



Explanatory Document and FAQs

For consultation of the C-Capsule Code for CDR and Methodology for Distributed Biochar



1 Introduction

1.1 Purpose of this document

This is a high-level summary intended to provide guidance and clarifications around the consultation of the C-Capsule Code for Carbon Dioxide Removal (CDR) and Methodology for Distributed Biochar. In July 2021, the I-REC Standard Foundation signed a memorandum of understanding (MOU) with C-Capsule for the development of a CDR Attribute Tracking Certificate system that will allow consumers to neutralise emissions while providing a revenue stream for CDR activity.

As part of the Accreditation process to the International Attribute Tracking Standard (Standard), the C-Capsule Code is being shared for public consultation to allow stakeholders the opportunity to provide feedback. The Methodology for Distributed Biochar is also being shared for public comment as part of the approval process by the International REC Standard Foundation Board. This document can be used as a practical guide for understanding the scope and purpose of the consultation. Note that capitalised terms reflect defined terms in the Standard.

1.2 What is the International Attribute Tracking Standard?

The International Attribute Tracking Standard is a set of requirements that ensures the quality of attribute tracking systems such as GOs and RECs are of the highest quality and meet the most rigorous expectations of stakeholders, market parties, and End-Users. The Standard defines how various organisations can coordinate and facilitate attribute tracking systems, as well as their associated markets, and be Accredited or proven as compliant with the regulations set forth in the Standard.

The goal of the International Attribute Tracking Standard is to provide clear and concise rules for organisations that facilitate the Product markets for Product Certificates, as well as for the users of those associated markets.

While the Standard does not define the Products adherent to the Standard, it ensures that all Products adhere to the same high-quality requirements. It is our experience that Products like electricity, non-fossil gas, hydrogen, Carbon Dioxide Removal (CDR) and other Products that can benefit from an attribute tracking Infrastructure, will benefit from the common rules provided in the Standard.

1.3 What is a Product Code?

A Product Code is a description of roles and set of rules approved and Accredited by the I-REC Standard Foundation as being adherent to the Standard that ensures reliable implementation of a Product Certificate. The Product Code can be owned by a government, private enterprise, or non-profit organisation. While the Standard does not define the Products adherent to the Standard, it ensures that all Product Certificates adhere to the same high-quality requirements. It is our experience that products like electricity, non-fossil gas, CDR, hydrogen, and other Products that rely on attribute tracking infrastructure will benefit from common rules provided in the Standard, leading to increased understanding, use, and growth of the underlying markets.

2 C-Capsule Code for CDR

2.1 What is the C-Capsule Code for CDR?

The C-Capsule Code for CDR is a Product Code for durable Carbon Dioxide Removal. Its purpose is to describe the implementation of the Standard in delivering an ex-post, fact-based Product Certificate for CDR. It sets out the definitions, processes, and procedures that form the specification of the C-Capsule Product Certificate.

CDR represents a suite of technologies and processes that directly remove greenhouse gas (GHG) emissions from the atmosphere and durably store those emissions in a geological, terrestrial, or ocean reservoir, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage, but exclude natural CO₂ uptake not directly caused by human activities.

Projects that can demonstrate durable sequestration over a 100-year time horizon will be eligible for the C-Capsule Product Certificate. This makes most developers of engineered or hybrid CDR solutions such as Direct Air Capture (DAC), Biomass Removal and Storage (BiCRS) and Bioenergy Carbon Capture and Storage (BECCS), eligible for C-Capsule subject to methodology development. Simple forestry and other biological sinks are not currently eligible for C-Capsule.

2.2 Who is involved in the Initiative Group for the CDR Code?

The Initiative Group represents individuals and organisations that are active in the development of the C-Capsule Code. Those involved in the development of the C-Capsule Code has been:

- **Carbon Finance Labs** are an innovation incubator who develop and leverage finance, economics and technology-based solutions to drive the global carbon market. Their impact comes from a global network of resources and applied knowledge built over decades in the carbon, finance and technology sectors.
- **Evident** is the world leader in certification of the Clean Economy and provider of the world's most widely used registry of environmental assets, serving customers in over 140 countries. Evident manages the I-REC Product Certificate for electricity and the MiQ certificate service for low-methane natural gas.
- **International REC Standard Foundation** is a non-profit organisation that provides a robust standard for developing attribute tracking systems. Its Standard is acknowledged by major reporting frameworks such as the Greenhouse Gas Protocol (GHGP), CDP, and RE100 as a reliable backbone for credible and auditable tracking instruments.

2.3 Who will benefit from the C-Capsule Code for CDR?

The purpose of C-Capsule Code is two-fold. Firstly, the C-Capsule Product Certificate helps enable robust and reliable claims towards science-based targets for end-users around the world. Only through robust and reliable tracking mechanisms will consumers be able to neutralise emissions within their supply chain and evidence science-based targets. By harnessing consumer demand for certification of CDR, access to finance is accelerated for project developers who can generate primary or additional revenue streams in exchange for reliable and robust tracking mechanisms.

More broadly, implementation of the C-Capsule Code serves to accelerate global deployment of CDR to help government and industry achieve net zero targets. Although being developed as a voluntary system, C-Capsule can be adopted by governments as a compliance tool and infrastructure to facilitate local and global climate change policy.

2.4 How does the C-Capsule Code differ from conventional carbon offsets?

While offsetting can be measurable, it is often based on a conceptual 'business as usual' case of avoided emissions and seeks to quantify emissions that would otherwise have happened. Science-based targets require science-based evidence of real actions taken. Carbon markets need to evolve beyond the traditional offset approach to achieve net zero goals; a transition recognised by many governments, NGOs and market actors. This transition is strongly advocated by the Intergovernmental Panel on Climate Change (IPCC) who highlight that large-scale deployment of CDR is unavoidable in order to reach net zero.

C-Capsule brings the measurable facts approach that is well established in renewable energy tracking and certification to the carbon removal market. Through implementation of an ex-post, fact-based certificate, C-Capsule aims to grow the CDR market and shift the supply and composition of carbon markets to certified CDR.

3 Methodology for Distributed Biochar

3.1 What is the Methodology for Distributed Biochar?

The Methodology for Distributed Biochar sets out the detailed requirements for biochar kilns to be eligible for issuance of CDR Certificates. Biochar is a carbon-rich solid material formed by the thermochemical processing of biomass in an oxygen limited environment. Biochar is considered a durable CDR activity and carbon sink when its soil application (e.g. soil amendment in agricultural lands) or non-soil applications (e.g., cement, asphalt, etc.) can prove sequestration over a 100-year time horizon.

The Methodology for Distributed Biochar differentiates from existing biochar methodologies by focusing on small-scale, distributed biochar production for community-based agriculture, livestock and other applications. It is relevant to biochar kiln designs and operating processes that have a demonstrated net positive CDR capability, but for which the process of verification is neither practical nor financially viable in isolation. It is applicable when the results of multiple separate, yet closely related operations can be checked for consistency and aggregated as a whole.

3.2 Who will benefit from the Methodology for Distributed Biochar?

The Methodology for Distributed Biochar has been developed to allow issuance of CDR certificates for sets of distributed biochar production systems. The associated digital Monitoring, Reporting and Verification (MRV) protocols allows for kilns to be located in potentially remote locations, where the positive social and environmental impacts of biochar production and use are highest. The process of pooling data allows for the management of inherent batch-to-batch variability and helps share the overhead costs associated with the validation and certification across the community of practitioners. This novel Methodology aims to provide confidence to further reduce barriers to entry for the development of small-scale, distributed biochar production globally.

3.3 Who developed the Methodology for Distributed Biochar?

The Methodology for Distributed Biochar was developed by BionerG Limited ("BionerG") and supported by C-Capsule. BionerG is an engineering related scientific and technical consultant for biochar production systems. Development of the Methodology was led by Professor Lionel Clarke, Founder and Director of BionerG. Clarke is a visiting professor in the Department of Bioengineering at Imperial College London and co-chairs the UK Engineering Biology Leadership Council (EBLC), which oversees implementation of the 2012 UK Synthetic Biology Roadmap and 2016 Strategic Plan 'Biodesign for the Bioeconomy'.

4 Frequently Asked Questions

FAQ is an acronym for Frequently Asked Questions or Frequently Answered Questions. A FAQ is a compilation of information in question-and-answer form, which can come from monitoring channels such as email, surveys, and forums for the most common problems and complaints.

The questions and answers that will make up this FAQ document will attempt to address general questions and concerns around the release and consultation of the C-Capsule Code for CDR and methodology for Distributed Biochar.

4.0 What is Carbon Dioxide Removal (CDR)?

CDR represents a suite of technologies and processes that directly remove greenhouse gas (GHG) emissions from the atmosphere and durably store those emissions in a geological, terrestrial, or ocean reservoir, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage, but excludes natural CO₂ uptake not directly caused by human activities. Projects that can demonstrate durable sequestration over a 100-year time horizon will be eligible for the C-Capsule Product Certificate. This makes most developers of engineered or hybrid CDR solutions such as Direct Air Capture (DAC), Bioenergy Carbon Capture and Storage (BECCS) and biochar, eligible for C-Capsule. Simple forestry and other biological sinks are not currently eligible for C-Capsule.

4.1 What is a Methodology?

A methodology provides the detailed requirements to verify adherence of a CDR facility against a particular type of CDR. It includes the emission boundaries, formulas for calculating eligible quantity of CDR and evidence required for the issuance of C-Capsule certificates. CDR facilities are initially audited to establish the metrics of CDR with the objective of determining a simple, low-cost measurement. All methodologies must be approved by the International REC Standard Foundation Board before facilities can be registered specific to that methodology.

Stakeholder input is an invaluable resource to ensure the robust and reliable implementation of the C-Capsule Code and methodologies. To make sure the C-Capsule Code and Methodology for Distributed Biochar are in line with stakeholder expectations, we invite all stakeholders to provide comments, concerns, or questions to the I-REC Standard Foundation Secretariat independently or through the organised survey.

4.2 What is the timeline for release and consultation?

The consultation process for the C-Capsule Code for CDR will commence from 11th October until 25th October 2022. The window for comments on the Methodology for Distributed Biochar will begin from 13th October and close on the 27th October. Both consultation periods will each last for 2 weeks.

4.3 Who can be involved in the consultation

Stakeholder input is an invaluable resource to ensure the robust and reliable implementation of the C-Capsule Code and methodologies. To make sure the C-Capsule Code and Methodology for Distributed Biochar are in line with stakeholder expectations, we invite all stakeholders to provide comments, concerns, or questions to the I-REC Standard Foundation Secretariat independently or through the organised survey.

4.4 How can stakeholders participate?

The C-Capsule Code and Methodology for Distributed Biochar will be made available through the Standard Foundation website with an associated survey for stakeholders to leave their feedback. Stakeholders will also be asked about more general and broader topics and be given the opportunity to respond on any section or aspect they feel is relevant.

4.5 What is the consultation process?

The consultation will be conducted over two weeks. The C-Capsule Code for CDR and Methodology for Distributed Biochar will be made available through the Standard Foundation website with an associated survey for stakeholders to leave their feedback. Stakeholders will also be asked about more general and broader topics and be given the opportunity to respond on any section or aspect they feel is relevant.

4.6 What if I miss the close date of consultation and still want to provide feedback?

Stakeholder input can be provided to the I-REC Standard Foundation Secretariat at any time. Additionally, the Code and Methodology allows for change requests and complaint mechanisms to facilitate any requested changes or queries to either document.

4.7 What if I have no feedback to provide?

All feedback is welcome, even feedback that explains that you are comfortable with the current text or descriptions provided by the C-Capsule Code for CDR and Methodology for Distributed Biochar. Your feedback is important, so please let us know your thoughts, even if you do not have any, on the consultation form.

4.8 How will feedback be processed?

At the end of the consultation, we will collect the feedback and prepare a report. This report will be made available to the I-REC Standard Foundation Board with suggested amendments or changes due to the consultation. Following the input of the board a public report will be made related to the consultation of the C-Capsule Code and Methodology for Distributed Biochar.

4.9 Who will process the feedback?

The I-REC Standard Foundation Secretariat will process the feedback. The I-REC Standard Foundation Board will eventually evaluate all the comments and associated recommendations for change to the Code Manager for the C-Capsule Code.

