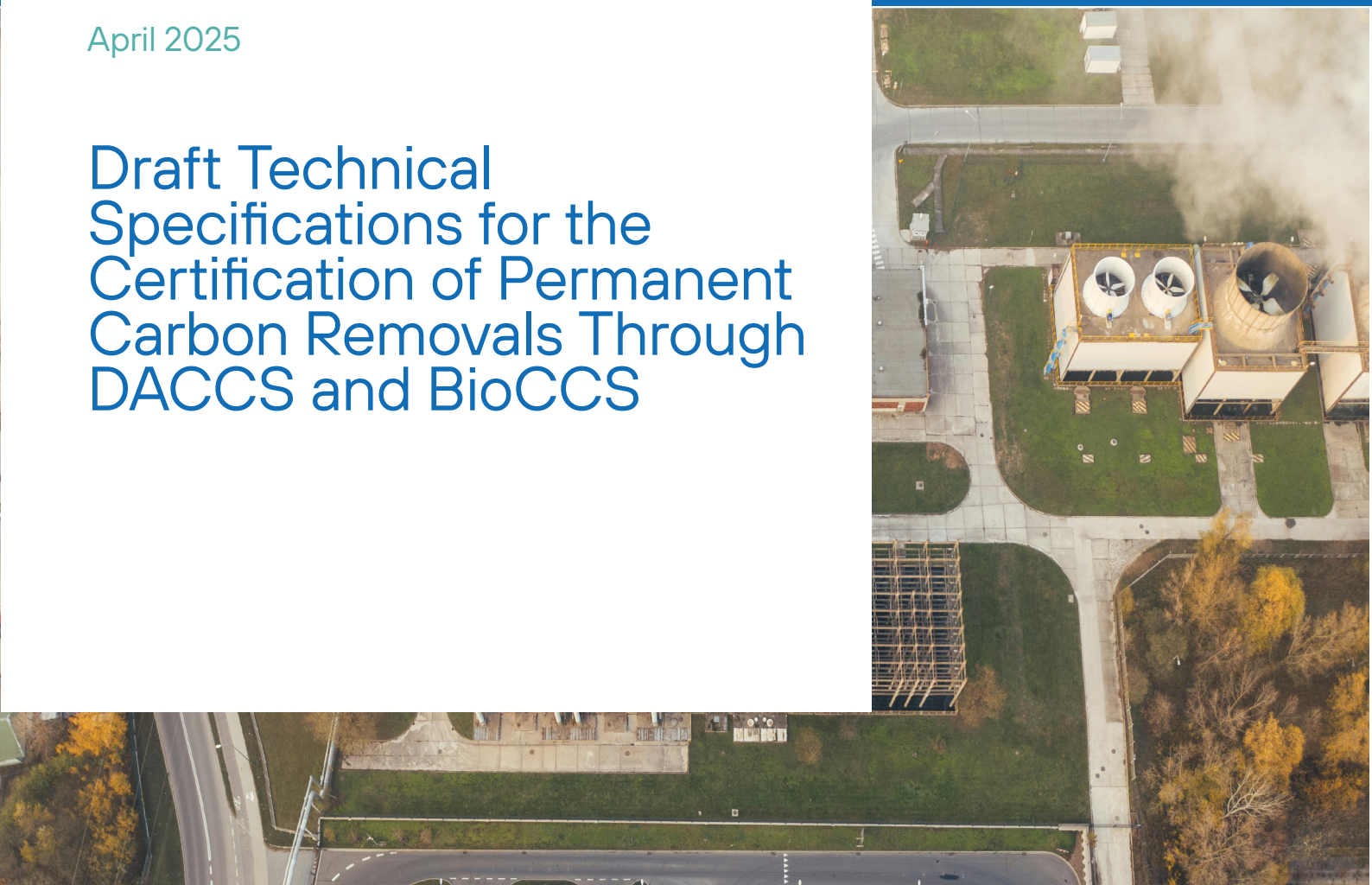
BELLONA EUROPA

CONSULTATION RESPONSE

April 2025

Draft Technical Specifications for the Certification of Permanent Carbon Removals Through DACCS and BioCCS



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GENERAL COMMENTS

The tracked changed versions of the documents between the 5th and 6th expert group meetings were very much appreciated.

Bellona welcomes some of the modifications of the methodology for technological removals: acknowledging the potential of co-firing applications with mixed flue streams, waste to energy operators and their overall emission balance clarification of the rules to integrate them accordingly. Moreover, more transparency details regarding the sustainability requirements of the biomass inputs under the Renewable Energy Directive (RED) III were explicitly put in (transport emissions, type of feedstock), the details on the transport of the biomass and their databases, the information to be included in the certificate of compliance.

As previously stated, the DACCS methodology is well thought through. Nevertheless, switching from monthly matching to annual matching until 2029 for the electricity generation following the RFNBO's rules is deemed problematic as carbon intensity and price of renewable electricity is highly variable over a year and this change could be sensitive for hydrogen producers who are met with monthly matching requirements.

However, there are still some concerns about the overall carbon negativity of BioCCS projects as currently the methodology still does not reward projects according to their overall carbon negativity potential and climate benefits but recognises as business model. The emissions from the bioconversion stage of the activity are not described and are not subtracted from the carbon balance of the activity. The complexity of the biomass carbon balance and the zero rating of biomass are not addressed. The carbon accounting should take into account the atmospheric uptake from biomass production (carbon payback period, if and when the biomass is regrown). Emissions from the biomass conversion process should be a core part of the methodology and should be properly quantified, providing further incentives to minimise or capture those emissions.

As stated in the latest report from the ESABCC on removals: '*a scale up of BECCS leading to increased biomass demand risks exacerbating land-use conflicts and leading to unsustainable biomass extraction.* ***The EU should adjust its bioenergy policies*** *to prioritise the most efficient uses of biomass, consistent with the cascading use principle, while minimising environmental impacts.* [...] *Current policies, including REDII/III, do not sufficiently encourage an efficient biomass value chain, and face implementation challenges which undermine efforts to achieve sustainable bioenergy and BECCS deployment towards net zero".*

SPECIFIC INPUT

Section 1. DEFINITIONS

The definition of 'system boundary' has been removed and replaced by 'activity boundary'. The definition of the system's boundary must be considered to calculate the permanent net carbon removal benefit. Typically, in the context of Life Cycle Assessments (LCA), these system boundaries are defined. For any Carbon Dioxide Removal project which is intended to generate a net removal credit, including for BioCCS, the LCA should quantify all emissions involved in sourcing, processing, and storing the biomass, that is from cradle-to-grave, such that what is accounted for on paper is an accurate representation of what occurs to the atmosphere. We note that the definition of cradle-to-grave is still not mentioned in the methodology. Emissions from biomass supply are considered for the energy required to operate the capture facility, but the emissions from the actual supply of the biomass for the conversion of CO_2 are not included.

The latest report from the ESABCC on removals clearly states: '*lifecycle emission impacts from bioenergy are complex and context specific, depending on factors such as the source of biomass, conversion pathways, energy used for processing and transport of biomass, land use changes, the assumed analysis boundary and the time scale considered … As a result, lifecycle emissions from bioenergy production are uncertain and whether they can be considered carbon neutral is debated in the literature*'.

The definition of 'bioCCS' and 'biogenic CO_2' do not seem aligned and should be consistent. The first one 'BioCCS' is defined by the oxidation of carbon in biomass; while 'biogenic CO_2' is defined by CO_2 coming from a chemical process including combustion, fermentation and other oxidation processes and decarboxylation. The definition of bioCCS is actually more restrictive than the one for biogenic CO_2. Fermentation is not primarily an oxidative reaction of biomass. It is an anaerobic metabolic process in which microorganisms break down organic compounds simpler molecules, producing energy.

We recommend using only the BioCCS definition as follows: "bioCCS refers to the conversion of carbon from biomass by a chemical process (including combustion, fermentation other oxidative and decarboxylation processes), which can be used for power, heat generation and transformed into biomass-derived fuels and biochemicals."

Any biogenic CO_2 that is captured and is still in the process chain but not yet permanently stored should not be able to generate any credit (e.g. CCU).

Section 2: SCOPE

The scope of 'producing a useful product' into the biogenic emission capture activity is too subjective and should be replaced by "producing an energy carrier or converted into a biomass-derived chemical".

Section 4: Requirements For Quantification

By setting the baseline to zero, the methodology as it is can lead to significant overestimation of net removals. It assumes that an increase of biomass use as an energy source to capture CO_2 does not lead to greater emissions. By encompassing the associated emissions of sourcing and converting biomass into energy, following a cradle-to-grave approach, the net removals would reflect the reality of the climate impact of the activity.

Bellona welcomes some of the modifications of the methodology, with the two different approaches depending on the nature of the flue gas (mixed CO_2 stream). The requirement to account for emissions related to the storage of biomass is also welcome. This addition seems to be targeted at waste to energy projects. Typically for a waste to energy installation, there can be a mixed stream of treating fossil-based materials (like residual plastics, i.e. fossil CO_2 and therefore not eligible to the CRCF), and the other stream treating bio-based residual material. This raises the question as to whether an installation which emits more fossil CO_2 than it stores biogenic CO_2 would be able to generate carbon removal credits since the overall emission balance of the installation is not net-negative. It is well described in the methodology as to differentiate and quantify those different streams and it is understood that storing fossil CO_2 would not generate credits. Therefore, the installations' fossil CO_2 emissions should also be subtracted in the quantification of a net carbon removal benefit. With the added confirmation of the origin of the CO_2 stream by C^{14} testing, this is a significant omission in the requirements.

The CRCF regulation (recital 7 of the preamble EU, 2024g) considers a removal activity to have a positive climate impact only when it delivers a net removal benefit. It should subtract any associated GHG emissions occurring during the lifecycle of the activity and related to the implementation of the activity.

A safeguard should be included for such installations that the overall net removal via biogenic CO_2 should be greater than the storing of fossil emissions in order for this installation to have a climate positive impact. The methodology fails to provide a framework to assess if the quality criteria is realised, i.e. "removals need to outweigh any emissions associated with the implementation of the activity". In terms of defining compliance and enforcement standards: penalties for non-compliance with carbon capture and storage standards should be set, including metrics for minimum carbon removal thresholds (i.e. "CDR efficiency"). As projects are not under the scope of the EU ETS, alternative penalties than surrendering ETS allowances may be required.

Bellona suggested the application of mass balance rules (p.38) and this has been added into the methodology.

However, Bellona suggests that the temporal correlation should strictly follow the RFBNO's rules for elec-

tricity generation. Even though the relaxation of the rules until 2029 would not have a significant impact for large scale projects by 2029, this change could have broader impacts and is inconsistent with the rules for hydrogen producers. Furthermore, some stakeholders have called for the further relaxation of this rule with the addition of a grandfathering clause, which Bellona is strongly against. Should the rules be relaxed to allow for annual matching AND allow a grandfathering of projects, this could open the door to a flurry of DACCS projects being developed in areas which are not suitable for the short- or long-term deployment of DACCS, potentially locking up substantial amounts of renewable energy at the expense of other more effective uses, while generating carbon removal units which could substantially overestimate the net carbon removal benefit.

The carbon intensity and price of renewable electricity is highly variable over the course of a year (summer/winter). The emissions associated to the sourcing of this energy should be included in a sufficiently robust way such that zero-rating is only allowed if there are assurances that the use of renewable energy does not eat into the decarbonisation of the grid and of other sectors reliant on its decarbonisation.

- Biomass (7.4.3.)

There is still no section on the Bioenergy / Biomass conversion part of the "activity" and understanding how this respects the cascading principle presented in the RED, alsomentioned in the CRCF text. Biomass for bioenergy (especially bioelectricity), with or without BioCCS, is the second lowest priority in the cascading principle. Emission reductions should be the priority, if BioCCS is not placed correctly in the cascading use of biomass, it may risk contributing to positive emissions beyond the system boundaries. The emissions from the bioconversion stage of the activity are not described and are not subtracted from the negative emissions of the activity. The zero rating of biomass in the energy sector has still not been addressed, even though it was consistently raised as an issue at the previous CREG meetings by expert group members and some Member State representatives.

The materiality threshold, defined as "any emission from a source within the system boundaries shall be considered material where it is associated with emissions equal to or greater than 2% of the gross carbon removals…", should be clarified and quantified in a conservative manner to ensure that this limit applies to the sum of all sources of emissions deemed 'immaterial'. Otherwise, there is a risk that multiple sources of emissions that are all below 2% individually are permitted and would create significant emissions that are under counted.

Section 6: Sustainability Requirements

Bellona welcomes that the specific sustainability requirements of the RED were detailed in the methodology. We recommend that the methodology should include transparent provisions of sustainable biomass sources for BioCCS projects and where they are sourced from. An alignment with the EU Deforestation Law would be relevant for potential biomass feedstocks for BioCCS, as it is stricter than the RED III. The methodology should include an exclusory route of the worst feedstocks for any further processing / conversion, following the cascading principle, e.g. forestry biomass and dedicated crops. Imports of biomass from outside the EU are not described in the methodology and projects sourcing their biomass from outside the EU should be not able to generate EU CRCF credits if they are unable to prove the sustainability of its sourcing. This would also include some waste products. Robust quantification and waste allocation is not always possible and remains arbitrary. This is problematic as incentives for BioCCS could lead to unsustainable production of waste or mislabelling to feed into certain projects and increased biomass inputs overall, with negative consequences for climate goals in the land-use sector.

The CRCF regulation provides overarching sustainability safeguards applicable to projects. It does not only require the RED compliance but also goes beyond it through clauses on doing no significant harm (DNSH), sustainability co-benefits, and entire value chain emissions of removal projects. As the specifications are written now, the sustainability safeguards are not stringent enough to prevent misuse of biomass and have negative impact on the carbon sinks and prevent the misuse in the LULUCF sector, therefore potentially undermining the DNSH criteria.

Sections 7 and 8 were added for information to be included in the certificate of compliance and information be included in the activity plan. This is an opportunity to add a 'mapping' of biomass sourcing for BioCCS projects, as previously mentioned.

Finally, safeguards should also be placed in order to address the risk of double accounting for carbon removals. BioCCS and biochar methodologies overlap: on the biomass sourcing but also because biochar production processes are technically categorised as biomass conversion where one of the product is biochar (please refer to Bellona's detailed consultation response on biochar here).

CONTACT

Dr. Louis Hennequin
CDR Research & Technology Advisor
Bellona Europa

Phone
Mobile: +32 4 88 18 58 37

Online
Email: louis@bellona.org
Website: eu.bellona.org

Dr. Allanah Paul
Advisor Embodied Carbon
Bellona Deutschland

Phone
Mobile: +49 (0)173 4868954

Online
Email: allanah@bellona.org

Mark Preston Aragonès
Senior Policy Manager, Carbon Accounting
Bellona Europa

Phone
Mobile: +32 (0) 486 738 206

Online
Email: marck@bellona.org
Website: eu.bellona.org

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