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Biochar Protocol v1.0

Workgroup Meeting 6
April 26, 2023

Housekeeping

- Workgroup members have the opportunity to actively participate throughout the meeting
 - Ask that you keep yourselves muted unless / until would like to speak
- We will ask and take questions throughout the session
- All other attendees/observers are in listen-only mode
- Observers are free to submit questions in the Zoom Q&A dialog
- We will follow up via email to answer any questions not addressed during the meeting
- The slides and a recording of the presentation will be posted online

To provide overview of draft protocol components and solicit workgroup feedback

Discussion topics

Tuesday

- Project developer definition
- Feedstock eligibility
- Production technology eligibility
- End use eligibility, including permanence

Wednesday

- Crediting period, reporting periods, and verification cycle
- Chain of custody tracking
- Data collection
- Sampling
- Low volume projects

Reserve Staff:

- Jon Remucal, Associate Director of Nature-Based Solutions
 - Protocol development lead
- Holly Davison, Associate Director of Programs & Marissa Spence, Forestry Manager
 - Protocol development support

External drafting support:

- John Nickerson, Dogwood Springs Forestry

Workgroup Members

Name (alphabetical)	Organization	Name (alphabetical)	Organization
Akio Enders	International Biochar Initiative	Matt Ramlow	World Resources Institute
Allison Flynn	Global Green Energy Solutions Corporation	Melissa Leung	GECA Environment
Bruce Springsteen	Placer County Air Pollution Control District	Micah Elias	Blue Forest / UC - Berkeley
Daniel Sanchez	University of California – Berkeley / Carbon Direct	Nate Anderson	US Forest Service
David Morell	Sonoma Ecology Center	Patricio Ortiz	ACT Commodities
Hannes Etter	South Pole Carbon Asset	Phil Saksa	Blue Forest
Johannes Lehmann	Cornell University	Rachel Rubin	Woodwell Climate Research Center*
Jonah Levine	Biochar Solutions	Shawn McMahon	Aster Global
Josiah Hunt	Pacific Biochar	Tristan Brown	SUNY College of Environmental Science & Forestry
J.P. Bayangos	Shell	Xiaomei Li	Viresco Solutions
Kevin Fingerman	Cal Poly Humboldt		

Funding support



**U.S. Forest Service
Wood Innovations Program**



**CAL FIRE
Forest Health Grant**

Funding also supporting:

- Companion market analysis by Blue Forest Conservation (with additional funding support from the Doris Duke Charitable Foundation), **available on the Biochar Protocol webpage**
- Pilot projects to test protocol and demonstrate its viability and versatility



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PROTOCOL DISCUSSION TOPICS

Crediting Period and Reporting Period

Crediting period

- Length of time over which project may be issued credits
- 10 years
- May be renewed, subject to eligibility requirements at time of renewal

Reporting period:

- Length of time over which C removals are quantified and reported
- Maximum length of 12 months, but otherwise may be as short as desired
 - Exception for projects with start dates pre-dating the adoption of the protocol, for which first reporting period may extend 12 months beyond protocol adoption date
- Note on start dates: Projects predating protocol adoption by up to 24 months are eligible
 - Cutoff for early action projects is limited to address additionality concerns
- No gaps allowed between reporting periods, but may opt for zero-credit reporting period

Crediting Period and Reporting Period

Crediting Period

10 years



Reporting Periods



Minimum of 10 per crediting period (one/year)
But can opt to have shorter reporting periods



Third-party audit of project for compliance with protocol requirements:

- Eligibility documentation
- Quantification of credits
- Biochar sampling procedures and laboratory analyses
- Chain of custody documentation
- Desktop review
- Site visit under certain circumstances

Credits only issued after verification

Verification Cycle

Current draft language

- Each reporting period must be verified within 12 months
- Site visit verifications required:
 - At least every 5 years
 - Initial reporting period
 - For reporting period including the date 5 years after the most recent reporting period subject to site visit
 - When changing verification bodies (must change at least every six years)
 - When biochar production parameters have changed (feedstock mix, pyrolysis temperature, pyrolysis residence time)
- Desktop verifications may occur between site visit verifications

Potential modification:

- Maintain annual reporting requirement, including all monitoring/sampling/data collection
- Require verification of initial reporting period
- Allow verification to be deferred for up to several years and have multiple reporting periods verified at the same time

Chain of Custody Tracking

Critical component of monitoring, reporting, and verification (MRV) for biochar projects

Chain of custody documentation

- Transfers of biomass from feedstock source to biochar producer to end user
- Includes information that corroborates data used for credit quantification
- May also include agreements transferring/relinquishing claims to credits

Feedstocks

- Characterization
- Amounts transferred (and converted into project biochar)
- Date of transfer to producer
- Location of feedstock source

End uses

- Characterization
- Amounts transferred
- Date of transfer from producer
- Location of:
 - end use, if known (e.g., soil applications) or
 - end user, if biochar is being put into product that will be distributed commercially

Data required for quantification purposes

Volume of fuel consumed

- Feedstock production (purpose-grown feedstocks only)
- Feedstock transportation (only if >200 km)
- Feedstock processing
- Auxiliary energy use during biochar production
- Biochar processing
- Biochar transportation

Electricity consumption

- Feedstock processing
- Auxiliary energy use during biochar production
- Biochar processing

Biochar produced and applied to eligible end use

- Mass, by end use type
- Dry matter %
- Organic C content %

Are there challenges with obtaining any of these data? In particular:

- Feedstock production data
- Energy/electricity use for different stages of biochar production process

Adjustment factor applied when not all feedstocks or biochar is part of project

Intent is to provide minimum standards but not be overly prescriptive

- Frequency of sampling for lab analysis:
 - At least annually
 - Any time any of the following production parameters change
 - Composition of feedstocks changes by $\geq 10\%$
 - Pyrolysis temperature changes by $\geq 50^\circ \text{C}$
 - Residence time changes by $\geq 10\%$
- Sampling and weighing for dry matter onsite
- Sampling and shipping to accredited lab for H:C_{org} and materials analysis
- Retention sampling also required, which Reserve may require to be sent to lab for analyses
- Reserve may also coordinate with project developer to conduct its own sampling at time of choosing
- IBI or EBC certification may be provided as evidence of compliance with procedural requirements for sampling and lab analyses

Laboratory Analyses

Lab must be accredited to ISO/IEC 17025 “General Requirements for the Competence of Testing and Calibration Laboratories” by relevant national governing body or international standard-setting body, such as:

- National Environmental Laboratory Accreditation Program (NELAP)
- American Association for Laboratory Accreditation (A2LA)
- International Standards Organization (ISO)

Analyses performed by lab:

- Organic C content
- $H:C_{org}$
- Other analyses dependent on end use and applicable laws, regulations, and other environmental safeguards specified in Eligible Biochar End Uses List
- Must be consistent with either IBI or EBC testing methods

Sampling and Lab Analyses

- Are current requirements too generalized? Too prescriptive?
- Are they feasible for in-field operations or sporadic production?
- Are they feasible for smaller producers?

Small Producer Concerns

Aggregation is specifically allowed under the protocol

Do we need special accommodations for small producers to improve feasibility?

Does variability in feedstock and operational conditions cause a problem?

What risks would accommodations pose to the integrity of any credits issued to an aggregated project?



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NEXT STEPS

Next Steps

- *Workgroup 7 (Thursday) (tentative) – will email decision to workgroup and registrants later today*
 - Continue reviewing draft protocol
- Email us with any feedback on protocol, including topics discussed this week
- **Submit comments/feedback by Friday, May 5**
- Revisions to protocol by Reserve staff
- *Depending on revisions, may share another protocol draft with workgroup for written feedback only*

Key contacts

Protocol development lead:

Jon Remucal, Associate Director of Nature-Based Solutions

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General inquiries:

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