

House Standing Committee on Climate Change, Energy, Environment and Water
House of Representatives
Parliament House
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10 March 2023

Submission regarding proposed amendments to the London Protocol:

I would like to thank the House Standing Committee on Climate Change, Energy, Environment and Water for this opportunity to make the following submission regarding the '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)'.

1. Summary:

This submission will present my concerns about proposed amendments to the London Protocol and the potential long-term adverse environmental impacts of the transportation and storage of carbon dioxide streams (CO₂) beneath Australian territorial waters.

I strongly oppose amendments to the London Protocol that will increase the potential for adverse risks and pollution impacts to the Australian marine environment as well as facilitating increased greenhouse gas emissions production within Australia.

I do not believe that there are positive environmental benefits to be achieved from the transportation and storage of CO₂ between nations.

I believe that CO₂ streams must not be transferred from Japan, Singapore or any other country to Australia for storage under Australian territorial waters or on land.

I do not believe that adequate community consultation has been conducted by the Australian 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, potential financial costs of CCS or the long-term climate impacts of continued extraction, production, export and use of fossil fuels in Australia.

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 collect accurate and timely emissions data in order to inform the policies and programmes necessary to meet Australia's net zero emissions target.

I believe that the House Standing Committee on Climate Change, Energy, Environment and Water must recommend to the Australian Government that a full and thorough analysis is required into all potential consequences from passing any proposed amendments to the London Protocol including reference to current and future carbon capture and storage projects and identify all potential environmental effects (including climate change), potential adverse impacts on marine 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 – dredged waste, sewerage sludge, fish wastes, vessels and platforms, inert, inorganic geological material, organic material of natural origin, bulky items (iron, steel or concrete) and carbon dioxide streams from carbon dioxide capture processes for sequestration.⁽²⁾

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.*"⁽³⁾

Ocean fertilisation may involve adding nutrients to depleted areas of the open ocean in order to increase plankton production. This technique could be used to absorb atmospheric carbon dioxide – however the technique is unproven and could have significant adverse impacts on marine ecosystems.⁽⁴⁾

<https://www.imo.org/en/OurWork/Environment/Pages/OceanFertilization-default.aspx>

Note: There are currently 53 countries that are party to the London Protocol including Australia and the U.K. Several key states are not bound by the London Protocol including India, Indonesia, Malaysia, Russia and the United States.

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. EPA United States <https://www.epa.gov/ocean-dumping/ocean-dumping-international-treaties>

3. International Maritime Organization

<https://www.imo.org/en/MediaCentre/PressBriefings/pages/Marine-geoengineering.aspx>

4. UK Government

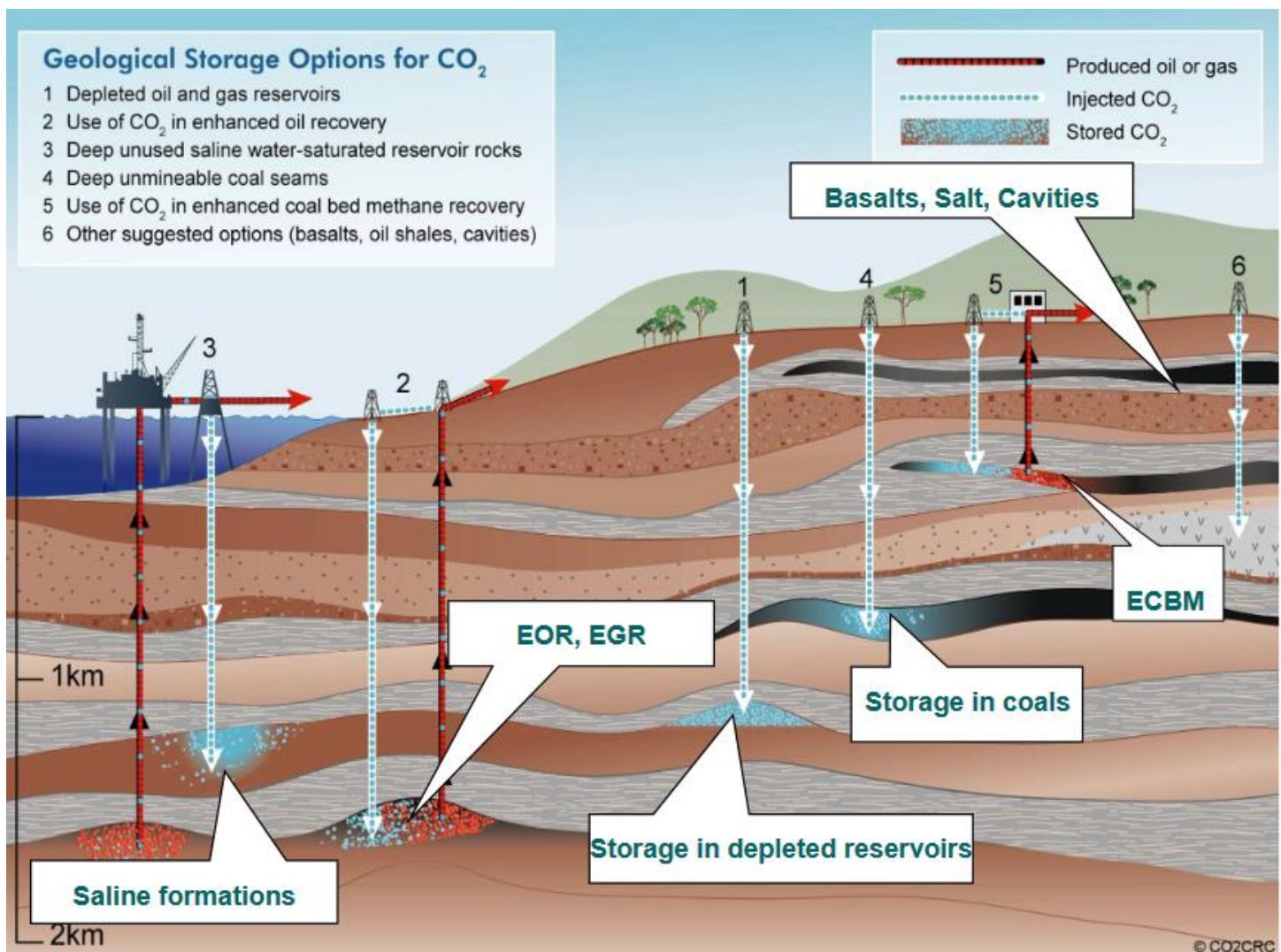
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/376395/EM_Misc_9.2014.pdf

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, gas refineries or plastics manufacturing 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 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 piped to a 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 ⁽⁵⁾.



Credit: CO2CRC Geoscience Australia

5. Massachusetts Institute of Technology <https://sequestration.mit.edu/tools/projects/gorgon.html>

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 ⁽⁶⁾.

CCS does not remove CO₂ from the atmosphere – it only seeks to prevent some 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 CO₂ in our atmosphere and therefore do not have a significant impact on climate change. CCS is not a significant decarbonisation solution.

The primary use of CCS is to facilitate an increase in oil and gas production in Australia and around the world and allow the petroleum industry to continue the creation of carbon emissions indefinitely. CCS delays action on climate change and its adverse impacts on our environment and human health.



Credit: Clough Group <https://www.cloughgroup.com/en-ca/projects/gorgon-project-downstream-lng-epcm>

6. 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

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 ⁽⁷⁾.

The ongoing monitoring and maintenance of multiple CO₂ pipelines over long distances between countries will require significant expense to CCS operators and governments. Lack of investment in scheduled maintenance and pipeline repairs are also a risk 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 large 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 monitoring will be necessary to detect changes in the CCS site and avoid structural damage or loss of CO₂ containment.

7. 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 ⁽⁸⁾.

<https://www.dcceew.gov.au/climate-change/emissions-reporting/tracking-reporting-emissions>

Unfortunately, not all emissions data from individual companies is available to Australian authorities in a timely manner or in sufficient detail. The confidentiality of company 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.

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 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 a more true and accurate understanding of climate change impacts and to contribute to achieving Australia's decarbonisation goals.

8. International Energy Agency "Demand-side data and energy efficiency indicators"

<https://www.iea.org/reports/demand-side-data-and-energy-efficiency-indicators>

6. Conclusion:

I strongly oppose the introduction of proposed amendments to the London Protocol that would allow for the import and export of carbon dioxide streams for the purpose of sub-seabed sequestration due to the potential adverse impacts on the marine environment, increased likelihood of climate change impacts, unacceptable risks of harm to human health and increased production of greenhouse gas emissions within Australia.

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 CO₂ from the atmosphere.

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.

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.

Finally, I believe that the Australian Government must improve its stakeholder engagement processes to ensure that all citizens and organisations are fully informed of new policies, proposals or developments regarding carbon capture and storage projects or the transport of carbon dioxide streams for sub-seabed sequestration and seek public feedback on this important environmental issue.

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