AUSTRALIA

Views on issues relevant to the consideration of CCS as CDM project activities

Submission to the SBSTA

Australia welcomes the opportunity to submit its views on the technological, methodological, legal, policy and financial issues relating to carbon capture and storage (CCS) in geological formations, as invited by the SBSTA at its twenty-seventh session.[1]

Australia regards CCS as a key emission mitigation technology that has the potential to provide substantive and sustained greenhouse gas emissions abatement. It is critical to the goals of the Convention that all Parties have access to the full suite of low emission technologies, to enable their effective contribution to global mitigation efforts. Australia supports the inclusion of CCS as an eligible project activity under the Clean Development Mechanism (CDM), acknowledging that this will require credible and scientifically robust methodologies against which the mitigation performance of CCS activities can be verified.

A pre-requisite to the uptake of CCS technologies is a regulatory framework for storage sites. This framework should provide confidence for potential investors and a system for managing injection and storage activities to ensure safe and secure storage. The regulatory framework must provide mechanisms for managing interactions with other users of the area, as well ensuring that community objectives such as protection of the environment are met.

In Australia's federal system of government, responsibility for regulation of potential CCS sites is divided between State and Territory governments (for onshore areas) and the Commonwealth (for offshore areas). This submission focuses on Australia's experience in developing one of the world's first comprehensive regulatory frameworks to facilitate the geological storage of greenhouse gases in offshore areas. This regulatory framework became part of Australian law in November 2008.

[1] FCCC/SBSTA/2007/16, paragraph 97.

Australia has been very active in this area, and has been acknowledged by the International Energy Agency (IEA) and the Carbon Sequestration Leadership Forum (CSLF) as a world leader in the development of its regulatory framework.[2] It therefore provides a useful reference point for legislation being developed in other countries, recognising that legislative needs would need to be evaluated on the basis of each country's individual circumstances.

Despite the welcome growth of renewable energy in the world's energy mix, the IEA anticipates that fossil fuels – especially coal – will likely remain major sources of the world's energy in the coming decades. As a result, CCS technologies are likely to play an important role in stabilising global emissions at levels consistent with the UNFCCC objective. The regulatory framework developed by Australia represents one element in a suite of efforts Australia is undertaking to facilitate the uptake of CCS in Australia and worldwide.

Key lessons from the development and structure of the Australian regulatory framework are the need to address:

- property rights, including those of stakeholders who may have pre-existing interests in the areas in question;
- liability concerns over the short and long term; and
- any potential community concerns by addressing the environmental safety and security of injection and storage.

The Australian regulatory framework creates a permit scheme for CCS storage sites. It aims to provide confidence for potential investors and a system for managing injection and storage activities to ensure that storage is both secure and safe. Since much of Australia's storage potential is located in geological formations under the seabed in offshore areas, the regulatory framework deals with this offshore area. It includes specific provisions to manage interactions with the petroleum industry, and preserves the rights of existing petroleum operators.

The regulatory framework carefully addresses the issue of ensuring safe and secure storage. This includes rigorous approval requirements for site plans; provision of wide-ranging powers to deal with 'serious situations' that may arise; and requirements for monitoring after injection has ceased, to be conducted initially by site operators and, following site closure, by Government.

The regulatory framework complements existing Australian legislation. It does not include specific environmental requirements beyond safe and secure storage, as these are dealt with under other more general

[2] G8-IEA-CSLF, *Near-term Opportunities for Carbon Capture and Storage*, Results from the Calgary Workshop, November 27 & 28 2007, p. 4.

environmental legislation. It also provides a system under which long term liability is transferred to the Government after site closure, subject to the regulator being satisfied as to long term risks.

More detailed information on the new law and its provisions is included in Attachment A.

Attachment A

CCS legislation in Australia

In November 2008, a comprehensive legislative package to regulate CCS injection and storage activities in Commonwealth waters became part of Australian law.

The new Act of Parliament and its subordinate legislation is intended to:

- provide a comprehensive system for providing access and property rights to CCS proponents;
- protect the public interest by incorporating a system to ensure that storage is safe and secure; and
- manage interactions with other users of the sea, including the petroleum industry.

Background to the work undertaken in Australia

In Australia's federal system of government, responsibility for regulation of potential CCS sites is divided between the Commonwealth and State and Territory governments. States and Territories have responsibility for those parts of the integrated CCS chain that may occur within their jurisdiction. This responsibility includes carbon capture, which can be regulated through existing industrial, environmental and other relevant laws, as well as most onshore storage. Some States are developing legislation to cover on-shore storage (outlined below).

The Australian Government has responsibility for offshore areas. This includes potential storage sites that are being considered by several prospective CCS proponents. The government developed a regulatory framework, which became part of Australian law in November 2008. The new law provides the legal basis to enable storage proponents to gain access to this offshore area.

The Commonwealth, States and Territories have developed principles to guide CCS development in Australia.[3] These include that, wherever possible, existing frameworks should act as a basis for the development of a regulatory system for CCS. This recommendation is supported by the International Energy Agency document, *Legal Aspects of Storing CO_2*, which makes a similar recommendation.[4] States and Territories'

[3] *Carbon Dioxide Capture and Geological Storage: Australian Regulatory Guiding Principles*. Ministerial Council on Minerals and Petroleum Resources, 2005.

[4] Specifically, the document recommended that: "*In the short-term, governments should ensure that there is an appropriate national legal and regulatory framework for more storage demonstration projects. In the interest of time, and given the diversity of institutional setups and policy processes between States, working at the national and/or provincial/state level using existing legal frameworks might be the preferred route. Longer term national frameworks should be formulated on the basis of adequate empirical knowledge about the conditions and risks of long-term storage.*"

approaches to onshore storage sites are expected to follow similar models to those adopted by the Australian Government in relation to offshore storage sites.

Australia's technical understanding of the capture, transport, injection and storage elements of CCS is well advanced due to its experience with petroleum and minerals exploration and production industries. The regulatory frameworks for these industries are longstanding, and cover approvals processes, environmental protection, transport of gases by pipeline (although not specifically carbon dioxide [CO_2]), storage and injection of gases as part of petroleum recovery operations.

The Australian regulatory framework

A package of federal legislation and regulations became part of Australian law in November 2008. The regulatory framework is an essential step towards making Australia 'greenhouse gas storage ready'. It provides a predictable framework to support investment confidence required for industry to commit to CCS projects. CCS technologies are likely to be an important component of industry's response to the introduction of Australia's Carbon Pollution Reduction Scheme, and Australia's move towards a low emission economy.

The regulatory framework builds on existing offshore petroleum legislation, in particular the *Offshore Petroleum Act 2006* (OPA). It does not create specific environmental requirements beyond safe and secure storage, as this is already governed by existing generally-applicable environmental legislation. Similarly, it does not address long-term liability, as this is governed by existing common law.

The regulatory framework applies to injection and storage sites in Commonwealth offshore waters (beyond 3 nautical miles) and was made into law by the amendment of existing Commonwealth legislation which regulates petroleum activities in the same area.

The major elements of the regulatory framework are the provision of systems for:

- titles to provide industry with access and property rights for CCS exploration and injection;
- managing interactions with the petroleum industry and other users of the sea; and
- ensuring safe and secure storage.

The major elements of the regulatory framework are described in more detail in the following sections.

Access and property rights

The regulatory framework provides for a system of titles for CCS injection and storage in the same way as it does for petroleum titles. The key title types are:

- Assessment Permits, which would allow the holder to explore for storage sites and give them the exclusive right to convert this to an Injection Licence if a suitable site is demonstrated.

- Injection Licences, which would allow the injection and storage of CO_2.

- Holding Leases, which could be issued to the holder of an Assessment Permit if the title holder had demonstrated the existence of a storage site, but was not in a position to inject and store for at least five years.

Other specific titles types allow for some activities to be undertaken outside the title area.

Most of the potential areas for CCS storage sites lie in areas that are already the subject of petroleum permits. This system therefore allows for overlapping petroleum and CCS titles which may be held by different owners.

Managing interactions with the petroleum industry

The Australian regulatory framework preserves existing property rights, in particular the rights of existing petroleum operators.

In most cases, petroleum and carbon sequestration activities will be able to co-exist. However, the new law deals with circumstances where carbon sequestration or petroleum operations could impact negatively on operations under another title in the overlapping area.

The regulatory framework is divided into two distinct parts:

- petroleum titles already in existence when the new law comes into force (pre-commencement titles);[5] and

- petroleum titles awarded after the law comes into force (post-commencement titles).[6]

In the case of CCS activities in areas covered by pre-existing petroleum titles, the CCS proponent will be required to demonstrate to the

[5] Note that the Australian system provides for a series of titles (for example, a petroleum exploration permit can, with regulatory approval, be converted to a production licence). Later titles in a series based on an original pre-commencement title are also classified as pre-commencement titles.
[6] In this sense, all CCS titles will be post-commencement titles.

regulator that their proposed activities will not pose a significant risk of a significant adverse impact on current or future petroleum activities. The regulator will also take into account any commercial agreement between the parties, which may remove the need to use the 'no significant impact test'.

In the case of post-commencement titles, the two industries compete on a level playing field. If proposed petroleum and CCS activities cannot coexist, the regulator can make a decision based on public interest as to which should proceed.

Once an Injection Licence or Production Licence has been issued, the relevant Licence holder is protected in the same way as a pre-commencement petroleum title holder. This provides greater certainty once major investment decisions have been made.

Complex issues arise in respect of injection and storage that may be undertaken as part of a petroleum operation. The framework deals with this by:

- continuing the existing rights of petroleum operators to permanently store CO_2 by-product of their operations within their existing title area; and

- screening any CO_2 injection project for enhanced hydrocarbon recovery to determine whether it needs to be dealt with under the CCS or petroleum provision of the new law.

Ensuring safe and secure storage

CCS activities must be environmentally safe and secure. The assurance of safe and secure storage is managed through a number of mechanisms.

The first and most important component of ensuring safe and secure storage is the site plan, which must be approved before any injection and storage activities can commence. A major requirement for approval will be assurance that the site is suitable for permanent storage of CO_2.

The detailed requirements of the site plan will be dealt with under subordinate legislation rather than in the Act itself. For a site plan to be approved, the regulator must be satisfied on a number of issues, including:

- reservoir integrity;

- plume migration modelling;

- identification of risks associated with the project, and mitigation and remediation strategies that will reduce these risks to acceptable levels;

- monitoring and verification by the operators to ensure that any undesirable developments (such as unexpected migration of the injected substance) are detected in a timely fashion so that remediation and mitigation can be undertaken; and

- matters relating to decommissioning and site closure.

The regulatory framework defines 'serious situations', and provides for wide-ranging powers to direct the operator to take actions required to manage risks in such situations.

The framework also provides for a closure process which requires the operator to undertake monitoring after injection ceases. During the closure period, equipment would be decommissioned and any necessary site remediation undertaken, in the same way as for the existing offshore petroleum industry.

A closure certificate will not be issued until the regulator is satisfied that the injected substance is behaving as expected and poses no significant risks to other resources, human health and the environment. A closure certificate will also require financial provision by the operator for post closure monitoring by Government.

Once a closure certificate is issued, the operator's statutory obligations cease. This approach was adopted rather than a fixed closing period to allow for the individual circumstances of each project.

All aspects of the projects would be subject to regulatory oversight to ensure that operations are undertaken in accordance with the provisions of the legislation and the approved site plan. This could include, for example, independent verification of monitoring procedures and results.

Liability

Until a provisional closure certificate is issued, the operator of a CCS project will be subject to both statutory and common law, including managing liabilities for all operational aspects of the project (capture, transport, injection, monitoring and verification as well as decommissioning). A decision on whether to issue a provisional site closing certificate must be made within five years of application for the certificate. After the provisional site closure certificate is issued, common law would apply.[7]

[7] Common law liability could arise from damage or nuisance arising from misconduct or negligence on the part of the operator of the operation. Common law liabilities exist in perpetuity. Thus, for example, if in 100 years there is a

At least 15 years after the provisional site closure certificate is issued, if the stored substance does not pose a significant risk to the geological integrity of the area, the environment or human health and safety, a site closure certificate would be issued. This period is known as the closure assurance period. After this time, any future liabilities would revert to the Government.

Legislation within other jurisdictions

Some other Australian jurisdictions are also developing legislation. The State of Victoria, for example, has passed legislation which follows a similar model to the federal regulatory framework, apart from the treatment of pre-existing rights. In this respect, the Victorian legislation allows the responsible Minister to make a decision based on the public interest, with compensation either agreed between the parties or settled in court.

Financial issues

The Australian regulatory framework is an enabling framework in that it seeks to provide a regulatory regime for CCS activities. It does not seek to provide incentives for CCS, as these matters are considered separately.

Currently, it is envisaged that a CCS project would be subject to taxation in the same way as any other industry. The Australian Government's preferred position is that if any particular industry or industry sector is to receive special assistance, this should be done through direct means such as grants.

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leakage of the injected CCS stream and injury or damage occurs through negligence, the person who was injured or whose property was damaged could conceivably bring an action in a court to recover monetary compensation.