EBC, WBC & Global Biochar C-Sink – Clarification for endorsement as system provider

Preamble

The Global Biochar C-Sink standard requires EBC/WBC certified biochar (Global Biochar C-Sink Standard, chapter 9.1 EBC/WBC Labeling). EBC/WBC include the possibility of system provider endorsement (European Biochar Certificate, chapter 8.4; Global Biochar C-Sink Standard, chapter 7.3 Methane Emissions during the Pyrolysis Process) that represents a proof for certain systems that have at least 3 times shown that they can fulfil the requirements of EBC/WBC and Global Biochar C-Sink Standards.

The System Provider endorsement is eligible for all systems which fulfill the criteria of sameness. Preferably all systems are the same. But an endorsement can also be requested if all three Production Units comply with the sameness criteria

Benefits of the Endorsement

Endorsed System Providers can offer several benefits and advantages for new system buyers that want to get an EBC/WBC certification or C-sinks through Global Biochar C-Sink standard including:

1. The technical endorsement (4000004EN, formerly known as technical pre-audit) can be skipped:
    a. A preliminary lab analysis is not needed as the system has already proved to be capable of producing biochar according to EBC / WBC and Global Biochar C-Sink.
    b. The preparation of the documents by the system provider shortens the work of the future biochar producer and the system provider can support him in the process.
2. Costly methane measurements for each individual production unit are not required. The default value per system is used to calculate the methane emissions of the pyrolysis unit.
3. Assurance that technology has already qualified under EBC/WBC:
    a. Investors' confidence in carbon revenues may increase
    b. Carbon buyers may have more confidence as well

Aim of the document

This document aims to provide a clear understanding of the steps involved and the requirements needed to obtain the endorsement as system provider for the European Biochar Certificate (EBC), World Biochar Certificate (WBC) and Global Biochar C-Sink Standards by Carbon Standards International.

The endorsement is valid for the systems specified in the product list for EBC, WBC and Global Biochar C-Sink Standards and for up to 3 years. As long as there are no major updates or changes to the standard, the System Provider endorsement will be renewed with a re-endorsement audit every 3 years. Additionally, there will be a yearly quality check. System Providers that were endorsed before 2026 will have another full endorsement audit before they enter the 3-year-cycle.

With every standard update, CSI will define as well, if a more complex re-endorsement is required.

It is important to note that if there is a major update or revision to the standard, the system provider endorsement may need to be reviewed with a full re-endorsement audit and the system provider itself potentially updated to align with the new version of the standard. This ensures that the endorsement reflects the most current best practices and requirements in the field of biochar production technologies (e.g. pyrolysis or gasification systems) under EBC, WBC and Global Biochar C-Sink.

If a new system is added by the endorsed System Provider which doesn’t comply with the sameness criteria anymore, the System Provider must request a renewal of the endorsement.

1. Endorsement process

Step	Description	Responsible Party
1	System provider reaches out to Carbon Standards International (CSI) for an introduction call.	System provider
2	The system provider registers for the endorsement process. Registration can be done through this link. In addition, an NDA can be signed if wished.	CSI/ System provider
3	The system provider hands in the requested and required documents for the first phase (see chapter 2).	System provider
4	CSI checks the completeness of the documentation. Additional videos of pictures can be requested. The information is provided in a report structure.	CSI
5	Online Endorsement call to understand the system and check open points	CSI / System Provider
6	Upon successful completion, the System provider will receive a certificate designating them as an "Endorsed System provider". The System provider will be listed on the website of CSI. After the audit the costs for the endorsement process will be invoiced. If the endorsement is not successful, the System provider has the chance to improve their product and start the endorsement process again. The costs for the endorsement will be invoiced in any case.	CSI
7	At the End of the Endorsement process the System Provider gets access to the Biochar Tool. Here he can create its «Systems» and upload all necessary Documentation.	System provider

2. General Requirements

In the following table, general requirements of Carbon Standards International for system provider are listed. Those aspects are additional to the specific requirements of EBC, WBC and/or Global Biochar C-Sink standard.

Requirement	Description
System description	The System description is a concluded document providing detailed information about: • All used components, • a general description, • a material list, • a parts list, • a technical drawing and • a P&I schematic of the system.
Sameness	The sameness of the different system must be proven through the following criteria. It is checked throught the documentation described in chapter 2.1. 1. Geometric identity: Shape, material flow, and product integration are the same. Duplicates of functional units are permitted. 2. Material equality: Same materials with identical properties (e.g., strength, corrosion behavior) 3. Functional equality: The components fulfill the same function in the system.
Conversion Rate	The conversion rate from amount of input (biomass) to amount of output (biochar, heat, biogas) must be described in the system description for biomasses the system is designed for.
Biochar quality analysis	Complete EBC analysis (Annex 1) of biochar (preferably from a representative sample according to chapter 4 of the EBC-Guidelines) from three different EBC/WBC certified production units by an CSI endorsed lab for EBC/WBC.
Energy efficiency	All Energy Outputs must be measured.

	System must enable users to reach 60%. The system provider must provide two example calculations how this can be met with the connection options provided by the system.
Methane emissions	The system must not release unburnt synthesis gases to the atmosphere. The incineration must be technically automated. Warning systems must be installed, as well as re-ignition processes in case the incineration fails. For each of the three installed plants, at least two independent, state-accredited emission measurements according to QM Methane Emissions must be availbale. For at least one plant, two direct measurements of CH4, CxHy or TOC emissions must be performed; the indirect measurement via the proxy CO emissions is not permitted. For the measurements at the two remaining plants, detemination via the proxy CO is also permitted. The testing strategy must be shared with and approved by CSI beforehand. The analysis/test reports (including biomass used) must be available and shared with CSI and Ceres.
Dry Matter Content (optional)	System providers are highly encouraged to implement automatic sample taking for dry matter determination and automatic and adjustable quenching system.
User/operating manual (optional)	System providers are encouraged to provide a description of how the pyrolysis unit is to be operated ("user manual" incl. precautions relevant to occupational health and safety, e.g. avoidance of flue gas exposure, burns, etc.).

2.1. System description

For each biochar production system the system provider offers he must hand in a *System description*. The system description consist of several parts which provide a process description, an overview of the system components, a material list, a description of the sameness and so on. The detailed requirements and the necessary documentation is described in this chapter.

Requirement	Description
Process description	Must at least contain: • flow of goods,

	• temperature (range), • residence time, • products, • Biochar quenching / cooling system • emergency operation
Parts list	Description of all parts and its functions in the system
List of materials with material numbers	All used materials in the system components/parts must be listed with its material numbers
Technical drawing	Technical drawing of the biochar production system. At least three different views must be provided.
PNI schematic	Piping and instruments (PNI) schematic with all relevant parts must be provided.

3. Re-Endorsement

3.1. Annual quality check

A quality check of the data in biochar tool takes place every year. It comprises an online meeting and a report prepared by the endorsed system provider.

The report must cover:

1. Evaluations of the past year:
    - Number of producers (WBC/EBC certified and non-WBC/EBC)
        - List of how many producers have which system design
    - Operating hours per WBC/EBC certified producer
    - Average power consumption per t biochar
    - Average fossil fuel consumption per t biochar (preheating)
    - Total amount of biochar produced with the endorsed systems
    - Energy efficiency of the certified systems

3.2. Three-annual re-endorsement

A re-endorsement takes place every 3 years. The re-endorsement comprises an online meeting and report prepared by the endorsed system provider.

The report must cover:

1. Evaluations of the past year:
    - Number of producers (WBC/EBC certified and non-WBC/EBC)
        - List of how many producers have which system design
    - Operating hours per WBC/EBC certified producer
    - Average power consumption per t biochar
    - Average fossil fuel consumption per t biochar (preheating)
    - Total amount of biochar produced with the endorsed systems
    - Energy efficiency of the certified systems
2. Current designs
3. Technical changes since the last endorsement
4. Plans on how the systems can be retrofitted/preheating can be modified in order to contribute to the reduction of fossil carbon emissions goals for each producer formulated in chapter 4.4 of the Global Biochar C-sink Standard. Based on the evaluation of the past year the plan must cover the following figures:

- Average Fossil emissions per t biochar due to pyrolysis process
- Average kW of electricy per biochar (for this report emission factor of electricity can be considered zero)
- Average number of operating hours, fossil fuel consumption and production volume