, project verification is required. Subject to approval by the Reserve, the project proponent retains an accredited independent third-party to review documentation, monitoring data, and procedures used to estimate GHG emission reductions. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of FMUs that can be issued to the project in addition to the FMUs issued after implementation confirmation.
- **Registration:** The Reserve reviews the third-party evaluation and, if appropriate, approves the project for registration and issuance of a specific quantity of forward-looking mitigation credits.
- **FMU issuance:** The Reserve issues the forward-looking mitigation credits into the account of the project proponent.
- **Mitigation credit transfer (optional):** The project proponent may sell or purchase mitigation credits after issuance; the Reserve records transfers of mitigation credits on the Program.
- **Mitigation credit retirement:** The credit holder requests the permanent retirement of mitigation credits to mitigate specific development activities.

Project proponents, accredited independent third-parties, and the Reserve each have varying roles and degrees of responsibility throughout the project cycle. See Figure 4.1 for a representation of the project cycle steps and relevant parties. See the sections below for more detail on each step of the project cycle.

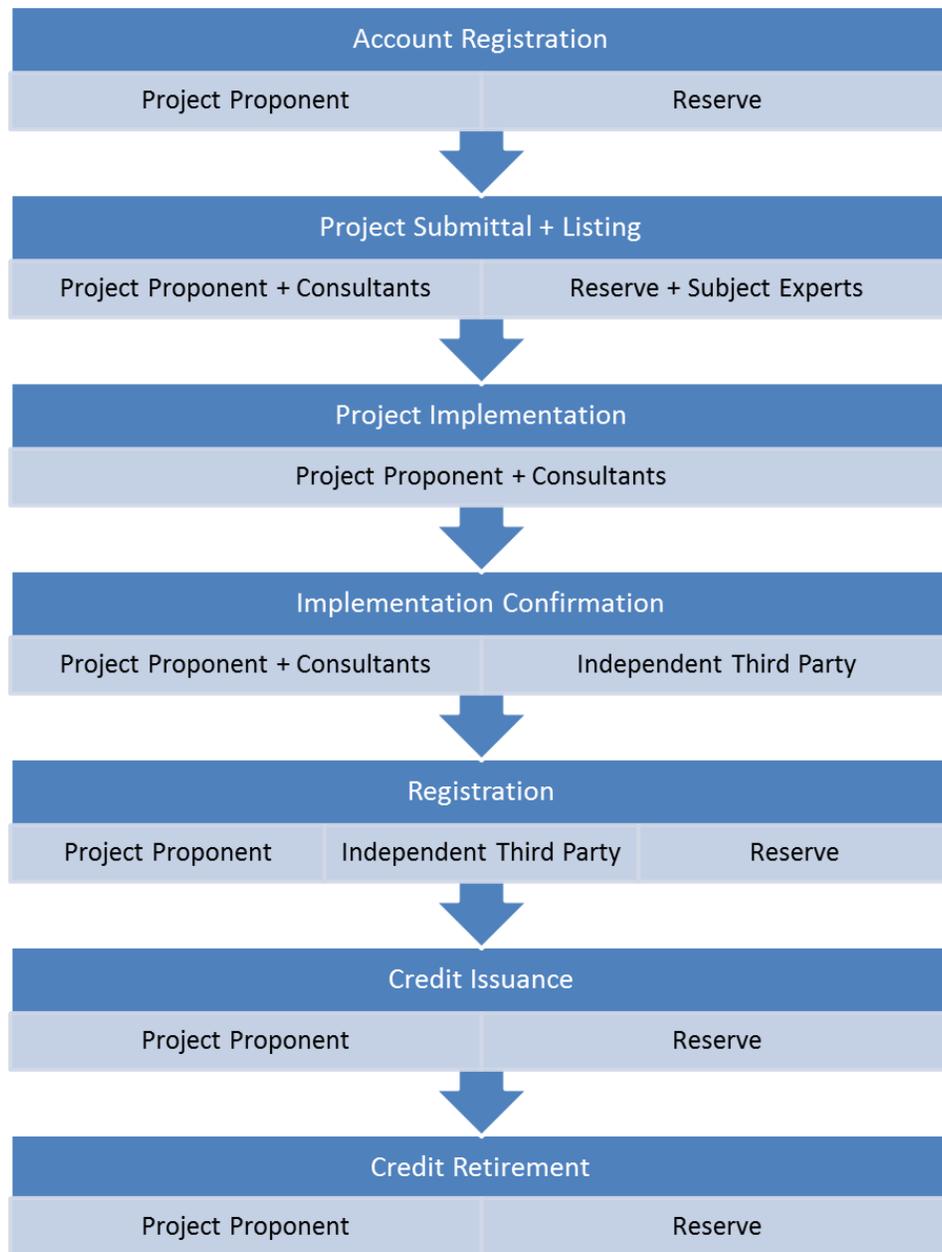


Figure 4.1. Program Flowchart and Relevant Parties

4.1 Account Registration

As a first step, an individual or entity wishing to pursue issuance of mitigation credits for a mitigation project must set up an account with the Reserve. Account registration occurs once; any number of mitigation projects can be registered under the same account.

The Reserve conducts due diligence on all individuals or entities that wish to hold an account on the Program through a rigorous “know your client” (KYC) process to ensure that entities with accounts are legitimate organizations. This will safeguard against fraud. The Reserve KYC process requires the submittal of the following documentation and information:

1. Copy of account manager’s (individual managing the account) government issued identification (e.g., driver’s license, passport, etc.), as well as a copy of the government issued identification of the individual authorized to sign the Terms of Use (TOU), if that individual is not the account manager.
2. A copy of a bank statement of the account holder (organization).
3. A copy of one of the following:
 - a. The account holder’s certificate of incorporation, certificate of formation, certificate of partnership or equivalent formation document, certified by an official of the account holder’s jurisdiction of formation;
 - b. A certificate of good standing issued by the account holder’s jurisdiction of formation; or
 - c. With respect to a partnership for which no certificate as described above is available, a copy of the executed partnership agreement.
4. A copy of the organization’s Articles of Incorporation and any amendments or corrections hereto.
5. Documentation (Board resolution or similar evidence) showing that the account holder has been authorized to become an account holder on the Program.
6. Documentation (Board resolution or similar evidence) showing that the account manager has been authorized to act on behalf of the account holder in connection with the application to become an account holder on the Program.
7. A copy of the organization’s corporate structure or organization chart, which includes the names of the account manager’s immediate supervisors, if applicable.
8. A brief summary of experience and the mitigation project types that are intended to be developed.

Along with reviewing this documentation, the Reserve also performs the following checks:

1. Verification of entity’s legal existence by conducting business search in relevant Secretary of State website;
2. Internet search to confirm accuracy of management team, personnel, contact information represented in application; and
3. Internet search to confirm entity is not a bad actor or a fraudulent account.

In addition to completing the application and undergoing the Reserve’s KYC process, each applicant must agree to the Terms of Use for the Program. It sets out the terms by which the Reserve has agreed to provide account holders with access to use the Program and participate in the Program.

Once the KYC process has been satisfactorily completed and the Terms of Use has been signed, the Reserve will approve and open the account.

4.1.1 Types of Accounts

There are two types of accounts in the Program:

1. **Project proponent.** An account type for organizations that wish to register mitigation projects that generate GHG reductions. This account type can also be used to transfer and manage FMUs.
2. **Confirmation Body.** An account type for accredited Confirmation Bodies that have been trained and authorized by the Reserve to confirm the proper implementation of mitigation projects. There is no annual account fee for Confirmation Bodies.

The public also can view information on the Program registry, but an account is not needed to view publicly available information.

4.2 Project Submittal

Project proponents must submit to the Reserve the appropriate submittal documentation for the mitigation project type and pay a mitigation project submittal fee to the Reserve (see Section 3.3.1). Submittal documentation is specified in each approved forecast methodology and includes mitigation project descriptions and preliminary information used to assess the project's eligibility. A mitigation project is considered "submitted" when all appropriate documentation has been completed and submitted to the Reserve and the submittal fee has been paid.

4.3 Project Listing

Once the mitigation project is submitted, the Reserve reviews the documentation to determine whether it is complete and conducts a preliminary assessment of the project's eligibility according to the eligibility criteria set forth within the relevant approved forecast methodology. Once this review is satisfactorily completed, the mitigation project is "listed" and made publicly available on the Program registry. Confirmation activities cannot begin until a mitigation project is listed.

Listing a mitigation project does not constitute a validation or confirmation of the mitigation project; it is a preliminary review of information provided to the Reserve by the project proponent. It is not a final determination of the eligibility of the mitigation project, nor does it guarantee mitigation credit issuance or mitigation credit ownership.

4.4 Project Confirmation

There is a requirement for an accredited Confirmation Body to perform a one-time confirmation that the mitigation project has been implemented as described in the forecast methodology, and that the estimated emission reductions have been calculated accurately. The confirmation incorporates both a desktop documentation review and a site visit assessment of the mitigation project. Confirmation activities may not commence prior to one year following the project start date in order to establish an observable level of project performance, unless otherwise specified by the forecast methodology. The Confirmation Body submits a Confirmation Statement and Confirmation Report that provide the basis for determining the quantity of FMUs that can be issued to the project. The Reserve makes these documents publicly available. Project Experts (someone who has completed the Confirmation Body's internal training processes and procedures to achieve this designation and passed the Reserve training course(s) on Program

Implementation Confirmation) conducting confirmation activities for projects listed or registered on the Program must be trained by the Reserve.

Confirmation bodies follow guidelines set forth in the Reserve's Climate Forward Program Manual and Climate Forward Confirmation Manual, as well as rules and procedures described in the specific confirmation guidance that is included in each approved forecast methodology.

Beyond criteria for the confirmation of mitigation project implementation, the Confirmation Body also confirms Project Resilience Measures as specified in the forecast methodology that are to be undertaken to ensure the continued implementation of the mitigation project for the duration of its crediting period. The Confirmation Body assesses whether such measures have been appropriately implemented during the site visit.

Registration and mitigation credit issuance are contingent upon successful confirmation by an accredited confirmation body and the submission and approval of all required forms and documents, including, but not limited to:

- Attestation of Title
- Attestation of Legal Additionality
- Attestation of Regulatory Compliance
- Project Implementation Report
- Confirmation Report, Confirmation Statement, and List of Findings (see Climate Forward Confirmation Manual)

4.4.1 Attestation of Title

All project proponents must submit a signed Attestation of Title form indicating that they have exclusive ownership rights to the emission reductions resulting from the mitigation project.

This form shall be signed and submitted prior to confirmation activities. Note that the entity/individual signing the Attestation of Title must be the account holder who submitted the mitigation project. Mitigation projects will not be registered unless the account holder and signatory to the attestation forms match.

4.4.2 Attestation of Legal Additionality

All project proponents must submit a signed Attestation of Legal Additionality form that confirms the mitigation project activity was not required by any law, statute, rule, regulation or other legally binding mandate by any national, regional, state, local or other governmental or regulatory agency having jurisdiction over the project. The project proponent attests that at no time was the mitigation project required to be enacted by.

This form is signed and submitted prior to confirmation activities. The Attestation of Legal Additionality is one of the primary mechanisms by which the mitigation project passes the Legal Requirement Test, as specified in each forecast methodology.

4.4.3 Attestation of Regulatory Compliance

All project proponents must sign and submit an Attestation of Regulatory Compliance form that confirms the mitigation project has implemented measures to address the risks of regulatory non-compliance identified in the forecast methodology associated with initial and ongoing project implementation. In addition, the form attests that the project is and will be in material compliance with all applicable laws, including environmental regulations, during the crediting

period. The Attestation of Regulatory Compliance form is signed and submitted prior to confirmation activities.

4.4.4 Project Verification

If a project opts to seek additional FMU issuance through either the Voluntary Ongoing Monitoring Incentive or by seeking an *ex post* crediting period renewal, the Reserve requires periodic third-party verification, as specified in each approved forecast methodology. This provides an independent review of data and information used to register additional FMUs beyond the initial issuance. For every project, a third-party verification body reviews documentation, monitoring data, and procedures used to estimate GHG reductions or removals. The verification body submits a Verification Statement and Verification Report that provide the basis for determining the quantity of FMUs that can be issued to the project. The Reserve makes these documents publicly available. Verifiers conducting verification activities for projects listed or registered on the Reserve must be trained by the Reserve. Any entity accredited as a Confirmation Body by the Reserve is also accredited as a Verification Body. Any individual accredited to perform confirmations by the Reserve is also accredited as a Verifier for the purpose of performing verifications.

4.5 Registration

Once the Confirmation Body completes the Confirmation Statement, Confirmation Report, and List of Findings, the project proponent reviews the Confirmation Body's documents and then submits them to the Reserve to seek project registration. The Reserve reviews the documents and either registers the project or requests a re-submittal of one or more components. It is possible that a project could be rejected if insufficient and/or unsatisfactory information is submitted to the Reserve. Upon registration, the status of the mitigation project changes from listed to registered in the Program.

4.6 Credit Issuance

Once a mitigation project is registered by the Reserve, FMUs are issued as "pending" into the project proponent's account. The project proponent then receives an invoice for the issuance of FMUs generated by the mitigation project. Once the invoice is paid, the FMUs are activated and can be transferred to another account holder or retired. An account holder can only hold or retire FMUs in its account for which it is the sole holder of legal title, except as permitted under Section 9 of the Program Terms of Use.

To ensure proper tracking and accounting, each FMU has a unique serial number with embedded information that discloses various project specific details. The unique serial number persists indefinitely. Information on the number of FMUs that have been issued to each registered mitigation project is publicly available information.

4.7 Credit Transfers

In order to transfer FMUs to another party, that party must have an approved account on the Program. There is a transfer fee per FMU charged to the transferor. Once the credit transfer invoice has been paid, the FMUs are transferred from one account to the other.

Note that the Program does not function as a trading system or commodity exchange. The sale or purchase of FMUs takes place outside of the Program. Account holders may record sales by using the Program to move FMUs from one account to another. However, the Reserve makes

no warranties concerning, and has no control over, the legal ownership of FMUs that may be held in individual accounts.

4.8 Credit Retirement

FMUs may be retired to indicate that the forecasted GHG emissions reductions they represent have been used to satisfy a mitigation claim. To support such a claim, FMUs are taken out of circulation so that they cannot be used to support any further claims. The Reserve retires FMUs by transferring them to a locked retirement account where they remain in perpetuity, precluding further use or transfer to other parties. Information about retired FMUs is publicly available and includes details regarding the underlying mitigation project as well as the reason for retirement.

In order to retire FMUs, an account holder must request the retirement of a specific quantity of FMUs in writing and the Reserve confirms the account has sufficient FMUs to support the retirement request. There is no retirement fee per FMU charged to the account holder. Once the retirement transaction has been approved, the Reserve transfers the requested quantity of FMUs to the locked retirement account and issues a certificate to the account holder detailing the quantity and serial numbers of FMUs that have been retired. The account holder can present this retirement certificate to any entity, including the regulating body with its permit application, as evidence of approved GHG mitigation activity.

4.9 Transferring Projects from Climate Forward

Projects may be transferred from Climate Forward to other GHG registries and offset programs. To transfer a project, the Project Proponent shall provide a signed Project Transfer Letter to the Reserve specifying the effective date of transfer and confirming that no further reporting will be done under the Climate Forward program.

Once a project is transferred, no future reductions or removals from that project will be registered as FMUs. Project information and previously issued FMUs will remain in the Climate Forward system under their given serial numbers.

4.10 Publicly Available Information

This Program is intended to serve both project proponents and the interested public. To this end, information about each mitigation project and account holder is accessible to the public. This openness and transparency provides interested parties with valuable information and enhances the credibility of the issued FMUs. The public and all account holders can access the following information online:

- **Participating entities.** Organizations/individuals that have an active account (address or contact information is not disclosed).
- **Mitigation projects.** Mitigation projects that are listed or registered with the Reserve. Rejected mitigation project submittals and mitigation projects that are de-listed prior to registration and/or FMU issuance are not displayed; however, information will be made publicly available indefinitely for any mitigation project to which FMUs have been issued.
- **Approved forecast methodologies.** All approved forecast methodologies are available on the Reserve's website and are available for uses by other project proponents.

- **FMUs issued.** The quantity of FMUs issued to each mitigation project will be publicly accessible, and each FMU will be serialized. FMU balances in individual accounts are not disclosed.
- **Retired FMUs.** Displays the FMUs that have been retired by account holders for use against anticipated emissions.

Information that is never shared with the public includes:

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

5 Glossary

Business day	Any day except Saturday, Sunday, or an observed Federal Reserve Bank holiday. A business day shall open at 8:00 a.m. and close at 5:00 p.m. Pacific Prevailing Time.
Confirmation	The process used to ensure that a given project proponent's projected GHG emissions reductions have met a minimum quality standard and complied with the Reserve's procedures and approved forecast methodologies
Confirmation Body	An organization or company that has been ISO-accredited and approved by the Reserve to perform GHG confirmation activities for specific forecast methodologies.
Confirmed	A mitigation project is considered "confirmed" when the mitigation project confirmation body has submitted the mitigation project's Confirmation Statement and the Confirmation Report in the Reserve system and it has been accepted by the Reserve.
Mitigation project	A mitigation project is the undertaking or funding of activities that directly reduce or sequester GHG emissions at a location other than the site of a project with anticipated GHG emissions.
Forecast methodology	A document that contains the eligibility rules, GHG assessment boundary, quantification methodologies, monitoring and reporting parameters, confirmation requirements, etc. for a specific mitigation project type.
Forecasted Mitigation Unit (FMU)	The unit of mitigation credits used by the Climate Action Reserve's Program. One FMU represents one metric ton of carbon dioxide equivalent (CO ₂ e) expected to be reduced or sequestered.
GHG emission reduction (Reduction)	A reduction of GHG emissions to the atmosphere or removal of carbon dioxide from the atmosphere that is used to compensate for an equivalent amount of emissions from another GHG emitting activity occurring elsewhere as the result of a mitigation project. For the purposes of the Climate Forward program, an FMU becomes a mitigation credit when it is retired.
Listed	A mitigation project is considered "listed" once the Reserve has satisfactorily reviewed all mitigation project submittal forms. The mitigation project will then appear in the public interface of the Reserve system.
Project proponent	An organization or individual that registers mitigation projects for generating emission reductions or removals. In the Reserve software system, Activity proponents may be issued FMUs for the verified emission reductions or

	removals that their mitigation projects achieve. They can also transfer and manage FMUs.
Project Implementation Report	A report provided by the project proponent detailing all data sources, estimations, and implementation of project resilience measures.
Project Resilience Measure	A measure required to be implemented by the project to address the risks of project abandonment, underperformance, or failure.
Registered	A mitigation project is considered “registered” when the mitigation project has been confirmed by an approved third-party confirmation body, submitted by the activity proponent to the Reserve for approval, and accepted by the Reserve.
Retired	When FMUs are transferred to a retirement account in the Reserve system, they are considered retired. Retirement accounts are permanent and locked, so that a retired FMU cannot be transferred again. FMUs are retired when they have been used to mitigate an equivalent tonne of emissions or have been removed from further transactions on behalf of the environment.
Submitted	A mitigation project is considered “submitted” when all the appropriate forms have been completed, uploaded, and submitted to the Reserve.
Verification	The process used to ensure that a given project proponent’s historic, reported GHG emissions reductions have met a minimum quality standard and complied with the Reserve’s procedures and forecast methodologies.