VERRA Standards for a Sustainable Future

Scope 3 Standard Program

Draft Guidance: Adaptation of VCS Methodologies to the Scope 3 Standard Program

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CONTENTS

1 INTRODUCTION

The following draft guidance is intended to aid the adaptation of Verified Carbon Standard (VCS) methodologies for piloting in the nascent Scope 3 Standard (S3S) Program. This draft guidance is a starting point to aid practitioners during the piloting process only. Feedback is welcome on all parts of the guidance and the final guidance may change. Open questions are posed in each section to help focus feedback and refinement towards a set of requirements.

All proposals made in this draft guidance are for the adaptation of VCS methodologies only; requirements for the development of new methodologies for the S3S Program may differ.

This draft guidance is developed from Section 3: Methodology Components and Section 2.4: Uncertainty of the *VCS Methodology Requirements, v4.4*. With the exception of Section 2.4: Uncertainty, it is assumed that the requirements in Section 2: General Requirements in the *VCS Methodology Requirements, v4.4* will apply unchanged to methodologies adapted for S3S Program piloting, though feedback on this is welcome. Readers are encouraged to refer to the *VCS Methodology Requirements, v4.4* and the VCS methodology they wish to adapt when reviewing this draft guidance.

Each section is structured as follows:

- **VCS Program Concept:** The corresponding "Concept" copied from the *VCS Methodology Requirements, v4.4*
- **Intent:** The intention for the section's inclusion in this draft guidance
- **Proposal for Adaptation to the S3S Program:** The proposed approach to adapt the corresponding section of the VCS methodology to an S3S methodology. Each proposal is categorized as: maintain, modify, or remove.
- **Reasoning:** An explanation of the proposed approach
- **Open Questions:** Questions to focus piloting phase participants' feedback on the proposed approach

Note – to align with existing terminology used in Scope 3 emissions contexts, the VCS Program term "project" is replaced by "intervention" in the S3S Program.

2 ADAPTATION OF VCS METHODOLOGY COMPONENTS

This section sets out the proposed approach and reasoning for adapting each component of a VCS methodology to an S3S methodology.

2.1 Applicability Conditions

VCS Program Concept

Applicability conditions define the project activities which are eligible to apply a given methodology. These may include conditions such as geographic applicability, technology type, historical land use, and any other conditions under which the methodology is or is not applicable.

Intent

- To maintain the integrity of the methodology, and the purpose and assumptions for which it was developed

Proposal for Adaptation to the S3S Program

- Maintain the applicability conditions of the VCS methodology

Reasoning

- Applicability conditions are fundamental to the integrity of the methodology. They are not procedures or obligations upon the intervention proponent. Rather, they are conditions against which intervention eligibility is determined at validation and shall not require the intervention proponent to undertake ongoing actions to ensure continued eligibility.
- Revising the applicability conditions can be complex, affecting multiple other sections of the methodology (e.g., project boundaries, baseline scenario, quantification methods, monitoring) and may lead to unwanted consequences. Therefore, to streamline the adaptation of VCS methodologies for piloting, the proposal is to maintain the applicability conditions from the VCS methodology.

Open Questions

1) Are there any applicability conditions that are not relevant to an S3S methodology and do not fundamentally change the methodology's scope, function, or usability?

2.2 Intervention/Project Boundary

VCS Program Concept

The project boundary includes the GHG sources, sinks, and reservoirs (SSRs) that are controlled by the project proponent, are related to the project, or are affected by project activities. Methodologies must describe the project boundary and the SSRs included in or excluded from the project boundary.

Intent

- To ensure that all relevant emissions impacts of an intervention are considered and quantified
- To enable flexibility to account SSRs according to an individual company's emissions boundaries for different scopes and leakage emissions[1]

Proposal for Adaptation to the S3S Program

- Maintain the project boundaries from the VCS methodology

Reasoning

- The assessment of project boundaries for VCS methodologies includes "the GHG sources, sinks, and reservoirs that are controlled by the project proponent, are related to the project, or are affected by project activities." These boundaries are assumed to include all the relevant SSRs that are materially affected by the project within the Scope 1, 2, and 3 emissions boundaries of the reporting company, and in some cases beyond these boundaries.
- By maintaining existing boundaries, the certified emissions outputs from S3S methodologies will include all the relevant intervention information needed by the reporting company for its emissions reporting.

See Section 2.7 for proposed guidance on how certified emissions information will be presented to aid flexibility for individual companies when accounting and reporting this information.

[1] GHG Protocol (2023). *Draft land sector and removals guidance: Part 1 – Chapter 11*. "Accounting Requirement – If companies implement actions that could have a potentially significant negative impact (i.e., increase GHG emissions and/or decrease removals) outside the scope 1, 2 and 3 boundary, companies shall estimate the impacts on GHG emissions and removals resulting from the action using intervention accounting methods (including land tracking metric[s] in chapter 7) and report the impacts separately from the scopes."

Open Questions

1) Do the project boundaries of the VCS methodology include all the relevant SSRs that materially change as a result of the intervention activities that are included within the reporting company's Scope 1, 2, and 3 emissions boundaries?

2.3 Baseline Scenario

VCS Program Concept

The baseline scenario represents the activities and GHG emissions that would occur in the absence of the project activity. The baseline scenario must be accurately determined so that an accurate comparison can be made between the GHG emissions and/or carbon stock changes that would have occurred under the baseline scenario and reductions and/or carbon stock changes achieved by project activities.

Intent

- To quantify the GHG impacts of an intervention relative to a counterfactual scenario over the same time period
- To facilitate quantification of an intervention activity's emissions impact, so that it can be credibly used in subtraction accounting (see Subtraction Accounting Method in Appendix 1 A1.1)

Proposal for Adaptation to the S3S Program

- Maintain the type of baseline(s) employed in the VCS methodology (i.e., project method, static performance benchmark, autonomous improvement factor, or dynamic performance benchmark – see Section 3.4 in the *VCS Methodology Requirements, v4.4* and "Choice of Baseline" below)
- Include additional guidance for integration of quantified impacts into company emissions inventories, dependent on the baseline type

Reasoning

Counterfactual scenario – same time period:

- **Baseline types:** The baselines used in VCS methodologies are designed to quantify a counterfactual emissions scenario to the project for the same time period in which the project activities take place. The type of baseline used reflects the degree of variability in the baseline for the activities to which the methodology is applicable. For example, static

performance benchmarks are employed when it is assumed that historical practices would continue in the absence of the project, and autonomous improvement factors are used to reflect identifiable trends in improvements (i.e., reductions) in baseline emissions in the absence of the project.

- **Controlling for inter-annual variation in project-based accounting:** Quantifying impacts using a counterfactual baseline for the same time period in which project activities take place removes variance introduced by inter-annual variations. For example, a flood one year might reduce the amount of crop produced by a project and inflate the emissions associated with producing that crop. Because the baseline is counterfactual for the same year, the flood event will affect the baseline emissions in the same way, meaning that in the resultant impact the flood event cancels out and the impact represents the impact of the project activities only (i.e., t CO_2e/t crop with flood in project scenario − t CO_2e/t crop with flood in baseline scenario = t CO_2e reduced/t crop due to project activities only).
- **Inter-annual variation in LCA-derived emission factors:** In most cases, life cycle assessment (LCA)-derived emission factors lack the temporal resolution necessary to capture inter-annual variations. Therefore, an impact quantified using a project-based accounting method that controls for inter-annual variation is comparable to LCA-derived emission factors which do not consider inter-annual variation. This supports a subtraction accounting approach.

Subtraction accounting:

- **Subtraction accounting** is proposed as an accounting solution for situations where there are significant barriers to adjusting emission factors to include the emissions impacts of an intervention (i.e., where substitution accounting (Figure 1 in Appendix 1 A1.1) cannot be applied). Subtraction accounting (Figure 2 in Appendix 1 A1.1) is intended primarily for companies using emission factors derived from LCA methods and data from third-party emission factor databases[2]. It is assumed that these emission factors represent common practice or the business-as-usual scenario at the time of use.
- **Choice of baseline method:** Baselines in VCS methodologies are designed using either standardized methods or a project method. Whether a methodology employs a

[2] Where companies have developed their own bespoke emission factors, those emission factors are assumed to be: a) more specific to the company's supply chain than general common practice, and b) more easily adjusted to include supply chain interventions using substitution accounting. Where companies are using emission factors from third-party databases which are easily adjusted (e.g., emission factors for transportation), it is assumed (and encouraged) that those companies employ substitution accounting. Substitution accounting only involves the use of project scenario emissions; therefore baseline scenario design is irrelevant for substitution accounting.

standardized method or a project method is influenced by the variability in baseline scenarios for the type of project activities eligible in the methodology, and data availability.

- **Standardized methods** define the most plausible baseline scenario, or an aggregated baseline scenario or a process for establishing the baseline, in the methodology itself. They use data and information from boundaries that extend beyond the project (e.g., regional data, global data, sectoral data). Baselines developed using standardized methods use a performance benchmark.
    - Where standardized methods are used, it is assumed that the possible baseline scenarios (including activities and emissions) for projects that are eligible to use the methodology are sufficiently normalized that a standardized (common practice) baseline is appropriate.
    - Therefore, baselines developed using standardized methods are derived from the common practice, as defined within the bounds of the underlying data (i.e., geographic (regional, national, global), temporal (static historical, autonomous trend, or dynamic), sectoral, and, technological bounds[3]).
    - VCS methodologies employ the conservativeness principle in baseline design, so the performance benchmark will normally be set at a higher level of performance (i.e., at lower emissions or greater removals) than the common practice (as assessed during methodology development/revision).
    - Therefore, the quantified impacts are relative to a baseline that represents the common practice (or better performance than common practice), which aids consistency in subtraction accounting where the impacts are subtracted from an equivalent LCA-derived emission factor which also represents common practice. However, there may be inconsistencies in how common practice is defined and quantified due to differences in the temporal and geographic bounds of the underlying data used to define common practice in the VCS standardized method and the LCA-derived emission factor.
- **Project methods** define the rules for determining a baseline scenario using project-specific data and information (e.g., the technical, economic, socio-cultural, environmental, geographic, site-specific, temporal, and regulatory conditions specific to the project).

[3] GHG Protocol (2005). *The Greenhouse Gas Protocol for Project Accounting* – Section 7.6

- Where the project method is used, it is assumed that the greater variation in baseline scenarios, or a lack of data to develop standardized baseline scenarios, makes a project-specific baseline more appropriate.
- Therefore, baselines developed using a project method are likely to be more variable between interventions but will result in the quantification of impacts relative to a baseline that is specific to the intervention (rather than a broader definition of common practice).
- Baselines developed using the project method may or may not represent the broader common practice, and therefore display variability in the degree of consistency with LCA-derived emission factors.

Risk of under-estimating net emissions in subtraction accounting, and how to incentivize impact:

- **Description of the risk:** Subtraction accounting poses a risk of inaccurate results due to inconsistencies between the way that impacts are quantified using project-based accounting, and the way that inventory emissions are quantified through inventory accounting. The root of this risk lies in the degree of consistency between the baseline scenario used in the S3S methodology, and the emissions scenario in the equivalent LCA-derived emission factor.
- **Conservative net emissions**: Subtraction accounting will result in over-estimation of net emissions (i.e., conservative net emissions) where an intervention's baseline emissions show better performance than the equivalent LCA-derived emissions from which the impact is subtracted. This is assumed to be the most likely outcome for methodologies that use standardized methods because their baselines will be either similar to, or more conservative than, the equivalent LCA-derived emissions (notwithstanding Open Question 2 below). Employment of the conservativeness principle in the project method should theoretically also lead to this outcome in most cases (see Figure 3 in Appendix 1 A1.1). A conservative estimate of net emissions resulting from subtraction accounting should serve as an incentive to improve accounting methods to enable substitution accounting.
- **Risk of under-estimated net emissions**: A problem arises where, despite employment of the conservativeness principle, an intervention's baseline emissions show worse performance (i.e., greater emissions or lower carbon stocks) than the equivalent LCA-derived emissions from which the impact is subtracted, resulting in under-estimation of net emissions (see Figure 4 in Appendix 1 A1.1). Methodologies employing the project method to define the baseline scenario are most at risk of this outcome due to the increased likelihood and degree of inconsistency between the intervention-specific baseline scenario and the common practice scenario in the equivalent LCA-derived emission factor.

  - It may not be possible to identify whether this phenomenon is happening due to the difficulty in matching equivalent SSRs between project-based methods and LCA-derived emission factors.
  - It will not be possible to mitigate this risk entirely without either:
    - Converting VCS methodology baselines to align perfectly with LCA-derived emission factors (which would also not be possible due to the variation in methods and data used within LCA), or
    - Making LCA-derived emission factors specific to the intervention (in which case there would be no need for subtraction accounting).

- **Incentivizing impact**: Maintaining the intervention-specific baseline where the project method is used will incentivize climate action with the worst performers (i.e., those with the greatest baseline emissions or lowest baseline carbon stocks), because there is an opportunity for greater impact which is captured by the project-based method. In addition, this approach quantifies real and verifiable impacts on the climate. This aligns with Verra's mission to accelerate action on climate change and sustainable development, by incentivizing action by the worst performers, and certifying verifiable impacts.
- **Mitigation**: The risk of under-estimating net emissions could be mitigated in the S3S Program through one or both of the following approaches:
  - Limited application of some additionality requirements in specific cases where this risk is greater – see Section 2.4
  - Development of guidance to aid program users to identify where and why this might be happening, and to encourage a transition to substitution accounting where there is a risk that net emissions are being under-estimated. This guidance may include a recommendation for users employing subtraction accounting to reduce the quantified impact by X% when using methodologies that employ a project method baseline scenario, paired with either activity method or project method additionality – see Section 2.4. Verra expects that the identification of this risk will become easier as third-party developers increase the transparency and adaptability of their published emission factors.

Open Questions

1) Is the risk of under-estimating net emissions when using subtraction accounting material? Do companies perceive this as a material risk?

2) How consistent are the baseline scenarios used in VCS methodologies with the emissions scenario in the equivalent LCA-derived emission factors?

    a) How consistent are the temporal and geographic bounds of the data used to define the baseline scenario in the VCS methodology and the data used to define common practice in commonly used LCA-derived emission factors?

    b) Where there are differences, are they material in the context of subtraction accounting?

    c) Are there any identifiable trends in the divergence/convergence of types of baseline scenarios or LCA-derived emission factors?

3) For performance methods: Do the performance benchmark metrics used in VCS methodologies align with the functional units of equivalent emission factors used in company inventories? If not, can the metrics/functional units be converted?

2.4 Additionality

VCS Program Concept

A project activity is additional if it is demonstrated to result in emission reductions or removals that exceed what would be achieved under a "business-as-usual" scenario and the activity would not have occurred in the absence of the incentive provided by the carbon markets. Additionality is an important characteristic of GHG credits, including VCUs, because it indicates that they represent a net environmental benefit and a real reduction in GHG emissions, and can thus be used to offset emissions. Methodologies must set out a procedure for demonstrating additionality using a project method or a standardized method (i.e., performance method or activity method).

Intent

- To adapt and streamline additionality requirements for the context of company emissions inventory accounting and reporting
- To maintain the integrity of certified impacts derived from S3S methodologies
- To apply certain aspects of additionality to address risks posed by some baseline methods when paired with subtraction accounting

Note – rules pertaining to ownership, claims, and any potential role for causality are defined at the program level (not in a methodology) and so are not discussed here.

Proposal and Reasoning for Adaptation to the S3S Program

Regulatory Surplus:

- Proposal:
  - Maintain regulatory surplus requirements in all methodologies and all additionality methods
- Reasoning:
  - Requiring that interventions using the S3S Program comply with regulatory surplus requirements pertaining to the intervention activities is an important safeguard to prevent certifying activities that do not align with regulatory requirements.
  - It is conservatively assumed that LCA-derived emission factors will include practices and technologies required by law as common practice, where those laws are enforced. Therefore, for subtraction accounting, impacts must be quantified relative to regulatory surplus requirements as defined in the VCS Program.

Other Additionality Requirements:

- Proposal:
  - Modify other additionality requirements using a risk-based approach
- Reasoning:
  - Applying the proposals in Table 1 will mitigate the risk of under-estimating net emissions when using subtraction accounting with different types of baseline scenario (see Section 2.3).

Table 1: Proposal and reasoning for additionality requirements

Additionality Method		Baseline Scenario	
		Standardized Method	Project Method
Standardized Method: Performance Method	**Proposal** Reasoning	**Maintain Step 1: Regulatory Surplus** **Remove Step 2: Performance Benchmark** The baseline performance method ensures the intervention activity is compared to common practice. The performance benchmark for additionality is not needed because the performance method in the baseline ensures that emissions impacts are relative to the common practice.	**Maintain Step 1: Regulatory Surplus** **Maintain Step 2: Performance Benchmark (see Open Question 3 in Section 2.3)** There is a risk of under-estimating net emissions when using the baseline project method with subtraction accounting. Maintaining the performance benchmark additionality assessment will ensure that interventions that are considered common practice will not be eligible.
Standardized Method: Activity Method	**Proposal** Reasoning	**Maintain Step 1: Regulatory Surplus** **Maintain: Applicability Conditions** This will retain the integrity of the methodology and eligibility of intervention activities. **Remove Step 2: Positive List requirements** The baseline performance method ensures the intervention activity is compared to common practice. a) **Remove Positive List Option A:** The 5% penetration rate threshold[4] imposed by the activity method is considered too stringent in the context of defining common practice for company emissions inventory accounting. LCA-derived emission factors are unlikely to	**Maintain Step 1: Regulatory Surplus** **Maintain: Applicability Conditions** This will retain the integrity of the methodology and eligibility of intervention activities. **Modify Step 2: Positive List requirements:** There is a risk of under-estimating net emissions when using the baseline project method with subtraction accounting. a) **Modify penetration rate threshold from 5% to 40%** The 5% penetration rate threshold imposed by the activity method is considered too stringent in the context of defining common practice for

[4] *VCS Methodology Requirements, v4.4* Section 3.5.10 1)b)

		be based on a technology or activity that only has 5% market penetration. Removing the 5% penetration threshold imposed by the positive list requirements will prevent the methodology from being inactivated when the intervention activities attain a penetration rate of 5% or more. b) **Remove Positive List Options B and C:** These options consider the role of carbon finance in making the intervention viable which is irrelevant in company inventory accounting.	company emissions inventory accounting. LCA-derived emission factors are unlikely to be based on a technology or activity that only has 5% market penetration. Modifying the penetration rate threshold to 40% will inactivate the methodology when the intervention activities attain a penetration rate of 40% or more which is assumed to more closely align with the common practice as defined by LCA-derived emission factors. b) **Remove Step 2 Positive List Option B: Financial Feasibility and Option C: Revenue Streams** These options consider the role of carbon finance in making the intervention viable which is irrelevant in company inventory accounting. c) **Apply "Alternative Proposal"** See text below table.
Project Method	**Proposal** Reasoning	**Maintain Step 1: Regulatory Surplus** **Remove Step 2: Implementation Barriers** Investment, technological, and institutional barriers are irrelevant in company inventory accounting. **Remove Step 3: Common Practice** The baseline performance method ensures the intervention activity is compared to common practice. Therefore the common practice test is not needed because the baseline performance benchmark ensures that emissions impacts are relative to the common practice.	**Maintain Step 1: Regulatory Surplus** **Remove Step 2: Implementation Barriers** Investment, technological, and institutional barriers are irrelevant in company inventory accounting. **Modify Step 3: Common Practice:** There is a risk of under-estimating net emissions when using the baseline project method with subtraction accounting. a) **Remove Part 2: "Where [the intervention] is common practice, the proponent shall identify barriers faced compared with existing [interventions]."**

			The common practice assessment ensures that interventions that are considered common practice will not be eligible. Barriers are irrelevant in company inventory accounting. b) **Modify Part 3 to include a common practice threshold of 40%** The 20% penetration rate threshold typically used is considered too stringent in the context of defining common practice for company emissions inventory accounting. LCA-derived emission factors are unlikely to be based on a technology or activity that only has 20% market penetration. c) **Apply "Alternative Proposal"** See text below table.

Alternative Proposal

An alternative proposal to address the risk of under-estimating net emissions when using subtraction accounting with a methodology that employs the project method for the baseline and either the activity method or project method for additionality is:

1) Maintain regulatory surplus;
2) Remove all other additionality requirements; and
3) Recommend that users reduce the quantified impact of the intervention by 10% (or another default value) when performing subtraction accounting.

Note – this approach could also be applied to standardized methods if the assumption that standardized methods are comparable with common practice used in LCA-derived emission factors is inaccurate.

Reasoning

The risk of under-estimating net emissions only applies where subtraction accounting is used. By maintaining additionality requirements per Table 1, there is a risk that interventions become ineligible even when users perform substitution accounting which poses no risk of under-

estimating net emissions. This alternative proposal approach may be simpler and more standardized across methodology types. The disadvantages of this approach are:

- Under-estimation of net emissions may still occur outside the scope of the S3S Program if users do not follow the guidance – Verra will be unable to identify or verify when this risk has occurred.
- Removing additionality requirements will mean S3S methodologies are less aligned with VCS methodologies, which may hinder project transfers between programs.

Open Questions

1) Do regulatory surplus requirements severely limit climate action within the S3S Program? Is this an overly conservative or burdensome requirement?
2) Does the removal of some additionality requirements streamline the intervention development process in the S3S Program? Does this divergence from the VCS Program create barriers to transferring VCS Program projects to S3S Program interventions (or vice versa)?
3) Is it Verra's responsibility to prevent the risk of under-estimating net emissions as far as possible in the design of the S3S Program through implementation of limited additionality requirements (main proposal), or is it the responsibility of companies to take appropriate mitigation measures when performing subtraction accounting using accounting guidance from the S3S Program (alternative proposal)? Which is the preferred proposal and why, or are there other approaches that should be considered?
4) Standardized Method – Performance Method: Does maintaining the performance benchmark additionality test when using a project method baseline address the risk of under-estimating net emissions? Is this approach overly conservative or burdensome?
5) Is a 40% penetration rate threshold appropriate in the context of defining common practice for company emissions inventory accounting?
6) Should the "Additionality" section be renamed in S3S methodologies? If yes, please suggest some options.

2.5 Baseline and Project Emissions and Carbon Stocks

VCS Program Concept

Baseline and project emissions, carbon stocks, or stock changes must be accurately quantified to determine reductions and removals achieved by projects. Methodologies must therefore set out procedures to quantify the GHG emissions and carbon stocks associated with the project.

Intent

- To determine reductions and removals resulting from interventions to enable both substitution accounting (using intervention emissions and/or carbon stocks) and subtraction accounting (using emissions impacts and/or carbon stock changes)
- To support flexibility and streamline accounting for an intervention's emissions impact in company inventory accounting and reporting

Proposal for Adaptation to the S3S Program

- Maintain quantification methods (i.e., calculations, equations, and default factors)

Reasoning

The quantification methods employed in VCS methodologies are assumed to represent the best available science and knowledge. Maintaining these approaches is important for the integrity of the S3S Program and will help to refine company inventories through the integration of more advanced and supply chain-specific methods and data.

Quantification methods are fundamental to methodology design. If these methods are altered to more closely align with LCA-based methods (and therefore align with commonly used emission factors), the methodology's integrity could be compromised (e.g., by replacing an emission factor for fertilizer emissions which is calculated using primary data and a Tier 3 model with an IPCC Tier 1 emission factor). A confounding issue is that methods used to develop third-party emission factors often lack transparency.

As described in Section 2.3, there is a risk of under-estimating net emissions when using substitution accounting where the baseline scenario in the S3S methodology shows worse performance (i.e., greater emissions or lower carbon stocks) than the equivalent LCA-derived emissions from which quantified impacts are subtracted. This situation can also arise due to differences in quantification methods and/or input data between the S3S methodology and LCA-derived emissions. As described in greater detail in Section 2.3:

- This risk is somewhat mitigated by the application of conservativeness (i.e., under-estimation of baseline emissions and over-estimation of baseline carbon stocks) in S3S methodologies.
- The benefits of using more granular (primary) data and intervention-specific methods are deemed to outweigh the risks of under-estimating net emissions.
- Guidance will be developed in the S3S Program to aid users in identifying where there is a risk of under-estimating net emissions when using the subtraction method, and to encourage transition to substitution accounting to mitigate this risk.

Open Questions

1) Should the quantification approach be applied as an emissions intensity factor for each baseline and intervention emission, and carbon stocks and stock changes, or should absolute emissions be quantified for each, and converted to an emissions intensity/impact factor in aggregate (i.e., after absolute emissions impacts are quantified)?
2) Are deviations in the emission factors used in quantification methods useful or needed? If so, why? How does this impact consistency and comparability between projects? Are there cases in which changes to emission factors used in quantification methods would result in more credible net emissions when using subtraction accounting?

2.6 Leakage

VCS Program Concept

Leakage is the net change in anthropogenic GHG emissions that occurs outside the project boundary and is attributable to project activities. Methodologies must establish procedures to quantify leakage where the potential for leakage is identified, as projects may otherwise overestimate their net emission reductions and/or removals.

Intent

- To ensure that users of the S3S Program have certified information about the emissions impacts of intervention activities both within and outside the intervention boundary, and therefore within and outside the reporting company's Scope 1, 2, and 3 emissions boundaries
- To streamline emissions accounting and reporting for reporting companies, using transparent emissions boundaries and quantification methods for emissions changes that occur outside the intervention boundary

- To be transparent that leakage emissions may fall within the emissions boundaries of the reporting company's Scope 1, 2, or 3 emissions, depending on the intersection of leakage emissions with the reporting company's Scope 1, 2, and 3 emissions boundaries

Proposal for Adaptation to the S3S Program

- Maintain leakage quantification section
- Do not include (do not deduct) leakage emissions in the quantification of emission reductions and removals (see Section 2.7) and report leakage separately as an attribute

Reasoning

- Boundaries for company Scope 1, 2, and 3 emissions will differ for each company. Therefore, leakage emissions may fall outside the company inventory boundary for some companies, and inside the inventory boundary for others.
- The GHG Protocol have indicated that companies may be required to report emissions impacts of interventions outside the inventory boundary separate from the scopes.[5] Therefore, information on leakage emissions is valuable to reporting companies, but may be reported differently. By separating leakage emissions from the quantification of emissions reductions and removals while preserving this information with the certified emissions information, reporting companies may independently determine how leakage emissions should be reported according to their own inventory boundaries.

Open Questions

1) Will companies be able to understand how to account and report leakage emissions if they are separated from the quantification of net emission reductions and removals? How should this information be communicated?
2) Is additional guidance needed to avoid double-counting of leakage emissions (i.e., if the leakage emissions are within the company's inventory boundaries, how can companies avoid counting these emissions in their inventory both through conventional inventory accounting methods and through the inclusion of leakage emissions as quantified by the S3S methodology)? Or does this issue lie beyond the scope of the S3S Program?

[5] GHG Protocol (2023). *Draft land sector and removals guidance: Part 1* – Chapter 11. "Accounting Requirement - If companies implement actions that could have a potentially significant negative impact (i.e., increase GHG emissions and/or decrease removals) outside the scope 1, 2 and 3 boundary, companies shall estimate the impacts on GHG emissions and removals resulting from the action using intervention accounting methods (including land tracking metric[s] in chapter 7) and report the impacts separately from the scopes."

2.7 Quantification of Emission Reductions and Removals

VCS Program Concept

Emission reductions and removals achieved by projects are the basis for the volume of VCUs that may be issued. Methodologies must establish criteria and procedures for quantifying GHG emission reductions and carbon dioxide removals separately, where applicable.

Intent

- To quantify the emission reductions and removals achieved by Scope 3 interventions that can be readily adapted and used for organizational purposes within an inventory accounting framework, to ultimately be able to track and report companies' efforts toward science-based targets and decarbonization

Proposal for Adaptation to the S3S Program

Modify the quantification of emission reductions and removals and add reporting tables to provide additional data granularity.

- Quantification of emission reductions and removals is modified as follows:
  - Emissions reductions and removals are quantified and reported separately.
  - Leakage emissions are not deducted from the quantification of emission reductions and/or removals. The formula for quantifying the emission reductions and/or removals is modified as follows:

$$\Delta EI_y = BE_y - IE_y$$

Where:

ΔEI_y = Absolute emissions impact of the intervention in year *y* (t CO_2e)

BE_y = Baseline emissions in year *y* (t CO_2e)

IE_y = Intervention emissions in year *y* (t CO_2e)

- Similar to the VCS Program, AFOLU interventions will quantify non-permanence risk (NPR). Rules and guidance on how NPR is mitigated will be addressed at the S3S Program level (i.e., not in S3S methodologies).
- Intervention proponents shall populate the following tables (see Appendix 1):
  - Table 2.7.1: Reporting emission reductions and removals

- Table 2.7.2: Emission reductions breakdown
- Table 2.7.3: Emission removals breakdown

Reasoning

- VCS methodologies apply project-based accounting. GHG inventory accounting uses attributional accounting. Attributional and project-based accounting have different objectives and uses in accounting emissions impacts of interventions/projects.
- Within inventory accounting, emissions boundaries differ between companies.
- The objective of the S3S Program is to enable integration of the quantified emission impacts of an intervention – calculated using a project-based approach – within a company's emissions inventory which uses attributional accounting. For this reason, modifying the VCS quantification of emission reductions and removals to facilitate flexibility is essential to accommodate the different requirements of inventory accounting and reporting.

Open Questions

1) Review the draft reporting tables (Tables 2.7.1–2.7.3 in Appendix 1) and provide feedback as to how these tables could best align with outcome integration and potential reporting needs.
2) Are discount factors for upstream displacement activities appropriate or needed in S3S methodologies (see Section 3.8.5 of the *VCS Methodology Requirements, v4.4*)?

2.8 Monitoring

VCS Program Concept

Methodologies must describe the data and parameters available at validation (i.e., those that are fixed for the duration of the project crediting period) and data and parameters monitored (i.e., those that must be monitored during the project crediting period for each verification). Additionally, methodologies must describe the criteria and procedures for obtaining, recording, compiling, and analyzing monitored data and parameters.

Intent

- To ensure effective monitoring of interventions

- To ensure high-quality data and parameters for the calculation of emissions reductions and/or removals
- To ensure high-quality data for attribution of emissions reductions and/or removals to impacted products

Proposal for Adaptation to the S3S Program

- Maintain monitoring plan guidance to describe criteria and procedures for obtaining, recording, compiling, and analyzing monitored data and parameters
- Modify data and parameters section to include amount and typology of impacted products (see Section 2.10)

Reasoning

- One critical difference between the VCS and S3S Programs is the attribution of emissions reductions and/or removals to impacted products. This requires annual verification and monitoring of two primary annual outcomes associated with the methodology's intervention activities:
  1) Absolute emissions impacts (t CO_2e reduced or removed), reported separately as reductions and removals for each intervention activity; and
  2) Absolute quantity of each type of impacted product – see Table 2.8.1 in Appendix 1 for an example
- Based on these absolute outcomes, annual emissions reductions and/or removals can be attributed to each impacted product (t CO_2e/t impacted product).

Monitoring in VCS methodologies enables calculations of absolute emission impacts, baseline emissions, and intervention emissions. To convert absolute emissions impacts to factors, the typology and amount of impacted product(s) affected by the intervention must also be monitored and verified. Therefore, S3S methodologies must include parameters for collecting and monitoring these data (see also Section 2.10).

Open Questions

1) Can methodology parameters be monitored or estimated annually?
2) Should the frequency of data collection for removals and reductions differ?

3) Should quantification approaches associated with monitoring requirements that cannot align with annual estimates/reporting be excluded (e.g., measure and re-measure in *VM0042*)?

2.9 Uncertainty

VCS Program Concept

Uncertainty is defined by the IPCC as the lack of knowledge of the true value of a variable, which can be described as a probability density function characterizing the range and likelihood of possible values. The *2019 Refinement to the 2006 IPCC Guidelines for National GHG Inventories*[6] provides further guidance on key concepts and terminology including applicable definitions of random error, systematic error, and related terms.

Methodologies must be designed to reduce systematic and random error as far as is practical. Where relevant, methodologies must set out procedures for projects to estimate residual random error according to recognized statistical approaches, and to apply conservativeness deductions to reduce the risk of overestimating reductions and removals due to random error.

Intent

- To be transparent about uncertainty which is inherent to greenhouse gas quantification
- To ensure that impacts are quantified with reasonable confidence and are not over-estimated due to the inherent uncertainty in the data or methods used to quantify them

Proposal for Adaptation to the S3S Program

- Maintain the uncertainty analysis and requirements as described in the VCS methodology
- Maintain methodology procedures to account for uncertainty (as per Section 3.16.2 of the *VCS Standard, v4.5* and in alignment with Section 2.4 of the *VCS Methodology Requirements, v4.4*)

Reasoning

- Quantification of, and transparency into the uncertainty associated with emissions outcomes is important to maintain integrity and alignment with the principles of transparency, accuracy, and conservativeness.

[6] See Volume 1, Chapter 3, Section 3.1.3, available at: https://www.ipcc-nggip.iges.or.jp/public/2019rf/vol1.html

- Applying confidence deductions could decrease the return on investment associated with an intervention. It would also create a double standard when integrating quantified impacts into company emissions inventories that are often based on LCA-derived emission factors, which do not include deductions for uncertainty. However, confidence deductions reduce the risk of overestimating reductions and removals due to random error, align with the principle of conservativeness, and may help prevent greenwashing accusations/backlash.

Open Questions

1) Are confidence deductions appropriate in the context of company inventory accounting and/or useful in mitigating backlash and criticism especially when performing subtraction accounting?
2) Are confidence deductions too conservative? If yes, would including uncertainty as an attribute to the quantified impacts better align with company inventory accounting and the principle of accuracy? Would including uncertainty as an attribute provide an incentive to reduce uncertainty over time and/or create a market incentive for outcomes from interventions associated with lower uncertainty?
3) Is the uncertainty threshold described in Section 2.4 of the *VCS Methodology Requirements, v4.4* suitable for the S3S Program? If not, what would be a reasonable threshold?

2.10 Impacted Product and Attribution (New Section)

Intent

- To describe and define a credible and transparent approach to attributing intervention outcomes – both reductions and removals – to an annual amount of impacted products so that the outcomes are attributable to the company's operations or value chain

Proposal for Adaptation to the S3S Program

- Define impacted products as: All goods and services whose Scope 1 emissions are directly impacted by the intervention activities for which Intervention Units have been or will be sought
- Define and justify with evidence the function and service of each impacted product associated with the intervention activity to ensure impacted product consistency
- Complete Table 2.10.1 in Appendix 1 for each impacted product

Reasoning

- The attribution process requires annual verification of two primary annual outcomes associated with a methodology's intervention activities:

1) Absolute emissions impacts (t CO_2e reduced or removed), reported separately as reductions and removals for each intervention activity; and
2) Absolute annual quantity for each impacted product.

- Based on these absolute outcomes, annual emissions impacts can be attributed to each impacted product (t CO_2e/t impacted product).
- This attribution process also informs the maximum amount of outcomes that may be reported for a maximum amount of impacted product(s) in a given year via the Right-to-Report application, which will be defined in version 2.0 of the S3S Program.

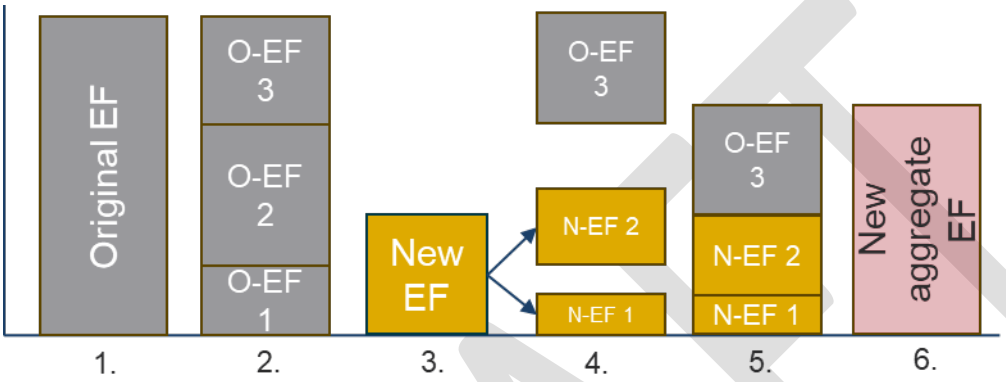
Open Questions

1) Is the proposed definition for impacted product fit for purpose?
2) Is it useful to attribute emissions impacts of specific intervention activities to specific impacted products? For example, in the case of two crops (A and B) grown on the same field in the same year, is it useful to attribute the emission impacts of a cover crop to crop A, and the emissions impacts of fertilizer management activities to crop B?
3) Should impacted product(s) be defined at the program level and the onus put on intervention proponents to identify them, or should methodologies include a list of viable impacted products associated with the use of that methodology?

APPENDIX 1

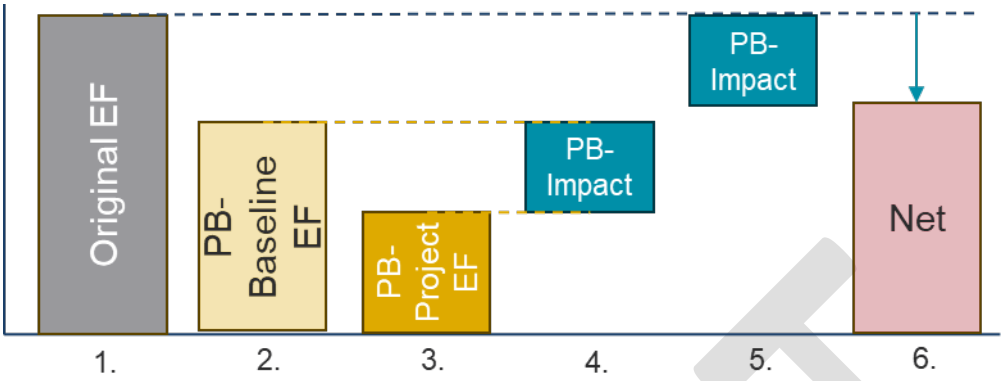
A1.1 Baseline Scenario – Subtraction, Substitution, and Net Emissions Accounting

Figure 1: Substitution Accounting Method



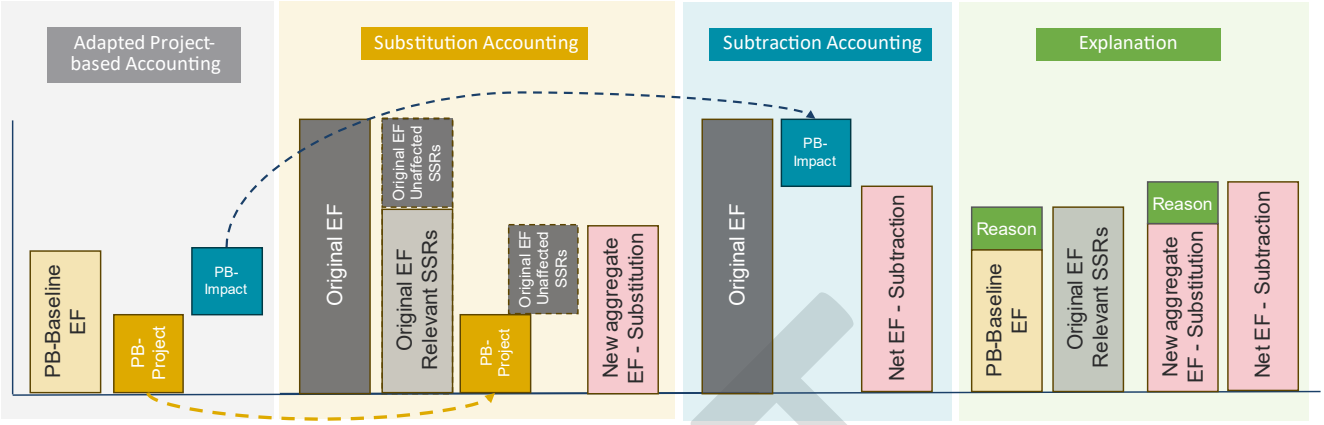
1) Original emission factor (O-EF): The original emission factor does not include the emissions impacts of the intervention.
2) Disaggregation: The original emission factor is disaggregated into its component emissions sources, sinks, and reservoirs (SSRs). Parts 1, 2, and 3 are identified as the component SSRs that are affected by the intervention.
3) New emission factor: An emission factor that includes the emission impacts of the intervention. The boundaries of the new emission factor only extend to the impacts of the intervention.
4) Matching: The new emission factor is disaggregated into its component SSRs which are matched to the equivalent component SSRs in the original emission factor.
5) Substitution: The component SSRs of the new emission factor are substituted for the equivalent SSRs in the original emission factor.
6) Aggregation and net: A net emission factor is developed from the aggregate of the unaffected SSRs from the original emission factor and the affected SSRs from the new emission factor.

Figure 2: Subtraction Accounting Method



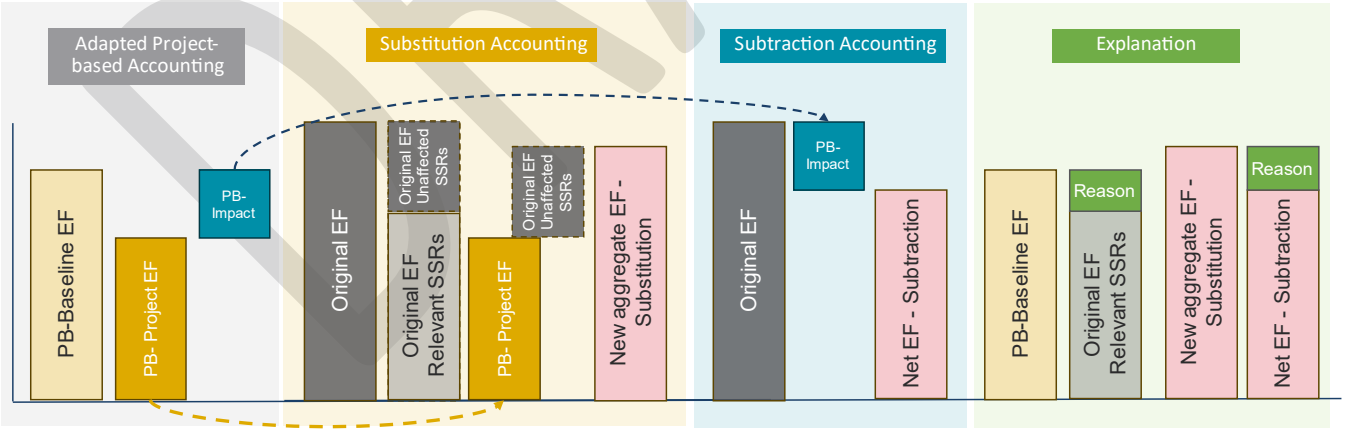
1) Original emission factor (O-EF): The original emission factor does not include the emissions impacts of the intervention.
2) Project-based (PB) accounting baseline emission factor: This considers the baseline emissions for the SSRs relevant to the intervention.
3) Project-based accounting project (with-intervention) emissions: This considers project (with-intervention) emissions for the SSRs relevant to the intervention.
4) Project-based accounting emissions impact: This is the emissions impact of the intervention for the relevant SSRs, quantified by baseline emissions minus project (with-intervention) emissions.
5) Subtraction: The emissions impact of the intervention is subtracted from the original emission factor.
6) Net: The subtraction yields the net emission factor.

Figure 3: Comparison of substitution and subtraction accounting with a conservative baseline using the project-based method; subtraction yields conservative net emissions



The project-based baseline emission factor is conservative compared to the equivalent SSRs in the original emission factor. The outcome is a more conservative estimate of the net emission factor when performing subtraction accounting, compared to the aggregate emission factor from substitution accounting. The difference between the outcomes of substitution and subtraction accounting is due to the difference between the baseline in the project-based accounting approach and the equivalent SSRs in the original emission factor. This is indicated by the green bars labeled "Reason" which show that the difference between the project-based baseline (PB-Baseline EF) and the equivalent SSRs in the original emission factor (EF) is the same as the difference between the emission factors (pink bars) as calculated by substitution and subtraction methods.

Figure 4: Comparison of substitution and subtraction accounting with a non-conservative baseline in the project-based method; subtraction yields under-estimated net emissions



The project-based baseline emission factor is over-estimated (not conservative) compared to the equivalent SSRs in the original emission factor. The outcome is an under-estimated (not conservative) estimate of the net emission factor when performing subtraction accounting, compared to the aggregate emission factor from substitution accounting. The difference between

the outcomes of substitution and subtraction accounting is due to the difference between the baseline in the project-based accounting approach and the equivalent SSRs in the original emission factor. This is indicated by the green bars labeled “Reason” which show that the difference between the project-based baseline (PB-Baseline EF) and the equivalent SSRs in the original emission factor (EF) is the same as the difference between the emission factors (pink bars) as calculated by substitution and subtraction methods.

A1.2 Quantification of Emission Reductions and Removals – Draft Reporting Tables

Table 2.7.1: Reporting emission reductions and removals

Vintage Period	Baseline Emissions (t CO_2e)	Intervention Emissions (t CO_2e)	Leakage Emissions (t CO_2e)	Emission Reductions*		Emission Removals*	
				Emission Reductions (t CO_2e)	Emission Reductions Intervention Units (IUs) (t CO_2e/ amount of impacted product)	Emission Removals (t CO_2e)	Removal Intervention Units (IUs) (t CO_2e/ amount of impacted product)
DD-MMM-YYYY to 31-Dec-YYYY	*Example:*	*Example:*	*Example:*	*Example:*			
	50,000	*20,000*	*10,000*	*30,000*		-	-
01-Jan-YYYY to 31-Dec-YYYY							
01-Jan-YYYY to DD-MMM-YYYY							

* Leakage and GHGs not covered by the Kyoto Protocol are not deducted from the calculation

Table 2.7.2: Emission reductions breakdown

SSRs	GHG	Baseline Emissions (t CO_2e)			Intervention Emissions (t CO_2e)			Emissions Reductions (t CO_2e)		
		Biogenic	Non-biogenic	Total	Biogenic	Non-biogenic	Total	Biogenic	Non-biogenic	Total
Example Source 1	*CO_2*		*200*	*200*		*160*	*160*	-	*40*	*40*
	CH_4	*100*		*100*	*100*		*100*	-	-	-
	N_2O		*50*	*50*		*40*	*40*	-	*10*	*10*
	*Others**			-			-	-	-	-
	Total	*100*	*250*	***350***	*100*	*200*	***300***	-	*50*	***50***
Source 2	CO_2									
	CH_4									
	N_2O									
	Others*									

	Total									
Source *x*	CO_2									
	CH_4									
	N_2O									
	Others*									
	Total									
GHGs not covered by the Kyoto Protocol	NO_x									
	SO_2									
	CFCs									
	Other (specify)									
	Total									

*Other GHGs include: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3)

Table 2.7.3: Emission removals breakdown

SSRs	GHG	Baseline Emissions (t CO_2e)			Intervention Emissions (t CO_2e)			Emissions Removals (t CO_2e)		
		Biogenic	Non-biogenic	Total	Biogenic	Non-biogenic	Total	Biogenic	Non-biogenic	Total
Sink 1	CO_2									
	Other (specify)									
	Total									
Sink 2	CO_2									
	Other (specify)									
	Total									
Sink *x*	CO_2									
	Other (specify)									
	Total									

A1.3 Monitoring – Example Table

Table 2.8.1: Data and Parameters Monitored

Data/Parameter	
Data unit	*Indicate the unit of measure*
Description	*Provide a brief description of the data/parameter*
Source of data	*Indicate the source(s) of data*
Description of measurement methods and procedures to be applied	*Specify the measurement methods and procedures, any standards or protocols to be followed, and the person/entity responsible for the measurement. Include any relevant information regarding the accuracy of the measurements (e.g., accuracy associated with meter equipment or laboratory tests).*
Frequency of monitoring/recording	*Specify measurement and recording frequency*
Value monitored	*Provide an estimated value for the data/parameter*
Monitoring equipment	*Identify equipment used to monitor the data/parameter including type, accuracy class, and serial number of equipment, as appropriate.*
QA/QC procedures to be applied	*Describe the quality assurance and quality control (QA/QC) procedures to be applied, including the calibration procedures where applicable*
Purpose of the data	*Indicate one of the following:* • *Calculation of baseline emissions* • *Calculation of project emissions* • *Calculation of leakage* • *Calculation of impacted products*
Calculation method	*Where relevant, provide the calculation method, including any equations, used to establish the data/parameter*
Comments	*Provide any additional comments*

A1.4 Impacted Products and Attribution – Example Monitoring Table

Table 2.10.1: Impacted products and attribution

Typology	Commodity group	*Specify the name of the commodity group (e.g., agricultural commodity)*
	Name	*Specify the name of the impacted product (e.g., corn)*
	Grade or specification	*Specify the quality or grade of the commodity (e.g., US No. 3)*
	Evidence	*Provide invoices, commercial document, or certificate of analysis that detail the commodities' composition, quality, and grade*
Temporal consistency	Intervention start date	*Provide the intervention start date (mmmm yyyy)*
	Intervention end date	*Provide the intervention end date (mmmm yyyy)*
Geographic consistency	Intervention location	*Specify with GIS coordinates the location of the intervention*
Quantitative consistency	Amount of annual impacted product	*Provide the amount of annual impacted products*
	Data unit	*Indicate the unit of measurement*
	Evidence	*Varies by industry but could include inventory records such as tanker truck records from milk haulers transporting raw milk from farm*
Comments		*Provide any additional comments*

GLOSSARY

Impacted products

All goods and services whose Scope 1 emissions are directly impacted by the intervention activities for which Intervention Units have been or will be sought.

Intervention

A set of activities managed by an intervention proponent and registered in the S3S Program, resulting in a change in emissions within a defined intervention area and intervention boundary. An intervention in the S3S Program is analogous to a project in the VCS Program.

LCA-derived emission factor

Values derived from life cycle assessment (LCA) studies to quantify the amount of greenhouse gases (GHGs) emitted per unit of activity or material input throughout the entire life cycle of a product or service. They are often used in company emissions inventory accounting when primary data are not available.

Net emissions

The net result of subtraction accounting. Net emissions are an estimate of the emissions footprint of the subject. Where subtraction accounting is used to quantify net emissions, the method to attain net emissions should be reported transparently and separately to inventory emissions.

Original emission factor

An emission factor that is used in inventory accounting which does not include the emissions impacts of an intervention. Normally this is due to the coarse and generic nature of the data and methods used to derive the original emission factor.

Project

A set of activities managed by a project proponent and registered in the VCS Program, resulting in a change in emissions within a defined project area and project boundary

Scope 3 Standard Program (S3S Program)

A new program being developed by Verra with the goal of unlocking immediate and large-scale investment in supply chain climate action

Substitution accounting

An accounting method to integrate the emissions impacts of an intervention by substituting a new emission factor into an original emission factor (see Figure 1)

Subtraction accounting

An accounting method to integrate the emissions impacts of an intervention by subtracting a quantified emissions impact of an intervention from an original emission factor. The impact is quantified relative to the original emission factor (as far as is practicably feasible). The result is "net emissions" (see Figure 2).