



Assessment of the draft technical specifications for certification under the EU CRCF

Cross-cutting findings applicable to all six assessed methodologies

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Summary of key findings and recommendations

This document summarizes cross-cutting findings from the assessment of six proposed methodologies for mitigation activities under the EU Carbon Removal Certification Framework (CRCF), published by the European Commission in October 2024. Overall, the methodologies need considerable improvement to comply with the principles of the CRCF and well-established best practices in carbon crediting. In their current form, they could lead to very significant over-crediting. Key cross-cutting findings include:

- **Rewarding past climate action:** The methodologies do not contain any provisions that would limit the eligibility of mitigation actions that were undertaken in the past. Given that past actions were implemented without the incentives of the EU CRCF, the removals or emission reductions from these activities would not be additional. A key prerequisite for additionality is that the incentives from the CRCF units were considered in the decision to proceed with the mitigation activity. It is therefore best practice in carbon crediting programmes to limit eligibility to those activities that notified or publicly documented their intent to receive CRCF prior to the decision to proceed with the mitigation activity. The methodologies should be revised to include such a provision.
- **Accounting for biomass use:** The three methodologies that involve storage of carbon from biomass (e.g. bioCCS, biochar, and carbon storage in buildings) do not appropriately account for the GHG impact of using biomass. In some instances, these mitigation activities may merely shift carbon from one pool or use to another, not resulting in any enhancement of removals relative to the baseline scenario. Biomass should only be eligible to be used under the CRCF methodologies where it stems from biomass residues that are not commonly used (i.e. it would decay in the baseline scenario) or newly established sources. The methodologies should include provisions to identify such biomass sources.

- **No consideration of other public funding:** The eligible mitigation activities are often-times also subsidized through other public support schemes, such as the EU's Common Agriculture Policy (CAP). If mitigation activities receive both public subsidies and CRCF units, public subsidies would artificially lower CRCF unit prices and subsidize the users of the CRCF units. This would lead to economic inefficiencies and could implicitly subsidise continued use of fossil fuels by the users of the units, such as voluntary carbon market buyers or, if CRCF units were to become eligible in the EU emissions trading scheme (ETS), the entities in the EU ETS. To avoid such unintended outcomes, the methodologies should either exclude mitigation activities that are funded through other public support schemes or proportionally attribute the removals and emission reductions to the financial support provided. This could be done by drawing on approaches developed for the [Swedish Energy Agency](#) and the [World Bank Group](#).
- **Materiality thresholds:** Several methodologies propose a materiality threshold to exclude certain emission sources. The proposed approach can lead to overestimation of removals and emission reductions and is therefore inconsistent with the principle of conservative quantification. The approach does also not reflect best practice in other carbon crediting mechanisms. The practice of the Clean Development Mechanism (CDM) is described wrongly in the methodology for DACCS and BioCCS. The methodologies should be revised such that emission sources or sinks may only be excluded if this leads to a more conservative quantification. This would be consistent with the CDM and the Article 6.4 mechanism of the Paris Agreement.
- **Information to be made available on CRCF units:** The information to be included in certificates and publicly available background information should be amended. Consistent with best practice in the voluntary carbon market, the full calculation of removals and key features of the mitigation activities shall be publicly disclosed.
- **Cross-references to other documentation:** The cross-references to other documents are not always clear in the methodologies. The methodologies should be improved respectively.
- **Definition of greenhouse gases:** In two methodologies (BioCCS / DACCS and biochar), the definition of greenhouse gases should be improved. In other methodologies a definition of greenhouse gases should be added.
- **Definition of global warming potential (GWP) values:** The methodologies either do not specify the GWP values or use references that are not clear or not fully appropriate. The methodologies should use or refer to the values in Annex I of Commission Delegated Regulation (EU) 2020/1044.

More detailed comments are provided below.

Detailed comments

Rewarding past climate action

The methodologies do not contain any provisions that would limit the eligibility of mitigation actions that were undertaken in the past. This could result in the issuance of many non-additional EU CRCF units. Consistent with best practice in carbon crediting, the methodologies should be revised to limit eligibility to mitigation activities that have notified or publicly documented their intent to receive CRCF units prior to the decision to proceed with the mitigation activity.

The consideration of carbon credits when the decision is made to proceed with the implementation of a mitigation activity – commonly referred to as “prior consideration” in carbon crediting programmes – is a key prerequisite for additionality. All methodologies lack provisions to demonstrate prior consideration.

Including provisions on prior consideration is a requirement or recommendation in all important quality assessment frameworks, including the ICVCM (2023) and the Carbon Credit Quality initiative (CCQI)¹. Also agencies that rate the quality of carbon credits, such as Calyx Global, evaluate prior consideration in their assessment frameworks. The CDM and the Article 6.4 mechanism also include provisions on prior consideration.

Requirements for demonstrating prior consideration are important because they:

- Filter out mitigation activities for which there is a high likelihood that they would have occurred without revenues from selling removal certificates;
- Are an effective approach for minimizing the risk that mitigation activities claim CRCF units when carbon finance was neither considered nor needed for the mitigation activities to proceed.

We propose to include the following text in the scope section of all methodologies:

“The operators shall provide publicly available documented evidence that they considered the incentives from CRCF units on or prior to the calendar date on which they committed to implementing the mitigation activity (e.g., the date when contracts for the purchase or installation of equipment were executed or the date when the first expenditures are incurred).

In the case where the mitigation activity does not involve expenditure, operators shall demonstrate that they considered CRCF units prior to the date when the first physical actions were taken to implement the mitigation activity (e.g., the discontinuation of the cultivation of land so that natural revegetation or succession may occur).

Operators shall provide such documented evidence to the certification scheme no later than six months after the respective calendar date.

¹ <https://carboncreditquality.org/>

The provision of documented evidence and the notification to the certification scheme shall be assessed as part of the validation of the mitigation activity and confirmed by the certification body and checked by the certification scheme.”

Accounting for biomass use

Mitigation activities that involve the storage of carbon from biomass (e.g. Bio-CCS, Biochar, and carbon storage in buildings) do not necessarily lead to enhancement of removals relative to baseline. In some instances, these activities may merely shift biomass from one carbon pool or use to another. Depending on the baseline scenario for the biomass, these mitigation activities could enhance removals, reduce emissions, have no impact, or even result in an increase in emissions. The three methodologies assume a baseline scenario of zero emissions or removals. This is not appropriate. Considering the impact of using biomass relative to the baseline scenario is essential for a robust quantification of removals or emission reductions. Doing so is well-established practice in existing carbon crediting programmes, such as the Clean Development Mechanism.

The GHG impact of mitigation activities that enhance the use of biomass depends decisively on what would happen with the biomass in the baseline scenario. Several baseline scenarios are possible:

1. **The biomass would be used for other purposes.** The diversion of biomass from other uses to a mitigation activity under the CRCF may **not lead to any enhancements in removals** relative to the baseline scenario. The removals associated with the growth of the biomass source would have occurred in both the baseline scenario and the project scenario. Diverting biomass from one use to another can, however, lead to an **increase or a decrease in emissions**, depending on the use in the baseline and the project scenario. For example, if biomass was diverted from the use in buildings to the production of biochar, this could lead to an increase in emissions from producing other building materials (e.g. steel, cement, plastics) and an increase in emissions from producing the biochar. If biomass was combusted in the baseline scenario (e.g. for heat or power generation), the use for another purpose could lead to an increase in the use of fossil fuels. As the EU RED implies, fossils are the common substitutes in the EU.

Given that the diversion of biomass from other purposes to CRCF mitigation activities would not result in any enhancement of removals relative to the baseline scenario, **any biomass that would likely be used for other purposes in the baseline scenario should not be eligible in CRCF methodologies.** This is not addressed in any of the three methodologies that involve the storage of carbon from biomass.

In the European Union, most types of biomass sources have a significant market value and are already being used for multiple purposes. These biomass types should not be eligible. The methodologies should include provisions to identify these biomass types.

2. **The biomass would not be harvested.** In this case, the CRCF mitigation activities would lead to increased harvesting of biomass. This could lead to

deforestation (e.g. due to imports from certain regions) or more intensive forest management practices. In this case, the CRCF mitigation activity would mainly shift already stored carbon from one pool (e.g. above-ground biomass in forest land) to another pool (e.g. harvested wood products used in buildings). This is also not associated with an enhancement of removals relative to the baseline scenario. To the contrary, the capacity to generate removals could even be reduced through the CRCF mitigation activity (e.g. if deforestation occurs).

Available research shows that, depending on the circumstances, the transfer of biomass from forest carbon pools to other carbon pools leads to lower carbon accumulation in forests compared to a scenario where the biomass would be left in the forests (Soimakallio et al. 2022). This affects the net balance of climate change mitigation measures involving the use of forest biomass.

Soimakallio et al. (2022) analyzed 152 scenario pairs out of 44 forest modeling studies. Each pair of scenarios compared extensive and intensive forest management. This was used to calculate how much the sink performance (t CO₂; SP) changes per cubic meter of removed wood (m³; WR). The sink performance (SP) describes the change in the respective carbon pools, e.g. the increase or decrease of the carbon stock in living trees during a time period. The resulting ratio is termed the Carbon Indicator (CI), and it can be expressed with the unit “t CO₂ per m³”:

$$CI = (SP_{\text{scenario1}} - SP_{\text{scenario2}}) / (WR_{\text{scenario1}} - WR_{\text{scenario2}})$$

This factor is already used in other studies. The results showed that boreal and temperate forests have a mean Carbon Indicator of 1.2 t CO₂/m³, but with considerable variation (±0,7 t CO₂/m³). The Carbon Indicator is made up of two aspects: Firstly, from the wood removal itself, whereby the CO₂ emissions are determined by the carbon stored in the wood (broadleaf wood approx. 1.0 t CO₂/m³, needleleaf approx. 0.7 t CO₂/m³). On the other hand, more intensive management has further effects on forest development, however, to a much lesser extent (about 0.4 t CO₂/m³ due to interplay of e.g. release of additional CO₂ during decomposition of crown top wood and roots, changed growth dynamics of the trees, etc.).

Soimakallio's study clearly shows that in most cases the loss of forest carbon is as high or even higher than the amount of carbon stored in the wood removed. Thus, if 100% of the harvested wood is stored in wood products in buildings, it is a zero-sum game at best. If wood losses occur, e.g. as sawmill by-products along the process chain or in the production of biochar, more carbon may be stored if the wood is left in the forest than if it were stored in buildings. In the case of carbon stored in buildings, positive GHG impacts may occur due to the substitution of GHG-intensive non-biogenic products (compare Fehrenbach et al. 2022 and Rüter 2023). However, such substitution effects would be emission reductions that are not eligible under CRCF.

In conclusion, an enhanced biomass harvesting from existing forest areas relative to the baseline scenario would also not lead to any significant enhancement in removals – at least within the time spans considered in the underlying research (30, 30-70 and 70-100 years). Therefore, this scenario should also not be eligible in the methodologies.

- 3. The biomass would naturally decay.** In this case, the storage of biogenic carbon could lead to an enhancement of removals. In the baseline scenario, CO₂ would be removed from the atmosphere and subsequently be emitted when the biomass decays. In the scenario of the CRCF mitigation activity, it is avoided that the stored carbon is released back to the atmosphere, leading to a net enhancement of removals.

Relevant biomass sources could be biomass residues that are commonly not used for any purposes. Another example could be wood from salvage logging, although such wood has a market price, and it may not be plausible that such wood would not be harvested in the baseline scenario (in which case the wood would only be diverted from other uses to the CRCF mitigation activity).

- 4. The biomass is sourced from plantations or croplands that are newly established to serve the CRCF activities.** In this case, the use of the biomass resources under the CRCF activities could lead to an enhancement of removals (as long as any land use change does not lead to direct or indirect carbon losses).

In this scenario, several issues are, however, important to consider. First, the relevant areas should not be covered by other CRCF methodologies such as carbon farming methodologies for sustainable forest management or afforestation activities. This would lead to double issuance of CRCF units for the same removals.

Second, it would be important to consider the impacts of any land-use change or change in management practices involved with the establishment the plantations or agricultural activities, including possible indirect land-use changes.

In conclusion, biomass should only be eligible to be used under the CRCF methodologies where it stems from unused biomass residues or newly established sources. Biomass from other sources should not be eligible under the methodologies. This would be consistent with the CDM where only biomass residues or biomass from newly established plantations is eligible for claiming emission reductions. The Article 6.4 mechanism has similar provisions, as it requires considering any diversion of biomass and considering upstream and downstream emissions associated with any inputs such as biomass. The three methodologies lack provisions and procedures to identify under which circumstances biomass sources fulfill these conditions. This could lead to the issuance of CRCF units where actually no enhancements of removals relative to the baseline occur, given that the transfer of carbon from one pool to another, or from one use to another, does not generate any additional removals.

No consideration of other public funding

The proposed methodologies should address public funding in the quantification of removals or emission reductions. Attributional accounting should be included to ensure that the buyers of CRCF units are not indirectly subsidised which could lead to continued fossil fuel use.

The eligible mitigation activities are oftentimes also subsidized through other public support schemes, such as the EU's Common Agriculture Policy (CAP). If mitigation activities receive both public subsidies and CRCF units, this could have considerable detrimental effects. Public subsidies would artificially lower CRCF unit prices and

thereby subsidize the users of the CRCF units. This would lead to economic inefficiencies and could implicitly subsidise continued use of fossil fuels by the users of the units, such as voluntary carbon market buyers or, if CRCF units were to become eligible in the EU emissions trading scheme (ETS), the entities in the EU ETS. To avoid such unintended outcomes, the methodologies should either exclude mitigation activities that are funded through other public support schemes or proportionally attribute the removals or emission reductions to the financial support provided. This could be done by drawing on approaches developed for the [Swedish Energy Agency](#) and the [World Bank Group](#). For example, if 40% of grant equivalents necessary to make an activity viable are provided through other public funding sources, and 60% through participation in the CRCF, only 60% of the removals or emission reductions should be issued as CRCF units.

Materiality thresholds

The proposed materiality thresholds are inconsistent with the principle of conservative quantification and do not reflect best practice in other carbon crediting mechanisms. The methodologies should be revised such that emission sources or sinks may only be excluded if this leads to a more conservative quantification (e.g. if leakage sources are larger in the baseline scenario than with the implementation of the mitigation activity).

The practice of the CDM is described wrongly in the methodology for DACCS and BioCCS. The CDM does not use materiality thresholds to exclude emission sources. The CDM uses materiality thresholds in the auditing process to prioritise the type of auditing practices applied. This does not allow project participants to exclude or neglect any emissions source in the quantification of emission reductions.

Similarly, the Article 6.4 mechanism only allows the exclusion of emission sources or sinks if this leads to a more conservative estimate. In the standard on methodologies adopted by the Supervisory Body, for example, all types of leakage sources must be considered. The document does not include any provisions that allow exclusion of emission sources based on a materiality threshold.² A draft standard for setting baselines states more specifically: “The mechanism methodology may omit sources or sinks from the activity boundary and the leakage quantification, provided that the omission leads to a more conservative quantification of emission reductions or net removals (...).”³

Similarly, the Integrity Council for the Voluntary Carbon Market (ICVCM) also establishes the overarching principle that quantification methodologies shall ensure conservativeness so that “it is likely that the quantified emission reductions or removals from the mitigation activities using that quantification methodology and other program documents are not overestimated, taking into account the overall uncertainty in quantifying the emission reductions or removals” (ICVCM 2023). This principle would not be adhered to if, for example, materiality thresholds are applied to project emissions while no baseline emissions occur (which is the case for the BioCCS and DAACS methodologies).

² <https://unfccc.int/sites/default/files/resource/A6.4-SBM014-A05.pdf>

³ <https://unfccc.int/sites/default/files/resource/A6.4-MEP003-A01.pdf>

While it is appropriate to simplify methodologies – as it would be cumbersome to quantify many very minor emission sources – best practice is to exclude these sources only if this is conservative or to offer simplified calculation approaches, such as conservative default values (e.g. derived from lifecycle analysis).

Information to be made available on CRCF units

The information to be included in certificates and publicly available background information should be amended.

Some methodologies do not specify what information should be made available. Some other methodologies appear to make a limited set of information publicly available. Consistent with best practice in the voluntary carbon market (e.g. the CDM), the following information should be publicly disclosed:

- Reports prepared for certification and recertification that describe how the activity meets all requirements under the CRCF and relevant delated acts;
- Reports prepared by the third-party auditors;
- For any re-certification, a full calculation of removals or emission reductions that should be made available in an electronic format that allows users to reproduce the calculation (e.g. MS Excel);
- Information on the project locations should be made available through KML files or in similar electronic formats.

Cross-references to other documentation

The cross-references to other documents are not always clear in the methodologies. The methodologies should be improved respectively.

In some methodologies, cross-references were not entirely clear or some sources could not be found. The methodologies should provide clear cross-references, specifying precisely which sections or parts of a document are relevant, and provide hyperlinks to the relevant documents. Sources used in the analysis should also be provided.

Reports prepared for certification and recertification that describe how the activity Definition of greenhouse gases

In two methodologies (BioCCS / DACCS and biochar), the definition of greenhouse gases should be improved. In other methodologies a definition of greenhouse gases should be added.

The list of GHGs in Annex II to the ETS Directive is both incomplete and unclear with respect to fluorinated GHGs covered under the EU NDC: NF₃ (nitrogen trifluoride) is missing and the gas groups HFC (hydrofluorocarbons) and PFCs (perfluorocarbons) are not defined. Instead of Annex II of the ETS Directive, the methodologies should refer to Part 2 of Annex V of the Regulation (EU) 2018/1999 (the Governance Regulation) for defining GHGs.

Definition of global warming potential (GWP) values

The methodologies either do not specify the GWP values or use references that are not clear or not fully appropriate. The methodologies should use or refer to the values in Annex I of Commission Delegated Regulation (EU) 2020/1044.

All methodologies should be revised to provide clarity on the GWP values to be used. Some methodologies do not specify the GWP values at all. References to the IPCC are too general to provide clarity on this matter. The references to existing EU legislation are not fully appropriate for the purpose of the CRCF. We recommend that the methodologies either reference Annex I of Commission Delegated Regulation (EU) 2020/1044 or copy the values given in the present AR5-based version of that Annex into the technical specifications.

References

Fehrenbach, Horst; Bischoff, Mascha; Böttcher, Hannes; Reise, Judith; Hennenberg, Klaus Josef (2022): The missing limb: Including impacts of biomass extraction on forest carbon stocks in greenhouse gas balances of wood use. In: *Forests* 13, 365, S. 1–14. <https://doi.org/10.3390/f13030365> (21.07.2024).

ICVCM (2023): Core Carbon Principles, Assessment Framework and Assessment Procedure. Online verfügbar unter <https://icvcm.org>.

Rüter, Sebastian (2023): Abschätzung von Substitutionspotentialen der Holznutzung und ihre Bedeutung im Kontext der Treibhausgas-Berichterstattung. Thünen Working Paper 214, Johann Heinrich von Thünen-Institut, Braunschweig. Online available at https://literatur.thuenen.de/digbib_external/dn066391.pdf (21.06.2024).

Soimakallio, S.; Böttcher, H.; Niemi, J.; Mosley, F.; Turunen, S.; Hennenberg, K.J., Reise, J., Fehrenbach, H. (2022): Closing an open balance: The impact of increased tree harvest on forest carbon. In: *GCB Bioenergy*, 14 (8), S. 989-1000. <https://doi.org/10.1111/gcbb.12981> (21.06.2024).

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