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Submission from IEAGHG with reference to Structured Consultation in A6.4-SB005-A02

Dear Secretariat

Please find a submission from IEAGHG with respect to the Structure Consultation. Please also see our previous submissions of the 23/05/23, 14/03/23, 11/10/22, and 12/09/22. Note that we have provided responses here (in italics) only to those questions in which we are most qualified, and these are brief due to the information provided in previous submissions.

Cross-cutting questions:

1. Discuss the role of removals activities and this guidance in supporting the aim of balancing emissions with removals through mid-century.

We quote the IPCC and IEA for the roles of removals.

"The deployment of CDR to counterbalance hard-to-abate residual emissions is unavoidable if net zero CO2 or GHG emissions are to be achieved. Estimated storage timescales vary from decades to centuries for methods that store carbon in vegetation and through soil carbon management, to ten thousand years or more for methods that store carbon in geological formations (high confidence)." (IPCC WGIII 2022)

Direct air capture (DAC) plays an important and growing role in net zero pathways. Capturing CO2 directly from the air and permanently storing it removes the CO2 from the atmosphere, providing a way to balance emissions that are difficult to avoid, including from long-distance transport and heavy industry, as well as offering a solution for legacy emissions. In the IEA Net Zero Emissions by 2050 Scenario, DAC technologies capture more than 85 Mt of CO2 in 2030 and around 980 MtCO2 in 2050, requiring a large and accelerated scale-up from almost 0.01 MtCO2 today.

DAC is a key part of the carbon removal portfolio. Carbon dioxide removal (CDR) is not an alternative to cutting emissions or an excuse for delaying action, but is part of a comprehensive strategy for "net" zero – where emissions being released are ultimately balanced with emissions removed. CDR approaches range from nature-based solutions such as afforestation to technology-based approaches underpinned by carbon capture and storage. DAC with geological CO2 storage has several advantages as a CDR approach, including a relatively small land and water footprint, and high degree of assurance in both the permanence of the storage and the quantification of CO2 removed." (IEA Direct Air Capture 2022)

2. What are the roles and functions of the following entities in implementing the operations referred to in this guidance: Activity proponent(s), Article 6.4 mechanism Supervisory Body (6.4SB), 6.4 mechanism registry administrator, Host Party, stakeholders?

We suggest the CDM examples are followed in the roles and functions of these entities.

3. How are these elements understood, in particular, any interrelationships in their functions, timeframes, and implementation? (a) Monitoring period

(b) Crediting period

(c) Timeframe for addressing reversals

Questions on specific elements
A. Definitions:

Discuss the role and potential elements of definitions for this guidance, including "Removals".

Please refer to the IPCC CDR Fact Sheet (2023).

B. Monitoring and Reporting:

1. What timeframes and related procedures should be specified for these elements referred to in A6.4-SB003-A03?

a. For initial monitoring and submission of monitoring reports (paragraph 3.2.14);

(a) For subsequent monitoring and submission of monitoring reports (paragraph 3.2.14);

(b) For monitoring and submission of monitoring reports following an observed event that could potentially lead to a reversal (paragraph 3.2.14);

(c) For monitoring and reporting, including any simplified reporting, conducted after the end of the last crediting period of activities involving removals (paragraphs 3.1.10 and 3.2.13).

2. Discuss any further considerations to be given to the core elements for monitoring and reporting in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

A6.4-SB003-A03 is well framed and applicable to engineered removals. For addressing reversals, please see CDM Modalities and Procedures for CCS (Decision 10/CMP.7). It should also be noted that the IPCC GHG Inventory Guidelines 2006 has a specific chapter on CCS to cover CO_2 geological storage.

C. Accounting for removals:
1. Discuss any further considerations to be given to the core elements for accounting for removals in A6.4-SB003-A03; where possible, identifying their applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

2. For activities involving removals that also result in emissions reductions, what are the relevant considerations, elements, and interactions between this guidance and the requirements for the development and assessment of mechanism methodologies, including.

D. Crediting period:

Discuss any further considerations to be given to the core elements for crediting periods in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

E. Addressing Reversals:

In order to minimize the risk of non-permanence of removals over multiple NDC implementation periods, and, where reversals occur, ensure that these are addressed in full.

1. Discuss the applicability and implementation aspects of these approaches, including as stand-alone measures or in combination, and any interactions with other elements of this guidance:

a. Non-permanence risk buffer (pooled or activity-specific);

b. Insurance / guarantees for replacement of ERs where reversals occur (commercial, sovereign, other);

c. Other measures for addressing reversals in full.

We suggest that surrender of 6.4ERs equal to the amount of reversals is a good model, for both land-based and engineering-based removals. Reference CCS CDM M&Ps in Decision 10/CMP.7 .

2. Discuss the appropriate timeframe(s) for applying the approaches, including any interactions with other elements of this guidance and the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

3. What risks of non-permanence need to be minimized, and how can these risks identified, assessed, and minimized?

For engineering-based removals, follow the site selection and characterisation practices in CCS CDM M&Ps Decision 10/CMP.7 which will minimize the risks of non-permanence and ensure permanence for geologically-long timescales.

4. In respect of risk assessment, how should the following elements be considered in the implementation of the approaches in (a) and any other relevant elements in this guidance?

a. Level of non-permanence risk assessment, e.g., activity- or mechanism-level

For engineering-based removals, follow the site selection and characterisation practices in CCS CDM M&Ps Decision 10/CMP.7 which will minimize the risks of non-permanence and ensure permanence for geologically-long timescales.

b. Timing for risk assessment(s)

c. Entity(ies) responsible for risk assessment(s), e.g., activity proponent, 6.4SB, actuary

5. How should the following elements be considered in the implementation of the approaches in (1) above and any other relevant elements in this guidance?

a. Methods for determining the level of buffer pool contributions

b. Composition of buffer pool, including in relation to ER vintages and contributing activity types or categories

c. Intentional and unintentional reversals

d. Treatment of uncancelled buffer ERs, including after the end of the last crediting period of the contributing activity

e. Specifications for ERs that cancelled for compensate for reversals, including in relation to ER vintages and contributing activity types or categories

f. Replenishment in case buffer cancellations exceed contributions; slide language on re-raising baseline level of storge before new crediting

6. In the event of a reversal, what interactions and implementation aspects should be considered in respect of other elements of the activity cycle?

F. Avoidance of Leakage:
Discuss any further considerations to be given to the core elements for leakage avoidance in A6.4-SB003-A03; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

G. Avoidance of other negative environmental, social impacts
Discuss considerations to be given to core elements for avoidance of other negative environmental, social impacts; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

For engineering-based removals, we suggest to follow the assessment and management of environmental and social impacts practices in CCS CDM M&Ps Decision 10/CMP.7 which will minimize these impacts.

To note that IEAGHG is undertaking work on monitoring, reporting and verification (MRV) of a range of GGR (CO_2 and CH_4) techniques. This work is expected to complete and be published later this year.

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References

IEAGHG submissions to Article 6.4 on removals, 23/05/23, 14/03/23, 11/10/22, and 12/09/22

IPCC AR6 WGIII (eg see SPM p47)

Direct Air Capture – A key technology for Net Zero, IEA 2022

IPCC_AR6_WGIII_Factsheet_CDR.pdf

CDM Modalities and Procedures for CCS, UNFCCC Decision 10/CMP.7 (2011), (10a02.pdf (unfccc.int)

IPCC GHG 2006 https://www.ipcc.ch/report/2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/

IEA World Energy Outlook 2022 (eg see p125, 172-173)

IEA Energy Technology Perspectives 2023 (eg see page 30, 42, 256)

IEAGHG is an international collaborative research programme, established in 1991 by the International Energy Agency (IEA). We are autonomous from the IEA. The programme is funded by 18 member countries and 18 organisations. The technology of primary focus is carbon dioxide capture and geological storage (CCS). Our scope includes engineered carbon dioxide removal (CDR) techniques such as direct air capture with storage (DACCS) and bioenergy with CCS (BECCS). Our activities include producing over 360 technical reports (externally peer-reviewed) on all aspects of CCS including technology development and deployment, running the largest conference series on CCS (the GHGT series), operating Networks of experts and Summer Schools, and instigating a scientific journal of impact factor up to 5.11. Our work is used, for example, to inform the IPCC, UNFCCC, IEA, London Convention and ISO, and by USDOE, US EPA and by our other members in the development of climate change mitigation policies and technologies. www.ieaghg.org