THE INTEGRITY COUNCIL
FOR THE VOLUNTARY CARBON MARKET

OBSERVATIONS IN RELATION TO CATEGORY ASSESSMENT
BIOCHAR – PART I
AUGUST 2025

1. Purpose of these observations

The Governing Board (the Board) of the Integrity Council for the Voluntary Carbon Market (ICVCM), when considering the assessment of methodologies related to Biochar identified that it would be beneficial to make available the ICVCM's observations for the purpose of supporting the future development of methodologies in this Category. These observations are non-binding and do not impact or form any part of the Assessment Framework, Assessment Procedure, or any Decision (as defined under the Assessment Framework) and are published by the ICVCM for the purpose of information only.

The ICVCM may, from time to time, publish other observations for other Categories where it considers this may be useful for CCP-Eligible Programs and other stakeholders, and may update and revise its observations from time to time based on further assessment processes or information. Observations are not an exhaustive set of views of the ICVCM, and not all aspects addressed in assessment processes are included. No reliance may be placed on observations, as they are for the purpose of information only, and observations published are without prejudice to other ongoing assessments.

The Governing Board would like to express its gratitude to the experts and other stakeholders engaged in the assessment process who provided input to the ICVCM regarding this Category.

Category Details

Biochar holds promise as a climate mitigation tool because it is a relatively simple way of converting the carbon in biomass into an inherently stable form. It is created by heating biomass in a low oxygen environment. Biochar is typically then used as soil additive, although other end uses are possible – for example storing in construction materials. When biochar is mixed with soil, it can improve soil productivity – particularly in degraded and low fertility soils. However, the effects on soil health and agricultural productivity are not yet predictable reliably, owing to the complex nature of soils and biochar itself. The stability, or permanence, of biochar is directly related to how it is produced, with generally higher production temperatures resulting in greater stability.

2. Permanence

Mitigation activities with a material risk of reversal are explicitly defined in the Assessment Framework and must comply with a clearly defined set of monitoring and

compensation requirements to address potential reversals[1]. Mitigation activities that involve biochar must address any identified risks using measures appropriate to that risk, rather than solely rely on use of monitoring and compensation, as is required for those mitigation activities that are predefined to have a material risk of reversal.

The risk that carbon in biochar will partly oxidize (and therefore not be permanent) is typically dependent on the end use of the biochar, as well as the production process. Biochar soil applications are generally understood to present the most risk due to ongoing exposure to climatic and biological degradation. Non-soil applications (e.g., encasement in concrete, or other construction materials) carry less inherent risk, provided the end-of-life is carefully considered - which depends on the application type, practices in country and potentially project specific circumstances. The assessment process noted that all methodologies in this Category adequately managed the risk of permanence in biochar, with the typical approach to conservatively assume that a percentage of the biochar will degrade and only the remainder be sequestered for an appropriate length of time.

3. Additionality

Additionality is a central concept for the carbon market. Emission reductions from a biochar project are additional if the project activities would not have taken place in the absence of the carbon project.

The assessment process noted the high upfront costs of specialised biochar technology and that biochar production can potentially yield economically valuable co- and by-products such as bio-oil, syngas and energy. However, it was noted that these revenues – along with those generated from the sale of biochar - are known to be weak and inconsistent and that carbon credits are, therefore, likely to be critical for supporting the market at this stage. Methodologies in this category generally test additionality of projects in different ways; either via a tool-based test for additionality, or via a standardized approach. The Assessment Framework recognizes a number of ways to demonstrate additionality, and the assessment process found that both the above methods are likely to lead to additional projects. The Governing Board notes the importance of regularly updating standardized approaches to ensure that the dynamics of emerging markets are adequately captured in additionality tests.

[1]Please refer to ICVCM Assessment Framework 9.1 (b)