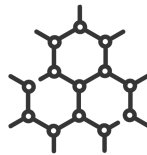


Biochar Carbon credit class

Ecosystem focus: Forests, Croplands, Grasslands



Kulshan Carbon Trust
Building Alliances for Natural Climate Solutions

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Disclaimer

This document has been prepared for informational and procedural purposes only. Its contents are not intended to constitute legal advice. Regen Network Development, Inc (RND) maintains the right to amend or depart from any procedure or practice referred to in this guideline as deemed necessary after reasonable notice and opportunity to comment by the affected parties .

This document is intended to be used in combination with:

- *Approved Methodology:* [Methodology for Biochar Utilization in Soil and Non-Soil Applications](#)
- *Methodology Appendix:* [In-Stand Surface Application of Biochar in Forestlands](#)
- [Regen Registry Program Guide](#)

Definitions

1. **Approved Activities:** the set of land management or conservation activities that are eligible activities for a given credit class.
2. **Crediting Term:** the finite length of time for which a Project Plan is valid, and during which a project can generate credits.
3. **Feedstock provider:** the person or entity that provides the biomass used for pyrolysis.
4. **Biochar Producer:** the person or entity that creates biochar through pyrolysis of waste biomass feedstock.
5. **Biochar Processor:** the person or entity that further processes the biochar. This includes composting, grinding, mixing, or otherwise processing the biochar.
6. **Land Steward:** the individual or organization that is applying the biochar. This can be a farmer, rancher, conservationist, forester, fisherman, etc.
7. **Land Owner:** the individual or organization that holds title to the land where the project is occurring. This can be the Land Steward or a third party that rents the land to the Land Steward.
8. **Monitor:** an individual or organization that is contracted to measure the benefits / indicators defined in a given credit class based on the requirements in the Approved Methodology.
9. **Project Developer** - The individual or organization in charge of managing the project and is the main point of contact with Regen Marketplace. The Project Developer can be the Land Owner, Land Steward or a third party.
10. **Project Proponent** - The Land Owner, Project Developer, or Land Steward registering a project on Regen Marketplace, that holds responsibility for managing the project. This is also the individual contractually signing off on the Project Plan. Project Proponents include but are not limited to entities that can demonstrate Project ownership. For the avoidance of doubt where an individual executes this representation in their capacity as an authorized office holder of the organization who is the project proponent, this representation is made by the organization.
11. **Project Plan:** the template that each project proponent fills out in order to register a project on the registry.
12. **Project Registration Date:** the official date when a project commences.
13. **Project Activity:** the applied management or conservation practice that a project
14. **proponent is undertaking** in order to improve the benefits tracked in a given credit class.
15. **Project Initial Monitoring Date:** the date when the baseline measurement was performed.
16. **Program Guide:** a document specifying the rules and procedures of Regen Registry.
17. **Supply Chain Participants:** those directly involved in the production of biochar and its application in soil.
18. **Verification** : a systematic, independent, and documented assessment by a qualified and impartial third party of the benefits' assertions for a specific reporting period.
19. **Verifier:** an individual or organization that is contracted to execute the verification requirements stipulated in a given credit class.

1. Introduction

Biochar is a carbon-rich, highly stable soil amendment produced when biomass is burned, or “pyrolyzed”, under low-oxygen conditions. Unlike other natural climate solutions, biochar does not replace a current practice, but is instead an alternative to other uses of biomass, such as open burning or decomposition. If applied at scale, Project Drawdown¹ estimates that biochar can reduce carbon dioxide emissions by 1.36-3.00 gigatons by 2050. In addition to its carbon sequestration potential, biochar provides many ecosystem service co-benefits including water conservation and improved soil health.

The intent of this credit class is to provide an incentive structure that significantly increases the production and application of biochar by providing biochar producers and land stewards with the necessary incentives to make this important work possible.

For buyers of this certificate, the aim is to provide a high-quality certificate that ensures that contributions are maximizing conservation values including the avoidance of emissions within the project, optimizing the flow of funds to the biochar producer and land stewards that are implementing the activities, and ensuring the product delivers the quality it promises.

For land stewards and biochar producers, the aim is to provide payment to incentivize adoption, to simplify the data collection process, and monitor in an appropriate manner. By creating a high-quality credit, the aim is to increase trust in the market to ensure stability and longevity of the market.

This credit class follows the requirements in the Program Guide. Each section below includes specific adaptations for this credit class.

2. Credit Class Overview

The Biochar Carbon credit focuses on carbon removal and avoiding emissions that would have resulted from the decomposition of waste biomass. In the case of this credit, the approved benefit that is monitored, quantified and used to determine the quantity of credits issued is carbon removal. One credit is equivalent to 1 metric tons of CO₂e sequestered.

The approved benefit of atmospheric regulation through carbon sequestration is driven by carbon removals and reductions through the production and application of biochar to soils. To ensure a net positive effect, aside from CO₂ removals from the atmosphere, it is also important to take into account significant greenhouse gas (GHG) emissions directly

¹ <https://drawdown.org/solutions/biochar-production>

resulting from the *project activity*. These should be accounted for each year to accurately calculate creditable carbon change. Emissions sources attributable to the *project activity* might include emissions from sourcing, production, or application of biochar as defined by the approved methodology.²

3. Project Eligibility

3.1. Ecosystem Type Classification

This credit class applies to temperate forests and woodlands, croplands, and grasslands as defined in the RND Taxonomy.³ Biochar must be utilized in eligible soil applications including crop and grasslands as outlined in the approved methodology⁴, or the accompanying appendix, “In-stand surface application of biochar in forestlands”,⁵ for forest application.

Table 1. Highlights the appropriate application types and criteria suitable for each land type.

Ecosystem Type	Application Type	Other Criteria
Forest or Woodland	Surface level	Biochar should be applied as a unique soil amendment. ⁶
	Subsurface level	Not recommended
Cropland	Surface level	Biochar should be mixed with other substrates.
	Subsurface level	Biochar can be mixed with other substrates or applied as a unique soil amendment
Grassland	Surface level	Biochar should be mixed with other substrates.
	Subsurface level	Biochar can be mixed with other substrates or applied as a unique soil amendment

² approved Methodology. Section 5, pg. 12-14. Available at:

<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

³ [RND Taxonomy Document](#)

⁴ Approved Methodology. Section 4. Eligible biochar end-use application criteria. Available at:

<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

⁵ Will add a link to the Appendix once published.

⁶ Will add a link to the Appendix once published.

3.2. Project Activity

The project activity approved by this credit class is the production and application of biochar to soils as defined in the approved Methodology.⁷ For forest applications, appropriate activities are defined in the Methodology Appendix.⁸ Prior to project registration, prospective projects must meet the following eligibility requirements:

- a. Provide a health and safety plan as outlined in section 4 of the approved methodology.
- b. Show documentation of land ownership or approval for project activities from land owners.
- c. The feedstock used cannot be purpose grown. The feedstock provider must provide a signed attestation detailing the fate of the biomass feedstock in the absence of the project activity, as outlined in Appendix 2 of the approved methodology.

If these requirements are not adhered to, the project will be suspended until compliance is met.

3.3. Land Ownership Type

This credit class accepts projects under public, private, and tribal ownership types, provided the Project Proponent demonstrates adequate documentation for proof of ownership and/or approval of land owners. Depending on the project, this may involve the feedstock provider and/or the land steward. In addition to individual ownership, these types may include collective or community based initiatives.

3.4. Adoption Date

Adoption Date: Projects run under this credit class will accept an adoption date that goes back up to 1 year prior to Project Registration Date. In order to claim an Adoption Date before the Project Registration Date, the Project Proponent must provide sufficient historical records as outlined in the approved Methodology.⁹ Lookback registration must be included in the baseline report submitted as part of project registration.

3.5. Crediting Term

The crediting term for this credit class is 1 year. Per the approved methodology, biochar must be applied to soils within one year of production. At the end of the crediting term,

⁷ Approved Methodology. Section 4, pg. 8-11. Available at: <https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

⁸ Will add a link to the Appendix once published.

⁹ Approved Methodology. Section 6. Baseline Scenario: Step 2; providing evidence of the fate of waste biomass. Available at: <https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

project developers must submit the monitoring report. To renew a project, project developers must submit a new monitoring report.

The Crediting Term does not include the permanence obligation defined in Section 5.3.

3.6. Regulatory Compliance

The area where project activities occur has to adhere and provide attestation of compliance to the local laws, regulations, and other legally binding mandates as presented in the approved methodology.

4. Project Rules and Regulations

4.1. Approved Methodology

The approved methodologies for this credit class are:

- a. Methodology for the Utilization of Biochar in Soil and Non-Soil Applications¹⁰
- b. Appendix: In-Stand Surface Application of Biochar in Forestlands¹¹. This appendix must be used in conjunction with the approved methodologies.

4.2. Aggregate Projects

Aggregated projects are permitted in this credit class. The intention behind aggregating projects is to overcome the high transaction costs that inhibit small carbon sequestration projects from accessing carbon markets. Aggregated projects:

- a. May include separate ecosystem types and/or biomass feedstocks, provided that appropriate carbon yield calculations are used for each individual project.
- b. May include various biochar production methods (i.e. kilns, conservation burns, pit burns, etc.), provided that appropriate carbon yield calculations are used for each individual project.
- c. Must include an in-soil application type.
- d. Must be approved and registered by a single Project Developer.
- e. For forest application, biomass feedstock should not be transported between different project sites but rather pyrolyzed on site.
- f. All projects must be within 200 km of all other projects included in aggregation

For each group of Aggregated Projects, project proponents must include a summary document with standardized baseline scenarios and emission calculations for each project

¹⁰ Approved Methodology. Available at:
<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

¹¹ Will add a link to the Appendix once published.

within the application as per the approved methodology. This document shall be made available on the Project Page on the Regen Network website.

4.3. Project Plan

Any project run using this credit class must have an aligned Project Plan as outlined by Regen Registry.¹²

4.4. Monitoring Plan

As specified in the approved methodology,¹³ a monitoring plan is required for each project or aggregated projects. The relevant format of data collection is provided to the biochar producer, biochar processor, and land steward at the beginning of the reporting period and shall be completed by the biochar producer, biochar processor, land steward or project proponent, a 3rd party Monitor, or a combination thereof. Initial data collection shall be returned completed within one month of application. The frequency of reporting must be followed as outlined in the approved methodology.

Monitoring will be in the form of collecting attestations that the biochar application continues without disruption.

4.5. Monitoring Report

A monitoring report will be made available at the end of the crediting term. This will include the following:

- a. Activities implemented during the crediting term
- b. Total CO₂e removed and avoided, including all carbon sequestrations calculations, during the crediting term.

The values documented in this report will be used as the basis for issuing credits.

4.6. Project Renewal

Any project registered under this credit class is eligible for renewal provided they:

- a. Met all monitoring, reporting, and verification requirements during the prior crediting term.
- b. Submit a document containing the following information:
 - i. Any change from the prior year's project including feedstock, production type, measurement method, and project location.

¹²<https://library.regen.network/v/regen-registry-program-guide/project-development/project-registration/project-plan-template>

¹³ Approved Methodology. Section 9, pg. 35-49. Available at:
<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

- c. Must meet all project aggregation requirements outlined in section 4.2.

5. GHG Removal and Emission Reduction Requirements

The credit class follows the GHG accounting requirements defined in the Program Guide.

5.1. Additionality

Proof of additionality is required for this credit class.

Additionality is required to be accounted for and specified in the approved methodology in this credit class.

Baselines can be calculated or assumed to be zero. These calculations are outlined in the approved methodology.¹⁴ Additionality must be calculated following the approved methodology.

5.2. Leakage

Leakage is required to be accounted for in this credit class as defined in the approved methodology.¹⁵ Leakage refers to the unintended or indirect consequences of a carbon offset project that lead to an increase in greenhouse gas (GHG) emissions outside of the project boundary. Leakage occurs when the implementation of a carbon offset project causes a reduction in emissions in one location, but leads to an increase in emissions in another location, either within or outside the project boundary.

Leakage is required to be accounted for in this credit class. Within the context of biochar production and application, leakage can occur when:

- a. Leakage emissions may occur during transportation and must be calculated per the approved methodology when:
 - i. Biomass is transported >200 km to the production site
 - ii. Biochar is transported >200 km to the application site

The approved methodology outlines the process to estimate leakage emissions caused by projects registered under this credit class. To provide a conservative crediting estimate, leakage emissions are subtracted from the sequestration estimates.

¹⁴ Approved Methodology. Section 8, pg. 16-34. Available at:
<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

¹⁵ Approved Methodology. Section 8.3, pg. 30-32. Available at:
<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>

5.3. Permanence Period

This credit class requires a 25-year permanence period.

Note that the actual permanence of biochar in soil applications reported in the literature is between 1,000-10,000 years.^{16,17}

5.4. Permanence Approach

This credit class does not require allocation to a permanence buffer. The permanence approach relies on the permanence adjustment factor used in the approved methodology. The permanence adjustment factor reflects a conservative estimate of the natural decay rate of biochar in soil applications such as in agriculture, forests, croplands, or grasslands.

Biochar is subject to two permanence risks, both of which are considered minimal based on the eligibility requirements outlined in Section 8.4 of the approved methodology:

- a. Implementation of activities that reverse carbon dioxide removals
- b. Major climate events

In the first case in which there is a reversal by the land steward to conventional activities that discussions do not resolve, then the land steward forfeits rights to future credits, and certificates in the buffer pool will be used to cover the gaps.

5.5. Buffer Pool

A buffer pool is required for this credit class. The buffer pool amounts are based on information from the Program Guide¹⁸ as well as the best available science regarding the permanence and the risks of biochar loss in soil applications.^{19,20}

For all projects registered using this credit, the credit issuer will apply a contribution of 10% of each credit issuance (as quantified by the latest monitoring report) to the Credit Class Buffer Pool.

The project buffer pool is intended to smooth fluctuations that can occur during the project period. These include but are not limited to:

- a. Changes in model accuracy due to verifications

¹⁶ Rawat, J., Saxena, J., Sanwal, P., Rawat, J., Saxena, J., & Sanwal, P. (2019). Biochar: A Sustainable Approach for Improving Plant Growth and Soil Properties. In *Biochar—An Imperative Amendment for Soil and the Environment*. IntechOpen. <https://doi.org/10.5772/intechopen.82151>

¹⁷ Jennifer Weiss. Keeping it 100 – Permanence in Carbon Offset Programs. <https://www.climateactionreserve.org/blog/2022/07/26/keeping-it-100-permanence-in-carbon-offset-programs/>

¹⁸ [Regen Registry Program Guide](#)

¹⁹ Biochar: A Sustainable Approach for Improving Plant Growth and Soil Properties. <https://doi.org/10.5772/intechopen.82151>

²⁰ Appendix

- b. Deviation by the land steward from planned activities
- c. Combustion of biochar as a result of inappropriate quenching
- d. Reversals in emission removals over the course of the project
- e. Unexpected weather and major climate events

In the case that there is an unexpected reversal of the project, credits in the buffer pool will be used to mitigate losses. In the event that the reversal outweighs the credits in the buffer pool, credits from the future Regen Registry communal buffer pool could be used to cover the difference.

The buffer pool credit issuances are considered fungible over time based on the quantity of carbon dioxide they represent. They can be used to cover losses within projects developed by the project proponent.

5.6. Verification

Verification is required for this credit class. The credit class administrator will ensure that verifiers meet requirements as outlined in the credit class. Verifiers will submit a verification report to be included in project documentation prior to credit issuance.

- a. Verifier Requirements
- b. Verifier Responsibilities

6. Issuing and Selling Credits

6.1. Credit Allocation

Carbon credits created during the crediting term (minus the credits dedicated to the buffer pool) will be equitably issued to supply chain participants as per the distribution agreed upon, after the Project Developer has received attestation from the land steward that the biochar has been appropriately applied to soil within one year of production. Credits in the project buffer will be distributed to supply chain participants as deemed appropriate and may be retired or sold at current market value.

6.2. Credit Distribution and Schedule

Credits shall be sold after issuance ex-post as per the schedule defined below.

Prior to project start:

- a. Calculate the baseline CO_{2eq} emissions from the data provided by the landowner in the project start year as specified in the Approved Methodology.²¹ In lieu of documentation, the default baseline emission scenario for the project activity feedstock is zero, a conservative assumption.

At the end of project year:

- a. Calculate the actual volume of carbon dioxide sequestered and greenhouse gas benefits of minus production and utilization from the previous year.
- b. Issue 5% of the credits to the permanence buffer
- c. Issue 10% of the credits to the project buffer.
- d. Issue the remainder of the credits as decided between supply chain participants.
- a. If there are credits available in the project buffer, these credits will be issued to supply chain participants and may be sold at the current market value.

At the end of permanence period:

1. An additional monitoring and verification round will occur and the Permanence Reversal Buffer will be reconciled with the carbon stock level at the last recorded monitoring event during the Crediting Term:
 - a. If the final GHG level was above the last recorded GHG level, the existing balance of Permanence Reversal Buffer will be issued to Project Proponent.
 - b. If the final level was below the last recorded level. the gap will be withdrawn from the Permanence Reversal Buffer and immediately retired. The remainder will be distributed to the Project Proponent.
 - c. If no monitoring and verification report was conducted at the end of the permanence period, Regen Registry will assume a loss of 5% in carbon stock level from last recorded level and credits within the permanence buffer will be immediately retired.

²¹ Approved Methodology. Section 6, pg.15. Available at:
<https://verra.org/wp-content/uploads/2022/10/VM0044-Methodology-for-Biochar-v1.00.pdf>