

VCS Module/Tool Template, v5.0

This template is for developing modules and tools under the VCS Program.

Follow the instructions in this template to draft the module/tool. Ensure the module/tool meets the rules and requirements in the most recent versions of the *VCS Standard* and *VCS Methodology Requirements*. Refer to these documents when drafting the module/tool.

Note that the instructions in this template serve as a guide and do not necessarily represent an exhaustive list of the information the author must provide under each template section.

Instructions for Completing the DRAFT Module/Tool

1. On the title page, replace the placeholders in square brackets with the relevant information.
2. Complete the header (to appear on each page) with the following information, replacing the square bracket placeholders with the relevant information, based on the module/tool development stage:
	1. For draft modules/tools: “[Development ID], Draft [Module/Tool]”
	2. For approved modules/tools: “[Module/Tool Number], v[version number]”
3. Propose a clear and concise title using the following guidance:
	1. Do not include words like “projects,” “activities,” “emission reductions,” or “removals.”
	2. Preferably, do not include “module” or “tool.”
	3. Do not include terms related to the quantification or monitoring method.

An example of an appropriate title is:

* + 1. Unplanned Deforestation Allocation

Rather than:

1. Tool for Allocating Unplanned Deforestation
2. Follow the instructions under each section heading in this template.
3. Use clear, logical, concise, and precise language to aid readability and ensure consistent application and interpretation.
4. Only include relevant procedures and requirements in the main sections of the module/tool. Use appendices to provide detailed background information, explanation, and justification of key components. Brief summaries of background information or explanations may be included within the body or footnotes of the module/tool where it is helpful for the reader to follow the logic of the module/tool when applying the procedures.
5. Second-level (e.g., 5.1) and third-level (e.g., 5.1.1) may be added where it is helpful to the reader for information to be grouped in this way (e.g., if there are multiple options for one type of calculation). Do not change or add first-level headings.
6. When citing references, give the author(s) and year of publication in parentheses and then provide the full reference information in Section 7. Do not use footnotes to provide full reference information.
7. The module/tool must use the keywords “must,” “should,” and “may” appropriately:
	1. **must**: indicates a firm requirement
	2. **should**: indicates a (non-mandatory) recommendation
	3. **may**: indicates a permissible or allowable option
	4. **shall**: do not use ”shall” in modules/tools*;* “*s*hall” is reserved for VCS Program documents.
8. Complete all sections using Franklin Gothic Book 10.5 point, black, regular (non-italic) font. Where a section is not applicable, explain why the section is not applicable (i.e., do not delete the section from the final document and do not only write “not applicable”).
9. Use italic font to reference VCS Program documents, methodologies, and tools (e.g., “the most recent version of the *VCS Methodology Requirements*”).
10. Delete all instructions, including this introductory text, from the final document.

Draft [Module/Tool]

[Development ID]

[Module/tool Title]

Draft Version

[Date of version release]

Sectoral Scope [number]: [Name of sectoral scope]

This draft [module/tool] was developed by [name(s) of developer(s)].

[add any relevant developer logos here]

Contents

[1 Summary Description 6](#_Toc200528970)

[2 Sources 6](#_Toc200528971)

[3 Definitions 6](#_Toc200528974)

[4 Applicability Conditions 7](#_Toc200528975)

[5 Procedures 8](#_Toc200528976)

[6 Data and Parameters 8](#_Toc200528977)

[6.1 Data and Parameters Available at Validation 8](#_Toc200528978)

[6.2 Data and Parameters Monitored 9](#_Toc200528979)

[7 References 12](#_Toc200528980)

[APPENDIX X: [Title of Appendix] 13](#_Toc200528981)

[Document History 14](#_Toc200528982)

# Summary Description

Provide a brief summary description of the module/tool, including any procedural steps. The summary should be concise (aim for no more than one page).

# Sources

Indicate key methodologies, modules, tools, guidance, documents, and/or projects upon which the proposed module/tool is based. Here, only include documents that have informed large parts of the module/tool (e.g., if the module/tool is an adaptation of an existing module/tool). Any documents that were generally used for information while writing the module/tool or that should be referred to for certain specific aspects (e.g., emission factors) should be listed in Section 7 (References) instead.

Identify any modules or tools used by this module/tool.

Example

This [module/tool] is based on the following module:

* *VMD0057* *CO2 Transport for CCS Projects, v1.0*

This [module/tool] uses the most recent versions of the following modules and tools:

* *VMD0056 CO2 Capture from Air (Direct Air Capture)*
* *VT0012 Accounting non-VCS CO2 in CCS Projects*

# Definitions

Using the format in the example below, provide, in alphabetical order, definitions of key terms and acronyms that are used in the module/tool. Ensure all defined terms are used in the module/tool. Do not include terms already defined in the VCS Program Definitions.

Examples

Commercial timber harvest

Removal of merchantable trees from a forest to obtain income from the wood products

Logging slash

Dead wood residues (including foliage) left on the forest floor after timber removal

# Applicability Conditions

Using the sample text below, first describe the project activity(s) and/or circumstances under which the module/tool applies. Second, set out specific conditions under which the module/tool can be used such as geographic location, technology type, methodology type, and any other conditions that determine the applicability of the module/tool. Use a numbered list to make it easier to reference individual applicability conditions. Continue the numbering when listing non-eligible conditions rather than starting a new numbered list.

Authors should keep the following in mind when writing the applicability conditions:

* Applicability conditions must be specified clearly, and in a manner that allows easy determination of whether the module/tool can be used by a methodology or other module/tool.
* Applicability conditions must not contain procedures or obligations upon the project proponent.
* For activity methods (i.e., methodologies using a positive list approach for additionality), the applicability conditions represent the positive list. Section 5 (Procedures) of the module/tool only needs to address the VCS Program regulatory surplus requirements (see the VCS Methodology Template to see how the Additionality section (Section 7) of that template similarly addresses regulatory surplus, while the Applicability Conditions section represents the positive list).
* The list of applicability conditions may contain exclusions (i.e., may describe types of activities or circumstances under which the module does not apply).

This module applies to…

This module is applicable under the following conditions:

1. <Condition>
2. <Condition>
3. …

This module is not applicable under the following conditions:

1. <Condition>
2. …

# Procedures

Describe, in detail, the procedures established by the module. Follow the instructions provided in any relevant sections of the VCS Methodology Template (e.g., project boundary, baseline scenario, additionality, and quantification of GHG emission reductions and carbon dioxide removals).

# Data and Parameters

## Data and Parameters Available at Validation

Complete the table below for all data and parameters that will be determined or available at validation and remain fixed throughout the project crediting period (copy the table as necessary for each data/parameter). Data and parameters monitored during the implementation of the project are included in Section 6.2 (Data and Parameters Monitored) below.

Ensure that data sources are appropriate and conform with VCS Program rules and requirements. Likewise, ensure that rules and requirements for models and default factors are adhered to.

|  |  |
| --- | --- |
| Data/Parameter | *Use italic font; do not use “Equation” function.* |
| Data unit | *Indicate the unit of measure using SI units.*  |
| Description | *Provide a brief description of the data/parameter.* |
| Equations | *List the equation(s) that use this data/parameter, using cross-references.* |
| Source of data | Indicate the source(s) of data. |
| Value applied | Provide the default value applied where applicable. |
| Justification of choice of data or description of measurement methods and procedures applied | Justify the choice of data source, including adopted conservative assumptions, and provide references where applicable. Where values are based on measurement, include a description of the measurement methods and procedures applied (e.g., which standards or protocols have been followed). More detailed information may be provided in an appendix. |
| Purpose of data | Indicate one or more of the following: * Determination of baseline scenario (AFOLU projects only)
* Calculation of baseline emissions
* Calculation of project emissions
* Calculation of leakage
 |
| Comments | Provide any additional comments. |

Example

|  |  |
| --- | --- |
| Data/Parameter | *NCVFF,i* |
| Data unit | TJ/Gg |
| Description | Net calorific value of fossil fuel i used in the baseline scenario |
| Equations | (2) |
| Source of data | Use values from 2006 IPCC Guidelines for National Greenhouse Gas Inventories. |
| Value applied | N/A |
| Justification of choice of data or description of measurement methods and procedures applied | The *IPCC Guidelines for National Greenhouse Gas Inventories* is internationally recognized and the data provided in the guidelines are peer-reviewed. |
|  Purpose of data | Calculation of baseline emissions |
| Comments | N/A |

## Data and Parameters Monitored

Complete the table below for all data and parameters that will be monitored during the project crediting period (copy the table as necessary for each data/parameter). Data and parameters determined or available at validation are included in Section 6.1 (Data and Parameters Available at Validation) above. Data and parameters that are determined at validation but are expected to change during the crediting period and/or are monitored during operation of the project should be included in this section (Data and Parameters Monitored). Where the module/tool establishes default factors which may become out of date (e.g., default factors that do not represent physical constants or otherwise would be expected to change significantly over time), make note of this in the Comments field and include instructions for updating the default factors.

Ensure that data sources are appropriate and conform with VCS Program rules and requirements. Likewise, ensure that rules and requirements for models and default factors are adhered to.

Indicate any conservative assumptions to be taken or uncertainty thresholds to be achieved (e.g., metering accuracy class, sampling precision, 66th percentile point of estimate).

Parameters that are not directly monitored themselves (i.e., are calculated, using monitored data/parameters and the equations provided in the module/tool) do not need to be included in this section.

|  |  |
| --- | --- |
| Data/Parameter | *Use italic font; do not use “Equation” function.* |
| Data unit | *Indicate the unit of measure using SI units.* |
| Description | *Provide a brief description of the data/parameter.* |
| Equations | *List the equation(s) that use this data/parameter, using cross-references.* |
| Source of data | *Indicate the source(s) of data.* |
| Description of measurement methods and procedures to be applied | *Specify the appropriate measurement methods and procedures and any standards or protocols that must be followed. 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.* |
| QA/QC procedures to be applied | *Describe the quality assurance and quality control (QA/QC) procedures to be applied, including calibration procedures where applicable.* |
| Purpose of data | *Indicate one or more of the following:* * Determination of baseline scenario (AFOLU projects only)
* Calculation of baseline emissions
* Calculation of project emissions
* Calculation of leakage
 |
| Calculation method | *Describe any method to derive the value, such as average (mean, median, mode), value at standard conditions.* |
| Comments | Provide any additional comments. |

Example (monitored parameter)

|  |  |
| --- | --- |
| Data/Parameter | *ECP,y* |
| Data unit | MWh/yr |
| Description | Quantity of electricity consumed by project facility from the grid in year *y*  |
| Equations | (2) |
| Source of data | Measurements at project facility  |
| Description of measurement methods and procedures to be applied | Use calibrated electricity meters from the grid supplier.  |
| Frequency of monitoring/recording | Data must be monitored continuously and recorded on a monthly basis or with the frequency applicable according to the grid supplier. |
| QA/QC procedures to be applied | The consistency of metered electricity consumption should be cross-checked with receipts from electricity bills where applicable. |
| Purpose of data | Calculation of project emissions |
| Calculation method | Electricity meter is cumulative. The monthly electricity consumption is the difference between initial and final reading within one month. |
| Comments | None |

Example (parameter determined at validation but expected to change during crediting period)

|  |  |
| --- | --- |
| Data/Parameter | *EFCO2,j* |
| Data unit | t CO2e/liter |
| Description | Emission factor for fossil fuel *j* (gasoline or diesel) combusted  |
| Equations | (8) |
| Source of data | Table 3.3.1 Chapter 3 Volume 2 in IPCC (2019) |
| Description of measurement methods and procedures to be applied | For gasoline *EFCO2* = 0.002810 t CO2e per liter. For diesel *EFCO2* = 0.002886 t CO2e per liter.  |
| Frequency of monitoring/recording | Source of data for emission factor must be monitored every five years and must be updated when more accurate data applicable to the project conditions become available following the guidance in Section 8.3 under Quantification Approach 3. |
| QA/QC procedures to be applied | See “Source of data.” |
| Purpose of data | Calculation of baseline and project emissions |
| Calculation method | Not applicable |
| Comments | Assumes four-stroke gasoline energy for gasoline combustion and default values for energy content of 47.1 GJ/t and 45.66 GJ/t for gasoline and diesel respectively (IEA 2004). |

# References

Include any references relevant to the module/tool, including the full reference information for any citations that have been included in the text or in footnotes. Follow the style of the following examples (if you are using a reference management system, choose Chicago style):

Aynekulu, Ermias, Tor-G. Vagen, Keith D. Shephard, and Leigh Winowiecki. 2011. *A Protocol for Modeling, Measurement and Monitoring Soil Carbon Stocks in Agricultural Landscapes*. Version 1.1. World Agroforestry Centre.

Beem-Miller, Jeffrey P., Angela Y. Y. Kong, Stephen Ogle, and David Wolfe. 2016. “Sampling for soil carbon stock assessment in rocky agricultural soils.” *Soil Science Society of America Journal* 80 (5): 1411–23. https://doi.org/10.2136/sssaj2015.11.0405.

IEA. 2005. *Energy Statistics Manual*. International Energy Agency. https://www.iea.org/reports/energy-statisticsmanual-2.

# APPENDIX X: [Title of Appendix]

Use appendices for supporting information. Number appendices consecutively starting with Appendix 1. Delete this appendix (title and instructions) where no appendix is required.

# Document History

Include the document history of the methodology using the table below. Delete any rows that are not required. For new methodologies, only the indication of the initial version and date is required (see example below, first line v1.0). For methodology revisions, include the new version number, date, and a brief description of the revisions introduced to the methodology.

|  |  |  |
| --- | --- | --- |
| **Version** | **Date** | **Comment** |
| v1.0 |  | Initial version |
|  |  |  |

Example

|  |  |  |
| --- | --- | --- |
| **Version** | **Date** | **Comment** |
| v1.0 | 19 Oct 2020 | Initial version  |
| v1.1 | 07 Feb 2021 | Minor revision, including the following changes:* Clarifications to applicability conditions in Section 4
* Correction of Equation 7, including indices *i* and *j* in parameter *P0,i,j*
 |
| v2.0 | 30 May 2023 | Major revisions, including the following changes:* Introduction of a baseline control sites option to allow for direct SOC measurement under Quantification Approach 2
* Update of Section 8.6 on uncertainty assessment to clarify statistical procedures and align with the *VCS* *Methodology Requirements*
* Introduction of guidance on the use of proximal sensing technologies to estimate SOC content in Appendix 4
* Introduction of an applicability condition allowing for one-time land conversion from grassland to cropland or vice versa to restore degraded lands in Section 4 and Appendix 2
* Introduction of a requirement and procedures to account for emissions associated with use of agricultural limestone in Section 8.2.4
* Introduction of a requirement to account for leakage from diversion of biomass residues used for energy applications in the baseline scenario
* General improvements, errata, and clarifications
 |