Senate Standing Committees on Environment and Communications
Parliament House
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Submission regarding the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023

I would like to thank the Senate Standing Committees on Environment and Communications for this opportunity to make the following submission regarding the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023.

I make this submission as a resident of the Mornington Peninsula (VIC) and do not represent any organisation.

1. Summary:

This submission will present my concerns about the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 including proposed amendments to the London Protocol and the potential long-term adverse environmental, legal and financial impacts of the transportation and storage of carbon dioxide streams (CO2) beneath Australian territorial waters and other countries.

I strongly oppose amendments to the London Protocol due to increased potential for adverse risks and pollution impacts to the Australian marine environment due to the undersea transportation of CO2. These amendments would contribute to increasing adverse climate change impacts in Australia due to the continued facilitation of greenhouse gas emissions production within Australia and in other countries.

I do not believe that there are positive environmental benefits to be achieved from the transportation and storage of CO2 between nations and CO2 streams must not be transferred from Japan or any other country to Australia for long-term storage beneath Australian territorial waters or on land.

I do not believe that adequate community consultation has been conducted by the Federal Government to inform the Australian people about the potential adverse impacts of carbon capture and storage (CCS), the environmental impacts from proposed amendments to the London Protocol or the potential legal and financial liabilities and costs of CCS that could be the long-term responsibility of the Australian taxpayer.

I believe that the current legal framework and reporting of greenhouse gas inventories, energy production and energy consumption in Australia is flawed and does not present accurate and timely petroleum and emissions data in order to inform the policies and programmes necessary to meet Australia's net zero emissions target.

I oppose this Bill as drafted due to the proposed use of unproven technology of carbon capture and storage, the construction of new fossil fuel infrastructure is incompatible with the principles of the Paris Agreement, potential adverse risks and impacts from the transport of CO2 beneath the sea, risks of leakage from undersea pipelines and storage sites and the continued production and use of fossil fuels that would contribute to future adverse impacts on marine and terrestrial ecology and unacceptable risks of harm to human health.

2. Background of the London Protocol:

The "Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972" (the "London Convention") was one of the first global conventions to "… . *promote the effective control of all sources of pollution of the marine environment…"* and *"… to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea*."(1)

The London Convention has been in force since 1975.
https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx

In 1996, the "London Protocol" was agreed to further modernise the London Convention and as a full treaty, eventually replace it. Under the London Protocol, all dumping is prohibited, except for possibly acceptable wastes on the "reverse list" after meeting permit conditions.

The London Protocol entered into force on 24 March 2006.

In 2009, an amendment to Article 6 of the London Protocol was proposed by Norway to allow export of CO2 for sub-seabed geological storage between cooperating countries.
This activity is a component of carbon capture and storage (CCS) and could result in the creation of 'hubs' or 'clusters' of undersea pipelines to transfer CO2 between countries for sub-seabed sequestration.

In 2013, parties to the London Protocol adopted amendments to regulate marine geoengineering activities including ocean fertilisation – *"… a deliberate intervention in the marine environment to manipulate natural processes, including to counteract anthropogenic climate change and/or its impacts, and that has the potential to result in deleterious effects, especially where those effects may be widespread, long-lasting or severe."* (2).

Australia ratified the London Protocol on 4 December 2000 (3).

On 30 November 2022, the Minister for the Environment and Water, Hon Tanya Plibersek MP asked the House Standing Committee on Climate Change, Energy, Environment and Water (CCEEW) to inquire into and report on 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) (4).

Public submissions to the inquiry closed on 10 March 2023
A single public hearing for the inquiry was held for four hours in Canberra on 26 May 2023.
The Committee tabled its inquiry report on 13 June 2023.
On 22 June 2023, Minister Plibersek presented the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 following the inquiry into London Protocol amendments.

1. United Nations "Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter"
https://treaties.un.org/doc/publication/unts/volume%201046/volume-1046-i-15749-english.pdf
2. International Maritime Organization
https://www.imo.org/en/MediaCentre/PressBriefings/pages/Marine-geoengineering.aspx
3. Australian Treaty Series
https://www.austlii.edu.au/au/other/dfat/treaties/ATS/2006/11.html
4. House Standing Committee of Climate Change, Energy, Environment and Water
https://www.aph.gov.au/Parliamentary_Business/Committees/House/Climate_Change_Energy_Environment_and_Water/LondonProtocol

3. Carbon capture and storage (CCS):

Carbon capture and storage (CCS) processes are designed to collect carbon dioxide (CO2) emitted from industrial activities such as coal-fired power generators or liquefied natural gas (LNG) facilities.
The CO2 emissions could be transported via pipelines to underground reservoirs (such as depleted gas fields) or utilised in other industrial or petroleum activities such as enhanced oil recovery (EOR).
EOR has been used in the United States to extract remnant oil and gas from older fields by injecting CO2 underground to produce pressure to force oil or gas towards rigs or platforms before being transported to a petroleum facility on land.

There have been many CCS projects proposed over the past fifty years, particularly in the United States, with the majority ending in failure. Some CCS projects have proceeded with the assistance of government funding but have faced numerous operational or environmental issues – e.g. the Gorgon project in Western Australia.

The $55 billion Gorgon LNG (liquefied natural gas) project is a joint venture between Chevron Australia, ExxonMobil, Shell, Tokyo Gas, Osaka Gas and Chubu Electric with construction starting in 2009 and becoming operational in 2016. The Australian Government and Western Australian government agreed to jointly accept any long-term common law liability arising from the storage of CO2 from the Gorgon LNG project in 2009.

Since operations began, the Gorgon LNG project has failed to capture the required 80% of CO2 produced at Gorgon and inject the emissions into a 7km long pipeline beneath Barrow Island off the W.A. coastline. The Gorgon LNG project had a target to capture 3.4 to 4 million tonnes of CO2 per year but has yet to achieve this target. Due to technical problems, the Gorgon LNG project has only stored 6.5 million tonnes of CO2 in total at Barrow Island since 2016 resulting in the need to vent millions of tonnes of CO2 to the atmosphere each year and requiring the purchase of millions of tonnes of carbon offsets (5).

CCS does not remove CO2 from the atmosphere – it only seeks to prevent a small portion of carbon emissions from reaching the atmosphere while assisting the extraction and production of fossil fuels to continue into the future. CCS projects that capture a portion of CO2 from industrial facilities that produce or consume fossil fuels do not significantly contribute to the overall reduction of Australia's carbon inventory and therefore do not have an significant impact on climate change. <u>CCS is not a significant decarbonisation solution.</u>

The primary use of CCS is to facilitate future oil and gas exploration and production in Australia and around the world and allow the petroleum industry to continue the creation of carbon emissions indefinitely.

CCS carries significant adverse risks from greenhouse gas leakage from facilities, pipelines and storage sites.
CCS requires new fossil fuel infrastructure that is not compatible with the principles of the Paris Agreement.
CCS presents significant environmental, legal and financial costs and liabilities for the Australian taxpayer.
CCS delays action on climate change and risks adverse impacts on our environment and human health.

5. Sydney Morning Herald
https://www.smh.com.au/business/companies/gas-giant-s-3-2b-effort-to-bury-carbon-pollution-is-failing-20221113-p5bxtw.html

4. Environmental risks:

There are a number of significant risks involved in the transportation and storage of carbon streams between countries and via pipelines beneath Australian territorial waters.

These potential risks include:

- Pipeline leakage
- Storage site leakage
- Fugitive emissions
- Seawater quality and acidification
- Seabed disturbance
- Marine species loss
- Operational noise impacts
- Seismic events
- Accidents
- Mechanical failure
- Loss of containment of CO2

I believe that it is vital to identify all potential environmental impacts on the marine environment regarding the proposed transportation and storage of carbon dioxide streams in Australian territorial waters.

Pipeline or storage site leakage may be immediate, due to accident or plant failure, or delayed due to small structural deficiencies which may not be identified for many years.

Marine flora and fauna and sensitive deep sea species may be impacted by the construction and operations of offshore pipelines and excavation equipment beneath territorial waters and the sub-seabed (6).

The ongoing monitoring and maintenance of multiple CO2 pipelines over long distances between countries will require significant expense to CCS operators and governments. Under-investment in scheduled maintenance and pipeline repairs are also a concern to be considered regarding analysis of CCS projects.

Accidents and mechanical failures are random events with significant consequences for marine species and ecosystems found at deep sea level in locations difficult for CCS operators to repair subsea pipelines.

Proposals to inject massive volumes of CO2 over many decades beneath the seabed may increase the likelihood of seismic events or earthquake activity. Pre-existing faults in the earth's crust may be affected by CO2 injection and once a CCS site is filled to capacity, there may be issues around the integrity of the reservoir seal.
Extensive on-going monitoring will be necessary to detect physical changes in the CCS site and avoid structural damage or loss of CO2 containment.

6. UK Government – "Scoping the environmental impacts of carbon capture, transport and storage" https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/297115/geho0811bucq-e-e.pdf

5. Greenhouse Gas Inventories and Reporting:

In order to determine the environmental benefits of exporting and importing carbon dioxide streams within Australia, it is necessary to understand the available historical and current emissions data.

Emissions data includes energy use and production of petroleum products in Australia as well as greenhouse gas emissions data. The emissions data is utilised for the design and implementation of policies and programmes in order for Australia to achieve net zero emissions target.

The Department of Climate Change, Energy, the Environment and Water (DCCEEW) administers the Australian Energy Statistics (AES) to provide data on energy consumption and production for fuel types and industries in each state and territory.
https://www.energy.gov.au/government-priorities/energy-data/australian-energy-statistics

The Clean Energy Regulator (CER) administers the National Greenhouse and Energy Reporting Scheme (NGERS) is the framework for reporting greenhouse gas emissions, energy production and energy consumption from companies around Australia
https://www.cleanenergyregulator.gov.au/

DCCEEW also has responsibility for ensuring that Australia's greenhouse gas inventory reporting obligations and tracking progress of Australia's international emission reduction commitments. Other federal and state government agencies provide emissions data and estimates along with public company reporting.
https://www.dcceew.gov.au/climate-change/emissions-reporting/tracking-reporting-emissions

Unfortunately, not all petroleum and emissions data from individual companies is available to Australian authorities in a timely manner or in sufficient detail. The confidentiality of petroleum volumes and emissions data can be restricted due to commercial privacy requirements or delays in reporting such as annual reporting of emissions rather than on a more frequent basis or delivered in real-time.

Under section 25 of the National Greenhouse and Energy Reporting Act 2007, registered corporations may apply to have all or part of their reported greenhouse gas emissions and energy production and consumption totals withheld from publication. Data may only be published above certain thresholds (7).

Estimates and modelling are available to determine or predict emissions data but are not a substitute for detailed data from current operating industrial facilities such as LNG production plants or oil refineries.

There must be improved transparency on petroleum volumes and GHG emissions data reporting to ensure that accurate information is provided by all businesses and corporations operating within Australia in a more timely manner and in greater detail. Commercial confidentiality and privacy concerns regarding CO2 emissions and other air pollutants from industrial facilities restrict access to the emissions data that is needed to provide true and accurate information to regulators and assist achieving Australia's decarbonisation goals.

7. National Greenhouse and Energy Reporting Act 2007
https://www.legislation.gov.au/Details/C2023C00090

6. Legal and Financial liabilities:

"Who will hold long-term responsibility for the environmental impacts of transportation and storage of CO2 emissions within Australia and across international boundaries?"

The issue of legal liability has not been adequately addressed in regards to potential environmental impacts from the import, export and sub-seabed storage of CO2 in Australia and across international boundaries.

There are many potential risks and hazards involved in the transportation of CO2 via undersea pipeline and its storage beneath the sub-seabed. These risks include loss of containment, leakage, rupture, seismic events, etc. These risks and mitigations may be the initial responsibility of CO2 pipeline operators during the construction and operation phases for the first 10 – 20 years but would the Australian taxpayer later take on full ownership and responsibility in the long-term?

Long-term common law liability obligations for CO2 stored beneath Australian territorial waters could cost billions of dollars in the future if CCS projects fail to securely transport and store carbon emissions below the sub-seabed. Transfer of responsibility and liability from CCS project proponents to the Australian Government (or other party nations) must be carefully considered to ensure new regulations and laws do not expose the taxpayer to unlimited monitoring, remediation and rehabilitation costs.

The issue of liability would be crucial once a CO2 storage reservoir is full and sealed under constant pressure.

7. CO2 pipeline and storage financial costs:

"Who will provide funding for the construction, operation, monitoring and decommissioning of CO2 pipelines and storage reservoirs located within Australia and in other countries?"

The finances required to build thousands of kilometres of new CO2 pipelines within Australia and across South East Asia could be immense – who will provide funding and insurance to cover environmental damage? ExxonMobil is currently seeking $100 billion to capture CO2 from industrial facilities along the Houston Ship Channel and store the carbon emissions beneath the Gulf of Mexico sea floor.

A key issue for financing CCS is the lack of verifiable data to prove the effectiveness of commercial-scale projects against stated claims by proponents. The Institute for Energy Economics and Financial Analysis (IEEFA) reported that "… the actual costs are largely untested and in most cases, unproven, as their performance and costs have not been verified by third parties. Additionally, the permanence of CO_2 storage will need to be proven over a millennia timescale. This will require appropriate monitoring and verification standards, liability frameworks, and additional emissions buffers to protect the climate and public from CO_2 leakage. "(8)

The Safeguard Mechanism reforms recently passed by Parliament may allow future CCS projects to abate or offset carbon emissions in order to meet 'international best practice' zero net greenhouse gas emissions using Australian Carbon Credit Units (ACCUs). CCS proponents may seek financial incentives or funding from the Federal Government to reduce CO2 emissions from their operations within Australia or overseas.

8. Institute of Energy Economic and Financial Analysis
https://ieefa.org/articles/investment-risks-carbon-capture-and-storage-currently-outweigh-its-potential

8. Conclusion:

I strongly oppose the introduction of the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 as currently drafted as it would allow for the import and export of carbon dioxide streams for the purpose of sub-seabed sequestration causing potential adverse impacts on the marine environment, increased likelihood of adverse climate change impacts, unacceptable risks of harm to human health and increased production of greenhouse gas emissions within Australia and overseas.

As a component of carbon capture and storage (CCS), the transportation of carbon dioxide streams for sub-seabed sequestration is not a decarbonisation strategy that will significantly reduce the impacts of climate change in Australia or remove substantial amounts of CO2 from the atmosphere. I am concerned that other nations, such as Timor-Leste, will lack the legal and environmental framework to manage and control carbon streams and CO2 sequestration resulting in potential environmental and financial risks and damage.

The risks involved in sub-seabed sequestration are varied with significant consequences for the marine environment due to pipeline leakage, loss of CO2 reservoir containment, accidents or equipment failure. Transport of CO2 via shipping could have significant risks for the marine environment and human health.

I have concerns about the accuracy of greenhouse gas inventory data from the proposed export and import of carbon dioxide streams between Australia and other countries. There are flaws in the current reporting of emissions data from Australian companies due to commercial confidentiality and privacy issues. I am concerned that future transportation of carbon streams within Australia will lack accuracy and transparency.

The potential liabilities and financial costs could be significant if proposed undersea CO2 pipelines and storage reservoirs fail to contain every molecule of carbon dioxide securely with the Australian taxpayer potentially being held responsibility and providing guarantees over coming decades to pay for ongoing repairs, remediation and rehabilitation for any infrastructure or environmental damage caused.

I believe that the Australian Government must improve its stakeholder engagement processes to ensure that all citizens and organisations are fully consulted on the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023.

New policies, proposals or developments regarding carbon capture and storage projects in Australia or the transport of carbon dioxide streams for sub-seabed sequestration between our nation and others will require extensive community consultation and engagement in order to achieve social licence.

Finally, I believe that the Environment Protection (Sea Dumping) Amendment (Using New Technologies to Fight Climate Change) Bill 2023 has been drafted by the Australian Government for the benefit of petroleum companies such as Santos, Woodside, Chevron, BP, Shell and ExxonMobil to expand fossil fuel exploration and production in Australia and to assist Japan in achieving its goal of ‘carbon neutrality’ by 2050.

I thank the Committee for their time and consideration of this submission.