

Online survey to support devising a carbon removal certification mechanism

Introduction

The European Union aims to become climate neutral by 2050, and the European Commission has acknowledged that the European Union will have to rely on a substantial amount of carbon removals to reach this objective.

To enable the scaling up and wider dissemination of the removal of carbon from the atmosphere through both nature-based and technological solutions, the European Commission is exploring the possibility to develop a regulatory framework for the certification of carbon removals, as mandated by the Circular Economy Action Plan "For a cleaner and more competitive Europe", part of the European Green Deal.

For this purpose, the European Commission has initiated a study that will investigate options for an EU-wide carbon removal certification mechanism (CRC mechanism). Building on an assessment of existing carbon removal certification mechanisms and solutions, as well as on different stakeholder consultation activities and desk research, the study team will develop a set of design options for an EU-wide CRC mechanism, covering the scope of included removal solutions, certification rules and governance. These options will be assessed for their advantages and disadvantages (e.g. environmental integrity, effectiveness, efficiency, coherence with existing climate policies etc.), and the study team will make recommendations to help inform policy decisions on such a mechanism. The study team will also design a possible pilot phase for the mechanism.

We hereby invite you to provide your feedback and insights to support the study.

This survey

The survey is organised in **8** short sections:

- Section 1 | About you
- Section 2 | Existing and emerging technology-based and nature-based removal solutions
- Section 3 | The need for a future EU-wide CRC mechanism
- Section 4 | The scope of a potential EU-wide CRC mechanism
- Section 5 | How can an EU-wide CRC mechanism interact with the existing policy landscape at a national level?
- Section 6 | The implementation of a potential EU-wide CRC mechanism
- Section 7 | The actors in a potential EU-wide CRC mechanism
- Section 8 | Devising a pilot phase for an EU-wide CRC mechanism

Completing the survey will take approximately **30** minutes, if you wish to provide substantiated answers to all the questions. Bear in mind that you have received a *personalised link to the survey*, and therefore your answers will be automatically saved on your browser. If you close the page and then click on the personalised link later, you will automatically be taken to where you left off.

Please note that this is a survey issued in the context of the study "Support on devising a carbon removal certification mechanism" (340201/2020/836974/SER/CLIMA.C.2), and it is **NOT** an official public consultation.

Privacy

All answers received will be processed and stored securely and in compliance with the EU General Data Protection Regulation (GDPR). All answers will be processed anonymously and only shared with the Commission in aggregated form.

The answers you provide will be retained for as long as necessary for the successful completion of the study, and will be deleted thereafter.

For technical questions regarding the questionnaire, please contact CRCmechanism@ramboll.com

If you wish to print the survey questionnaire, please click on the "print icon" below.

Section 1 | About you

1. Please indicate the name of your organisation:

Negative Emissions Platform

2. Please indicate which stakeholder category you belong to:

- Academic/research institution
- Business association
- Company/business organisation
- Consumer organisation
- EU citizen
- Non-EU citizen
- Non-governmental organisation (NGO)
- Public authority
- Trade union
- Other

Section 1 | About you

Section 1 | About you

3. Are you answering on behalf of your organisation or in your own capacity?

- On behalf of my organisation
- In my own capacity

4. Which country do you primarily work in?

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czechia
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- Other

Section 1 | About you

Section 1 | About you

5. How much experience do you have working on technology-based solutions (TBS) and nature-based solutions (NBS) for carbon removal?

Nature-based solutions:

	Extensive experience	Some experience	Limited experience	No experience
Afforestation & Reforestation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forest management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agroforestry	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase in soil organic carbon on mineral soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peatland rewetting and other solutions based on organic soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blue carbon solutions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Technology-based solutions:

	Extensive experience	Some experience	Limited experience	No experience
Biochar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biomass in buildings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bio-Energy with Carbon Capture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fossil Fuel with Carbon Capture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Direct Air Capture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon Storage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon Utilisation (short/medium lifetime)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon Utilisation (long lifetime)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terrestrial Enhanced Weathering	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have experience with other nature-based or technology-based solutions, please specify here:

Section 1 | About you

6. How much experience do you have with project-based emission reduction or removals mechanisms?

	Extensive experience	Some experience	Limited experience	No experience
Project-based emission reduction or removals mechanisms	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 2 | Existing and emerging technology-based and nature-based removal solutions

7. In your opinion, which nature-based solutions (NBS) face the most significant challenges for increasing deployment in the EU? Which present the most significant opportunities? Please select maximum three removal solutions for each question.

	Afforestation & Re-forestation	Forest management	Agroforestry	Increase in soil organic carbon on mineral soils	Peatland rewetting and other solutions based on organic soils	Blue carbon solutions	No opinion	No opinion	No opinion	No opinion	Afforestation & Re-forestation	Forest management	Agroforestry	Increase in soil organic carbon on mineral soils	Peatland rewetting and other solutions based on organic soils	Blue carbon solutions	Afforestation & Re-forestation	Forest management	Agroforestry	Increase in soil organic carbon on mineral soils	Peatland rewetting and other solutions based on organic soils	Blue carbon solutions		
Which solution(s) could more easily be deployed at scale?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which solution(s) offer the most robust Monitoring, Reporting and Verification (MRV)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which solution(s) present greatest co-benefits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which solution(s) face largest sustainability trade-offs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you wish, please elaborate on your answer above:

By utilising sustainable forest management and providing an end product for the use of waste forestry residues, the forest industry helps to protect and maintain working forests and helps to prevent deforestation. In addition there are mitigations for the trade-offs with sustainable forest management- forest biomass has extremely strict sustainability criteria largely based on schemes such as the EU's Renewable Energy Directive but many biomass users will choose to go beyond regulation to ensure forests remain healthy, and biodiversity protected, for example through certification schemes, such as the Sustainable Biomass Programme (SBP). Afforestation and re-forestation face sustainability trade-offs if climate policy encourages investing in monocultures or low diversity plantings which are more vulnerable to environmental change in the long term and may also produce trade-offs among ecosystem services (e.g. carbon storage, erosion control and water supply. General comment: we would encourage a different classification away from NBS and TBS and into the nature of storage.

Afforestation and technical removal are different in two key regards: Land use impact, expected time-scale of carbon storage which includes risk of reversal. We encourage differentiation into removals that store carbon in biomass (expected time-scale of 10's years, possibility of full reversal in fire or decay even with best practice), and separately, in geology/minerals with expected time-scale of 1,000,000's years, low risk of even partial reversal, if properly regulated.

8. In your opinion, which technology-based solutions (TBS) face the most significant challenges for increasing deployment present the most significant opportunities? Please select maximum three removal solutions for each question.

	Biochar	Biomass in buildings	Bio-Energy with Carbon Capture	Fossil Fuel with Carbon Capture	Direct Air Capture	Carbon Storage	Carbon Utilisation (short/medium lifetime)	Carbon Utilisation (long lifetime)	Terrestrial Enhanced Weathering	No opinion	No opinion	No opinion	No opinion	Biochar	Biomass in buildings	Bio-Energy with Carbon Capture	Fossil Fuel with Carbon Capture	Direct Air Capture	Carbon Storage	Carbon Utilisation (short/medium lifetime)	Carbon Utilisation (long lifetime)	Terrestrial Enhanced Weathering	Biochar	Biomass in buildings	Bio-Energy with Carbon Capture	Fossil Fuel with Carbon Capture	
Which solution(s) could more easily be deployed at scale?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which solution(s) offer the most robust Monitoring, Reporting and Verification (MRV)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which solution(s) present greatest co-benefits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which solution(s) face largest sustainability trade-offs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you wish, please elaborate on your answer above:

Note: Fossil fuel with Carbon Capture and short & medium term CCU should be in principle excluded from these rating as non-CDR methods.

In terms of deployment at scale and based on TRLs DACS, BECCS and Biochar present the best scalability potential (up to 5Gt/pa globally each, ca 250Mt/pa in the EU), followed by land-based EW which would however require more projects and R&D efforts to ascertain permanence metrics. With regard to MRV: DAC-Sequestration lends itself to precise accounting and stringent MRV and has very low sustainability trade-offs. While there is no specific standard in place for BECCS, given strong MRV on biomass supply chains, and precedent for monitoring carbon capture and storage through the ETS, we believe that the development of an MRV which incorporates these two aspects should be relatively straightforward to implement. With regard to co-benefits: DACS - important cumulative savings in comparison to deployment of decarbonisation alternatives, much lower water and land requirements compared to biological CDRs, no risk of competition for land as it can be built on non-arable land, as well as in remote or disadvantaged locations presenting offering jobs and growth opportunities. Another co-benefit of DACS is that through its lower land and water use it enables other priorities such as re-wilding whilst having the same climate impact as other methods which require more land and water. BECCS - has the potential to deliver net carbon removal while also producing useful outputs like power, heat, liquid transport fuels, or hydrogen.

Biochar - Pyrolysis that produces biochar can, depending on particular technology, also produce pyrolysis-oil or energy rich process gas. Possible uses of biochar range from agriculture (fertiliser, soil enhancement) to durable building and industrial materials asphalt, concrete, lime plaster, gypsum and clay.

Section 3 | The need for a future EU-wide CRC mechanism

9. Do you think a specific mechanism is needed to support the implementation of carbon removal solutions within the EU?

- Yes
- No
- No opinion

Section 3 | The need for a future EU-wide CRC mechanism

10. If you think that a specific mechanism is needed to support the implementation of carbon removal solutions within the EU, to what extent do you agree this could be a relevant priority for such a mechanism?

In relations to the uptake and quality of carbon removals:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
To track progress in the uptake of carbon removal solutions in a transparent manner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To create incentives at the national level for the implementation of carbon removal solutions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To create incentives at a project level for the implementation of carbon removal solutions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In relation to the environmental integrity of carbon removals:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
To ensure high standards for measuring carbon removal solutions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To avoid potential negative externalities or minimise their impacts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To encourage co-benefits of climate change mitigation (e.g. biodiversity, adaptation, water quality/quantity impacts)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To avoid any double-counting of emission reductions or removals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To ensure the additionality [**] of carbon removal solutions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To address the risk of non-permanence of carbon removals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In relation to establishment of common standards [*] for carbon removals:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
To harmonise standards for carbon removals across EU policies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To harmonise standards for carbon removals across Member States	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To harmonise standards for carbon removals on the voluntary market	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To harmonise standards to substantiate carbon removals in companies' claim of climate neutrality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To ensure consistency of project-level reporting and national GHG inventories	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To add further compliance options under Climate policies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To provide a reference standard that other jurisdictions (outside of the EU) could possibly reproduce or adapt to their specificities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[*] "Standards" in this context refers to rules and methodologies set out in existing carbon crediting mechanisms (e.g. CDM, Gold Standard, VCS).

[**] "Additionality" refers to ensuring removals are in excess of business as usual or other reference levels.

Are there any other priorities? If yes, please specify:

Any other priorities: To delineate between reversible and permanent removals in a manner that climate mitigation value is reflected in the value of certificates i.e./ (for example with a t/CO2e/per annum metric). Comment on additionality: While we strongly agree with the principle of ensuring additionality, in practice this might be quite difficult to achieve through a scheme and the definition of additionality may change over time. The key focus of the additionality principle when considering negative emissions should be to ensure negative emissions are treated appropriately and are not inadvertently restricted by policies designed for avoided emissions projects. Concerning externalities (negative impacts): These should, of course, be avoided. However, it is important to note and safe-guard that certain policies are and

should remain national and that other policies that are already regulated in EU directives and regulations, e.g. REDII, should not be spread out over multiple instruments or tackled with additional instruments with unclear legal status, since this would confuse the market.

Section 4 | The scope of a potential EU-wide CRC mechanism

11. Taking account of their current maturity and predicted development, when do you think various removals solutions could be included within an EU-wide CRC mechanism?

Nature-based solutions

	Should be included from the beginning	Could be included in the future	Should never be included	No opinion
Afforestation & Reforestation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forest management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agroforestry	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase in soil organic carbon on mineral soils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Peatland rewetting and other solutions based on organic soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blue carbon solutions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Technology-based solutions

	Should be included from the beginning	Could be included in the future	Should never be included	No opinion
Biochar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biomass in buildings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bio-Energy with Carbon Capture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fossil Fuel with Carbon Capture	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Direct Air Capture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Carbon Utilisation (short/medium lifetime)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon Utilisation (long lifetime)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Terrestrial Enhanced Weathering	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you wish, please elaborate on your answer above:

Carbon Storage element should be included as an element of BECCS and DACS. Fossil carbon capture and storage should never be included in CRC-M. CCU with short/medium term storage could be included in the future, depending on the stringency of protocols.

Section 5 | How can an EU-wide CRC mechanism interact with the existing policy landscape at a national level?

12. What role do you think an EU-wide CRC mechanism should play in relation to other EU climate policies that also address the implementation of carbon removals? A CRC mechanism's role should be: (Choose all that apply)

- To certify carbon removals at a project level in the context of incentives or requirements under current climate policies (.e.g. Emissions Trading Directive, CORSIA, the Innovation Fund, Sustainable Taxonomy)
- To certify carbon removals that contribute to the measurement of carbon removals at a national level under current climate policies (e.g. LULUCF Regulation, Effort Sharing Regulation)
- To certify carbon removals at a project level demonstrating fulfilment of actions for purposes of receiving financial incentives under other policies (e.g. the Common Agricultural Policy, the Renewable Energy Directive, the Energy Performance of Building Directive)
- To certify carbon removals at a project level used towards reporting related to the climate component of products' environmental footprint, or any other compulsory environmental performance
- To certify carbon removals at a project level used towards the achievement of voluntary pledges, targets or other types of non-state/corporate climate actions
- To certify carbon removals at a project level demonstrating the impacts of results-based climate finance
- Other, please specify: Allow for additional, CDR specific policy frameworks in the EU. Another purpose should be to explicitly differentiate between removals vs. reductions, and to establish the value of permanence in removals, differentiating incentivisation by permanence.
- No opinion

If you wish, please elaborate on your answer above:

CDR represents a critical aspect of achieving climate neutrality and the goals set out in Paris and we encourage the EU to incorporate novel policies dedicated specifically to CDR.

13. How do you think an EU-wide CRC mechanism should relate to existing certification mechanisms for removal solutions, such as standards developed in the voluntary carbon market and/or national voluntary schemes

developed by some Member-States? (Choose all that apply)

- The CRC mechanism should make use of existing carbon removal certificates, where these are demonstrated to be equivalent in scope and quality
- The CRC mechanism should make use of existing carbon removal certificates, with adjustments to accommodate any differences in standards
- The CRC mechanism should only certify removals in accordance with its own rules and standards for certification and governance
- Other, please specify: The EU should frame a system for carbon removals in a way that will help the voluntary market take off to allow nations and companies to meet climate targets and compliance rules, allowing for differentiation so as not to slow down general decarbonization of our economies. 2. The EU system should recognize other systems that fulfill the EU criteria. 3. There should finally be only one global market for CRCs (taking into account the permanence of different methods), covering the EU and eventually all the UN parties. The EU would be the right level to standardize (i) system boundaries for CRCs, (ii) competent authorities to appoint certification organs, (iii) a common system/registry for issuing and cancelling certificates, and (iv) how permanence should be counted. That would lay a basis for other jurisdictions on how to apply CRCs as part of their climate objectives as well as for companies to make them part of their net-zero ambitions. This would also allow CRCs to be traded in general and to optionally become part of different compliance schemes.
- No opinion

Section 5 | How can an EU-wide CRC mechanism interact with the existing policy landscape at a national level?

14. Carbon removal solutions are very diverse and can differ significantly in terms of duration of the removals or complexity of the monitoring, reporting and verification of the removals (MRV). In this context, do you think a CRC mechanism should potentially issue different types of certificates for different types of removals? (Please choose all that apply)

- No, only a single type of certificate should be proposed that may be traded and counted towards incentives or targets for emissions and removals in all sectors
- No, only a single type of certificate should be proposed that is not be tradeable (e.g. used only quantification of removals used for reporting purposes in relation to a certain policy)
- No, only a single type of certificate should be proposed that may be traded and counted towards incentives or targets for emissions and removals in all sectors, however the number of certificates issued should be adjusted according to the likely permanence of the solution.
- Yes, different types of certificates should be proposed that could be traded and counted towards incentives or targets for either emissions or removals in all sectors
- Yes, different types of certificates should be proposed that could be traded and counted towards incentives or targets for emissions and removals but only in the sectors in which they are generated (e.g. only in the land sector for nature-based solutions)
- Yes, different types of certificates should be proposed that could be traded and counted towards incentives or targets for emissions and removals but only of similar requirement in terms of MRV and measurement confidence
- Yes, different types of certificates should be proposed based on other factors and criteria (please elaborate below)
- Other, please specify: _____
- No opinion

If you wish, please elaborate on your answer above:

15. How do you think a CRC mechanism could evolve over time to progressively integrate new needs and solutions for carbon removals?

While many technology-based permanent carbon removal solutions exist today their volumes must increase and cost must decline to make the transition towards net-zero aligned offsetting achievable. The CRC mechanism with different 'permitted uses' of certificates could play an important role by creating better demand for long-lived storage solutions. CRC-M could help aggregate demand and supply of high-quality permanent removals by providing a robust framework for long-term off-taking agreements with long-term guaranteed revenue streams that would allow project developers to cover upfront costs, and would ensure price certainty for buyers.

Section 6 | Implementation of a potential EU-wide CRC mechanism

16. Which aspects of a CRC mechanism do you think could pose the most significant challenges for design and implementation? Choose up to three challenges for nature-based solutions and three for technology-based solutions.

	NBS (choose maximum 3 challenges)	TBS (choose maximum 3 challenges)
Specifying certification boundaries and managing leakage risks (leakage risk refers to the possibilities for the removal action to increase emissions or decrease removals outside of the specified certification boundary)	<input type="checkbox"/>	<input type="checkbox"/>
Determining baselines and demonstrating additionality [*]	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Managing measurement and monitoring uncertainty (i.e. when quantifying removals, baseline and project emissions, validation and verification)	<input type="checkbox"/>	<input type="checkbox"/>

Dealing with permanence and carbon reversals risk	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Incentivising innovation (i.e. offering incentives to early stage technology demonstrations)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ensuring that the certification of removals does not undermine actions for deep reduction of emissions	<input type="checkbox"/>	<input type="checkbox"/>
Sustainability (i.e. maximise co-benefits/ avoid negative externalities, lifecycle impacts, impact on biodiversity or ecosystems)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Participation costs (e.g. methodology development, Monitoring, Reporting, Verification (MRV), learning, other costs)	<input type="checkbox"/>	<input type="checkbox"/>
Administrative costs (e.g. establishing methodologies, managing day-to-day administrative work, establishing tracking systems etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Governance, including authorization procedures, liability over the long-term, benefit sharing, articulation between non-state actor commitments and national state commitments	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Public acceptance (i.e. stakeholder engagement and transparency)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No opinion	<input type="checkbox"/>	<input type="checkbox"/>

[*] "Additionality" refers to ensuring removals are in excess of business as usual or other reference levels.

If you see other challenges/barriers for particular solutions, please specify:

17. What measures could be applied to ensure that co-benefits and negative effects of implementing carbon removals are appropriately taken into account within a CRC mechanism?

The certificates should be equipped with additional descriptions to demonstrate certain co-benefits (i.e catalysing innovation) and adherence to sustainability criteria in line with relevant EU regulations (LULUCF, RED). These non-GHG aspects should be additional/optional, so as not to perturb market signals. Beside co-benefits, negative effects of implementing carbon removals should also be addressed in the CRC-M: - Provide guidance on the usage of CDR, incl. reporting guidelines around claims and statements. - Stringent sustainability criteria for biomass and credible baseline scenarios for biomass stock. implementing cross-scheme recognition will be important to ensure that co-benefits and negative effects are appropriately taken into account. (Using BECCS as an example, sustainably source biomass utilises schemes such as the Sustainable Biomass Programme to maintain confidence in biomass sustainability. Incorporating a recognition of the SPB and similar schemes in the CRC will allow for co-benefits and negative effects to be realised and mitigated.) - Cradle to grave LCA analysis for all solutions. - GHG-equivalent measures of land and water use impacts. - Transparent decision making and policy design.

18. Are there any best practices for Monitoring, Reporting and Verification (MRV) for carbon re-moval solutions that you consider a CRC mechanism should take into consideration?

With regard to geological sequestration: - Projects shall comply with good practice as regards induced seismicity risks: A modified version of procedures recommended by the results of the FP-7 GEISER Project should serve as an example and can be used to design the network and ensure safe operation of the injection with respect to induced seismicity. With regard to measurements of gas flows: -All projects involving gas flows shall build upon recently developed ISO standards for CO2 flow measurements. With regard to all projects: - Cradle to grave life cycle assessments.

Section 7 | The actors in a potential EU-wide CRC mechanism

19. Who might be appropriate buyers in a potential market for carbon removal certificates? (Choose all that apply)

- EU central buyer (e.g. existing institutions or a newly created body)
- National central buyers (e.g. National authorities within EU Member States to meet EU regulations or the Paris Agreement's objectives)

- Private and public companies and local authorities to meet EU or national regulatory requirements
- Private and public companies, local authorities and other organisations to meet their voluntary targets and claims (e.g. for offsetting, inseting in supply chains, product labelling etc.)
- Private individuals to voluntarily compensate their carbon footprints
- Other, please specify: _____
- No opinion

20. What kind of information or data should be made available to the public upon the certification of carbon removals? (Choose all that apply)

- Certificates issued, sold by type of solution
- Number of projects by project type
- Number of projects by Member State / region
- Methodologies (e.g. baselines, quantification of carbon removal,...)
- Carbon removal price
- Administrative costs
- Complaints filed, cases of fraud
- Results of stakeholder consultation (e.g. on new methodologies)
- (Type of) Buyer of credits
- (Type of) Solution provider
- Sustainability impacts (e.g. biodiversity impacts)
- Social and environmental co-benefits
- Timeline and process of implementation (including planned adaptations of the mechanism)
- Interaction with other EU policies and regulations
- Oversight over verification bodies
- Other, please specify: _____
- No opinion

Section 8 | Devising a pilot phase for an EU-wide CRC mechanism

21. What do you think should be priorities for demonstration and learning in the context of a pilot phase for an EU-wide CRC mechanism?

The priorities within a pilot phase should include:
 1) Stringency of protocols with regards to carbon leakage. 2) Evaluation of the potential to include CDR into existin legislation (e.g. EU ETS) or provision of new, CDR specific, policy packages. 3) Governance - to test the efficacy of administrative body, registry management.

22. What criteria do you think should be used to select the solutions that will be included in the pilot?

1) Permanence 2) Ease of MRV (or near-term suitability for robust MRV)

23. What could be useful indicators to monitor the progress of the pilot phase and to identify areas for further expansion and improvement of a CRC mechanism?

- Understanding of carbon fluxes and accountability across value chains. - Accounting for temporary CDR. - Equivalence between CDR with differing permanence. - Monitoring of accounting issues that may emerge if carbon removal certificates are linked to GHG inventories or integrated in other EU policy instruments (e.g. double-counting, double-claiming); - Monitoring of application rules concerning certification period and renewals, as well as liability.

24. How long do you think a pilot phase for a CRC mechanism should last? Please indicate the minimum number of years necessary in your opinion.

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If you wish to share any position paper, study or any other document to further elaborate on your views, please send them to CRCmechanism@ramboll.com .

If you click the 'finish' button at the end of the survey, your answers will be recorded and saved. You will no longer be able to make changes to your responses.

Thank you for completing the survey and providing your expertise for this important

study!