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Article 6.4 Supervisory Body (SB005)

United Nations Framework Convention on Climate Change

Bonn, Germany

RE: The 5th Meeting of the Article 6.4 Supervisory Body – Input on A6.4-SB005-AA-A09

Dear Article 6.4 Supervisory Body:

We write today to thank the Article 6.4 Supervisory Body for its work on carbon dioxide removal (CDR) and to strongly urge the Supervisory Body to address what we view as a mischaracterization of engineered-based removal activities reflected in one of the documents under consideration for the 5th meeting of the Article 6.4 Supervisory Body, A6.4-SB005-AA-A09: Removal activities under Article 6.4 mechanism. This document, and in particular Table 3 of this document, takes a negative position on engineered-based removal activities that we believe is flawed and should be corrected.

The [Paris Agreement](#) set a goal of limiting temperature increase to well below 2 degrees Celsius, and ideally to 1.5 degrees Celsius. To help reach these goals, Article 6.4 of the Paris Agreement establishes a mechanism for international cooperation to contribute to GHG emissions mitigation and support sustainable development. While direct emissions reductions are critical to meeting the goals of the Paris Agreement and Article 6.4, [according to the IPCC's 2023 report](#), the use of CDR to reach net zero CO₂ or GHG emissions will also be “unavoidable.”

CDR can be achieved through both land- and engineering-based removal activities, but A6.4-SB005-AA-A09 asserts that engineering-based activities “do not serve any of the objectives of the Article 6.4 mechanism” and promotes eligibility under the mechanism for land-based removal activities only. We believe this stance is incompatible with the goals of the Paris Agreement and Article 6.4. The IPCC has [made it clear](#) that all pathways that limit global warming to 1.5°C with limited or no overshoot project the use of CDR on the order of 100–1000 GtCO₂ over the 21st century. [According to the Global Carbon Budget 2022](#), ~ 752 GtCO₂ were emitted due to land-use change from 1850-2021. So, to reach the higher end of the range of removals that might be required according to IPCC with just land-based removal activities would be impossible, even if the entire global natural landscape were returned to its preindustrial state. Engineering-based removal activities will also be needed.

A6.4-SB005-AA-A09 also describes land-based activities as “proven and safe” and able to “generate significant sustainable development benefits,” while engineering-based approaches are characterized as “technologically and economically unproven” and says they “do not contribute to sustainable development.” Land-based removal activities offer many benefits and should be responsibly pursued, but they have limitations. They often are limited in scale, impermanent, and may be reversed. Land-based removal activities can have large footprints and face tradeoffs related to food production and biodiversity preservation. Many of them offer storage permanence of less than 100 years and may be

subject to reversal from natural disasters and human activity. Engineering-based removal activities, on the other hand, offer nearly unlimited scale potential and can provide permanent storage with minimal risks of reversal, depending on the approach.

Engineering-based removal activities produce relatively few removals today, but this is rapidly changing. Several approaches are building out commercial scale operations, while newer ones are developing and preparing to scale in the years to come. One engineering-based CDR approach, direct air capture (DAC), is particularly advanced. [According to the IEA](#), there are currently 18 direct air capture pilot plants operating worldwide. There are several larger-scale projects in advanced development and construction, including the 0.5 MtCO₂/year plant in the US being developed by 1PointFive and Carbon Engineering and a 36,000 tCO₂/year plant in Iceland by Climeworks. In addition, the U.S. Department of Energy is currently considering numerous applications for its DAC Hubs program for Hubs with the ability to remove up to 1MtCO₂/year.

Engineering-based removal activities can not only help meet Paris Agreement targets, but they can also advance sustainable development, a goal of Article 6.4, providing well-paying jobs and economic benefits, while mitigating climate change with limited environmental impacts. [According to the Rhodium Group](#), each megaton DAC plant would generate roughly 3,500 jobs across sectors. By midcentury, with a full and rapid scale-up of DAC in the U.S., the construction, engineering, and equipment manufacturing sectors combined could see at least 300,000 new jobs. This is just one example - other engineering-based removal activities, such as ocean alkalization and enhanced weathering, some of which are still in the research and development phase, have the potential to deliver significant additional jobs and environmental benefits.

We appreciate the Supervisory Body's work on CDR in the context of Article 6.4. CDR will be critical to Article 6.4's success, and while land-based removal activities will be an important part of the mechanism, scientific and other analysis make it clear that engineering-based approaches will also be required. On that basis, we disagree with the characterization of engineering-based removal activities in A6.4-SB005-AA-A09 and urge the Supervisory Body to update A6.4-SB005-AA-A09 to reflect the importance of both land- and engineering-based approaches in the Article 6.4 mechanism.

Sincerely,



Roger Ullman
Executive Director
Linden Trust for Conservation