



6 August 2024

Ministry of Business, Innovation and Employment (MBIE)

Email: gasfuelpolicy@mbie.govt.nz

Wellington

To: Whom it May Concern

RE: Proposals for a Regulatory Regime for Carbon Capture, Utilization and Storage

In response to the “Proposals for a Regulatory Regime for Carbon Capture, Utilization and Storage” (dated July 2024) from the Ministry of Business, Innovation and Employment (MBIE), IChemE in NZ would like to present its submission on the above subject.

IChemE In NZ is the New Zealand branch of the UK based global Institute of Chemical Engineers and represents the chemical and process, and bioprocess professional engineers residing in New Zealand, from Chartered Fellow to graduate level. It is a fully constituted organization operating under New Zealand law (since 2012) and is managed by a board made up of officers and elected members covering the geography and sectors that our members work and support.

Please find attached our submission to areas of your proposal that IChemE NZ feels it is suitable qualified and experienced to answer on behalf of our 500+ New Zealand members.

Any questions, please get in contact.

Your faithfully,

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RFP - Questions for Consultation

	Background
1.	Do you agree that the government should establish an enabling regime for CCUS? Please provide any further information to support your answer.
	<p>IChemE in NZ: We support an enabling CCUS regime for all green house gas generation through carbon capture, sequestering, long term utilization processes and storage applications.</p> <p>This regime should apply to all green-house gases (e.g. methane CH₄ in the form of natural gases or fuel gases as well as CO₂) and recognize all carbon operations and processes that capture and store carbon long term either through:</p> <ol style="list-style-type: none"> 1) long term utilization (e.g. permanently chemically binding with other compounds as part of a chemical process or finished building products) and 2) injection underground in an existing or redundant reservoir (as a standalone CCS facility or as part of enhanced gas/condensate recovery in an existing facility). <p>Noting specifically that:</p> <ul style="list-style-type: none"> • A methane (CH₄) fuel gas CCS project has already been successfully implemented in New Zealand including underground storage for Contact Energy in 2011 (the Ahuroa gas field for the Stratford Peaker Project) – refer https://www.gasindustry.co.nz/data/gas-storage/... • Methane natural or fuel gas injection also has been investigated by New Zealand exploration companies for gas/condensate operations to assist or “enhance” oil or condensate recovery from existing operating underground reservoirs. • Long term utilization solutions are commercially available (e.g. building products) or have occurred historically in New Zealand process industries but have not been recognized as such e.g. Methanex NZ used to blend high content CO₂ gases from Kapuni and later the McKee/Mangahewa fields with its usual natural gas feed gases to improve product conversion (stoichiometry) of its reforming processes. • Short term capture of CO₂ or carbon for products e.g. bottled gas for food, medical industries do not fall into the same category as these types of long term utilization.
2.	Do you agree with our objectives for the enabling regime for CCUS? Please provide any further information to support your answer.
	<p>IChemE in NZ: We support SMART objectives with measureable goals and time frames included. A suggestion on how this might apply to the first objective is below:</p> <ol style="list-style-type: none"> 1. Efficient Emissions Abatement could also include: <ul style="list-style-type: none"> ○ Specific: We commit to creating a level playing field for emissions reduction/removal technologies. Every business will have access to these tools. ○ Measurable: We will quantify the emissions reduction achieved by businesses using these technologies. Our target: a minimum of 10% reduction within 2 years. ○ Achievable: We allocate resources—financial and technical—to ensure adoption. Our goal is to have 80% of eligible businesses actively using these technologies. ○ Relevant: This directly impacts our bottom line and environmental responsibility.

	<ul style="list-style-type: none"> ○ Time-bound: <i>By the end of Q4 next year, we'll have identified and documented this equitable landscape.</i>
	Treatment under the Emissions Trading Scheme
3.	Should the ETS be modified to account for the emissions reductions achieved using CCS? If so, how do you think it should be modified?
	IChemE in NZ: We support the ETS being modified to include all GHG emissions reductions from carbon capture, storage and include long-term utilization to create the level playing field (stated in the objectives).
4.	Do you agree that all CCS activities should be eligible to receive recognition for the emissions captured and stored? If not, why not?
	IChemE in NZ: We support all CCS activities being eligible to receive recognition, We also support long term utilization activities being eligible to receive recognition.
5.	Do you think there should be a separate non-ETS mechanism for providing economic incentives for CCS? If so, what would this mechanism be?
	IChemE in NZ: Not answered.
	Monitoring regime for CCS activities
6.	In your opinion, which overseas standards for monitoring, verification and reporting of CCUS-related information should New Zealand adopt?
	IChemE in NZ: We support adoption of regulations similar to Australia or the EU for New Zealand reporting of CCUS related information.
7.	Is there any other information that CCS project operators should be required to verify and report? Please reference the relevant overseas standards where applicable.
8.	What methods should be used to quantify CO2 removal and storage in CCUS projects?
9.	Are additional mechanisms required to ensure compliance with monitoring requirements?
10.	What level of transparency and information sharing is required?
11.	Do you consider there should a minimum threshold for monitoring requirements so that small-scale pilot CCS operators would not have to comply with them? If so, what should be the threshold?
	Questions 7 to 11 IChemE in NZ: Not answered.
12.	Should a monitoring regime extend to CCU activity?
	IChemE in NZ: We support a robust, standardized monitoring regime for all CCUS activities, including utilization
	Liability for CO2 storage sites
13.	Do you agree the proposed approach on liability for CO2 storage sites aligns with other comparable countries (like Australia)? If not, why not and how should it be changed?
	IChemE in NZ: We support the proposed approach on liability of all storage sites aligning to or similar to Australia or other comparable countries like the EU for New Zealand.

14.	Is the proposed allocation of liability consistent with risks and potential benefits? Are there other participants that should share liability for CCS operations?
15.	Should liability be the same for all storage sites if projects are approved? Or should liability differ, depending on the geological features and characteristics of an individual storage formation?
16.	Do you consider there should a minimum threshold for CCUS operators being held responsible for liability for CO ₂ storage sites so that small-scale pilot CCS operators would be exempt? If so, what should be the threshold?
17.	Should the government indemnify the operator of a storage site once it has closed? If so, what should be the minimum time before the government chooses to indemnify the operator against liabilities for the CO ₂ storage sites?
18.	Are additional insurance mechanisms or financial instruments required to cover potential liabilities from CO ₂ leakage in CCS projects?
19.	What measures should be implemented to monitor CCS projects for potential leakage and ensure early detection?
20.	Do you agree that trailing liability provisions are needed? How do you think they should be managed?
	Questions 14-20 IChemE in NZ: Not answered. These questions are best answered by experienced, reservoir geological engineers.
	<u>Consenting and permitting for CCUS</u>
21.	Do you agree that trailing liability provisions are needed? How do you think they should be managed?
22.	Should the permit regime for CCUS operations be set out in bespoke legislation or be part of an existing regulatory regime (such as the RMA, EEZ Act, the CMA or the Climate Change Response Act 2002)? Please give reasons for your answer.
23.	Should CCS project proponents be required to submit evidence that proposed reinjection sites are geologically suitable for permanent storage, in order for projects to be approved? If so, what evidence should be provided to establish their suitability?
	Questions 21-23 IChemE in NZ: Not answered. These questions are best answered by experienced, appropriately qualified personnel in regulatory frameworks. In addition, some of our members are aware of the previous report completed for MBIE “Carbon Capture and Storage – Designing the Legal and Regulatory Framework for New Zealand (2013)” ISBN 978-0-473-26312-6 led by Barry Barton from the University of Waikato which investigated this.
24.	Should there be separate permitting regime for CCU activity if there is no intention to store the CO ₂ ?
	IChemE in NZ: We support long term carbon capture utilization be recognized as a storage option for the reasons stated in our response (under item 1, above) it should not need a separate permitting regime. Having a common permitting regime may also assist in standardizing, short term or partial carbon utilization. If there is no intention to capture and store the carbon then like in the CO ₂ industry (in New Zealand) for “short term utilization” capturing carbon to supply dry ice, food preservation, bottling drinks, and pharmaceutical uses may not provide the same capture and storage outcome (permanent/long term as stated above).

Carbon capture and utilization	
25.	Are there regulatory or policy barriers to investment and adoption of CCU technologies?
	IChemE in NZ: We support long term carbon capture utilization being recognized and included as a form of carbon storage in New Zealand legislation.
26.	What potential markets for CO2 derived products do you see as most critical in New Zealand?
	IChemE in NZ: We support having a resilient, robust CO2 market in New Zealand (rather than relying on importation markets). We support all potential markets that benefit society and that chemical & process engineers support including: building materials, energy, fuels and chemicals (where carbon is captured and not just recycled). As a further note, we support a focus on CO2 capture from concentrated CO2 streams like industrial process or combustion emissions, and less so on direct air capture. This is due to the significant amount of energy required to separate CO2 from other gases (adsorption is limited by thermodynamics); CO2 content in these concentrated emissions can be up to 15% vol while CO2 in direct air is only 400ppm.
27.	Are there any specific barriers to transportation of CO2?
	IChemE in NZ: We understand there are no specific barriers for the transportation of CO2 in New Zealand, which presumably would be through pipelines (owing to scale and operating pressures if sequestering underground). Some of our members are aware of the previous report completed for MBIE <i>“Carbon Dioxide Transport and Pipeline – Engineering Requirements for Design, Construction and Operation Research Report (2013)”</i> which investigates this.