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SUBMISSION

Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023

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NABEELA RAJI

Consultant – Legal and Regulatory

IAN HAVERCROFT

Principal Consultant – Policy, Legal and Regulatory

BERNARDENE SMITH

Deputy Principal Consultant – Policy and Finance

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About the Global CCS Institute

The Global CCS Institute (the Institute) is an international think tank with a mission to accelerate the deployment of carbon capture and storage (CCS), a vital technology to tackle climate change and deliver climate neutrality. With a team of professionals working with and on behalf of its Members, the Institute shares expertise, builds capacity and provides advice and support with the aim of driving the adoption of CCS as quickly and cost effectively as possible so that this vital technology can play its part in reducing greenhouse gas emissions.

The Institute is headquartered in Melbourne, Australia, with offices in Washington DC, Brussels, Beijing, London, Tokyo and Abu Dhabi.

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1. Introduction

The Institute welcomes the introduction of the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 (the Bill) in the Australian federal parliament. The Institute notes this will give effect to the 2009 and 2013 amendments to the London Protocol, which in turn, will enable Parties to undertake the transboundary export of CO_2 for storage in the offshore marine environment.

The Institute notes this Bill follows the recommendation of the parliament's House Standing Committee on Climate Change, Energy, Environment and Water that Australia should ratify the 2009 and 2013 amendments to the 1996 London Protocol. The inquiry process that led to the recommendation, as well as the current inquiry process by the Senate Environment and Communications Legislation Committee into the proposed amendments to the Sea Dumping Act, suggests that the Australian government continues to recognise the critical role of the Protocol in facilitating environmentally safe marine CCS activities. Indeed, these developments are in line with the key role that the Australian government played in pushing for an original amendment to the Protocol, to allow the storage of CO_2 in sub-seabed geological formations.

In the context of greater scrutiny of CCS project opportunities beyond national boundaries worldwide, the proposed amendments to the Sea Dumping Act give effect to Australia's international obligations arising out of the said amendments to the London Protocol.

The Institute makes the following contextual observations in relation to the proposed Bill.

2. CCS and its role in mitigating climate change

CCS is a proven technology that can deliver deep emissions reductions from hard-to-abate, emissions-intensive industries and industrial processes. The technology involves capturing CO_2 emissions from large industrial plants such as steel mills, cement plants, coal and natural gas fired-power plants, and refineries, compressing it for transportation and then injecting it deep underground into a carefully selected and safe geological storage site, where it is permanently stored. There are currently 37 operational CCS facilities around the world capturing up to 51 Mtpa of CO_2 [1] .

Several studies, including the IPCC 1.5°C Special Report and those published by the International Energy Agency, have consistently highlighted the critical role of CCS in facilitating the global transition to a net zero emissions economy. The IPCC states that CCS will need to store an average of 600 gigatonnes of CO_2 this century to achieve the global climate targets of the Paris Agreement [2]. Three out of the four pathways modelled by the IPCC for limiting temperatures to 1.5°C by 2050 incorporate a significant role for CCS and require its widespread adoption [3].

3. The emerging significance of the import and export of CO_2 streams for sub-seabed sequestration

Enhanced national commitments to achieving net-zero, the rise of new markets and applications for CCS technologies, and the commercial opportunities posed by the deployment of CCS networks, underpin the recent global shift in focus towards transboundary CCS activities. This wider focus has also been elevated further by the development of several regional cooperation initiatives aimed at advancing deployment of the technology. In these instances, governments and corporations have adopted a more collaborative approach towards exploring project models that involve the transboundary export and import of CO_2 for storage.

This model has been critical to the development of several projects worldwide. For example, the Longship project, a multi-phase CCS Network in Norway, will involve the transport (via ships and a storage pipeline from a port), injection, and storage of up to 1.5 Mt of CO_2 annually from regional emitters across Europe by 2024 [4].

Several countries and operators across the Asia Pacific region, such as South Korea, Malaysia and Japan, are now identifying the potential for similar models to be adopted. High domestic emissions, limited domestic storage potential and close geographic proximity to suitable storage site in the territorial waters of neighbouring countries, have strengthened the case for the export and import of CO_2 in this region [5].

4. The role of the London Protocol in facilitating environmentally safe offshore CO_2 storage and transboundary CO_2 export activities

As countries began to explore the option of conducting CCS in the offshore marine environment, legal barriers to these operations found within the London Protocol, the primary international framework governing the disposal of wastes at sea, became the subject of scrutiny. The subsequent CCS-specific amendments to the London Protocol of 2006 and 2009 removed significant international barriers to deployment and have been important in developing wider legal and regulatory support for the technology [6].

Assessment of the environmental implications of conducting offshore CO_2 transport and storage activities under the London Protocol

The Institute notes that the 2006 and 2009 amendments to the London Protocol explicitly recognise and seek to mitigate the environmental risks posed by CO_2 storage in the marine environment and transboundary CO_2 export and import operations as part of the CCS project value chain. Indeed, prior to the adoption of these key amendments, the environmental implications of such activities in the marine environment have been the subject of rigorous technical reviews and analysis [6].

The 2006 amendment to the London Protocol, which provides the formal basis for the regulation of CO_2 sequestration in sub-seabed geological formations in international law, subjects CO_2 storage to a licensing process under Article 4 of the Protocol, under which Parties are required to adopt administrative and legislative measures to ensure that the permitting process for CO_2 storage complies with Annex 2 of the Protocol. Annex 2 sets out conditions for the grant of permits that authorise the disposal of substances, including impact assessments and the establishment of monitoring conditions[7],[8],[9],[10].

Australia has implemented its obligations under the London Protocol, including the 2006 amendment to the Protocol relating to CO_2 storage in sub-seabed formations under the Environment Protection (Sea Dumping) Act 1981.

Transboundary considerations: the 2009 amendment to the London Protocol

As international discussions turned to the potential for transboundary CO_2 export and import, the Parties to the Protocol determined that the provisions of Article 6, which prohibited "*the export of wastes or other matter to other countries for dumping or incineration at sea*" would similarly prohibit the transboundary transportation of CO_2 for geological storage [11].

Technical studies and discussions between the Protocol's Parties, highlighted a wide range of matters relating to the safety, risks, and environmental implications of transboundary movement. Parties considered the conditions to be applied to transboundary CO_2 transport and whether, as a pre-requisite to conducting such activities, a lack of suitable storage capacity within a Party's territory should be a consideration in determining the permissibility of transboundary options. The issues of permitting, reporting and monitoring of transboundary operations, as well as the allocation of responsibilities between States, were also examined. One issue that received considerable focus, was the environmental standards to be applied to these operations, particularly in instances where the transportation of CO_2 to non-Contracting Parties was contemplated [12].

A formal amendment to Article 6 of the Protocol was adopted in October 2009, which would enable transboundary movement of CO_2, for the purpose of subsequent offshore geological storage, provided that "*an agreement or arrangement has been entered into by the countries concerned*". The amendment requires that the agreement/arrangement includes:

2.1 confirmation and allocation of permitting responsibilities between the exporting and receiving countries, consistent with the provisions of this Protocol and other applicable international law; and

2.2 in the case of export to non-Contracting Parties, provisions at a minimum equivalent to those contained in this Protocol, including those relating to the issuance of permits and permit conditions for complying with the provisions of annex 2, to ensure that the agreement or arrangement does not derogate from the obligations of Contracting Parties under this Protocol to protect and preserve the marine environment. [13]"

The environmental safeguards established under the 2009 amendment to the London Protocol

Complementing the safeguards introduced by the 2006 amendment to the London Protocol, the 2009 amendment not only serves to enable the export of CO_2 but also requires parties undertaking CO_2 export to ensure compliance with the level of environmental protection established by the Protocol, regardless of whether the countries are contracting parties to it.

The reviews underpinning the adoption of the 2009 amendment also led to the development of comprehensive guidance on the requirements for permitting and managing the risks associated with projects undertaking the export and offshore storage of CO_2.

The Protocol's requirements also serve as the minimum standard for the national implementation of a permitting framework for CO_2 export and offshore storage projects. States are able to complement these requirements with further conditions and obligations, as needed when establishing domestic regulatory frameworks for enabling such projects.

Provisional application of the 2009 amendment to the London Protocol

To date, however, an insufficient number of Parties have ratified the 2009 amendment to the London Protocol, with two-thirds of the Protocol's Parties required to ratify for the amendment to enter into force for all Parties. As of July 2023, only the governments of Belgium, Denmark, South Korea, Sweden, Norway, United Kingdom, Netherlands, Finland, Estonia, and Iran have ratified the amendment.

In 2019, following a sustained period of impasse, the Parties agreed to the provisional application of the 2009 amendment [14]. The provisional application of the 2009 amendment to Article 6 of the London Protocol enables those countries, who wish to export their CO_2 for storage in another country's territorial

waters, to avail themselves of the provisions of the 2009 amendment, in advance of its entry into force. Parties wishing to undertake activities of this nature will be required to provide a declaration of provisional application and notification of any arrangements or agreements to the International Maritime Organisation (IMO). Parties still, however, will be required to meet the standards prescribed by the Protocol.

To date, Norway, the Netherlands, Denmark, Korea, the UK, Belgium and Sweden have deposited declarations announcing the provisional application of the 2009 amendment to the London Protocol within their jurisdictions.

International recognition of the safeguards established under the London Protocol

The significance of the CCS-specific amendments to the London Protocol has been highlighted by the IMO, which has stated that "*The London Protocol is, so far, the most advanced international regulatory instrument addressing carbon capture and sequestration in sub-seabed geological formations and marine geoengineering.*"[15]

The 2009 amendment is now the basis of several agreements and arrangements between countries for conducting cross-border CO_2 transport activities, most notably in Europe. For example, Belgium entered into a memorandum of understanding with Denmark and the Flemish Region government for the trans-boundary movement of CO_2 between the two countries (MOU). On 8 March 2023, it was announced that CO_2 captured in Belgium was transported to Denmark and successfully stored in the North Sea pursuant to the MOU [16]. The Norwegian government has also indicated that it will enter into bilateral agreements with the relevant countries before it commences injection operations at the Northern Lights CCS project in 2024.

The Institute submits that the safeguards established under the London Protocol's 2006 and 2009 amendments to enable these activities represent the international benchmark for conducting CO_2 storage activities in the offshore marine environment and supporting transboundary CCS value chains.

The implications of Australia's ratification of the 2009 amendment to the London Protocol

The Institute notes that at this stage, Australia's ratification of the 2009 amendment to the Protocol and enactment of the Bill will not automatically enable transboundary CO_2 export and import activities. In line with provisional application requirements under the London Protocol, Australia will also be required to deposit a declaration of provisional application to the IMO to take advantage of 2009 amendment provisions ahead of its entry into force.

The delay in the entry into force of the 2009 amendment to the London Protocol has been a key barrier globally for transboundary CCS activities. In this context, Australia's initiatives under the London Protocol not only demonstrate Australia's renewed commitment to the technology as a climate change mitigation solution but also its acknowledgement to the international climate change community of the significance of transboundary CCS project models as a key driver of deployment globally.

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5. Key considerations in relation to the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023

Interaction between the London Protocol and the Sea Dumping Act

The proposed Bill incorporates the 2009 amendment to the London Protocol within the Commonwealth Environment Protection (Sea Dumping) Act 1981, alongside all of Australia's wider obligations under the London Protocol. The amendments remove the existing prohibition of CO_2 export activities and introduce a new CO_2 export permit that project operators are required to obtain to load CO_2 onto vessels, aircraft or platforms in Australia or in Australian waters for export.

The Bill also requires the satisfaction of the same environmental safeguards within the 2009 amendment to the London Protocol's for authorising CO_2 export activities, which are currently the international minimum standard for conducting CO_2 export activities worldwide. The replication of the 2009 amendment's provisions within the Bill also means that the Bill integrates the London Protocol's stringent and precautionary approach to offshore CO_2 storage and transboundary CO_2 export activities.

Together, the Bill's provisions establish the basis and framework for conducting CO_2 export activities in Australia in an environmentally safe manner. The Institute submits that these amendments represent a significant first step towards facilitating CO_2 export and import activities, in line with worldwide momentum for conducting CCS activities utilising transboundary project models.

Overall, combined with the safeguards established under the Protocol and further requirements within Australia's domestic legal and regulatory regime, the proposed amendments to the Sea Dumping Act signal Australia's recognition of the importance and need for transboundary transport and offshore CO_2 sequestration in the context of global efforts to combat climate change. This represents a significant opportunity for Australia to facilitate the environmentally safe export of CO_2 in pursuit of its climate change mitigation efforts.

Clarifying regulatory roles and responsibilities within the Sea Dumping Act

The Institute suggests that further development and clarification of roles and obligations may be required under the Sea Dumping Act, with regard to the regulatory administration and approval of CO_2 export activities. The practical implementation of the new amendments will likely engage a wide range of potential stakeholders, including international regulatory authorities, which may lead to protracted time frames for approving CO_2 export permits. As such, the clarification of roles and obligations, including where they overlap with existing domestic legal and regulatory regimes that may be applicable to a project, is key to the effective and efficient implementation of the new provisions relating to CO_2 export.

In practical terms, this will also require reviewing and improving the capacity of regulatory agencies to administer the approvals process for CO_2 export permits under the Sea Dumping Act.

Addressing imports of CO_2 into Australia for sequestration in Australian waters

A further consideration is the absence of provisions in the Bill addressing the import of CO_2 into Australia. Australia is increasingly identified by countries throughout the region, as a potential destination for exported CO_2, a factor that may also further strengthen its position as a leader in the region. Several

countries and operators in the region are seeking to collaborate in the development and implementation of projects involving the transboundary CO_2 export and import for storage.

Australia's renewed domestic commitments to the technology's deployment and excellent offshore geological storage resources suggests it is well-placed to engage regionally and offer support to those new entrants seeking to deploy CCS. One example is the recently announced 'Bayu-Undan' project that will see CO_2 shipped from Australia to the offshore waters of Timor Leste for permanent storage.

The import of CO_2 into Australia from other jurisdictions, is likely to trigger a variety of environmental, health and safety obligations as well as obligations under the Commonwealth's offshore greenhouse gas storage regime. The proposed amendments to the Sea Dumping Act do not clarify these obligations.

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