Comments on

Requirements for the development and assessment of mechanism methodologies

Version 05.0

Submittals from:

1PointFive: an integrated Carbon Capture, Utilization, and Sequestration (CCUS) platform that is working to help curb global temperature rise to 1.5°C by 2050 through the deployment of decarbonization solutions, including Carbon Engineering's (CE) Direct Air Capture (DAC) and AIR TO FUELS™ technologies and geologic sequestration hubs.

Carbon Finance Lab: a finance and innovation firm with 20+ years in carbon markets and technology that supports 1PointFive.

For questions or comments please contact

William Barrett (William_Barrett@oxy.com)
Nick Gogerty (nick.gogerty@carbonfinancelab.com)

Goal of this document: Provide proposals to the Supervisory Body which will reduce the risk of missing the required capacity building for removals estimated as 5 GT/yr CO_2e of global removals capacity by 2040.

Context: This document uses the **original document** defined as "*Requirements for the development and assessment of mechanism methodologies Version 05.0*" as a template to frame comments and suggestions for removals.

Many of the concepts and terms used in the **original document** need to be more clearly defined for suitability to engineered CO_2 removals as they appear to be conceptually based in earlier frameworks on emissions reductions and may not fully address the challenges and opportunities associated with removals capacity building. A preamble with definitions and constructs is introduced to frame subsequent arguments.

The conceptual underpinning of the arguments are in the preamble of this document which is then referenced throughout the "comments" which follow.

Preamble

Our goal and the scale of the task at hand: Per the IPCC,[1] the goal of the authors of this document is to support a framework which delivers the annual capacity of 5GT/yr of carbon dioxide removals by 2040. This is required to achieve net zero and address residual emissions. At an estimated $150/ton this equates to a $750bn/yr industry with trillions of dollars worth of carbon removed that need risk management.[2] Ambition for the reduction of emissions is clearly beneficial in the long term. The best removals and avoidance technologies will not address all emissions, leaving residual, hard to abate and economically challenging emissions. These emissions may be addressed by emissions removals. We encourage ramping up removals capacity to be the framework for success for removals as opposed to increasing ambition.

Such a task requires capital and resource mobilization on a scale similar to current global energy infrastructure. Removal technology is at an early stage and needs rapid praxis, learning by doing to scale and reduce costs. Given the time and scale we consider such a task an all-hands-on-deck situation. For context, the Three Gorges Dam took 18 years to build as a focused $25 billion USD critical project in a country known for fast execution on infrastructure deployment.

Scale of the task at hand, urgency and the removals ramp

Given the scale and urgency of having only 16 years for such a task, we suggest that a global goal of capacity building be acknowledged, tracked and met. For context, large energy infrastructure can take 10-15 years from planning to deployment.

While the concepts of additionality, baseline, and ambition over time are effective tools for guiding emissions reduction efforts, they need to be adapted to suit the unique nature of emissions removals, particularly engineered technologies like direct air capture (DAC). The focus of emissions removal isn't tied to displacing existing emissions sources but rather to achieving specified carbon removal goals. Therefore, the design of mechanisms for emissions removal should account for the distinct operational principles of these removal technologies. This adaptation will ensure that the regulatory frameworks are appropriately tailored to the distinctive challenges and objectives posed by carbon removal strategies, helping to meet mid-century CO_2 reduction targets efficiently.

Removals ramp v. avoidance and offsets

Historically, carbon instruments have been associated with offsets and avoidances. Avoidances and offsets rely on baselines and counterfactuals to establish integrity for book and claim instruments. Thus, baselines and additionality were and are critical elements to both the recognition and validity of these instruments in a finite world of capacity with localized activities or non-activity assumptions. Removals are a physical reality associated with capacity building from a zero baseline towards a goal.

We advocate for the use of a global removals ramp which tracks annual removals capacity. Given the scale and urgency of the task at hand, we strongly urge using the removals ramp as the basis for additionality assessments. If the global installed and expected removals capacity is below a IPCC 1.5 degree aligned level, additionality should be demonstrated through a positive list. A sample removals capacity ramp which achieves 5GT of capacity by 2040 is shown below.

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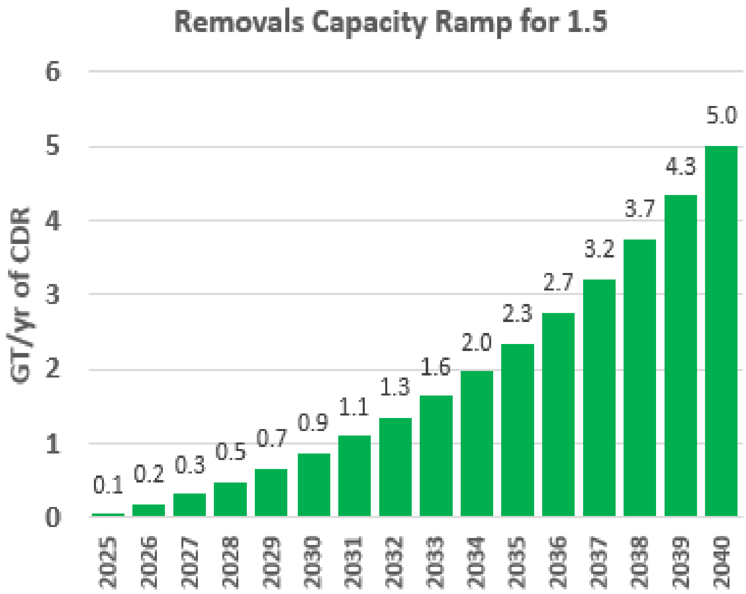
[1] https://www.ipcc.ch/report/ar6/wg3/downloads/outreach/IPCC_AR6_WGIII_Factsheet_CDR.pdf
[2] http://mission-innovation.net/wp-content/uploads/2022/09/Attachment-1-CDR-Mission-Roadmap-Sept-22.pdf



Comment Section

4. [Baseline setting] [Methodology Principles]

See preamble. We propose that baseline setting be replaced with zero baseline by default for any new engineered removals capacity, see urgency of timeline per the preamble. A counterfactual baseline is not needed for engineered removals, so we suggest using capacity building over time as a goal.

4.1 Encouraging ambition over time

We agree that encouraging ambition in capacity growth for removals over time is necessary. However, we believe that ambition over time for reducing emissions is a separate concept from increasing removals capacity.

4.2 [Being real, transparent, conservative, credible], [below business as usual]

We support the language and provisions that will ensure real, transparent, conservative, credible, and below business-as-usual goals for reduction activities. Below business as usual is not a relevant concept to engineered removals activities, as business as usual for an engineered removals project is zero removal capacity.

4.7 [Requirements on baselines] [BASELINES (The approaches)]

{Question for additional inputs: should the downward adjustment be eligible/applicable for all the approaches to setting the baseline?}

See the preamble for the preferred approach to downward adjustments as it applies to NDC goals. Downward adjustments and baselines are not applicable in the same way for engineered removals and emissions reductions. We encourage the Supervisory Body to develop more relevant tests and requirements for removals than baselines and downward adjustments.

4.8 Approaches for downward adjustment and to address elements of paragraph 33 of the RMP

We support **54. Option 2bis:** Application of positive list to demonstrate that activities eligible under the methodologies are transformative, i.e. have the potential to transform an entire sector, as opposed to producing incremental improvements, taking into account the specifics of a sector, geographical location and level of uncertainty of greenhouse gas estimation;

We believe this option supports the principle of ambition over time, and, if implemented appropriately, could address the need to think of additionality and baselines differently for engineered removals and emissions reductions activities.

4.13 Standardized baselines

We believe that the concept or question of a baseline test is relevant to offsets and avoidances. For engineered removals we suggest that the relevant benchmark for a "baseline" is whether or not there is global installed capacity along a reasonable removals ramp trajectory to keep climate change below 1.5 degrees. If not, then additional removals capacity should be additional based on a positive list.

An example of why the concept of a baseline may not be relevant to all activities is DAC + storage (DACCS). DACCS has the unique characteristic to define zero baseline. "For the purest-form CDR technology – all value-chain elements of which purely exist for the purpose of removing CO2 from the atmosphere into durable storage – Direct Air Carbon Capture and Storage (DACCS) the baseline is no activity whatsoever."[3]

5. Additionality

We support the use of a positive list or similar mechanism to determine the additionality of engineered removals. Certain technologies, such as DAC, are inherently additional, as the only product of DAC is CO2 removal, and the "baseline" for a DAC activity is zero carbon removed. The use of a positive list for engineered removals can encourage the growth needed to reach the level of global removals capacity needed to align with a 1.5 degree future (see preamble).

{Question for additional inputs: how does this issue link to policy crediting where policies deliberately intended to generate credits? What considerations are needed in this regard?}

As with many innovative climate technologies, targeted government support is beneficial to move engineered carbon removal technologies along the cost curve and get to a place of broad commercial deployment. Around the world, governments have targeted programs to achieve this alongside compliance markets where the 'environmental benefit' (e.g., 1 tonne of CO2 removed) is also monetized. It is well understood that these mechanisms must co-exist. Financial disclosure of government support may be used to discern the value of crediting where other incentives (e.g. tax breaks) also exist.

A class of engineered carbon removal projects, such as DAC, are ***inherently additional*** as they are not related to any other revenue generating activity. The primary purpose of direct CO2 capture from air with storage is climate mitigation. This generally means that these projects will be additional (exception in the case that a credit is regulatorily required). Parties' national inventories and corporate inventories are separate frameworks and should be

[3]Poralla, M.; Honegger, M.; Gameros, C.; Wang, Y.; Michaelowa, A.; Sacherer, A.-K.; Ahonen, H.-M; Moreno, L. (2022): Tracking greenhouse gas removals: baseline and monitoring methodologies, additionality testing, and accounting, NET-Rapido Consortium and Perspectives Climate Research, London, UK and Freiburg i.B., Germany.

treated as such.

6. Leakage

{Question for additional inputs: should pre-project activity emissions and upstream emissions be accounted as activity emissions or leakage emissions, or be identified by the Supervisory Body as being beyond the scope of activity accounting guidance? What further assessment is needed in this regard?}

Projects must include secondary project emissions (i.e., leakage) that result from a cradle to grave life cycle emissions inventory for completeness of the life cycle analysis. As part of this inclusion, project developers need to understand when expansion of the GHG accounting boundaries is appropriate and also need guidance for applying consistent materiality thresholds, regardless of project type (i.e. emissions reduction or removal), under a methodology framework. This detail is needed to guide project proponents toward determining which emissions within the project activity and supply chain to include in project baseline determinations (if applicable) and project emissions, respectively. These pre-project activity emissions and upstream emissions should be accounted for as **activity emissions**.

A materiality threshold should be used to determine which emissions are material to be included in the GHG accounting boundary for a given project under this methodology framework. The net emissions benefit generated by the project activity can change significantly depending on the predetermined cut-off for excluding emissions from within either the project activity boundary or the project GHG accounting boundary. Secondary effects caused by a project activity need to be evaluated with care and rigor to ensure the environmental benefits claimed by a project are achieved.

A secondary effect is an unintended change caused by project activity in GHG emissions, removals, or storage associated with a GHG source or sink. Secondary effects are typically small relative to a project activity's primary effect. In some cases, however, they may undermine or negate the primary effect. Secondary effects are classified into two categories:

- One-time effects – one-time changes in GHG emissions associated with the construction, installation, and establishment or the decommissioning and termination of the project activity.
- Upstream and downstream effects – recurring changes in GHG emissions associated with inputs to the project activity (upstream) or products from the project activity (downstream), relative to baseline emissions.

The remaining work for the Supervisory Body should include creating a project lifecycle emissions inventory to the degree necessary to determine an appropriate materiality threshold for all emission sources included in the GHG accounting boundary for all project types. The resulting project GHG accounting boundary should include all secondary effects unless explicitly excluded so they can be quantified, understood, and accounted for in the project crediting. We support leakage being minimized or addressed using the methods described in paragraph 100.