

Response to the call for input 2023 – Structured public consultation: Requirements for the development and assessment of mechanism

The Global CCS Institute (GCCSI) is pleased to respond to the Article 6.4 mechanism Supervisory Body requirements for the development and assessment of mechanism methodologies from Annex 10 to the SB004 annotated agenda. The Institute's focus for this submission are technological carbon dioxide removals, specifically on agreed questions 30 and 31 under “Non-permanence and reversals”, as follows:

- **What are non-permanence risks in respect of emission reduction?**
 - The [2005 Special Report on Carbon Dioxide Capture and Storage](#) by the Intergovernmental Panel on Climate Change states that appropriately selected and managed geological reservoirs are ‘very likely’ to retain over 99% of the sequestered CO₂ for longer than 100 years and ‘likely’ to retain 99% of it for longer than 1000 years.
- **How are these typically addressed, what are the options?**

Monitoring

- A variety of monitoring technologies have been successfully deployed, demonstrating our ability to measure, monitor and verify injected CO₂ in the subsurface. Monitoring a CO₂ storage site occurs over its entire lifecycle from pre-injection to operation to post-injection. Operational and research experience over several decades demonstrates that injected CO₂ can be monitored to confirm its containment.

Regulations and methodologies

- The [IPCC GHG Inventory Guideline 2006 \(Vol 2 Energy, Capture 5: CO₂ Transport, Injection and Geological Storage\)](#) includes monitoring methods and assessment of risk of leakage from a storage site.
- The CMP adopted [decision 10/CMP.7](#) in Durban on the Modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities. This includes addressing non-permanence in section K.
- The [EU CCS Directive](#) includes monitoring requirements, storage closure and post-closure obligations with compensatory safeguards in EU legislation in case of leakage by surrendering a corresponding amount of EU ETS allowances ([Rickels et al., 2021](#)).
- The [Verra Geological Carbon Storage Non-Permanence Risk Tool](#) provides procedures to conduct an assessment that assigns non-permanence risk ratings that determine the amount of ‘buffer credits’ assigned to a geological carbon storage project. The CCS+ Initiative is currently developing a similar Non-Permanence Risk Tool for mineralization projects.

For general further exploration on geological storage, GGCSI offers the following:

Video - CCS Talks: All you need to know about CO₂ storage

https://www.youtube.com/watch?v=nGoeXOUID_U&t=473s

Factsheet - Understanding CCS: Storage

https://www.globalccsinstitute.com/wp-content/uploads/2022/07/Factsheet_CCS-Explained_Storage.pdf