



## AUSTRALIA

### Submission under the Cancun Agreements | February 2011

### Modalities and procedures for carbon dioxide capture and storage in geological formations as Clean Development Mechanism project activities | SBSTA

#### I. Overview

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This submission contains the views of the Australian Government on the elaboration of modalities and procedures for carbon dioxide and storage (CCS) in geological formation as project activities under the Clean Development Mechanism (CDM), as requested under paragraph 4 of Decision - /CMP.6 on *Carbon dioxide capture and storage in geological formations as clean development mechanism project activities* (the Cancun CCS Decision).

Australia welcomes the inclusion of CCS as an eligible project activity under the CDM, and the opportunity to submit its views to the Subsidiary Body for Scientific and Technological Advice (SBSTA). Australia also draws attention to its previous submissions on CCS in the CDM.<sup>1</sup> In overview, Australia considers:

- There are sufficient established technical and scientific data and analysis, methods and expert advice to address the issues identified in paragraph 29 of Decision 2/CMP.5.
- The elaboration of modalities and procedures for CCS project activities requires consideration as to whether existing CDM modalities and procedures are sufficient, or the extent to which additional modalities and procedures are needed to accommodate CCS project activities.
- CCS project activities will be unique in some respects and therefore will require tailored modalities and procedures including specific requirements relating to: host Party governance; site selection and operation; accounting for potential non-permanence; transboundary seepage paths and potential impacts; and proper accreditation for designated operational entities (DOEs).

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<sup>1</sup> FCCC/SBSTA/2010/MISC.2; FCCC/SBSTA/2009/MISC.11;

<<http://climatechange.gov.au/en/government/initiatives/unfccc/~media/submissions/international/ccs-as-cdm-project-activities.ashx>>.



## II. Benefits of CCS Project Activities

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Australia emphasises the importance of CCS as a mitigation strategy for greenhouse gas emissions. It reiterates the International Energy Agency's (IEA) *Energy Perspectives Report*,<sup>2</sup> which concluded that CCS will need to contribute one-fifth of the necessary emissions reduction to achieve stabilisation in the most cost-effective manner.

Australia has also referred to the IEA's *Technology Roadmap: Carbon Capture and Storage*,<sup>3</sup> which identified that CCS projects must be funded from carbon market mechanisms to provide sufficient incentives for the innovation and diffusion of CCS technologies in developing countries.

CCS project activities will provide an important financial incentive that will assist to offset the incremental cost for developing countries wishing to deploy this technology. While large-scale deployment in developing countries is still expected to be some time away, CCS project activities will provide potential investors with improved certainty for long-term and large-scale CCS projects.

Australia recognises that the CDM is technology-neutral and that modalities and procedures for CCS project activities will support developing countries' access to technologies consistent with their preferred development path. It will also provide developing countries access to the economic incentives that are available for other emission abatement technologies.

## III. Elaborating modalities and procedures

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Australia advocates a pragmatic approach for elaborating modalities and procedures for CCS project activities in the CDM. It considers that the existing CDM modalities and procedures should apply to CCS project activities where appropriate.

Australia reiterates the view that there are sufficient established technical and scientific data and analysis, methods and expert advice to address the issues identified in paragraph 29 of Decision 2/CMP.5. SBSTA should assess existing modalities and procedures to determine whether existing CDM modalities and procedures are sufficient to accommodate CCS project activities, or the extent to which additional provisions are required. This will include assessments of:

- definitions;
- the role of the Conference of the Parties serving as the meeting of the Parties;
- accreditation and designation of DOEs;
- the role of DOEs;
- participation requirements;
- validation and project registration;

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<sup>2</sup> IEA, *Energy Technology Perspectives* (2008), <<http://www.iea.org/techno/etp/index.asp>>.

<sup>3</sup> IEA, *Technology Roadmap: Carbon Capture and Storage* (2009), <[http://www.iea.org/papers/2009/CCS\\_Roadmap.pdf](http://www.iea.org/papers/2009/CCS_Roadmap.pdf)>, p.35.



- monitoring during project operation and following project closure;
- verification and certification; and
- means to address the risk of non-permanence of carbon dioxide.

Australia recognises that CCS project activities will be unique in some respects to other CDM project activities. CCS project activities may therefore require tailored CDM modalities and procedures. Nonetheless, Australia considers that the issues raised in paragraph 3 of the Cancun CCS Decision can be adequately addressed by including specific requirements for CCS project activities.

The remaining sections of this submission outline Australia's position on the specific requirements relating to CCS project activities. Australia considers that SBSTA should move quickly to draft modalities and procedures to enable a decision to be taken at COP 17. The primary objective of the technical workshop should be to develop near final draft modalities and procedures for CCS project activities.

#### **IV. Host Party governance**

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Key to the effective deployment of CCS project activities will be the establishment of relevant governance arrangements in the host Party. Australia considers that the modalities and procedures for CCS project activities should require the host Party to design and implement appropriate regulatory and governance arrangements for the deployment of CCS technologies and ensure that CCS project activities comply with these.

These requirements could be incorporated into host Party participation requirements; and the validation and registration procedure. In practice, the Host Party could indicate in the letter of approval that the project was compliant with their domestic regulations.

SBSTA may wish to elaborate upon necessary requirements for host Party regulatory and governance arrangements. This may help to identify whether a host country has established a governance framework, and that there are effective resources employed in the host country to promote compliance with the governance framework. However, Australia emphasises that CDM modalities and procedures should not seek to replace or prescribe law in host Parties. Australia respects the national sovereignty and territorial integrity of all Parties to the Convention and recognises the prerogative of all Parties to design and implement policies that are most effectively tailored to their national circumstances.

Australia expects that the Host Party regulatory regime will provide for the approval and oversight of the operation of the project, including covering the construction and operation of the capture plant, transport system and storage operation, safe sealing and abandonment of the reservoir, environmental and social impacts of the project, health and safety, property rights and systems for assigning liability. Australia recognises the need for capacity building in developing countries to facilitate the design and implementation of appropriate governance procedures.



Australia further considers that the issue of the determination and apportionment of liability for damage caused by a CCS CDM project should also be a matter for the domestic law of the host Party. The laws that will apply in the event of damage caused by a CCS project activity will in most cases be the body of law already existing in the host country.

It may be impractical to prescribe the detailed requirements of a liability regime at the international level, as the extent to which this can be implemented in practice will depend on the legal system in the host country. Therefore, in response to paragraph 3(m) of the Cancun CCS Decision, Australia considers that host Parties should examine the extent to which their domestic laws can be applied to effectively apportion liability between CCS project participants, and create new laws, if necessary.

Similarly, many countries have implemented environmental legislation establishing mechanisms for remediation of environmental damage resulting from industrial activities. Therefore, Australia considers that the provision for restoration of damaged ecosystems and full compensation for communities affected by a release of carbon dioxide from CCS project activities, within paragraph 3(o) of the Cancun CCS Decision, should be treated in the same way as other large-scale industrial activities, under national or local laws, as appropriate.

## **V. Site selection and operation**

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Australia recognises the importance of good site selection and operation of CCS project activities. Australia considers that the geological storage site selection must be made with the objective of permanent storage of the carbon dioxide injected.

The modalities and procedures for CCS project activities should include site selection criteria. Site selection criteria for CCS project activities could be addressed through specific validation and registration requirements in the CDM. In recognition of the unique geological circumstances of each storage site, Australia notes that different technical factors will have to be considered in each case. As a result, the site selection criteria should be objective-based, rather than prescriptive in nature.

Australia also considers that the geological storage site selection should not be undertaken in isolation from the operation plan specific to that site. Good site management is integral to the permanence of storage, and will require ongoing monitoring and reporting of site operations. Therefore, Australia considers that all project participants and host Parties should implement a site management plan. This plan should identify procedures for addressing identified risks, including for safe sealing and abandonment of the reservoir.

Australia considers that the project design document for CCS activities will need to adequately cover all aspects of the project activity, including site selection, risk analysis, storage site operation plan, a plan for monitoring the behaviour of the stored carbon dioxide, and a monitoring and measuring plan to account for carbon dioxide captured, transported, injected and stored or emitted, noting that all these aspects need to be fully integrated at the design stage.

A comprehensive risk assessment of potential CCS storage sites and operations should be undertaken prior to the deployment of a CCS project. It should identify risks together with possible



consequences. This could be incorporated into the CDM through additional validation and registration requirements. Australia notes that the International Standards Organization has developed standards for risk management,<sup>4</sup> and considers that these could provide basic methodologies for risk analysis. Australia further recognises that risk assessment should be an ongoing activity of CCS deployment, and fully integrated with storage site selection, proposed site management, and monitoring.

Tailored requirements during the monitoring procedure could provide for project participants to continually monitor storage operations against the site management plan for the duration of the CCS project activity. While agreeing that reservoir pressure should be continuously measured, there are a range of other factors relevant to the measurement of the stored substance, which may vary in applicability from site to site. Australia considers that the decision on the appropriate monitoring methods to be used should be integral with the storage site selection and the management plan.

Additional provisions could require project proponents to adapt their site management plans in response to the observed behaviour of the stored carbon dioxide. While such monitoring programs will be site-specific, they should be designed to detect any incidents of non-permanence or deviations from predicted behaviour in the reservoir in a timely fashion. Design of a storage site monitoring plan should also have due regard to the risk profile of that site. The monitoring plan should be subject to periodic review.

Following completion of the injection phase of the project, host Parties could be required to monitor the storage site against a longer-term management plan. In particular, Australia emphasises long-term monitoring for potential non-permanence, which must reflect risks on a project-by-project basis. This would continue until evidence demonstrates that the site has achieved long-term stability. Australia considers that it will be necessary for CDM modalities and procedures to reflect that such monitoring must extend to the period following the injection phase of storage operations. The DOE could then verify the accuracy of these monitoring reports.

Consistent with existing CDM modalities and procedures it will be essential that project proponents define the project boundary. Currently this is a requirement within the validation and registration process. SBSTA may like to consider the appropriate definition of the boundary. Australia considers that the boundary should include all above-ground and underground installations and storage sites, as well as potential sources of carbon dioxide that can be released into the atmosphere, involved in the capture, treatment, transportation, injection and storage of carbon dioxide, and any potential migratory pathways of the carbon dioxide plume, including any pathways resulting from dissolution of carbon dioxide in underground water or other fluids.<sup>5</sup>

Australia considers, in response to paragraph 3(n)(ii) of the Cancun CCS Decision, that multiple project proponents should not be permitted to share the same storage reservoir where there is any prospect of adverse consequences from this interaction. However, carbon dioxide from multiple

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<sup>4</sup> ISO 31000:2009

<sup>5</sup> Decision 3/CMP.1, Annex, para. 52; *CDM-PDD*, <[http://cdm.unfccc.int/Reference/PDDs\\_Forms/PDDs/PDD\\_form04\\_v03\\_2.pdf](http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form04_v03_2.pdf)>.



sources may be stored in a single storage operation. Should a proportion of this stored carbon dioxide emanate from non-CDM accredited projects, then the emissions must be allocated in advance between the accredited and non-accredited projects.

## **VI. Accounting for potential non-permanence**

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Australia recognises the risk of non-permanence of emission reductions from CCS project activities due to the potential for seepage. It reiterates that the risk of leakage in well-selected sites with appropriate site selection and operation is very low.<sup>6</sup>

Nonetheless, Australia considers that SBSTA should recommend modalities and procedures to account for the potential for non-permanence of emissions reductions from CCS project activities. It emphasises that any release of carbon dioxide from the project boundaries must be monitored and accounted for, including over the longer-term.

Australia is open to further consideration of all options that will promote environmentally effective and efficient abatement through CCS technologies. It notes that the International Energy Agency (IEA)<sup>7</sup> and an expert report prepared for the CDM Executive Board<sup>8</sup> have canvassed options to address non-permanence. Australia has referred to a number of these options in its submission to SBSTA 32.<sup>9</sup> Existing CDM rules require that certified emissions reductions (CERs) resulting from a project activity be calculated after adjusting for leakage.<sup>10</sup> The requirement for project participants to monitor removals and reversals during the issuance of CERs is also standard practice in certain CDM project activities.<sup>11</sup> It may be useful to establish similar requirements for CCS project activities.

Following project closure, host Parties of CCS project activities would need to monitor the site for potential reversal of emissions reductions, that is, seepage. Measures would need to be put in place to account for those emissions to ensure the ongoing permanence of issued CERs from the CCS project activity.

Australia reiterates that there are a number of potential options that could be considered. For example, a discount factor could be applied at issuance so that a proportion of CERs are not issued, accounting for any future reversal. Alternatively a proportion of CERs could be surrendered to a 'confidence buffer' at the time of issuance and retired in the event of future seepage. These options would require that the possibility or risk of seepage be assessed and adjusted over time, as the monitoring results would provide confidence of permanence over time.

Measures to address potential non-permanence would require specific modalities and procedures. These could be included as specific requirements during the issuance of CERs. Further requirements would be needed to operationalise any 'confidence buffer'. Consideration would also need to be

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<sup>6</sup> FCCC/SBSTA/2010/MISC.2, pp. 6-7.

<sup>7</sup> IEA, *CO<sub>2</sub> Capture and Storage – A key carbon abatement option* (2008).

<sup>8</sup> <<http://cdm.unfccc.int/EB/049/eb49annagan4.pdf>>.

<sup>9</sup> Above n 6, pp. 7-9.

<sup>10</sup> Decision 3/CMP.1, para. 59, 62(f).

<sup>11</sup> Decision 5/CMP.1.



given to surplus units held that were generated by storage sites that have achieved long-term stability.

Australia further submits that uncertainty in accurately quantifying non-permanence can be reduced by ensuring adequate and accurate collection of baseline environmental data. This includes the carbon dioxide content of the atmosphere, soil and water in the vicinity of the storage site. Combined with effective monitoring of the behaviour of stored carbon dioxide, this data will provide the most effective basis for addressing uncertainties in quantifying leakage from the storage site. This data should also be an integral part of the storage site management plan.

## **VII. Potential transboundary impacts**

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Australia recognises the possibility of transboundary seepage or leakage of carbon dioxide from CCS project activities. Host Parties would need to identify and establish appropriate arrangements to ensure that project proponents address any transboundary seepage paths and potential impacts are addressed in accordance with applicable international obligations. Australia notes that existing CDM modalities and procedures require project participants to submit documentation relevant to transboundary impacts, and if deemed significant, undertake an environmental impact assessment according to the laws of the host Party.<sup>12</sup>

Nonetheless, it may be necessary for Parties to agree additional validation and registration requirements for CCS project activities. Australia considers modalities and procedures for CCS CDM projects approval procedures should require host countries to, *inter alia*:

- establish governance arrangements for the deployment of carbon dioxide capture and storage;
- establish measures to identify and address any trans-boundary seepage paths and/or potential impacts; and
- declare that, where trans-boundaries issues exist, the measures to address the issues have been agreed with all countries concerned consistent with applicable international obligations.

## **VIII. Designated operational entities**

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Australia considers that DOEs be properly accredited to validate and verify CCS project activities. It may be appropriate for SBSTA to elaborate upon additional requirements for the accreditation and designation of DOEs involved in CCS project activities.

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<sup>12</sup> Decision 3/CMP.1, para. 37(c).

