



Structured public consultation: Removal activities under the Article 6.4 mechanism – June 2023

Puro.earth is a carbon removal crediting programme and through the Puro Standard we certify durable removal of CO₂ from the atmosphere. We issue CO₂ Removal Certificates, CORCs, per ton of CO₂ removed and durably stored. CORCs are issued and retired in the public [Puro Registry](#) adding transparency to carbon markets. Puro.earth welcomes the opportunity to respond to the structured consultation on removal activities launched by the Supervisory Body at its fifth meeting.

Responses to each of the elements of the consultation are contained in the pages which follow. Puro.earth's response can be summarised as follows.

- Durable carbon dioxide removals with a durable storage of at least 100 years are essential to reach net-zero emissions globally. Puro.earth believes that sustained upscaling is required for durable carbon removals and welcome opportunities to support this scaling up such as inclusion under the Article 6.4 mechanism;
- Emission reductions and removals are different types of solutions and Article 6.4 credits should be either reduction or removals;
- The recommendations on removal activities being progressed by the Article 6.4 Supervisory Body (6.4SB) should ensure a net removal is being delivered, no negative environmental or social outcomes, and be evergreen to allow for innovation as new durable carbon removal solutions are developed;
- We support a twice renewable crediting period of 15 years as stated in the [Rules, Modalities and Procedures](#) (RMPs) as agreed in December 2021. This could enable access to finance for durable industrial carbon removals;
- The timeframe and activities for addressing the risk of reversal need to occur before, during and after the project is operational. We also ask that post-closure monitoring is kept to 20 years, or less where appropriate, as with geological storage under the [EU Geological Storage of Carbon Dioxide \(CCS\) Directive](#).
- The reporting of carbon removals under the Article 6.4 mechanism is an integral part of the accounting framework for the Paris Agreement. A robust accounting framework means that the transfer of Article 6.4 credits between Parties, and the global stocktake of progress against Nationally Determined Contributions needs to be consistent with this reporting. We'd welcome further information on how this will work.

We'd like to thank the UNFCCC Secretariat and 6.4SB for the newsletters, regular webinars, consultations, and we'd welcome a map of how the different products in the workplan are linked as we build our understanding of the future Article 6.4 mechanism. If you have any further questions please contact, Helen Bray, helen.bray@puro.earth

Kind regards,

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Ms. Marianne Tikkanen, Co-founder and Head of Carbon Crediting Program, Puro.earth



Cross-cutting questions:

1. *Discuss the role of removals activities and this guidance in supporting the aim of balancing emissions with removals through mid-century.*

As stated by the Intergovernmental Panel on Climate Change (IPCC) Working Group III contribution to the Sixth Assessment Report, page 1262, and in the [IPCC factsheet on CDR](#) “*Within ambitious mitigation strategies at global or national levels, CDR¹ cannot serve as a substitute for deep emissions reductions but can fulfil multiple complementary roles: it can (i) further reduce net CO₂ or GHG emission levels in the near-term; (ii) counterbalance residual emissions from hard-to-transition sectors, such as CO₂ from industrial activities and long-distance transport (e.g., aviation, shipping), or methane and nitrous oxide from agriculture, in order to help reach net zero CO₂ or GHG emissions in the mid-term; (iii) achieve and sustain net-negative CO₂ or GHG emissions in the long-term, by deploying CDR at levels exceeding annual residual gross CO₂ or GHG emissions.*”

Puro.earth believes that sustained upscaling is required for durable carbon removals and welcome opportunities to support this scaling up such as inclusion under the Article 6.4 mechanism.

2. *What are the roles and functions of the following entities in implementing the operations referred to in this guidance: Activity proponent(s), Article 6.4 mechanism Supervisory Body (6.4SB), 6.4 mechanism registry administrator, Host Party, stakeholders?*

Activity proponents - need to follow the rules of the methodologies adopted by the 6.4SB and deliver emission reductions and/or removals.

Article 6.4 mechanism Supervisory Body - The 6.4SB needs to fulfil its mandate as set in the RMPs. We welcome the increased openness and proactive approach to communication through newsletters, webinars, and live stream of the meetings.

Registry Administrator –the Registry Administrators will run the registries which needs to provide a robust platform and enable transparency. We welcome further information on the roles and responsibilities.

Host party – support projects in their jurisdictions and provide information as required to support the reporting of carbon removals under the Article 6.4 mechanism. This is an integral part of the wider accounting framework for the Paris Agreement. A robust accounting framework means that the transfers of Article 6.4 removal credits between Parties, and any related corresponding adjustments, and the stocktake of progress against Nationally Determined Contributions should all seamlessly fit together. We’d welcome further information on how this will work.

Stakeholders – to provide evidence-based position to help develop an effective, high integrity Article 6.4 mechanism so the world can reach net-zero emissions.

3. *How are these elements understood, in particular, any interrelationships in their functions, timeframes, and implementation? (a) Monitoring period, (b) Crediting period, (c) Timeframe for addressing reversals.*

Puro.earth credits durable carbon removal activities which involve sequestering CO₂ in geological formations, or stable end-use products where the risk of reversal is low. In order for Puro.earth to issue CO₂ removal credits, CORCs, there needs to be monitoring and

¹ CARBON DIOXIDE REMOVAL (CDR) refers to technologies, practices, and approaches that remove and durably store carbon dioxide (CO₂) from the atmosphere.

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reporting of the activity and independent auditing/verification of the facility and the output report which states the volume of carbon removal delivered. We have 5 methodologies: (i) biochar, (ii) terrestrial storage of biomass, (iii) carbonated materials, (iv) geologically stored carbon and (v) enhanced rock weathering.

(a) Monitoring period – here we refer to the performance-monitoring period when the project is operational. Monitoring, reporting, and verification (MRV) requirements are set in each methodology outlining the annual monitoring and record keeping of the project for the purposes of performance reporting and the volume of CORCs. Each project reports the performance (CO₂ removal volumes / CORCs), and submits it annually for third-party verification.

For example, credit generation via enhanced rock weathering requires annual field tests to prove removal volumes, and biochar requires production volumes to be monitored and proof of end use. For geologically stored carbon through bio-energy carbon capture and storage (BECCS), and direct air carbon capture and storage (DACCS) activities are required to report injection to storage sites that comply with for example, the EU CCS Directive.

(b) Crediting period - facilities have crediting periods for 5 years after the validation audit, unless significant changes occur, and as mentioned under performance-monitoring period an independent auditing of the monitoring and reporting occurs at least annually.

Puro.earth notes that under the RMPs, activity proponents can apply for a crediting period of a maximum of 15 years renewable twice subject to approval by the 6.4SB. This represents a possible crediting period of 45 years. Puro.earth supports this timescale as stated in the RMPs as performance can be established through monitoring, reporting and verification. This length of crediting period could help facilitate financing for industrial-scale projects, which have an investment lifetime of 20 to 40 years. We would recommend keeping annual performance-monitoring periods where appropriate.

(c) The timeframe for addressing the risk of reversals needs activities to occur before, during and after the operation of the project.

Before – we ensure through our rules/methodologies for the validation audit of the project, and through independent verification that the chosen storage sites and activities can deliver durable storage of CO₂, and therefore risk of reversal is minimised.

During – as we stated above, we have annual performance monitoring when the project is operational therefore carbon credits are only issued after the removal has occurred (e.g ex-post carbon credits) and ensures permanence is continuously met.

After – Post-closure requirements to address the risk of reversal is methodology specific.

For example, for Carbonated Materials and Enhanced Rock Weathering methods, the IPCC² has concluded that, “*The fraction of CO₂ stored through mineral carbonation that is retained after 1000 years is virtually certain to be 100%. As a consequence, the need for monitoring the disposal sites will be limited in the case of mineral carbonation*” and the CO₂ removal supplier must provide a risk assessment and mitigation plan for the risks related to the permanence of the CO₂ sequestration and potential re-emission of CO₂.

² M. Mazzotti, J. Abanades, R. Allam, et al. Mineral carbonation and industrial uses of carbon dioxide. In: *IPCC Special Report on Carbon Dioxide Capture and Storage*. Ed. By B. Metz, O. Davidson, H. C. de Coninck, et al. Prepared by Working Group III of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_chapter7-1.pdf. Cambridge University Press, New York, NY (United States), 2005, pp. 319–338

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- In the [Terrestrial Storage of Biomass](#) methodology, the CO₂ Removal Supplier needs provide a monitoring plan for early detection of a reversal and to demonstrate the ownership of land title for 100 years and a fund to cover financial requirements.
- For [Biochar](#), there is a pre-issuance deduction based on degradation curves as a function of biochar quality, soil temperature and after a time period of 100 years has lapsed.
- [Geological storage](#) methodology follows the post-closure monitoring requirements of the EU Carbon Capture and Storage (CCS) Directive which is 20 years or less, or other national legislation such as the [US Environmental Protection Agency Class VI injection wells](#).

In summary, Puro.earth requests that the 6.4SB supports requirements for addressing the risk of reversal which includes preventative activities before the project is operational, as well as during and after operations. For post-closure requirements, we support a timeframe of 20 years or less, dependent on the risk of reversal of the activity.

Questions on specific elements

A. Definitions:

Discuss the role and potential elements of definitions for this guidance, including "Removals".

The recommendations on removal activities being progressed by the Article 6.4 Supervisory Body (6.4SB) should ensure a net removal is being delivered, ensure no negative environmental or social outcomes, and be evergreen to allow for innovation as new durable carbon removal solutions are developed.

The recommendations on removals referred to as "*Removal activities under the Article 6.4 mechanism*" is also linked to the "*Requirements for the development and assessment of mechanism methodologies*" amongst other items and we ask that clarity is given to stakeholders on how the different documents are linked.

B. Monitoring and Reporting:

B1. What timeframes and related procedures should be specified for these elements referred to in [A6.4-SB003-A03](#)?

We also expect projects to move to digital solutions for monitoring and reporting enabling real-time information and ask that the 6.4SB recommendations support this approach.

C. Accounting for removals:

C2. For activities involving removals that also result in emissions reductions, what are the relevant considerations, elements, and interactions between this guidance and the requirements for the development and assessment of mechanism methodologies, including.

Removals and reductions are two different currencies as are ex-ante and ex-post carbon credits. We ask that A6.4 credits are either reductions or removals and not a mixture.

D. Crediting period:

Discuss any further considerations to be given to the core elements for crediting periods in [A6.4-SB003-A03](#); where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

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We support a crediting period as defined in the RMPs which is twice renewable crediting period of 15 years which could help access to project finance for durable carbon removals. In addition, some durable industrial carbon removal methods are solely reliant on carbon finance and Baseline Correction Factors (BCFs) during the lifetime of a project could have consequences on the project investment decision. Under the "*Requirements for the development and assessment of mechanism methodologies*", the 6.4SB will make recommendations on baseline setting and we ask that the deliberations on BCFs for durable industrial carbon removals requires further and extensive consultation.

E. Addressing Reversals:

In order to minimize the risk of non-permanence of removals over multiple NDC implementation periods, and, where reversals occur, ensure that these are addressed in full.

E1. Discuss the applicability and implementation aspects of these approaches, including as stand-alone measures or in combination, and any interactions with other elements of this guidance:

See answer to Q3(c) on the timeframe for addressing reversals.

E4. In respect of risk assessment, how should the following elements be considered in the implementation of the approaches in (a) and any other relevant elements in this guidance?

a. Level of non-permanence risk assessment, e.g., activity- or mechanism-level

Due to the wide variation in risk of reversal between carbon removal activities/projects we recommend activity level.

F. Avoidance of Leakage:

Discuss any further considerations to be given to the core elements for leakage avoidance in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

Carbon leakage has two definitions: (1) it can refer to the relocation of emission-intensive activities from jurisdictions with a higher cost to emit CO₂ to jurisdictions with a lower cost to emit, and (2) Carbon leakage can also refer to an increase in fossil emissions outside the boundary of the project caused by the project activity itself. We believe that the Article 6.4 Mechanism should be focused on with minimising any potential increase of fossil emission outside the boundary of a project, the second definition of carbon leakage as stated above.

For example, in the Puro Standard [General Rules](#) we define leakage as:

"2.1.4. CO₂ Removal Supplier shall assess all potential sources of leakage (i.e. increase of fossil emissions) outside of the project activity boundary but due to it as specified in the Methodology. In the case where leakage potential is identified it shall be quantified and deducted from the CO₂ removals."

G. Avoidance of other negative environmental, social impacts

Discuss considerations to be given to core elements for avoidance of other negative environmental, social impacts; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or type

In the [General Rules](#) for the Puro Standard we have requirements on suppliers to demonstrate environmental and social safeguards.



"2.1.2. CO₂ Removal Supplier shall be able to demonstrate Environmental and Social Safeguards and that the Production Facility activities do no significant harm to the surrounding natural environment or local communities. This may be done through one or several of the following:

- *Environmental Impact Assessment (EIA)*
- *Environmental permit*
- *Other documentation² approved by the Issuing Body on the analysis and management of the environmental and social impacts*
- *When applicable, the Production Facility activities shall be developed with informed consent from local communities and other affected stakeholders and have a policy in place to address potential grievances"*