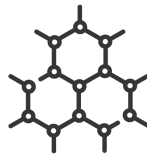


Biochar Carbon Credit Class

Ecosystem focus: Forests, Croplands, Grasslands



Kulshan Carbon Trust
Building Alliances for Natural Climate Solutions

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Disclaimer

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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. **Biochar Producer:** the person or entity that creates biochar through pyrolysis of waste biomass feedstock.
4. **Biochar Processor:** the person or entity that further processes the biochar. This includes composting, grinding, mixing, or otherwise processing the biochar.
5. **Land Steward:** the individual or organization that is applying the biochar. This can be a farmer, rancher, conservationist, forester, fisherman, etc.
6. **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.
7. **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.
8. **Project Proponent:** the project developer or land steward that is applying to register a project on the registry.
9. **Project Developer:** the individual or organization that is in charge of managing the project and is the main point of contact with Regen Registry. The Project Developer can be the land steward or a third party.
10. **Project Plan:** the template that each project proponent fills out in order to register a project on the registry.
11. **Project Registration Date:** the official date when a project commences.
12. **Project Activity:** the applied management or conservation practice that a project proponent is undertaking in order to improve the benefits tracked in a given Credit Class.
13. **Project Initial Monitoring Date:** the date when the baseline measurement was performed.
14. **Program Guide:** a document specifying the rules and procedures of Regen Registry.
15. **Supply Chain Participants:** those directly involved in the production of biochar and its application in soil.
16. **Verification :** a systematic, independent, and documented assessment by a qualified and impartial third party of the benefits' assertions for a specific reporting period.
17. **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, and 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 soil carbon  sequestration and emission reductions resulting from the production and application of biochar to soils. In the case of this credit, the approved benefit that is monitored, quantified and used to determine the quantity of credits issued is Carbon Sequestration. 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

2.1. Ecosystem Service Classification

This Credit Class applies to the ecosystem services of atmospheric regulation as defined in the RND Taxonomy.³

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.⁴ Biochar must be utilized in soil applications as outlined in the Approved Methodology⁵ or the accompanying appendix, “In-stand surface application of biochar in forestlands”,⁶ 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. ⁷
	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.

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 RND Taxonomy Document

⁵ 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>

⁶ Will add a link to the Appendix once published.

⁷ Will add a link to the Appendix once published.

	Subsurface level	Biochar can be mixed with other substrates or applied as a unique soil amendment
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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.⁸ For forest applications, appropriate activities are defined in the Methodology Appendix.⁹

3.3. Land Ownership Type

This credit class accepts projects under the following ownership types: public, private, tribal. 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.¹⁰

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.

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

4. Project Rules and Regulations

4.1. Approved Methodology

The approved methodologies for this Credit Class are:

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

⁹ Will add a link to the Appendix once published.

¹⁰ 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>

- a. Methodology for the Utilization of Biochar in Soil and Non-Soil Applications¹¹
- b. Appendix: In-Stand Surface Application of Biochar in Forestlands¹²

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 by the Project Developer.


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

4.4. Monitoring Plan

As specified in the primary 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.

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

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

¹² Will add a link to the Appendix once published.

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>

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.

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.

Additionalty is required to be accounted for and specified in the approved Methodology in this credit class.

The approved Methodology specifies how the baseline and the additional carbon emission and/or removal is calculated.¹⁴ **Baselines can be calculated** or assumed to be zero.

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

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}

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>

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/>

5.4. Permanence Approach

This credit class allocates an additional 5% of each credit issuance to cover the risks associated with permanence. These include but are not limited to:

- 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 this buffer will be used to cover the gaps.

Certificates in the permanence buffer pool remain under the control of the project proponent and will not be returned to the land steward at the end of the project.

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 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
- 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.


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

5.6. Verification

Verification is required for this credit class. Project proponents will provide a monitoring report to  third party verifiers deemed appropriate by Regen Registry. Verifiers will submit a verification report to be included in project documentation prior to credit issuance.

5.7. Fungibility

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.

6. Issuing and Selling Credits


1.1. 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.

1.2. 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.

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

- 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.