Australian Government
Department of Industry, Science and Resources

Submission by the Department of Industry, Science and Resources to the House of Representatives Standing Committee on Climate Change, Energy, Environment and Water

Inquiry into the 2009 and 2013 amendments to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Protocol).

February 2023

Overview

The Department of Industry, Science and Resources (the department) welcomes the opportunity to make a submission to the House of Representatives Standing Committee on Climate Change, Energy, Environment and Water's *Inquiry into the 2009 and 2013 amendments to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Protocol)*.

The department's submission considers the 2009 amendments which, if accepted by Australia, would allow for the export and corresponding import of carbon dioxide streams (referred to as transboundary movements of carbon dioxide) for disposal by sub-seabed sequestration and responds to the term of reference concerning the international market for carbon dioxide streams.

The department's submission also provides an overview of the offshore Carbon Capture and Storage regulatory (CCS) framework as set out in the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and the status of offshore CCS activities in Australia.

Relevant Portfolio Responsibilities

CCS is the process of capturing carbon dioxide from industrial processes; condensing the carbon dioxide into a liquid, transporting, injecting and storing the liquid carbon dioxide in an underground geological formation.

In Australia, offshore CCS activities are regulated under a number of separate legislative frameworks.

The Department of Industry, Science and Resources administers the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act), which provides a framework for the grant and administration of offshore greenhouse gas storage titles (the terminology used in the OPGGS Act, equivalent to CCS). Titles approvals by the Responsible Commonwealth Minister under the OPGGS Act cover the project lifecycle from exploration for suitable greenhouse gas storage formations, injection and storage activities, through to project decommissioning and post-closure monitoring activities.

The National Offshore Petroleum Titles Administrator (NOPTA), within the Department of Industry, Science and Resources, provides technical advice to the responsible Commonwealth Minister for the purpose of administering offshore greenhouse gas storage titles.

The OPGGS Act also provides for the independent regulation of health and safety, structural (well) integrity and environmental management for offshore CCS activities by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

Carbon capture, utilisation and storage policies and programs are the responsibility of the Department of Climate Change, Energy, the Environment and Water (DCCEEW). Regulatory approvals for offshore CCS activities are also required under legislation administered by DCCEEW:

- The *Environment Protection (Sea Dumping) Act 1981* – which provides for domestic implementation of the London Protocol including creating a permitting system to ensure carbon dioxide streams proposed for offshore injection and storage are consistent with the requirements outlined in the Protocol and associated guidance.

- *The Environment Protection and Biodiversity Conservation Act 1999* – makes provision for where an offshore CCS injection or storage activity may have impacts on a matter of national environmental significance. Unlike for offshore oil and gas activities, these environmental management functions and assessments are not included in the NOPSEMA streamlining program and class approval, so separate approvals are required under the EPBC Act for carbon dioxide injection and storage activities.

Offshore CCS Activities in Australia

Australian offshore and onshore CCS has the potential to drive significant international investment into Australia, enhance economic relationships with regional partners, support Australia in achieving net zero by 2050 and assist global greenhouse gas emission reduction.

The Climate Change Authority through its Carbon Sequestration Potential project has identified that achieving the Paris Agreement goals will require urgent and ambitious cuts to global greenhouse gas emissions, supplemented by the removal and storage of carbon dioxide from our atmosphere, which may include offshore CCS.

Australia is well placed to capitalise on the emerging offshore CCS industry due to many competitive advantages including:

- large geological resources (storage formations) which are likely to be greater than our domestic needs,
- the technical capacity of the oil and gas sector of the Australian energy industry, and
- existing oil and gas infrastructure, which could be repurposed for CCS.

Although the CCS industry is still working towards large-scale commercial levels in Australia, the sequestration potential for geological storage is high. Geoscience Australia has estimated that Australia has approximately 20 billion tonnes of storage capacity for carbon dioxide in four basins alone (the offshore Gippsland basin and Petrel sub-basin and the onshore Cooper and Surat basins).

As part of a suite of emissions-reduction technologies, further development of the CCS industry offers one long-term option to assist in managing emissions from certain sectors of the economy including hard-to-decarbonise sectors such as cement and fertilizer production. CCS is also essential to support certain negative emissions technologies such as Direct Air Capture.

To support investment in offshore CCS opportunities, the department makes offshore CCS acreage available in response to industry demand and subject to government priorities for energy sector development. Before government approves any areas for inclusion in an offshore greenhouse gas acreage release, the department consults on areas under consideration:

- across Commonwealth and state agencies to ensure offshore CCS activities do not occur in prohibited areas and risks can be managed in multi-user areas of the marine environment; and
- publicly through the department's online Consultation Hub to identify additional risks that might prevent an area from being released and to identify potential stakeholders that industry proponents should consult with as a part of any future project developments and consultation processes.

Industry demand for opportunities to undertake sub-seabed sequestration has been increasing in recent years, reflecting growing commitments from companies to reduce emissions and achieve net zero by 2050. Exploring offshore CCS opportunities often forms part of a suite of technologies being considered to work towards these targets. The demand also reflects a growing market for international transport and storage facilitators, aiming to develop a market for transboundary movements of carbon dioxide.

As of February 2023, there are seven active greenhouse gas assessment permits (figure 1), with a particular focus on the highly prospective Gippsland Basin (offshore Victoria), the Petrel sub-Basin (Offshore NT and WA) and in the established offshore WA oil and gas provinces of the Carnarvon and Browse basins.

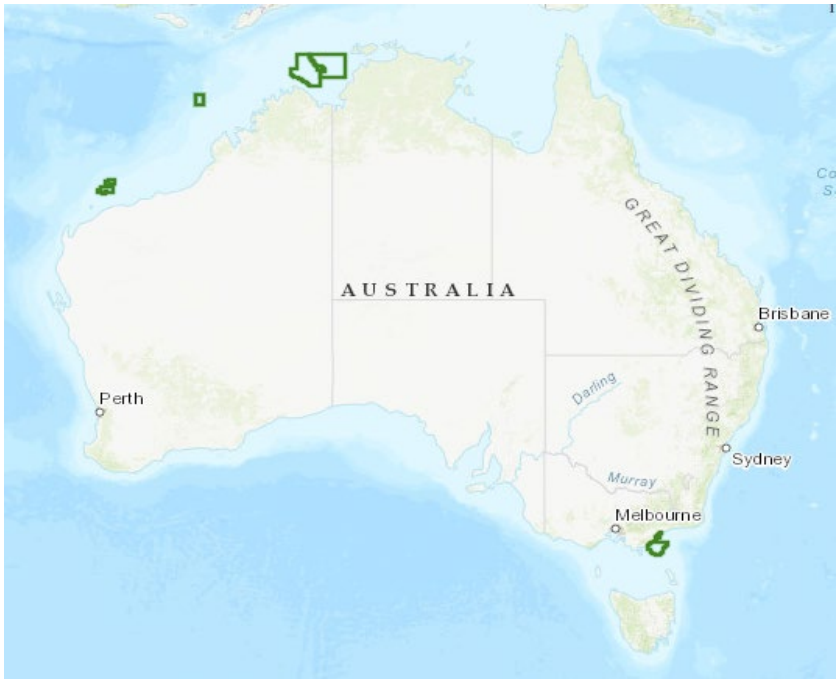

Figure 1 - Location of offshore greenhouse gas assessment permits

Should these titleholders identify eligible formations suitable for offshore CCS, the formations will be subject to rigorous technical assessments by NOPTA under the OPGGS Act before a storage formation can be declared as suitable for injection and storage by the Responsible Commonwealth Minister. NOPTA's technical assessments examines the geology of the formation and the geophysics of the sub-seabed to determine the suitability of identified formations for permanent storage of carbon dioxide.

Further approvals and public consultation are also required before any injection or storage activity can occur including:

- under the OPGGS Act this includes approval from the Responsible Commonwealth Minister for an injection licence. The application for a licence is again subject to technical assessment by NOPTA to determine the suitability of the proposed plans.
- authorisations are required from NOPSEMA relating to environment, well integrity and safety, and
- further environment approvals are needed from DCCEEW under the *Environment Protection (Sea Dumping) Act 1981* and the *Environment Protection and Biodiversity Conservation Act 1999*.

Significant work is required by industry to identify offshore geological storage sites and to develop the infrastructure and processes to make offshore CCS a successful industry. This will require substantial investment from the private sector for offshore exploration and subsequent infrastructure development, and will involve extensive project timeframes.

Regulatory frameworks for assessing and approving these activities are long-established in Australia. Work continues within the DISR and DCCEEW portfolios to expand guidance material available on these policy and regulatory settings and to develop a co-ordinated approach to assessment as this industry grows.

Response to Inquiry's Terms of Reference

(c) The international market for carbon dioxide streams

Internationally, projects are being established which will rely on the development of international markets for carbon dioxide streams. The Northern Lights project is an example of how international countries can work together to implement the 2009 changes to the London Protocol. This project will see carbon dioxide from multiple source countries captured, transported to a central hub and geologically stored. Situated in Norway, this offshore CCS project will receive carbon dioxide captured across Europe and store it permanently in geological formations in the established North Sea oil and gas province. The project is anticipated to commence operations in 2024, with an initial phase seeking to permanently store up to 1.5 million tonnes of carbon dioxide per year. Pending market demand, future phases of the project could increase injection capacity to 5 million tonnes per annum.

Noting the competitive advantages identified above, Australia has the potential to become a global CCS leader. However, as Australia has not yet adopted the 2009 amendments to the London Protocol in its domestic legislation, the import of carbon dioxide into Australia for offshore geological storage is currently prohibited.

Regional partners recognise Australia's global CCS potential. Due to their own geological restrictions, Singapore, Republic of Korea and Japan have all expressed interest in exporting captured carbon dioxide to Australia for geological storage to assist in reducing emissions on a global basis.

In addition to international interest for importation opportunities to Australia, should the amendments be ratified, it would also provide opportunities for Australia to export carbon dioxide as well. For example, Santos announced in March 2022 that it had entered into the front-end engineering and design phase for the proposed Bayu-Undan CCS project which would export carbon dioxide via pipeline from Australia to the Bayu-Undan gas field (in Timor Leste's maritime jurisdiction) once the gas is depleted.

Nominations for offshore greenhouse gas storage acreage are required to identify potential sources of carbon dioxide. Several industry nominators to date have identified interest in sourcing carbon internationally, particularly from bilateral trading partners such as the Republic of Korea and Japan.

The OPGGS Act does not impose different requirements on the injection and storage of carbon dioxide from domestic or international sources. Accordingly, implementation of the 2009 amendment to the London Protocol is not expected to require consequential changes to the OPGGS Act. As one of a range of measures to reduce and manage global carbon dioxide emissions,

implementation of the 2009 amendment could facilitate progression of industry proposals to import carbon dioxide to Australia for the purpose of offshore CCS.

The department notes that this is a relatively new area of policy. There are complex policy, legal, environmental and economic issues that will require consideration depending on the potential source and destination of a carbon dioxide stream. Close consultation and coordination across the DISR and DCCEEW portfolios will be required to ensure the interactions between assessment and approval processes are recognised and a consistent approach adopted.

Particular consideration will need to be given to clarifying roles and responsibilities of parties to a transboundary movement of carbon dioxide, including responsibilities for managing risks and liabilities associated with the potential for leakage during transportation, as well as considerations of the frameworks for managing the carbon accounting frameworks and other mechanisms for the sequestered carbon dioxide.

Conclusion

The department welcomes the Inquiry and appreciates the committee's consideration of this submission.

The department notes that adoption of the 2009 amendments to the London Protocol in Australian legislation is not anticipated to require consequential amendments to the OPGGS Act.

The department also notes that adoption of the 2009 amendments would be welcomed by the CCS industry. If these amendments are adopted, significant further work would be required particularly between the Industry, Science and Resources and the Climate Change, Energy, Environment and Water portfolios to ensure that policy, legal and environmental issues that may arise from any proposals are appropriately regulated across the Australian offshore CCS framework.