

## CCS is now a CDM Project Activity

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### Decision Commented On:

[Decision -/CMP.7 Modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities](#)

- adopted in December 2011.

The 17<sup>th</sup> United Nations Climate Change Conference and the seventh meeting of the parties to the Kyoto Protocol (CMP) took place in Durban in November-December 2011 and brought hope again to the international community fighting climate change. The negotiations were reasonably successful and blended together the implementation of the [Convention](#) and the [Kyoto Protocol](#), the [Bali Action Plan](#), and the [Cancun Agreements](#), concluding with a [decision](#) adopted by Parties that a universal legal agreement on climate change is to be adopted as soon as possible, but no later than 2015.

Another outcome of the COP17/CMP7 was the long-awaited adoption of the modalities and procedures for Carbon Dioxide Capture and Storage (CCS) in geological formations, as Clean Development Mechanism (CDM) project activities. Officially, CCS projects now qualify as CDM project activity although there are some exclusions, for example, transboundary storage sites may not yet be used in CDM projects. The CMP decided to periodically review the modalities and procedures for carbon dioxide capture and storage, with the first review to be carried out within five years, thereby adopting a learning-by-doing approach.

Most of the general [modalities and procedures for CDM](#) will apply *mutatis mutandis* to CCS project activities under the CDM. However, there are a few exceptions. For example, the provisions of paragraph 37 (c) of the CDM Modalities and Procedures regarding the project participant's obligation to submit an environmental assessment of the project were replaced by requirements for a more thorough and complete environmental assessment.

The other provisions are additions or newly created requirements specific to CCS project activities. The present discussion emphasizes certain aspects that have been subject to controversy and debate, such as permanence and liability.

A few of the definitions are particularly relevant to the discussion. Thus a "net reversal of storage" of carbon dioxide means that:

- (i) For a verification period during the crediting period, the accumulated verified reductions in anthropogenic emissions by sources of greenhouse gases (GHGs) that have occurred as a result of a registered CDM project activity are negative (i.e. the seepage

from the geological storage site of the CCS project activity exceeds the remainder of the emission reductions achieved by the CCS project activity);

(ii) For a verification period after the end of the last crediting period, seepage has occurred from the geological storage site of the CCS project activity.

Liability is defined as “the legal responsibility arising from the CCS project activity or the relevant geological storage site, with the exception of the obligations arising from a net reversal of storage [...] but including all obligations related to the operation of the storage site (e.g. monitoring, remedial measures, etc.), to compensate for or remedy any significant damages, including damage to the environment, such as ecosystem damage, other material damages or personal injury;”). This definition excludes any obligation arising from non-permanence which treated separately in the decision.

With respect to site selection, geological storage site are considered “eligible” to be used to store carbon dioxide only if there is no significant risk of seepage, no significant environmental or health risk, the geological storage site will comply with all laws and regulations of the host Party and is not located in international waters. (Appendix B, para 1). In order to determine if the proposed storage site will comply with all the requirements, the project participant has to carry out multiple characterizations: data and information collection, compilation and evaluation; characterization of the geological storage site architecture and surrounding domains; characterization of dynamic behavior, sensitivity characterization and risk assessment, establishment of a site development and management plan, comprising data from multiple domains: geology, geophysics, geochemistry and hydrogeology. Also the project participants are required to carry out a “comprehensive and thorough” risk and safety assessment and an environmental and socio-economic impact assessment for which the decision sets out minimum criteria (Appendix B, sections 2 and 6).

The provisions of the CDM Modalities and Procedures regarding accreditations and designation of operational entities (DOEs) apply *mutatis mutandis* to CCS project activities; additionally, DOEs involved in CCS projects must have appropriate experience relevant to CCS.

With respect to participation requirements, the decision introduced a set of eligibility conditions for non-Annex I countries to act as hosts for CCS project activities:

- The country must have submitted an expression of its agreement to the UNFCCC secretariat to allow the implementation of CCS projects in its territory;
- The country must have passed laws and regulations concerning various CCS-related aspects such as: site selection criteria, the requirements imposed by CDM for CCS project activities, the right to store carbon dioxide and access rights to subsurface pore space; compensation and remediation measures; liability arrangements as prescribed by the CMP 7 decision; provisions detailing the obligation to address a net reversal of storage, provided that the country accepts such an obligation.

Probably the most notable paragraph dealing with validation and registration requirements is the one referring to project boundary since it resolves the discussions that have occurred in the literature. First of all, the project boundary will include:

1. The installation where the carbon dioxide is captured;
2. Any treatment facilities;

3. Transportation equipment, including pipelines and booster stations along a pipeline, or offloading facilities in the case of transportation by ship, rail or road tanker;
4. Any reception facilities or holding tanks at the injection site;
5. The injection facility;
6. Subsurface components, including the geological storage site and all potential sources of seepage, as determined during the characterization and selection of the geological storage site, carried out in accordance with appendix B to this annex.

Secondly, the project boundary will also encompass the vertical and lateral limits of the carbon dioxide geological storage site that are expected when the carbon dioxide plume stabilizes over the long term during the closure phase and the post-closure phase. This recognizes that there are spatial and a temporal dimensional aspects to the project boundary.

A novel aspect of this decision is the creation of separate accounts for CERs: the pending account, the reserve account (where CERs are held to account for any net reversal of storage) and the cancellation account (where CERs are transferred to account for a net reversal of storage). The CERs issuance provisions are also unique insofar as 5 per cent of the CERs issued will be sent to a reserve account of the CDM registry, established for the CCS project activity for the purpose of accounting for any net reversal of storage, as referred to in paragraph 3(a) of appendix A to this annex.

A certification report must provide information on the amount of any net reversal of storage. The final certification report will be submitted after the monitoring of the geological storage site has been terminated and provided that there has been no reversal, may constitute a request to forward any remaining CERs in the reserve account to the registry accounts of the project participants involved.

If a verification report is not submitted in the prescribed time frame and following further notification to the project participants, the CDM Registry Administrator will cancel all CERs that were issued for the CCS project activity and are being held in the CDM registry.

This decision has built a distinctive system to address non-permanence. If a net reversal of storage occurs during the verification period as a result of seepage from the geological storage site of a CCS project activity, the CDM Registry Administrator will cancel, up to the amount of the net reversal of storage, the CERs issued for the CCS project activity:

1. Firstly, from the reserve account;
2. Secondly from the pending account;
3. Finally from the holding accounts of the project participants, proportional to the amount of CERs for the CCS project activity held in each holding account. (par. 24 a)

If there is still any outstanding net reversal of storage the EB will request the project participants to transfer, within 30 days after the notification an amount of assigned amount units (AAUs), CERs, emission reduction units (ERUs) or removal units (RMUs) equivalent to the outstanding amount to a cancellation account of the CDM registry or a cancellation account of the national registry of any party.

While recognizing the importance of having some sort of financial mechanism in place to cover insolvency and unexpected costs of monitoring, remediation and compensation, the decision

does not specify the type nor the minimum amount of coverage. While some flexibility is always welcomed when it comes to implementing an activity in the CDM, one would expect at least a prescription of a minimum standard. Section 4, paragraph 18 of the Appendix B simply requests the project participants to establish financial provisions (as described in the project designed document) to cover:

1. The cost of ongoing monitoring, at an appropriate frequency, of the geological storage site and of verification and certification by a designated operational entity for at least 20 years after the end of the last crediting period of the CDM project activity or after the issuance of CERs has ceased, whichever occurs first;
2. In the event of seepage, the cost associated with the obligations set out in paragraphs 24 to 28 of the annex above;
3. The cost of any remedial measures required by laws and regulations of the host Party;
4. Any other requirements determined by the host Party that are agreed at the time of the host Party approval and described in the project design document.

The decision also takes a flexible approach addressing the sensitive matter of liability. Only a couple of aspects are prescribed:

1. During an operational phase and until a transfer of liability takes place, the project participants are liable;
2. A transfer of liability to the host Party can only be effected after:
  - a) the monitoring of the geological storage site has been terminated in accordance with the conditions for the termination of monitoring;
  - b) the host Party has established that the conditions set out by the designated national authority in its letter of approval and those set out in the relevant laws and regulations applicable to the geological storage site have been complied with.

The project participants must clearly document in the project design document how the liability obligations described in the definition are allocated during the operational phase, closure phase and post-closure phase in accordance with this decision.

This decision marks an important milestone for CCS deployment in developing countries. However, it still leaves some matters to be addressed: the eligibility of CCS projects with transboundary implications, the establishment of a global reserve of certified emission reductions units for CCS project activities, a possible dispute resolution mechanism, and a more detailed financial provision.

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