Subject: Stakeholder consultation – Meth requirements & removals.

Submission on monitoring and liability rules for durable carbon removals
Relevant to:
A6.4-SB009-A01: 4.9 59
A6.4-SB009-A02: 3.1 and 3.2

Submitted by: Rethinking Removals, based on discussions with leading carbon removal suppliers, buyers and enablers in the Doers Club. We are continuing to work on this topic and aim to have an open dialogue with rule-setters and regulators in the coming months. Please let us know if you would like to join this informal discussion or have any questions.

Monitoring and liability – pre- and post- crediting

This submission is intended to support the Supervisory Board in considering how to ensure that monitoring and liability requirements are robust and appropriate for a range of high-durability carbon removal pathways, ensuring clarity about any reversals and accountability mechanisms in the case of reversal.

CCS-based carbon removal pathways, such as direct air capture and bioenergy with CCS, are already subject to a robust and evolving regulatory. The CCS Directive or the US EPA's Class VI regulations in place for carbon capture and storage of CO2 as a gas cannot be applied to a wider range of carbon removal pathways (biochar, enhanced rock weathering, ocean alkalinity enhancement etc) since these have different storage mechanisms and risks.

Rule-setters and r**egulators need an equivalent monitoring and liability framework for a range of durable carbon removal pathways**. This is a discussion that is currently underway in the European Commission as methodologies are developed for the EU's certification framework for carbon removals. The need for transparent and appropriate monitoring and liability rules is defined by the central 'use case' for high-durability removals – compensating for hard-to-abate fossil emissions.

A broad monitoring and liability framework that considers the following questions can be used to develop and challenge methodologies:

Risks: Where are the main risks in the project life of each specific carbon removal pathway (i.e. before, during and after storage), and what needs to be demonstrated at each point to track for durable removal and storage? What is the expected duration of storage if managed properly?

> *It is useful to categorise fundamental differences between carbon trapping mechanisms:*
> *living storage - eg forests, kelp*
> *geological storage - eg DAC with CCS, BECCS*
> *chemical storage - eg biochar, ERW, mineralisation*

Monitoring: When is monitoring no longer required because the stored carbon is immobilised or has reached functional stability? What is the risk of reversal over time in specific pathways? What criteria determine proper management for each pathway?

> *Functional stability is achieved once there is sufficient site data or other evidence to assume that the risk of (premature) reversal or other environmental damage is low enough that active control systems are no longer needed. Once stored carbon is functionally stable, the operator no longer needs to keep monitoring and no longer has liability (John Sanchez, using the analogy of regulating landfill management).*

Liability: Is there still a risk of reversal after functional stability? How can accountability be realised over the expected duration of the storage (ie hundreds to thousands of years)? Is monitoring required? Is a transfer of liability to the state necessary? When is financial security needed and what should this cover?

Transparency: If model updates reduce effective removals or monitoring/measurement shows leakage, how is this addressed?

Examples of more detailed questions to use when evaluating the carbon removal and storage process for a specific pathway.

Before removal activity takes place:

1. How are expectations for specific trapping mechanisms understood over time? What is required to demonstrate functional stability? When can functional stability be reasonably declared?
2. Is there a project-specific model that can be verified against reality over a long period of time, or a scientific model updated credibly or is there simple measurement?

During removal activity:

1. What is the room for risk between carbon removal activities and actual drawdown of CO2 from the atmosphere - zero for some removals because it's simultaneous (eg, DAC), but more complex for others (eg, OAE). How can this be managed?
2. Are there uncertainties around quantification of CO2 drawdown or progress of trapping? What kind of monitoring is needed to show that reality is matching expectations?
3. Is monitoring required after drawdown has taken place?

During post-draw down monitoring:

1. What is the expected duration of storage if managed properly - what is the potential for carbon loss over time in certain pathways if not managed properly?
2. How can this be monitored? What is in place to determine proper management for each pathway?