Australian Government
Department of Foreign Affairs and Trade

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).

SUBMISSION BY THE DEPARTMENT OF FOREIGN AFFAIRS AND TRADE (DFAT)

10 March 2023

KEY MESSAGES

1. *There is an existing and fast-growing market for international carbon dioxide streams.*
2. *Ratification of the amendment to Article 6 will provide potential trade and investment benefits for Australia.*
3. *Ratification would align with Australia's interest in supporting Timor-Leste's economic growth.*
4. *Ratification would align with Australia's interest in supporting the energy security of key partners.*
5. *Ratification would benefit Australia reputationally by following through on its commitment to ratify.*

The Department of Foreign Affairs and Trade (DFAT) 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).*

DFAT's Role

The Department of Foreign Affairs and Trade (DFAT) works in support of a prosperous and secure region, where international rules and sovereignty are respected. We invest in our network of partnerships, support the international rules-based system and promote resilience at home and abroad.

1. Submission scope

Carbon capture, utilisation, and storage (CCUS)[1] policies and programs are matters dealt with by the Department of Climate Change, Energy, the Environment and Water under the Administrative Arrangements Order made on 14 October 2022.

The Department of Industry, Science and Resources (DISR) administers the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGS Act), which provides a framework for the granting and administration of offshore greenhouse gas storage titles (the terminology used in the OPGGS Act, equivalent to carbon, capture and storage (CCS)). 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).

DFAT's submission focuses on the third item in the Terms of Reference, *'c - international market for carbon dioxide streams.'* Our Submission considers the developing international market for carbon dioxide streams, Australia's trade and development interests, and the potential foreign policy, trade, and development implications of Australia's ratification of the 2009 amendment to Article 6 of the London Protocol ('the 2009 amendment').

[1] This Submission uses CCUS as a generic term for carbon, capture and storage activities that may or may not include utilisation. Where a specific project or Government Policy refers only to CCS, this term is used.

2. Existing international market for carbon dioxide (CO_2) streams

In 2022, there were 30 operational CCUS projects globally, 11 under construction and 153 in development.[2] This total of 196 projects represented a 44 per cent increase from 2021. North America is home to most existing initiatives.

Several offshore carbon dioxide (CO_2) sequestration projects are operational and have been for many years. For example, Norway's Sleipner offshore CCS project has operated off the coast of Norway since 1996 and sequesters 0.9 million tonnes of CO_2 annually. Norway's Snovit offshore CCS project has been in operation since 2008 and sequesters 0.7 million tonnes of CO_2 annually.

Increasingly, low emissions blue hydrogen (produced using fossil fuels with CCUS), and Direct Air Capture (DAC; capturing carbon dioxide directly from the atmosphere) projects are becoming part of the global CCUS sector. There are currently dozens of blue hydrogen projects planned and/or underway globally. While DAC is starting from a smaller base, significant public investment in related technologies is contributing to its rapid scale-up.[3]

3. The developing international market for carbon dioxide streams

Many countries are prioritising CCUS projects as a critical part of their climate and energy policies. These countries are contributing to the steady development of an international market for transboundary movement of CO_2. Some countries are driven by their lack of alternative options for decarbonisation, others by the revenue potential of selling access to subsea storage options in their territorial waters or exclusive economic zones.

Emissions intensive businesses are increasingly exploring CCUS options to mitigate their environmental impacts and meet increasing carbon reduction requirements.

Some examples of international commitments to the development of CCUS including the development of markets for CO_2 streams are set out below.

Europe

In Norway and Denmark CCUS projects are central to both countries' climate and energy policies. Norway is constructing one of the world's largest full-scale projects called the Longship. This offshore CCS project is due to be operational by 2024 and will receive captured CO_2 across Europe and store it permanently in geological formations in the established North Sea oil and gas province. Several countries have shown interest in storing CO_2 through the Longship project and are in talks on bilateral conditions for CO_2 storage in Norway.

On 6 February 2023, the Danish Ministry of Climate, Energy and Utilities granted the first full-scale CO_2 storage permits for Danish waters in the North Sea.

The Netherlands offers incentives for CCUS technological development while Belgium, Sweden, Croatia, and Greece have all included CCUS related investments in their national recovery plans.

The German Government is planning to release a carbon management strategy this year that will include CCUS. A recent blue hydrogen deal between the German Government and Equinor of Norway for CCS in the North Sea shows the Government is supportive of offshore CCS.

The UK Government has committed to invest in CCUS as part of its *10-Point Plan for a Green Industrial Revolution.*[4] The UK intends to capture and store 20 to 30 million tonnes per annum (Mtpa) CO_2 by 2030

[2] CCS Institute (2022) Global Status of CCS Report 2022, accessed at https://status22.globalccsinstitute.com/2022-status-report/. Note this includes two projects which have had operations suspended.

[3] CCS Institute (2022) Global Status of CCS Report 2022, accessed at https://status22.globalccsinstitute.com/2022-status-report/.

[4] Government of UK (2020) Ten Point Plan for a green industrial revolution, accessed at The ten point plan for a green industrial revolution - GOV.UK (www.gov.uk).

onward. The Government has committed £1 billion to developing CCUS clusters across the country throughout the 2020s.

Asia

Japan and the Republic of Korea (ROK) both consider CCUS to be important for their energy transitions. In a press conference on 22 November 2022, Minister Nishimura, Minister for Economy, Trade, and Industry, explained the Japanese Government's technology-neutral approach to decarbonisation, saying 'we will continue to explore every possibility, including LNG, hydrogen, ammonia, and CCUS to address the challenges of emission reduction and a stable energy supply.'[5]

In its 2022 6th Energy Plan, Japan said 'realizing carbon neutrality is not easy' and it will pursue decarbonisation of its power sector through a range of technologies, including CCUS.[6] The Japanese Government is now working on a legal framework for CCUS underground or under the seabed by 2030 as part of these efforts to meet its net zero goal, with legislation planned for late 2023.[7]

The ROK Government sees CCUS as a critical part of achieving its targets of a 40 per cent emissions reduction by 2030 and net zero emissions by 2050. The ROK's Director General for Energy Transition Policy Chun Young-Ghil has publicly said, 'Carbon Capture, Storage and Utilisation (CCUS) is a key technology for carbon neutrality and is absolutely essential for ROK to achieve its 2030 NDC [national determined contribution].'[8]

Singapore sees CCUS as critical to the decarbonisation of its petrochemical sector on Jurong Island, which includes major operations from companies like Royal Dutch Shell and Exxon Mobil. The National Climate Change Secretariate and Economic Development Board (EDB) jointly released a detailed report informing Singapore's approach to CCUS and associated research. The EDB has set a target of at least 2 million tonnes of carbon to be captured by 2030. Singapore's plans to increase its domestic carbon tax to SGD 50-80 per tonne by 2030 will likely generate further interest in CCUS.

North and South America

Both the United States and Canada are world leaders in onshore CCUS deployment. In the US, there has been broadly bipartisan political support and a significant increase in funding available for technologies that safely and efficiently capture, remove, and store CO_2. These policies include the 2022 Inflation Reduction Act increase in tax credit for CCUS from USD 50 per tonne to USD 85 per tonne; investment in CCUS of USD 12 billion under the Bipartisan Infrastructure Law; and USD 1 billion for carbon removal research under the 2022 CHIPS Act. In 2021, the US amended its 1953 Outer Continental Shelf Lands Act to direct the Department of Interior to develop regulations for establishing a permitting framework for offshore CO_2 storage.

The Canadian Government expects CCUS to play a critical role in helping Canada achieve its net-zero by 2050 objective.

Middle East

In Saudi Arabia, CCS projects are central to the country's climate and energy policies and are critical to achieving its net zero target by 2060. At the 2022 Saudi Green Initiative Forum, held on the margins of COP27, the Saudi Government announced expansion of its CCS ambitions, targeting carbon capture of 44 million

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[5] Government of Japan, (2022) Press Conference, accessed at Press Conference by Minister Nishimura (Excerpt) / METI Ministry of Economy, Trade and Industry.

[6] Government of Japan (2022) 6th Energy Plan, accessed at 6th_outline.pdf (meti.go.jp).

[7] Government of Japan, (2022) Introduction of Long-Term CCS Roadmap, accessed at Introduction of CCS policy (env.go.jp)

[8] Government of Republic of Korea, (2022) Press Release, '*Undertaking preparation of institutional framework to support innovation and commercialisation of CCUS technology / Joint taskforce to prepare institutional framework for CCUS formed by relevant ministries,' accessed at,* http://www.motie.go.kr/motie/ne/presse/press2/bbs/bbsView.do?bbs_seq_n=165587&bbs_cd_n=81&currentPage=1261&search_key_n=title_v&cate_n=&dept_v=&search_val_v=.

tonnes annually by 2035. Saudi Aramco (a Saudi Arabian public petroleum and natural gas company) is collaborating with Saudi Arabia's energy ministry to establish a carbon capture and storage hub on the east coast of Saudi Arabia in Jubail, aiming to have a storage capacity of up to 9 million tonnes of carbon dioxide annually by 2027.

4. Trade: Benefits for Australian trade and investment

Ratification could lead to significant trade and investment benefits for Australia and strengthen our economic relationships with Japan and the ROK. Australia is well placed to support Japan and the ROK in their clean energy transitions given we are an established and trusted partner with significant natural resource endowments.

Japan looks to Australia for support for it to achieve its own decarbonisation and has taken this approach to the *Japan-Australia Partnership on Decarbonisation through Technology*, signed by leaders in June 2021.[9] This Partnership enables Australia to benefit from Japanese investment and technology to deliver a faster and cheaper path to decarbonisation. Key Japanese businesses with major existing investments in Australia regularly note to DFAT the importance of CCUS and of their interests in investing in such technology in Australia.

The ROK Government is interested in furthering discussions with Australia on CCUS. In August 2022, the ROK Government identified Australia, the waters surrounding the ROK, South-East Asia, the EU and North America as potential overseas sequestration locations.[10] CCUS is also one of the three priorities of the *Australia-ROK Low and Zero Emissions Technology Partnership* signed in December 2021.

The Singapore-Australia Green Economy Agreement and the Low Emissions Solutions Memorandum of Understanding include work-streams on CCUS. A key study commissioned by Singapore's National Climate Change Secretariat and the EDB also found 'Singapore does not have any known suitable reservoirs for the permanent storage of CO_2 in its subsurface' and would 'therefore have to rely on the export of its CO_2 to neighbouring countries.'[11] The private sector is exploring the commerciality of arrangements with Australia. In November 2022, Chevron New Energies International and Mitsui OSK Lines announced a joint feasibility study on the transportation of liquified CO_2 from Singapore to Australian offshore facilities.

Australian offshore and onshore CCUS has the potential to drive significant international investment into Australia. Australia may benefit from a variety of CCUS sequestration projects active and planned across Australia's Gippsland, Petrel, Cooper, and Surat storages. Given most of the facilities covered by the Australian Government's new Safeguard Mechanism reforms are trade-exposed, CCUS provides decarbonisation opportunities that may support their ongoing competitiveness.

Subject to necessary regulatory approvals, Santos and its partners are planning to use Darwin LNG and Bayu-Undan to capture and store carbon dioxide from their Barossa gas field to meet the requirements of Japanese and Korean markets for carbon-neutral LNG. According to public statements, the joint venture partners are hoping to make a Final Investment Decision (FID) on the project in 2023.

5. Development interests in international market for CO_2 streams

The Government of Timor-Leste has outlined its interest in converting its Bayu-Undan LNG facility in the Timor Sea into a CCS location once the gas reserves are depleted (expected in 2023).[12] Australian ratification of the 2009 Amendment of the London Protocol could support the development of Bayu-Undan as a CCS facility by

[9] The Department of Climate Change Energy, Environment and Water leads the implementation of the Japan-Australia Partnership on Decarbonisation through Technology. A Copy of the Partnership cab be found at 100199970.pdf (mofa.go.jp).

[10] Government of Republic of Korea (2021) Carbon Neutrality Scenario, https://2050cnc.go.kr/download/BOARD_ATTACH?storageNo=360.

[11] Navigant, 2021, 'Carbon Capture, Storage, and Utilisation: Decarbonisation Pathways for Singapore's Energy and Chemicals Sectors'

[12] Timor Leste 4th Annual Energy and Mining Summit, Dili, 14-16 June 2022, comments made by Minister for Petroleum and Minerals.

allowing CO_2 produced or imported into Australia to be exported by pipeline to Bayu-Undan in Timorese waters.

While there are no publicly available estimates, the Bayu-Undan CCS project could, if realised, provide modest economic benefits to Timor-Leste. However, DFAT understands further regulatory, legal and technical work would need to be undertaken by both countries before Australia could export CO_2 to Timor-Leste.

Australia has a long-term national interest in the economic viability and stability of Timor-Leste and additional income from Bayu-Undan would contribute to these outcomes.

6. Potential foreign policy implications of ratification of the amendment to Article 6

Policy: Reputational impacts

Australia has publicly stated it would ratify the 2009 Amendment.

Ratification would align with our membership of the Asia CCUS Network, an international industry–academia–government platform aimed at knowledge sharing and improvement of the business environment for utilisation of carbon capture, utilisation, and storage (CCUS) throughout Asia. Thirteen East Asia Summit member countries (10 ASEAN member countries, Australia, the US, and Japan) and more than 100 companies, research institutions, and international organizations participate in the network.

Similarly, Japan's new Asia Zero Emissions Community (AZEC), which Australia has publicly supported, seeks to engage on CCUS including through dialogue and information sharing.

Ratification would align with Australia's publicly stated support and recognition of the diverse pathways for decarbonisation of countries, particularly for those with less favourable renewable energy options than itself. Various countries are interested in Australia progressing the ratification as it may assist in their decarbonisation plans.

Policy: Support for regional energy security

Ratification would align with Australia's goals to foster regional stability and energy security. By supporting the energy security of priority partners including Japan and ROK, and by working alongside them to progress their own decarbonisation plans, Australia can demonstrate its commitment to supporting regional partners.

Policy alignment: International policy to support 1.5 degrees goal

The UNFCCC's Intergovernmental Panel on Climate Change (IPCC) recognises that CCUS will have a role in achieving net zero emissions, particularly in the industrial sector. Decarbonising the industrial sector is important to achieve the global temperature goals of reducing warming to no more than 2 degrees and pursuing best efforts to limit to 1.5 degrees.[13] CCUS is therefore one element of the technology suite that can be deployed if the world is to achieve the Paris Goals. Given Australia is home to several basins that can be used for CO_2 storage, Australia can play a role in climate mitigation.

Where CCUS projects are effective, they represent considerable abatement potential. Some examples of abatement goals include:

a. The ROK is aiming for 10.3MtCO_2e of CCUS annually by 2030 and up to 84.6MtCO_2e of CCUS annually by 2050.

b. The EU is aiming to store between 300 and 640 million tonnes of carbon dioxide per year by 2050 to meet its climate goals.

[13] UNFCC, Intergovernmental Panel on Climate Change, 6th Assessment, Mitigation of Climate Change, accessed at Climate Change 2022: Mitigation of Climate Change (ipcc.ch)

c. Japan is aiming to store between 120 million and 240 million tonnes annually by 2030.[14]

7. Conclusion

The Department welcomes the Inquiry and appreciates the Committee's consideration of this submission.

Though not within DFAT's portfolio, we acknowledge the important legal, technical and regulatory matters that will need to be carefully considered by DCCEEW and DISR should the Amendment to Article 6 be ratified.

[14] Government of Japan, (2022) Introduction of Long-Term CCS Roadmap, accessed at Introduction of CCS policy (env.go.jp)