



# The CRCF is not yet fit-for-purpose

**Policy Brief**

March 2023



# DISCLAIMER

Bellona endeavours to ensure that the information disclosed in this report is correct and free from copyrights but does not warrant or assume any legal liability or responsibility for the accuracy, completeness, interpretation or usefulness of the information which may result from the use of this report. © 2022 by the Bellona Foundation. All rights reserved. This copy is for personal, non-commercial use only. Users may download, print or copy extracts of content from this publication for their own and non-commercial use. No part of this work may be reproduced without quoting the Bellona Foundation as the source used in this report. Commercial use of this publication requires prior consent of the Bellona Foundation.

## **Author:**

Dr Samantha Elenor Tanzer

## **Design and Layout:**

Rebecka Larsson

# THE CRCF IS NOT YET FIT-FOR-PURPOSE

Bellona welcomes the EU's recognition of the importance of carbon dioxide removals in its recently drafted proposal for a Carbon Removal Certification Framework (CRCF). However, the initial draft of this proposal is not aligned with the physical reality of carbon removals.

**Removing CO<sub>2</sub> from the atmosphere is resource-intensive and subject to uncertainties around [total potential](#), [net impact](#), [timing of the climate benefit](#), and [potential side-effects](#).**

In other words, removing CO<sub>2</sub> depends on many factors and they all need to be considered to determine the final climate impact of a given project. Therefore, it is fundamental that policy on CDR is grounded in honest and transparent scientific dialogue that respects the differences between CDR activities, including their different risks, such as risk of inaccurate quantification, risk of reversal (i.e., re-emission of stored carbon), and risk of unintended environmental consequences.

While the activities that can potentially result in carbon removal are wide-ranging, **the [underlying purpose of carbon dioxide removal](#) is to physically decrease the level of greenhouse gases in the atmosphere**. This must be the fundamental guiding principle used by the CRCF to identify and quantify removals. Bellona has three overarching recommendations to ensure that the CRCF is fit-for-purpose:

## 1. THE CRCF MUST ONLY CERTIFY REAL REMOVALS

Bellona endorses the four criteria defining carbon dioxide removals set out in [Tanzer & Ramirez \(2019\)](#):

- **Carbon dioxide removal physically extracts CO<sub>2</sub> from the atmosphere.** CO<sub>2</sub> can be extracted technologically (e.g., by synthetic solvents and sorbents), geologically (e.g., by the weathering of certain minerals), or biologically (e.g., by photosynthesis of biomass).
- **The extracted atmospheric CO<sub>2</sub> must be stored permanently** out of the atmosphere<sup>1</sup>. If the CO<sub>2</sub> that was extracted from the atmosphere is re-emitted—intentionally or not—atmospheric greenhouse gas levels increase, and a removal has not occurred.
- **All greenhouse gas emissions of the carbon removal activity must be fully accounted for**<sup>2</sup> regardless of where or when they occur.
- **The real removal is the physical decrease in atmospheric greenhouse gases**, which is the amount of CO<sub>2</sub> extracted and permanently stored minus all direct and indirect greenhouse gas emissions associated with the carbon removal activity and its supply chains.

To ensure that certified removals result in a decrease of atmospheric greenhouse gases, **CRCF should define 'carbon removal' as 'the permanent storage of atmospheric CO<sub>2</sub> in excess of all direct and indirect greenhouse gas emissions associated with the removal activity'**.

1 "Permanent carbon storage" (Article 2.1.(g)) is currently defined as one of three types of carbon removal activities, but no permanence criteria or reversal liability is specified for "carbon farming" or "carbon storage in products" (Article 2.1.(h-i)).

2 Article 4.1(c) explicitly excludes associated emissions of biogenic greenhouse gas emissions in the case of carbon farming, even if these emissions are the direct result of the carbon removal activity.

Critically, **emission reductions must never be certified as CDR<sup>3</sup>**, as they are fundamentally distinct activities: Removals decrease atmospheric greenhouse gases where reductions prevent further increase in atmospheric greenhouse gases. Emission reductions and other non-removal activities can be better supported by separate instruments, such as the ETS, the Common Agricultural Policy, and the forthcoming Nature Restoration Law.

## 2. THE CRCF MUST BE HIGHER Qu.A.L.Ity

- **QUantification**

A removal is the quantity of permanently stored atmospheric CO<sub>2</sub> minus all direct and indirect greenhouse gas emissions associated with the carbon removal activity. The associated emissions that should be explicitly considered include, but are not limited to<sup>4</sup>:

- Direct emissions from: the use of energy, material, and chemical inputs; biomass cultivation and harvest; and transport.
- Indirect emissions occurring in supply chains of inputs.
- Indirect emissions resulting from changes in land use and energy generation.

Emission reduction activities should never be included in removal quantification. It must also be possible to verify that a removal physically occurred and monitor the stored carbon. **If a removal cannot be effectively quantified or monitored, it must not be certified as a removal.**

- **Additionality**

Only after the physical removal has been quantified should additionality be determined<sup>5</sup>. This reduces the risk that the choice of baseline allows for non-removal activities to be certified as removals. **If positive baselines (of net or increasing emissions) are allowed, then a “net carbon removal benefit” can be calculated without a physical decrease in atmospheric greenhouse gas concentrations.**<sup>6</sup>

- **Long-term storage**

Long-term storage is not a guarantee. Different removal activities have different risks of reversal and different requirements to maintain and monitor the removal. As a removal requires permanent storage to serve its intended purpose of decreasing atmospheric greenhouse gases, liability must also include the obligation to rectify any reversal with a removal of equal or greater quality. **The CRCF should address general principles of the chain of perpetual liability<sup>7</sup>, both to monitor the removal, prevent a reversal, and to rectify any reversals that do occur.**

3 The CRCF currently allows emission reduction to be codified as removal in multiple ways:

(a) Article 2.1(a) includes “the reduction of carbon release from a biogenic carbon pool” in its definition of “carbon removal”. Of note, peatlands rewetting is [primarily an emission reduction activity](#), with any removals that might occur happening only after many years.

(b) The equation for “net carbon removal” in Article 4.1 calculates how much emissions were reduced compared to a baseline, rather than absolute removals: The net removal ( $CR_{total} - GHG_{increase}$ ) are subtracted from a baseline ( $CR_{baseline}$ ), which can be positive (Article 4.3), allowing for removal activities that result only in emission reduction—rather than net removal—to be certified.

(c) In the case of carbon farming, both the baseline ( $CR_{baseline}$ ) and the “removals” ( $CR_{total}$ ) can also be positive (Article 4.2), which would certify any reduction in emissions as “net carbon removal”, even as the amount of greenhouse gases in the atmosphere increases.

4 Recital 9 provides an incomplete list of possible associated emissions, but these are not codified within the Articles themselves.

5 See footnote 3(b).

6 As an example, if a plot of land was determined to have a baseline emissions of 500 kg CO<sub>2</sub>eq/ha and the use of soil carbon enhancing practices removed 300 kg CO<sub>2</sub>/ha, but associated emissions are 400 kg CO<sub>2</sub>/ha, the equation in Article 2.1 ( $CR_{baseline} - CR_{total} - GHG_{increase}$ ) would calculate a “Net Carbon Removal Benefit” of  $500 - 300 - 400 = 400$  kg CO<sub>2</sub>/ha, even though total emissions have increased.

7 The CO<sub>2</sub> Storage Directive (2009/31/EC) would presumably apply in cases of carbon removal into geologic storage, but similarly rigorous and clear liability principles should apply to all carbon removal activities, without undue transfer of risks to governmental actors or the general public.

- **Sustainability**

The sustainability criteria of the CRCF should respect the resource intensity of removals and ensure that the maximum environmental and social benefit is obtained from a carbon removal activity. In particular, the use of land and biomass for a carbon removal activity should have positive—not merely neutral—co-benefits. **Best practices in land use and biomass production will also support the integrity of land-based removal by promoting resilient ecosystems, reducing the risk of reversal.**

### 3. THE INTENDED USE CASES OF THE CRCF MUST BE MADE EXPLICIT

Rapid minimisation of greenhouse gas emissions is the only viable route to climate neutrality—a limited amount of removals will be available and they must not interfere with or delay emission reductions. The CRCF should codify that certified removals may not be used to compensate for abatable emissions or otherwise deter emission reduction activities by private or public actors. Therefore, **targets for emission reductions and carbon removals must be kept separate.** Differences in carbon cycles must also be respected; most importantly, **only removals stored in geologic sinks can balance fossil emissions**, as fossil emissions originate from geologic sinks.

Carbon removal encompasses a wide range of activities, each with their own nuances, uncertainties, and trade-offs. An effective CRCF is one that strictly codifies the universal principles that any carbon removal activity must adhere to so to fulfil its purpose: the physical and net removal of greenhouse gases from the atmosphere.



#### CONTACT

**Dr Samantha Eleanor Tanzer**  
CDR Research &  
Technology Manager  
Bellona Europa



#### Phone

Mobile: +31 6 29 94 56 21

#### Online

Email: [tanzer@bellona.org](mailto:tanzer@bellona.org)  
Website: [www.bellona.org](http://www.bellona.org)