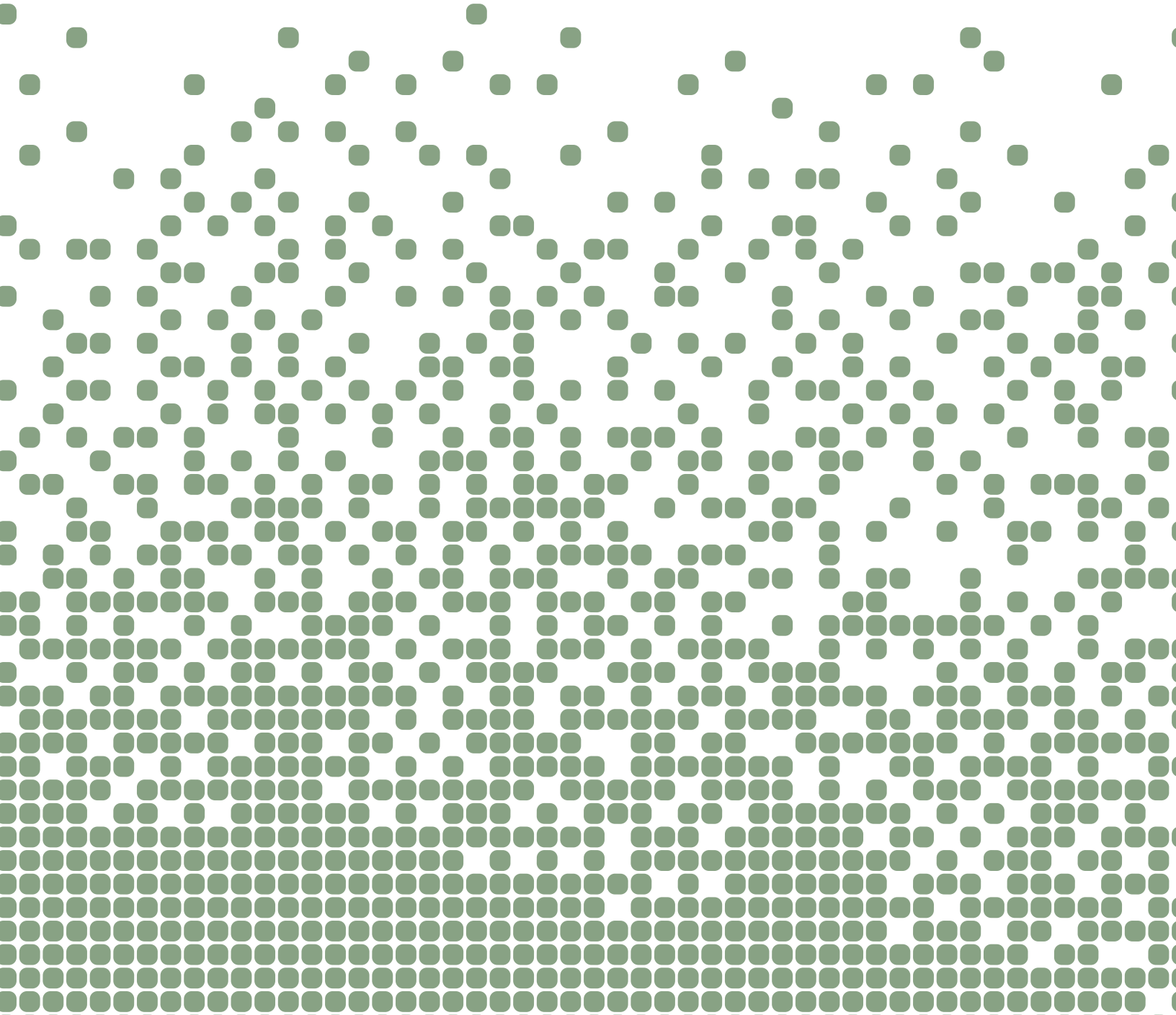
CLIMATE ACTION RESERVE

January 18, 2017

Guidelines for Aggregating Forest Projects



Climate Action Reserve
601 West 5th Street, Suite 650
Los Angeles, CA 90071
www.climateactionreserve.org

Released January 18, 2017

Table of Contents

1 Introduction

As part of its efforts to encourage greater participation by forest landowners in the Climate Action Reserve's carbon offset program, the Reserve has developed rules and procedures under which smaller forest projects may be aggregated. The goal of aggregation is to alleviate transaction costs for individual landowners, while upholding the Reserve's standards for quantification certainty and integrity. Allowing smaller projects to register as part of a group, or "aggregate", can help reduce costs by enabling economies of scale and supporting the marketing of offset credits at volume. By allowing aggregation, the Reserve helps make the Forest Project Protocol (FPP) and the Mexican Forest Protocol (MFP)more accessible to a large percentage of the nation's forestland owners.

The FPP and MFP aggregation rules have been prepared with assistance from a stakeholder workgroup, feedback from a public meeting (May 18, 2010), and with a process of public comment and response. Note that these guidelines assume familiarity with the Reserve's FPP and/or MFP

The approach to aggregation works as follows:

- Only projects (FPP) or activity areas (MFP) of less than 25,000 acres (approximately10,000 hectares) may enroll in an aggregate. No Forest Owner[1] may enroll more than 25,000 acres (10,000 hectares) in aggregates (single or multiple).
- Each project must register with the Reserve individually. Each Forest Owner participating in an aggregate must maintain a separate account on the Reserve software.
- Individual Forest Owners must each sign a Project Implementation Agreement (PIA)[2] with the Reserve, as required by the FPP and/or MFP. Liability for reversals lies with each individual Forest Owner.
- Aggregators must select verification bodies, coordinate verification schedules, and maintain a Reserve account to which CRTs[3] will be transferred from the accounts of participating Forest Owners and from which CRTs must be transacted.
- Aggregators may also engage in project development, manage monitoring, and provide other services for the Forest Owner. The scope of aggregator services is up to negotiation between each Forest Owner and Aggregator and reflected in the contracts between the Forest Owner and the Aggregator.
- By enrolling in an aggregate, a project will:
    - Require fewer sample plots to generate a forest carbon inventory of sufficient statistical certainty to avoid a confidence deduction. Greater statistical uncertainty associated with individual project areas will be compensated through aggregation with other projects. Allowable standard errors for individual projects are established based on the total number of participating projects in the aggregate.

[1] A Forest Owner under the FPP is a corporation or other legally constituted entity, city, county, state agency, individual(s), or a combination thereof, that executes a Project Implementation Agreement with the Reserve, as described in the FPP. A Forest Owner under the MFP is a corporation or other legally constituted entity, city, county, state agency, individual(s), community, *ejido*, or a combination thereof, that executes a Project Implementation Agreement with the Reserve, as described in the MFP.

[2] The PIA is a legal contract between the Forest Owner and the Reserve that specifies the terms and conditions required for a project and remedies associated with project termination or reversal of verified GHG reductions.

[3] A CRT (Climate Reserve Tonne) is a credit issued by the Reserve for verified GHG reductions. One CRT represents one metric ton (tonne) of carbon dioxide equivalent (CO_2e) reductions or removals.

    - Have a less frequent verification schedule than is required for standalone projects.
- Projects may enter and leave aggregates for any reason. Within 12 months of the departure of a participating project, a replacement project must be added to the aggregate, otherwise the statistical targets that apply to all of the remaining participants will be adjusted to reflect the lower number of projects in the aggregate (if applicable).

2 Proposed Aggregation Guidelines

This model of aggregation enables small projects to participate in the Reserve by allowing the forest inventory and verification requirements of the current FPP/MFP to be applied at an aggregate level rather than at the level of individual projects. However, each Forest Owner must retain a Reserve account and a separate Project Implementation Agreement (PIA) with the Reserve. Participation in an aggregate in no way changes how a project determines its baseline, meets sustainable harvesting and natural forest management requirements, or meets requirements for submitting annual monitoring reports.

Detailed requirements for aggregating projects (also referred to as enrolling projects in an "aggregate") are described below.

2.1 Eligible Project Types

Aggregates may be comprised of any combination of the eligible project types defined in the FPP (Avoided Conversion, Improved Forest Management, and Reforestation) or MFPP (enhancement activities). Participants in an aggregate can be a mix of projects with private and/or public ownership from any geographic location within the United States for the FPP and private or communal ownership within Mexico for the MFP.[4]

2.2 Number of Landowners

An aggregate must consist of two or more individual forest projects. There is no limit to the number of projects in an aggregate. The forest inventory sampling and project verification requirements for individual projects within an aggregate vary depending on the total number of projects in the aggregate (as described below in Inventory Standards for Participating Projects, Section 2.9, and Monitoring and Verification, Section 2.10).

2.3 Acreage Limitations

There is no upper or lower limit on the total amount of forest area enrolled in an aggregate. However, an individual Forest Owner may enroll only up to 25,000 acres (10,000 hectares, from Activity Areas) in aggregates, whether in a single aggregate or across multiple different aggregates. Area owned by an individual Forest Owner may be enrolled in aggregates as either a single 25,000-acre project (10,000 hectares), or as multiple projects adding up to 25,000 acres (10,000 hectares). Any forest projects (FPP) or Activity Areas (MFP) that would cause the Forest Owner to exceed the 25,000-acre (10,000 hectares) limit must be submitted on a standalone basis.

In aggregates formed by three or more projects, no single project may comprise more than 50 percent of the total combined area in an aggregate. This is to prevent any one project from disproportionately affecting the inventory statistics and having excessive influence on the composite sampling error. In the case of aggregates formed from two projects, no single project may comprise more than 70 percent of the total combined area in the aggregate.

[4] For the MFP, a Forest Owner can be an individual or a collective legal person (*ejido* and/or communal land) that owns or legally possesses forestland; public agencies may not be Forest Owners for the MFP.

2.4 Qualifications and Role of Aggregators

An Aggregator may be a corporation or other legally constituted entity, city, county, state agency, individual or a combination thereof. An Aggregator must have an account on the Reserve. A Forest Owner may serve as its own Aggregator or as an Aggregator for a group of projects when it is the owner of one or more of the projects.

Once approved for an account on the Reserve, an Aggregator must remain in good standing or all of the Aggregator's account activities will be suspended until issues are resolved to the satisfaction of the Reserve. In order for an Aggregator to remain in good standing, Aggregators must:

- Execute contracts with Forest Owners that include the mandatory components as defined below in Joining an Aggregate, Section 2.6.
- Select a single verification body for all enrolled projects in any given year or set of years.
- Ensure the verification schedule for all projects in the aggregate meets the verification standards according to the FPP and these guidelines. (See Monitoring and Verification, Section 2.10.)
- Maintain a Reserve account to which CRTs will be transferred from the accounts of participating Forest Owners and from which CRTs must be transacted.

Forest Owners are ultimately responsible for submitting all required forms and complying with the terms of the FPP or MFP. Aggregators may, however, manage the flow of ongoing monitoring and verification reports to the Reserve as a service to Forest Owners. Aggregators may also engage in project development, provide inventory services, and provide other services for the Forest Owner. The scope of aggregator services may be negotiated between Forest Owners and the Aggregator and reflected in contracts between the Forest Owners and the Aggregator.

2.5 Forming an Aggregate

In order to form an aggregate, Aggregators are required to establish a "Broker, Retailer, Trader" account on the Reserve (see http://www.climateactionreserve.org/open-an-account/).

Aggregators must also submit an "Aggregator Document" that includes the following information:

- The name, description, and contact information of the Aggregator.
- Proof of incorporation and/or good standing as corporate entity or other legally constituted entity, city, county, state agency, individual or a combination thereof.
- A list of initial Forest Owner participants (which must be greater than one).

The Aggregator Document will be available to the public on the Reserve's website, and will require approval by Reserve staff. It must be modified any time a participant joins or leaves an aggregate (triggered by the submission of an "Aggregate Entry" or "Aggregate Exit" form as described below).

2.6 Joining an Aggregate

To join an aggregate, Forest Owners will be required to submit an Aggregate Entry form. This form may be included at the time of project submittal, or at any time thereafter. This form will require Reserve staff's approval and will contain:

- Statement that the Forest Owner wishes to join a specific aggregate with a specific Aggregator. A participating project may only have one Aggregator.
- Copies of any contract(s) between Forest Owner and Aggregator.[5] Forest Owners may decide whether or not contracts with Aggregators are made available to the public.

Once the Aggregate Entry form is submitted, projects must undergo a site-visit verification before they will be allowed to join the aggregate.[6]

2.7 Leaving an Aggregate or Termination of Contract between Forest Owner and Aggregator

To leave an aggregate, the Forest Owner for a project is required to submit an Aggregate Exit form. This form includes:

- A statement that the Forest Owner intends to withdraw a project from a specific aggregate and Aggregator.
- If Forest Owner intends to retain a standalone project, a statement that the Forest Owner understands that they will be required to meet the standalone project inventory standards and that they will not be issued further credits until they have met those inventory standards and their new inventory has been verified.

If the Forest Owner intends to enroll the project in a different aggregate, rather than switching to a standalone project, it will have 24 months to do so. During such time as the project is not enrolled in an aggregate, account activities will be suspended. After 24 months, the project will be required to meet the requirements of a standalone project.

In the event that a project leaving an aggregate changes the targeted standard error for the projects remaining in the aggregate (because there are fewer than 15 projects remaining – see Table 2.1, below), either (a) a new project must be added to the aggregate within 12 months of the departure date of the exiting project, or (b) new targeted standard error levels will apply to all of the remaining participants based on the number of remaining projects.

2.8 Accounts on the Reserve, Transfers of CRTs

Each Forest Owner with projects in an aggregate must have a separate account with the Reserve to maintain transparency at the level of the individual Forest Owner. For each participating project, the Forest Owner must sign a PIA with the Reserve and meet all applicable sustainable harvesting and natural forest management criteria, submit annual monitoring reports, and determine a baseline specific to that project. Each project is required to contribute to the Reserve's buffer pool and compensate for reversals as described in Section 7 of the FPP or Section 9 of the MFP. Each project is independently responsible for meeting all reporting

[5] In the case where the Aggregator and the Forest Owner are the same entity, the contract between the Aggregator and the Forest Owner may take the form of a memo or MOU.

[6] The purpose for each project participant to undergo a third-party site-visit verification (whether initial or subsequent to an initial verification) at the time of entry into an aggregate is to confirm that the project is in conformance with the FPP/MFP and the rules for inventory accuracy in the specific aggregate are met. This is an important provision for the protection of the other participants in the aggregate and for the integrity of the aggregate system as a whole. An example of when this requirement is particularly critical is when a project is moved from one aggregate to another and the two aggregates have different sampling error targets.

requirements described in Section 9 of the FPP or Section 10 of the MFP. Many of these tasks, such as the transmission of annual documents, may be managed by the Aggregator.

Aggregators must maintain a Reserve account to which CRTs can be transferred from the accounts of Forest Owners participating in their aggregate, and from which CRTs can be subsequently transferred to third parties. Transfers from individual Forest Owner accounts to the Aggregator's account are not subject to Reserve CRT transfer fees. Forest Owners maintain control of the timing of any transfer to the Aggregator account. However, CRTs from projects participating in an aggregate may only be transferred to the account of the Aggregator named in their Aggregate Entry form. The timing, pricing, ownership and other details of the transfer of CRTs are up to arrangements between the Forest Owner and the Aggregator. The requirement to transfer CRTs to the Aggregator account is to maintain the statistical integrity of the aggregate over time. In addition, this process provides transparency to CRT recipients that the CRTs were sourced from an aggregate.

All participating projects are identified in the Reserve's software as a part of a named aggregate along with the contact information of the Aggregator. The CRTs issued individually to projects in a named aggregate and in total for the entire aggregate are available by query in the Reserve's software. In addition, the software tracks the verification history of projects within an aggregate to ensure transparency and disclosure of compliance to verification standards over time.

2.9 Inventory Standards for Participating Projects

The target sampling error for inventory samples in the Reserve's FPP/MFP is +/- 5 percent of the mean at the 90 percent confidence level. Projects that cannot meet this target level are still eligible, but may have to take a "confidence deduction" that reduces their reported carbon stocks. To achieve +/- 5 percent of the mean at the 90 percent confidence level can be prohibitive for smaller projects because it requires a large number of plots relative to the total area of the project. Under these aggregation rules, Forest Owners enrolled in an aggregate may submit project inventories with reduced sampling requirements based on the statistical principle that the targeted standard error (+/- 5 percent of the mean at the 90 percent confidence level) is achieved across the entire aggregate.

For aggregated projects, the sampling error allowed for inventory data associated with individual forest projects varies on a sliding scale based on the number of participating projects. This sliding scale was determined through consultation with statisticians and affirmed by a model exercise as described in Appendix A. The target sampling error for the individual projects ranges between 7 to 20 percent of the mean at the 90 percent confidence level based on the total number of projects in the aggregate as shown in Table 2.1 below. The same targeted sampling error applies to all projects in an aggregate.

Table 2.1. Target Sampling Error at the 90 Percent Confidence Level for Projects Participating in an Aggregate

Number of Participating Projects in the Aggregate	Target Sampling Error (TSE)
2	7%
3	8%
4	9%
5	10%
6	11%
7	12%
8	13%
9	14%
10	15%
11	16%
12	17%
13	18%
14	19%
15+	20%

For projects in an aggregate, confidence deductions are determined according to Table 2.2 below, using the appropriate TSE from Table 2.1, rather than Table A.5 in the FPP or Table 3.4 in the Quantification Guidance for the MFP.

Table 2.2. Inventory Confidence Deductions for Participating Projects in an Aggregate

Actual Sampling Error at 90% Confidence Level	Confidence Deduction
0 - TSE%	0%
TSE to 20%	(Actual sampling error – TSE %) to the nearest 1/10th per cent
Greater than 20%	100%

Using this approach, the Reserve's inventory standard remains essentially the same for single large projects and aggregated groupings of smaller projects while allowing the smaller projects in an aggregate to benefit from reduced costs associated with the reduced number of plots required per project. The underlying statistical rationale for this approach is explained in Appendix A.

2.10 Monitoring and Verification

Each project is required to undergo a site-visit verification at the project's initiation to confirm that the baseline and initial inventory have been established in conformance with the FPP/MFP and that the rules for inventory accuracy have been met as outlined in this document. Subsequent verifications may follow a schedule where only a representative sample of projects in an aggregate is verified each year, as described below.

The Aggregator is responsible for selecting a single verification body for all enrolled projects in any given year or set of years. The same verification body may be used up to six consecutive years (the number of consecutive years allowed is from Climate Action Reserve Verification Program Manual). Verification bodies must pass a conflict-of-interest review against all enrolled Forest Owners and the Aggregator.

The Aggregator must also coordinate a verification schedule that meets the requirements described in this section. The Aggregator must document the verification work and provide a report to the Reserve every 12-month period, from the date of its formation, showing how the verification schedule demonstrates compliance with these guidelines.

Required Site-Visit Verification Schedule for Aggregates

Site-visit verifications must be conducted on a schedule such that at all times a minimum of 50 percent of the projects in the aggregate (rounding up in the case of an uneven number of projects) have successfully completed a site-visit verification within the previous six years, and that 100 percent of the projects have successfully completed a site-visit verification within the previous twelve years. These verification requirements are mandatory regardless of the mix of entry dates represented by the group of projects in the aggregate. The initial site-visit verification required for entry into the aggregate may count to meet these site verification obligations.

On six-year intervals, beginning with the first year of the existence of the aggregate, the verification body must select from the total group of projects those projects that will have scheduled site-visit verifications in order to meet these obligations. The process should utilize random selection to the degree possible and still meet the six- and twelve-year completion requirements. For example, in the case where there are ten projects that joined the aggregate in the first year, five of those projects should be chosen randomly to have a site-visit verification sometime before the seventh year. The site-visit verifications may be spread out through each six-year interval or scheduled in a more concentrated manner that economizes on verification expenses. Forest Owners may be notified of a site-visit verification prior to the year in which the verification is to take place.

The only exception is when a second site-visit verification for a Reforestation Project using the FPP is deferred for more than six years (see the FPP, Section 6.1.1). In this case, the calculation of the percentages for meeting the six-year and twelve-year minimums may be made by excluding the deferred Reforestation Projects from the totals. After the second site-visit verification for a Reforestation Project, this exception is no longer allowed. The MFP does not allow deferral of site-visit verifications for any project type.

Required Desk Review Verification Schedule for Aggregates

Between site-visit verifications, each Forest Owner must submit annual project monitoring reports. Verification bodies must annually audit a sample of the annual monitoring reports, equivalent to the square root of the total number of participating projects in the aggregate, or the total number of participating projects divided by 12, whichever is higher (when rounded to the next highest whole number). As an example, an aggregate with 16 projects must have four project monitoring reports verified in a given year. Audited projects must be selected randomly, and must not include projects undergoing site-visit verification for the year. Forest Owners will not know when their annual monitoring reports will require verification. Since this is a random process, a Forest Owner may have the annual report verified in consecutive years or not until the project is verified with a required site visit.

Successful verification of a representative sample results in the crediting of all projects participating in the entire aggregate. If verification for a participating project is unsuccessful, the verification body must verify additional participating projects until the total number of successful verifications reaches the required number (as described above). If the required number of

successful verifications has not been achieved within 12 months after the date the verification body submits a negative Verification Opinion and Report to the Reserve for a project in the aggregate, crediting of all the participant projects in the aggregate will be suspended until the required number of successful verifications has been achieved.

If material issues arise during verification of a participant project, the Forest Owner will need to independently address the issues and required corrective actions using the same process taken with standalone projects. These are described in the FPP,[7] the MFP,[8] and the Reserve Verification Program Manual.[9]

The Reserve will not issue CRTs for a project in an aggregate that has an unsuccessful verification. If a participating project is not successfully verified within 24 months of a negative Verification Opinion, the project will be automatically terminated.

Aggregators may assist the Forest Owner in preparing documents for verification and facilitate the verification process. The scope of these services is determined by the specific contract between the Forest Owner and the Aggregator. The ultimate responsibility for monitoring reports and verification compliance is assigned to each participating Forest Owner.

[7] http://www.climateactionreserve.org/how/protocols/forest/
[8] http://www.climateactionreserve.org/how/protocols/mexico-forest/
[9] http://www.climateactionreserve.org/how/verification/verification-program-manual/

Appendix A Rationale for Reduced Sampling Requirements

The underlying theory supporting the target sampling errors was affirmed with the use of the model described below. The model assumes that an aggregate would contain from 2 to 25 projects, with each participating project in the aggregate comprised of four inventory strata. Hypothetical inventory data were generated for each stratum using random numbers within a range as shown in Table A.1 below. This was assumed to encompass a significant range of potential variability at the stratum and project level.

Table A.1. Parameters Used to Generate Hypothetical Inventory Data

	Min value	Max value
Mean live-tree carbon density (MgC/acre)	20	100
Standard deviation (% of mean)	10%	100%
Inventory stratum size (acres)	50	1,000

Using the hypothetical inventory data generated, the weighted-average mean and standard deviation were calculated for each individual project in the aggregate (where a project is comprised of four strata) and at the total level for the equivalent standalone project (i.e. all inventory strata from all projects were assumed to represent distinct inventory strata in a single large project). These data were then used to calculate the required sample size for each individual project belonging to an aggregate and for an equivalent standalone project of the same total size. The analysis was repeated 1,000 times to get an average result for many different hypothetical inventory samples. The total number of plots required will vary significantly depending on the actual mean and standard deviation of each of the projects in question, but it should be roughly the same number of plots that would be required if all of those projects were registered as a single (equivalent standalone) project.

Table A.2 shows the total sample size requirements for projects in an aggregate that are (a) treated individually, and (b) treated as an equivalent standalone project (i.e. made up of the combined individual projects) assuming +/- 5 percent error at the 90 percent confidence level. Smaller individual projects will in general have a higher sampling requirement compared to larger individual projects. The results show that inventory costs would be 2 to 27 times higher (relative to an equivalent standalone project) if each individual project were required to meet the sampling error of +/- 5 percent at the 90 percent confidence level.

Table A.2. Number of Inventory Plots Required for Aggregate vs. Equivalent Standalone Project for +/- 5 Percent at 90 Percent Confidence

Number of Projects in the Aggregate	Total number of plots required for all projects in the aggregate		Difference in Total Number of Plots (and Cost)
	Treating the entire geographic area as one equivalent standalone project that meets +/- 5% sampling error in aggregate	Requiring each component project to meet +/- 5% sampling error	
2	340	725	213%
3	338	1080	320%
4	337	1444	428%
5	337	1797	533%
6	336	2158	642%
7	335	2506	748%
8	334	2856	855%

Number of Projects in the Aggregate	Total number of plots required for all projects in the aggregate		Difference in Total Number of Plots (and Cost)
	Treating the entire geographic area as one equivalent standalone project that meets +/- 5% sampling error in aggregate	Requiring each component project to meet +/- 5% sampling error	
9	333	3223	968%
10	333	3573	1073%
11	331	3935	1189%
12	331	4284	1294%
13	331	4641	1402%
14	331	4995	1509%
15	330	5350	1621%
16	329	5712	1736%
17	329	6068	1844%
18	329	6431	1955%
19	330	6788	2057%
20	330	7140	2164%
21	330	7506	2275%
22	330	7871	2385%
23	330	8221	2491%
24	330	8576	2599%
25	330	8947	2711%

The model was then used to affirm the target sampling error at 90 percent confidence level to apply at the individual project level for aggregates in Table 2.1. Table A.3 shows the results of a Monte Carlo simulation of 1,000 iterations of the analysis using different random numbers to generate the initial inventory figures. It shows that using the target sampling errors suggested in the proposal for determining the required sample size of individual projects, the level of actual accuracy at the aggregate level is likely to be similar or better than the +/- 5 percent currently required in the FPP and MFP and the number of total plots is not significantly higher than an equivalent standalone project.

Table A.3. Number of Inventory Plots Required and Equivalent Sampling Error for Aggregate vs. Standalone Project

Number of Projects in the Aggregate	Target Sampling Error (TSE) at 90% Confidence for each Project in an Aggregate (Based on the Number of Projects in the Aggregate)	Sum of Plots Required for all Projects in the Aggregate: (mean of 1,000 Iterations)		Percentage Increase of Plots Required for Aggregated Projects (Compared to Standalone Projects) (D-C) / C	Resulting Sampling Error if Plots from the Aggregate were Applied to a Single Standalone Project at 90% Confidence Interval *
		With the Projects in the Aggregate Treated as One Project (+/-5% at 90%)	With the Projects in the Aggregate Treated as Aggregated Projects (TSE % at 90%)		
A	B	C	D	E	F
2	+/- 7%	351	365	4%	+/- 4.9%
3	+/- 8%	343	416	21%	+/- 4.5%
4	+/- 9%	339	439	29%	+/- 4.3%
5	+/- 10%	338	446	32%	+/- 4.3%
6	+/- 11%	338	440	30%	+/- 4.3%
7	+/- 12%	335	431	29%	+/- 4.4%
8	+/- 13%	335	420	25%	+/- 4.4%
9	+/- 14%	334	407	22%	+/- 4.5%
10	+/- 15%	333	393	18%	+/- 4.6%
11	+/- 16%	332	380	14%	+/- 4.6%
12	+/- 17%	332	368	11%	+/- 4.7%
13	+/- 18%	331	357	8%	+/- 4.8%
14	+/- 19%	331	345	4%	+/- 4.9%
15	+/- 20%	331	333	1%	+/- 5.0%
16	+/- 20%	331	355	7%	+/- 4.8%
17	+/- 20%	331	377	14%	+/- 4.7%
18	+/- 20%	331	399	21%	+/- 4.5%
19	+/- 20%	331	421	27%	+/- 4.4%
20	+/- 20%	332	443	33%	+/- 4.3%
21	+/- 20%	331	465	40%	+/- 4.2%
22	+/- 20%	331	487	47%	+/- 4.1%
23	+/- 20%	331	509	54%	+/- 4.0%
24	+/- 20%	330	532	61%	+/- 3.9%
25	+/- 20%	330	555	68%	+/- 3.8%

* This is the sampling error that would result if the total number of plots used for the equivalent standalone project were equal to the total number of plots listed in column D (i.e. the total number of plots required if each small project were treated individually, using the target sample error identified in column B).

Example

Using the data in Table A.3, an aggregate involving 9 projects in total (column A) requires a sampling error of +/- 14 percent (column B) to be used in inventory design for each individual property. For the example shown in Table A.3, this translates to just over 45 plots per property, or a total of 407 plots at the aggregate level (column D). Conversely, the number of plots required to achieve +/- 5 percent sampling error on an equivalent standalone project would be 334 for the same example (column C). The number of plots required at the aggregate level is therefore 22 percent greater than the equivalent standalone project (column D).

The simple graphic below illustrates the distribution of plots to the properties within the aggregate group of 9 projects and in the equivalent standalone project.

Aggregate			Standalone
(Total = 407 plots)			(Total = 334 plots)
45	45	45	334
45	45	45	
45	46	46	

The two project areas are identical at the aggregate level, but because the aggregated project requires more total plots, it will theoretically achieve a sampling error of +/- 4.5 percent (column F) instead of +/- 5 percent for the equivalent standalone project.