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

The Australian Marine Conservation Society (AMCS) is Australia's peak marine conservation organisation and Australia's leading national charity dedicated solely to protecting our precious ocean wildlife – a community of ocean lovers across the nation working for healthy seas.

Representing over 300,000 people from all around the country, we are the guardians and voice for marine life. We work to protect our oceans and coastal environments for the benefit of all marine life, and current and future generations.

AMCS welcomes the opportunity to provide our submission regarding the **Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023**. In our 58 year history of campaigning to protect the oceans, the impacts of the fossil fuel industry and dumping of pollutants have had harmful and ongoing impacts on marine ecosystems and wildlife. AMCS holds deep concerns at future impacts on our oceans should these amendments be approved.

Introduction

The Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 (the Bill) was introduced to the House of Representatives on 22 June 2023.¹ The Bill has been referred to the Environment and Communications Legislation Committee for inquiry and report by 27 July 2023.

The Bill, if passed, will permit a new industry in Australia, the import and export of CO₂ across international boundaries for sub-seabed carbon capture and storage (CCS). The Bill is a key enabler for the fossil fuel industry to significantly expand CCS in Australia, via the import and export of CO₂ across international borders, to continue polluting by opening up new and highly polluting fossil fuel projects, using CCS as a greenwashing tool to claim emissions will be captured, and enhanced well recovery for depleted offshore oil and gas basins.

Australia's focus should be on rapid emissions reduction through stopping new offshore acreage for new oil and gas and CCS, and other fossil fuel projects in line with best science on how we achieve our Paris commitments.

This Submission sets out issues for the inquiry to consider regarding the proposed amendments to the Act relating to:

1. enabling a permit to be granted for the export of carbon dioxide streams from carbon dioxide capture processes for the purpose of sequestration into a sub-seabed geological formation in accordance with the 2009 amendments to the London Protocol;
2. enabling a permit to be granted for the placement of wastes or other matter, for a marine geoengineering activity for the purpose of scientific research in accordance with the 2013 amendments to the London Protocol; and
3. making minor consequential amendments to enable effective implementation of the two types of new permits; and
4. making minor technical amendments to clarify existing provisions and adopt modern drafting practices.

The Bill could see Australia become a dumping ground for the global trade of CO₂ streams via CCS sites, and would be a key mechanism for the fossil gas industry to manage, and attempt to repair, its social licence by appearing to act on climate, whilst simultaneously opening up new fossil fuel projects against the advice of bodies such as the International Energy Agency and IPCC. The Bill will enable the expansion of fossil fuels such as gas globally with the promise of trading and dumping emissions in other nations' jurisdiction, creating a unique market for dumping greenhouse gases all with the greenwashing benefits of claiming carbon neutrality

¹ Parliament of Australia, Parliamentary Business < Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 – Parliament of Australia (aph.gov.au)>. ² Environmental Defenders Office, *A Roadmap for Climate Reform* (2022) <<https://www.edo.org.au/publication/a-roadmap-for-climate-reform/>>.

- **The inquiry should consider whether CCS presents a viable mechanism for meaningful reduction of greenhouse gas emissions**

CCS is a false solution for reducing emissions and meaningful action on climate change. It is unproven, unsafe and unviable at scale, and even if sequestration volumes claimed were achieved, it would only offset a small amount of the total amounts being emitted. The Center for International Environmental Law has conducted research showing the “28 CCS facilities currently operating globally have a capacity to capture only 0.1 percent of fossil fuel emissions, or 37 megatons of CO₂ annually.”²

The first principle should be that no new fossil fuels projects approved/opened up, and any carbon capture or mitigation to be underpinned by evidence and the use of the precautionary principle in considering new global trade markets in fossil fuel, and its by-products. This is critical if we have any chance of achieving our Paris targets of 1.5C.

CCS has not been proven feasible or economical at scale and can only contain a fraction of source emissions. CCS prolongs dependence on fossil fuels and delays their replacement with renewable alternatives at a time when we know we need to rapidly transition away from fossil fuels. Furthermore, the IEEFA research has revealed that storing carbon dioxide may carry even more risk and uncertainty than drilling for oil or gas, given the very limited practical, long-term experience of permanently keeping CO₂ in the ground.³

Based on industry evidence CCS does not present a realistic option for meaningfully reducing CO₂ emissions. According to a report by the Center for International Environmental Law, the “28 CCS facilities currently operating globally have a capacity to capture only 0.1 percent of fossil fuel emissions, or 37 megatons of CO₂ annually.”⁴

CCS technologies are not designed to capture and store methane, a much more potent greenhouse gas emitted from oil and gas operations – including offshore CCS projects developed over depleted oil and gas fields. Methane removal from the air presents technical challenges because “methane is 200 times less abundant in the atmosphere than CO₂,” and “[c]apturing methane would require processing a lot of air, which would require an unfeasibly large amount of energy.”⁵

The expansion of CCS acreage that would result from the implementation of changes to the Principal Bill may also lead to direct GHG emissions. The CCS acreage releases

² N. Mac Dowell et al., ‘The role of CO₂ capture and utilization in mitigating climate change’ (2017), 7 *Nature Climate Change*, 243, <<https://www.nature.com/articles/nclimate3231>>

³ *ibid*

⁴ <https://www.nature.com/articles/nclimate3231>

⁵ Camille Bond, ‘Why Capturing Methane Is So Difficult’, E&E News (17 Jan. 2023), Available at: <https://www.scientificamerican.com/article/why-capturing-methane-is-so-difficult/#:~:text=But%20methane%20is%20200%20times,unfeasibly%20large%20amount%20of%20energy.>

proposed for release at Bonaparte Basin, Browse Basin, Northern Carnarvon Basin, Perth Basin, Otway Basin, Bass Basin and Gippsland Basin may contain geological formations with the potential to release greenhouse gases during CCS exploration. Whether exploration of any of the titles would involve additional extraction or release of methane or other greenhouse gases is an important issue that must be evaluated in any decision to release offshore acreage for CCS.

- **The inquiry should consider the significant harm caused to our ocean ecosystems and marine life through the life cycle of exploration, development and implementation of any CCS projects enabled by this bill.**

There is no requirement for environmental impact assessment to be undertaken for CCS import/export. This is an omission that should both provoke serious investigation from the inquiry and stop the passing of this Bill. Given the significant environmental impacts posed by the global trade of greenhouse gases, and Australia considering allowing other nations to dump their carbon pollution under our oceans through CCS projects requires the most stringent of environmental plan creations, regulation, monitoring and enforcement.

The permitting provisions are not sufficiently prescriptive – they require satisfaction on the part of the Minister about certain matters prior to granting a permit, but do not require compliance by the permit holder with the Specific Guidelines or Risk Assessment Framework described above. These are the substantive requirements regarding risk assessment and management of this industry.

The relationship between the Bill and other regulatory frameworks (including the Offshore Petroleum and Greenhouse Gas Storage Act, the EPBC Act, and state-based environmental assessment regimes) are unclear. The two relevant Ministers with oversight of the OPGGS Act and EPBC Act, must have clear and publicly transparent oversight of this potential global market in carbon pollution, and plans to dump greenhouse gases in Australia's oceans.

CCS poses significant, and often unknown risks to the marine environment and wildlife. From the survey stages of proposed CCS fields involving seismic blasting, which is proven to harm cetaceans through permanent hearing damage to fatal impacts on zooplankton, the foundation of the marine food chain, to the drilling into the sea bed and risks of leaks.

The escape of CO₂ could result in severe and irreversible environmental harm. Moisture-laden CO₂ (such as that transported for CCS) is highly corrosive. In addition, the loss to the atmosphere from ships during transport is between 3 and 4% per 1000km, meaning a 20% loss of CO₂ could be expected from any CO₂ export activities between Asian countries such as Japan and Korea and Australia.

Environmental risks of CCS and its import/export include unintentional releases of CO₂ streams into the environment during transport in ships and pipelines and from storage facilities. This could lead to:

- Adverse impacts on marine plants and animals, and groundwater including through ocean acidification and asphyxiation;
- Local high CO₂ concentrations in the air, which could seriously harm animals or people including through asphyxiation (this is a risk offshore, but also at onshore CCS hubs including Middle Arm near population centres in Darwin);
- Seismic events, subsidence and displacement of formation fluids and aquifers during CO₂ injection.

Drilling for CCS and laying of transport pipelines in offshore locations pose significant threats to offshore ecosystems. In the event of leaking carbon dioxide (CO₂) from CCS sites, the environmental impact on marine environments could be significant, and potentially lethal. This would be compounded if prolonged leaks occurred or were inadequately monitored and managed.

Leaking CO₂ risks causing acidification of the water around the CCS site. CO₂ leakages lead to CO₂ dissolving into seawater and decreasing seawater pH, with the effect of acidifying the marine environment.⁶ Acidification can “produce chemical changes in the sediment seawater interface, leading to biogeochemical alteration in marine ecosystems”.⁷

In experiments mimicking CO₂ leakage in a marine environment, scientists found the CO₂ leakage impacted on species mortality. For example, research observes significant increases in mortality of peppery furrow shell clams (*Scrobicularia plana*) at simulated decreases in pH values down to 7, 6.5 and 6,⁸ significant increase in mortality of South American amphipod (*Hyale youngi*) at decreases in pH values down 6.5 and 6.0,⁹ significant increase in mortality of Gilt-head Bream fish (*Sparus aurata*) larvae at decreases in pH values down to 6.0 and 5.5,¹⁰ significant increase in mortality of Manila Clams (*Ruditapes philippinarum*) at decreases in pH values down to 6.0 and 5.5,¹¹ and significant increase in mortality of early juveniles of the European lobster (*Homarus gammarus*) at elevated partial

⁶ MD Basallote et al, ‘Lethal Effects on Different Marine Organisms, Associated with Sediment-Seawater Acidification Deriving from CO₂ Leakage’ (2012) 19(7) *Environmental Science and Pollution Research* 2550, 2551; M Dolores Basallote et al, ‘CO₂ Leakage Simulation: Effects of the PH Decrease on Fertilisation and Larval Development of Paracentrotus Lividus and Sediment Metals Toxicity’ (2018) 34(1) *Chemistry and Ecology* 1, 2

⁷ MD Basallote et al, ‘Lethal Effects on Different Marine Organisms, Associated with Sediment-Seawater Acidification Deriving from CO₂ Leakage’ (2012) 19(7) *Environmental Science and Pollution Research* 2550, 2551.

⁸ M Conradi et al, ‘Lethal and Sublethal Responses in the Clam *Scrobicularia Plana* Exposed to Different CO₂- Acidic Sediments’ (2016) 151 *Environmental Research* 642, 645.

⁹ TA Goulding et al, ‘Assessment of the Environmental Impacts of Ocean Acidification (OA) and Carbon Capture and Storage (CCS) Leaks Using the Amphipod *Hyale Youngi*’ (2017) 26(4) *Ecotoxicology* 521, 525, 530–531

¹⁰ Basallote et al, ‘Lethal Effects on Different Marine Organisms, Associated with Sediment-Seawater Acidification Deriving from CO₂ Leakage’ (2012) 19(7) *Environmental Science and Pollution Research* (n 1) 2554– 2555.

¹¹ Ibid 2555–2556.

pressure of carbon dioxide ($p\text{CO}_2$) levels of 9,000 μatm .¹²

Significant impacts on one species does not mean harm is limited to that species alone. For instance, one study observes “since the burrowing activity of [clams] has a strong influence on the biogeochemistry of sediments and the composition of meiofauna communities, it seems likely that changes in macrofauna abundance in response to elevated seawater $p\text{CO}_2$ [i.e. increased mortality] can have strong repercussions on infaunal ecosystem processes.”¹³

Separately, research shows that acidic conditions enhance the mobility of trace metals or other contaminants that could be present in marine sediment.¹⁴ This makes trace metals or contaminants more available in the overlaying water column.¹⁵ This may increase risk of environmental harm in marine environments where CCS is considered for exploration and should be taken into account in the release.

The impact of CO_2 leakage on marine wildlife species raises the question of potential impacts that should be considered as part of the release of greenhouse gas storage titles for exploration. The precautionary principle, as set out in section 3A(b) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) should be applied to the release.¹⁶ Potential serious or irreversible damage caused to marine environments in the event of CO_2 leakage may not yet be fully understood in the Australian offshore context, however the impact on specific species in research outlined above raises the question of impact on Australian marine species.

Seismic blasting surveys used to explore for new oil and gas fields, and CCS fields in our oceans is of specific concern to AMCS. The early stages of exploration for oil and gas using seismic blasting techniques is some of the most damaging to marine life.

Seismic blasting has been shown to cause mass fatalities in marine life, serious injury and disruption to keystone species including species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) such as southern right and blue whales.

Evidence that seismic blasting harms marine life is growing. The sound travels under water faster than it does through air, and can travel for hundreds to thousands of kilometres. It can kill or injure marine animals close by – even tiny zooplankton more than a kilometre away. Seismic blasts can damage the hearing of whales and keep them away from key feeding and breeding

¹² Daniel P Small et al, ‘The Sensitivity of the Early Benthic Juvenile Stage of the European Lobster *Homarus Gammarus* (L.) to Elevated PCO_2 and Temperature’ (2016) 163(3) *Marine Biology* 53, 52, 53.

¹³ Hanna Schade et al, ‘Simulated Leakage of High PCO_2 Water Negatively Impacts Bivalve Dominated Infaunal Communities from the Western Baltic Sea’ (2016) 6 *Scientific Reports* 31447, 2.

¹⁴ MD Basallote et al, ‘Lethal Effects on Different Marine Organisms, Associated with Sediment-Seawater Acidification Deriving from CO_2 Leakage’ (2012) 19(7) *Environmental Science and Pollution Research* 2550, 2551.

¹⁵ *Ibid*, 2551.

¹⁶ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), section 3A. ³¹ *Environment Protection and Biodiversity Conservation Act 1999*

grounds.¹⁷ Other large animals like dolphins, sea turtles, and sea lions could suffer similar effects. Marine mammals, such as whales and dolphins, rely on sound to navigate and to communicate over vast distances.

Zooplankton, the very basis of ocean food chains, is at risk.¹⁸ These tiny floating or weakly swimming animals rely on water currents to move large distances. Zooplankton includes a range of tiny crustaceans, like krill and copepods, as well the larvae of many larger animals like crabs, lobsters, octopuses and fishes. After seismic blasts, many zooplankton are found dead, even as far away as 1.2 kilometres from the blast site.

The behaviour of scallops changes during and after exposure to blasts.¹⁹ It damages their hemolymph (the scallop's equivalent of blood), and their immune systems, and ultimately weakens them so they're more likely to die early. Similar impacts have been shown in spiny lobsters.²⁰

- **The inquiry should consider how CCS is being used by the fossil fuel industry to greenwash to the public, and investors**

The fossil fuel sector, including those operating in the offshore environment, have made frequent claims of carbon neutrality and/or net zero status. This has been taken to the ACCC by the Environmental Defenders Office on behalf of numerous organisations, including the Australia Institute²¹, which focused on the faults with the Climate Active scheme.

The Climate Active scheme certifies Australian businesses who have offset some of their emissions. Climate Active promotes its trademark as a way to “stand out from competitors” and make it easier to “identify and choose brands that are making a real difference”²². Based on the corporations it is providing support in their claims of carbon neutrality through their offsetting schemes related to their fossil fuel emissions, is a greenwashing service for those companies.

AMCS is concerned that such greenwashing claims would be increased with the enabling of CCS projects that would result from this Bill, with the impact of misleading consumers and investors, and delaying the transition away from fossil fuels. AMCS recommends stronger action on claims of net zero and carbon neutrality from the fossil fuel sector. This could be actioned with enforceable requirements for fossil gas companies to detail their emissions profiles (including methane) and verified information on quantity and quality of offsets such as CCS and their involvement in the global trade of greenhouse gas pollution for claims of carbon neutrality or net zero.

¹⁷<http://www.pelagosinstitute.gr/gr/pelagos/pdfs/Gordon%20et%20al.%202004.%20Review%20of%20Seismic%20Surveys%20Effects.pdf>

¹⁸<https://australian.museum/learn/animals/plankton/zooplankton/>

¹⁹<https://www.nature.com/articles/s41559-017-0195>

²⁰<https://www.pnas.org/content/pnas/114/40/E8537.full.pdf>

²¹<https://australiainstitute.org.au/post/australian-government-breaching-consumer-law/>

²²<https://www.climateactive.org.au/>

- **The inquiry should consider how this Bill will incentivise and facilitate CCS**

The Bill makes a series of amendments to the Principal Act that facilitate and incentivise CCS in Australian waters. Currently the export of controlled material for dumping at sea is prohibited under the *Environment Protection (Sea Dumping) Act 1981 (the Principal Act)*.²³ The Bill will introduce a process for obtaining a permit to export controlled material.²⁴ Controlled material will include “carbon dioxide streams from carbon dioxide capture processes for sequestration”.²⁵

Part 2 the Schedule to the Bill introduces a new offence in section 10AA of “placing wastes or other matter into Australian waters from any vessel, aircraft or platform” if the placement is for a marine geoengineering activity and is not in accordance with a permit.²⁶ The Bill introduces a definition of wastes or other matter that refers to “the meaning given by Article 1 of the Protocol”.²⁷ This is a broad definition that appears to capture CO₂ streams to be exported and imported under the scheme.²⁸ It is not clear what are the implications of treating CO₂ as a waste under the Principal Act for other regulatory schemes, or if methane is similarly considered in the Principal Act.

- **The inquiry should consider how CCS proposals incentivise new oil and gas projects, and prolong exploitation of existing fossil fuel production.**

The potential for the amendments to the Principal Bill to incentivise new oil and gas investment needs to be fully assessed as a global trade in CO₂ with a view to dumping it in Australia’s commonwealth territories could provide incentives for further investment in new oil and gas projects.

This Bill and the enabling actions it would provide to the CCS industry could prolong the exploitation of existing depleted fossil fuel fields. Particularly through the practices of enhanced recovery. This involves pumping carbon dioxide (CO₂) into depleted reservoirs is an established practice known as enhanced oil/gas recovery. The potential for this Bill and the proposed acreage releases for CCS in Australian waters need to be examined in combination to ensure there are no perverse incentives for fossil fuel companies to utilise CCS and the global trade in CO₂ in enhanced oil/gas recovery, and well optimization.

²³ *Environment Protection (Sea Dumping) Act 1981*, section 10D(1).

²⁴ *Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023*, Schedule 1, clause 1 and 3.

²⁵ *Ibid*, Schedule 1, clause 1.

²⁶ *Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023*, Schedule 2, clause 16.

²⁷ *Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023*, Schedule 2, clause 13.

²⁸ 1996 Protocol to the Convention of the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, Article III(4).

- **The inquiry should consider the risk of GHG leaks from CCS before recommending legislation enabling global trade of greenhouse gases.**

The long term safety and securing of CCS is unknown due to the lack of successful working examples, and the projects that have reached actualisation have proven deeply problematic. Eminent climate scientist Bill Hare said storing CO₂ under the seabed was not as simple as it sounded and efforts to do this in the North Sea had “thrown up really serious problems with movement of the CO₂ and the permanence of its storage”²⁹.

There are significant concerns around the efficacy of CCS to offset GHG emissions. CCS is an unproven technology that carries the significant risk of leaks and fugitive emissions. Any leaks of stored greenhouse gas from CCS projects would represent a failure to offset emissions and may in fact result in an increase to Australia’s total GHG emissions.

Recent analysis of the operations of two CCS facilities in Norway shows one site to have been leaking CO₂ for a significant period of time with the other storing CO₂ greatly below expected storage capacity.³⁰ The facilities Sleipner and Snøhvit are run by a Norwegian state-owned energy company and have been operating since 1996 and 2008 respectively. The scale of these projects is significant for CCS and they report “an average of 1.8 million metric tonnes per year of CO₂ are disposed of ... accumulating 22 million tonnes in storage so far” for the two sites.³¹

The Sleipner site is reported to have had CO₂ “unpredictably migrating upwards by 220 m” from the original underground storage site (while still remaining buried). The movement of CO₂ upwards 220 metres was over three years.³² Reporting suggests “this implied that the eight layers were potentially far more fractured and/or thinner than previously thought... The ability of the CO₂ to travel so quickly and easily from its initial deposition point to Layer 9 raised questions”.³³

The Snøhvit site faced different challenges. Its storage capacity was revised down from an estimated 18 years of CO₂ sequestration to less than 2 years once the operation was underway. A geological structure thought to have 18 years’ worth of CO₂ storage capacity was indicating less than six months of further usage potential.”³⁴

²⁹<https://www.theguardian.com/australia-news/2023/jun/30/australian-sea-dumping-law-changes-condemned-amid-warnings-of-gas-industry-expansion>

³⁰ Hauber, G, ‘Norway’s Sleipner and Snøhvit CCS: Industry models or cautionary tales?’, (2023), Institute for Energy Economics and Financial Analysis, available at: Norway’s Sleipner and Snøhvit CCS: Industry models or cautionary tales? | IEEFA.

³¹ Hauber, G, ‘Norway’s Sleipner and Snøhvit CCS: Industry models or cautionary tales?’, (2023), Institute for Energy Economics and Financial Analysis, available at: Norway’s Sleipner and Snøhvit CCS: Industry models or cautionary tales? | IEEFA.

³² *ibid*

³³ *ibid*

³⁴ *ibid*

GHG leaks can also lead to contamination of important aquifers as CO₂ migrates through fractured or ineffective caprock, along fault lines, or through porous geological strata.³⁵ Leakage of CO₂ emissions has significant climate impacts and can result in vast shortfalls in storage. The significant concerns raised about the efficacy of existing CCS operations in Australia and internationally (including those that have been operational for more than a decade), should be considered in any determination to release greenhouse gas storage titles.

- **The inquiry should consider liability for any leaks, transport incidents, site accidents or decommissioning of CCS infrastructure and leases resulting from this global trade in CO₂.**

Responsibilities around transboundary liability are unclear in this Bill. Geoscience Australia has identified potential risks such as CO₂ leakage and seismic activity induced by the injection of CO₂ into the seabed³⁶. In the marine environment, sub-seabed sequestration of CO₂ as an option has been under consideration for over two decades, including within Australia, with the Sleipner CCS Project in the North Sea operating since 1996.

Of primary concern is the potential impact of CO₂ leakage into ocean waters, either during the transport and injection process, or following sequestration into a geological formation (sedimentary rock)³⁷. As there is currently no established international trade of CO₂ for the purpose of geological storage there is no clarity, or precedent, for who bears liability for leaks, spills, transport incidents, environmental damage, or decommissioning of CCS infrastructure.

While the gas industry has tended to underplay the risks associated with CCS, the escape of CO₂ could result in severe and irreversible environmental harm. Moisture-laden CO₂ (such as that transported for CCS) is highly corrosive. In addition, the loss to the atmosphere from ships during transport is between 3 and 4% per 1000km (meaning a 20% loss of CO₂ could be expected from any CO₂ export activities between countries).

Proposed amendments risk Australia becoming a CCS sea dumping option for countries in the Asia-Pacific region, including (but not limited to) Singapore, South Korea, and Japan. This is a commercial trading arrangement and serious scrutiny into the arrangements between participating governments and trade related departments needs to be undertaken. While particular consideration needs to be given to trading nations and associated corporate actors,

³⁵ Jinfeng Ma et al., 'Carbon Capture and Storage: History and the Road Ahead' (2022) *Engineering* 14, 33-43, 39; see also IPCC, *CO2 Capture and Storage* (2005), Available at: https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_wholereport-1.pdf.

³⁶ <https://www.theguardian.com/australia-news/2023/jun/30/australian-sea-dumping-law-changes-condemned-amid-warnings-of-gas-industry-expansion>

³⁷ Carroll, A.G., Przeslawski, R., Radke, L.C., Black, J.R., Moreau, J.W., Picard, K., Haese, R.R., Nichol, S. 2014. Environmental considerations for sub-seabed geological storage of CO₂: A review. *Continental Shelf Research* 83, 116-128.

liability for negative impacts of the industry must be deeply considered, and reviewed as more evidence is available.

- **The inquiry should consider Ministerial oversight, and DFAT responsibilities in the international trade of CO₂ and dumping in Australia's oceans.**

The Bill would require the relevant Ministerial approval of certain matters prior to the granting of a CO₂ export permit. The operative provision relevant to risk assessment and management of CCS requires a permit to be in accordance with Annex 2 to the London Protocol³⁸. A Framework has been developed by the Contracting Parties – the “Risk Assessment and Management Framework for CO₂ Sequestration in Sub-Seabed Geological Structures” to ensure compatibility with Annex 2 to the London Protocol³⁹. There is no reference, or clarity on the need for compliance with the Framework is not referred to in the Bill, nor required.

The Contracting Parties have adopted the Specific Guidelines on Assessment of CO₂ Streams for Disposal into Sub-Seabed Geological Formations (the Specific Guidelines). These guidelines provide the assessments and considerations required in issuing a permit. They address CO₂ stream characterization, site selection and characterization, environmental impact assessment, risk assessment, monitoring, mitigation and remediation plans, and risk management. Again compliance with the Specific Guidelines is not referred to in the Bill, nor required.

There are a range of problems with the Bill, and the regulatory framework governing CCS global trade in addition to those we have outlined above. The following matters require closer scrutiny from the committee:

- The impact on emissions inventory reporting and Paris Agreement target compliance is unclear;
- The consistency of any activities and trade with the global effort to achieve the Paris Agreement is not established.
- The relationship of this Bill with the Safeguard Mechanism is unclear;
- (with respect to Bayu Undan) the regulatory capacity and readiness on the part of Timor Leste is unclear. In particular, it is unclear whether Timor Leste can ensure the same level of environmental protection as Australia, or the mechanism by which that can or will occur.

AMCS is against the passing of this Bill for the reasons outlined in our submission. This Bill would facilitate Australia becoming a global trade destination for Sea Dumping of greenhouse gases under our oceans which is against the best climate, environment and marine science. The Bill implements amendments made to the London Protocol in 2009 and 2013 into Australian Law, relating to CCS and geoengineering. Rather than investing taxpayers' monies in this unsafe, unproven and unviable industry the Australian government must focus doing its fair share to ensure a safe climate and protect at least 30% of our marine biodiversity by 2030

³⁸ <https://www.epa.gov/sites/default/files/2015-10/documents/lpamended2006.pdf>

³⁹ *ibid*

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