

Gigablue Aotearoa South Pacific Ltd.
NZBN: 9429051921835
Unit 903 Union Street, Auckland 1010
New Zealand
hq@gigablue.co

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Ministry of Business, Innovation and Employment
New Zealand Government

Our Response to the Proposals for a Regulatory Regime for Carbon Capture, Utilisation and Storage

We are honored to submit our response to the consultation document issued by the Ministry in July, 2024, regarding the proposals for a regulatory regime for CCUS.

Gigablue is a developer of a marine carbon dioxide removal (mCDR) method and project, currently trialing off New Zealand's shore. Although Gigablue intends to capture carbon dioxide and store it in the deep ocean, it differs from CCUS which usually refers to the capture of carbon dioxide from source points or energy-generating activities, and the storage or utilization thereof. However, we found in this consultation document many similarities to challenges, barriers and inefficiencies that impact the mCDR domain, too. We believe that CDR technologies, including our own, will grow to a larger scale in the near future, and it could be reasonable and beneficial to consider the implications of the proposed regulatory regime on them.

Our team and scientific advisors remain at your disposal for any further information or discussion.

Sincerely,

Gigablue Aotearoa South Pacific Ltd.

1- Do you agree that the government should establish an enabling regime for CCUS? Please provide any further information to support your answer.

Yes. The government should establish an enabling regime for CCUS and other carbon dioxide removal (CDR) projects. We expect the proposed regime to deconflict colliding regulations, provide certainty as to consenting such projects, standardize the procedure of carbon accounting and environmental impact assessment, and ease the commercialization of CCUS/CDR within the ETS or in the voluntary carbon markets (VCM). We also expect it to fill in the jurisdictional gap which is filled in today with international conventions and protocols, in the lack of local legislation.

The intervention is expected to incentivize private investments, as seen in similar cases in the USA, Canada and Denmark, where governments enable private investments in CDR by reducing risks and uncertainty through regulatory enablement, policies and incentives¹.

An enabling regime is also an expectation of the society: a recent research on public perceptions on carbon dioxide removal found that “strong pluralities cutting across the global North and South prescribed the key rationale for government(s) as providing coordination, between sectors [...] levels [...], regions [...] and at the multilateral level”².

Contrarily, the lack of an enabling regime might slow down the pace of development and deployment of CCUS/CDR systems.

2 - Do you agree with our objectives for the enabling regime for CCUS? Please provide any further information to support your answer

Yes. We believe that expanding the proposed enabling regime to cover CDR will be beneficial and may imply minor adjustments to the objectives:

- a. Efficient emission abatement - CDR may potentially scale up in a way that will not only abate the emissions of New Zealand’s companies, but also of the government and foreign entities. Beyond cost, we also see “efficiency” affected by safety and durability, and believe that high-quality should be accounted for in the pricing.
- b. Environmental integrity - beyond the proposed definition, CCUS/CDR should be done in an environmentally safe and cautious manner, including protection of wildlife and food webs, and mitigation of pollution of all sorts.

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?

¹ Pour, Nasim, 2024 July 3, “How governments can help finance, build and scale the carbon dioxide removal industry”, World Economic Forum, <https://www.weforum.org/agenda/2024/07/why-carbon-dioxide-removal-needs-more-government-support/>

² Low, S., Fritz, L., Baum, C.M. et al. Public perceptions on carbon removal from focus groups in 22 countries. *Nat Commun* 15, 3453 (2024). <https://doi.org/10.1038/s41467-024-47853-w>

Yes, the ETS should be modified and expanded so that carbon reductions and removals can be traded there if so desired.

Between the two proposed approaches (subtraction of negative emissions from ETS liabilities, versus issuing NZUs for removals), it is preferable to adopt the latter, due to the following reasons:

1. Transparency and accountability: separating positive and negative emissions will better reflect the progress that should be made according to the longer-term objective, which is to transition to a low-emission energy economy. Subtraction of emissions at source might create a misleading picture and decrease the energetic transition pace.
2. Registration: an option to register NZUs against CCUS efforts will help prevent double-counting between the ETS and the voluntary market.
3. Expansion to CDR: while CCUS may or may not be subtracted from one's ETS liability, the credits generated through CDR (as well as forestry) cannot, and must be traded against NZU. The IPCC already recognized that CDR is critical to address climate change and the Government is developing a carbon removals strategy that will expand New Zealand's NDCs beyond forestry. We see this proposal as an opportunity to address, in advance, consenting and trading issues that are common for CCUS and CDR.

4 - Do you agree that all CCS activities should be eligible to receive recognition for the emissions captured and stored? If not, why not?

Yes.

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?

As CCS is typically associated with new emissions, which should be regulated and capped under an ETS, it would be logical to centralize the incentives for, and trading of CCS certificates in the ETS. Offering CCS certificates in a voluntary market, or providing incentives for the development of it, might tamper with the motivation to reduce emissions.

CDR should be distinguished from CCS as often, the source of carbon dioxide captured and sequestered isn't from source points, but from the atmosphere, soil or ocean. In such a case, carbon removal will not imply that new emissions will be created. CDR contributes to the NDC and should be incentivized through governmental procurement and prizes, grants, tax incentives, provision of state-grade MRV resources, and more.

6 - In your opinion, which overseas standards for monitoring, verification and reporting of CCUS-related information should New Zealand adopt?

The proposed approach, along the lines of the standards used by Australia and the EU, should be sufficient. Considering the potential of the regime to enable also CDR activities which may be traded either under the ETS or the VCM, it is recommended that MRV standards will be aligned with those expected by the commercial carbon registries (Puro, Isometric, Verra, Gold Standard,

ICR - to name a few) and international standards such as the ISO 14064-2:2019 standard for carbon accounting. The International Carbon Reduction and Offset Alliance (ICROA) created a code of best practice that has been widely adopted by VCMs to assure a minimum standard of integrity in the generation and trading of carbon credits.

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.

As mentioned above, we believe that CCS (and CDR) project operators should verify and report their holistic impact on the environment, beyond carbon sequestration, leakages and reversals.

Life cycle assessments (LCA) should be required, at least upon the approval of the project beyond a certain threshold, to assure the net outcome of the project is carbon-negative.

8 - What methods should be used to quantify CO2 removal and storage in CCUS projects?

We recommend adopting internationally recognized standards and data sources for CO2 removal and storage quantification. Those include the ISO 14064-2:2019 standard for carbon accounting, and the ISO 14040:2006 standard for LCA. Primary data should be collected and used wherever possible.

9 - Are additional mechanisms required to ensure compliance with monitoring requirements?

CCUS/CDR methodologies should be reviewed and approved scientifically, legally and economically. To do so, a review committee should be established. The public and specifically the scientific community should be consulted and informed, and it is expected that CCUS/CDR developers will publish their methodologies and some of their data sets to allow for additional scrutiny and acceptance.

Once standards are established, it is usually the responsibility of validation/verification bodies (VVB) to confirm the completeness and accuracy of the claimed reduction or removal for which carbon credits are issued. Quality inspectors, conformity testers, and standard certification organizations typically serve as VVBs by engaging with the VCM and having the sufficient capabilities to carry out a standard verification.

10 - What level of transparency and information sharing is required?

For a CCUS/CDR project to become eligible for carbon credits, its developers should provide clear and transparent information as to its efficiency and effectiveness, and specifically its net-negativity. Such information includes scientific literature reviews, methodology documents, life cycle assessments (LCA) and data obtained from experiments and operations.

Due to the novel nature of CCUS/CDR technologies, it should not be expected that they would all be profitable in the short term, so information on the profitability and/or margins of those projects should not become mandatory.

The information described above and in the response to the previous questions should be shared with the ETS and the governing authority defined by the regulation. Information sharing should be standardized and streamlined to avoid paperwork overloads.

11 - Do you consider there should be 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?

We expect such a threshold to encourage action and generate opportunities for project developers and emitters alike. Carbon reduction and removal obtained through pilot projects should be eligible for accreditation, as it would send a positive signal to private investors who seek returns on their investments in such projects. The threshold should be defined:

- a. At a certain capacity of reduction or removal, namely a quantity of tonnes of CO₂e;
- b. At a certain technology readiness level (TRL), ideally TRL-8 (“System Complete and Qualified”)

12 - Should a monitoring regime extend to CCU activity?

N/A

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?

Yes.

14 - Is the proposed allocation of liability consistent with risks and potential benefits? Are there other participants that should share liability for CCS operations?

We agree with the essence of the approach, which holds the project developer liable to the risks of the project. That being said, the liability should be limited to reasonable cases and limited compensation. For example, if a project was fully qualified and yet leaked more than expected, the proposed approach suggests that the developer provides compensation. Such compensation, we suggest, should not be limited to cash but also be in the form of future credits. Otherwise, project developers will be over-exposed financially. Force majeure cases and/or damages caused by a third party should also be taken into account.

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?

The liability should be similar to encourage the adoption of safer and more durable solutions. The project developer should provide, in the proposed methodology, an assessment of the likelihood of re-emissions and reversals, which may be considered to define the limits of liability.

16 - Do you consider there should be a minimum threshold for CCUS operators being held responsible for liability for CO2 storage sites so that small-scale pilot CCS operators would be exempt? If so, what should be the threshold?

Small-scale operators should be exempt during experiments and pilots. The responsibility for liability for CO2 storage or removal should be obtained as a part of the consent to operate commercially.

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 CO2 storage sites?

No, unless the government withdraws from the consent given to the operator. In such a case, the government should compensate for the development and some of the potential revenues of the project.

18 - Are additional insurance mechanisms or financial instruments required to cover potential liabilities from CO2 leakage in CCS projects?

Yes. Similar to other forms of investments and transactions, both suppliers (here, the operators/developers of CCUS/CDR) and the buyers (here, the ETS participants) should be able to purchase insurance for their liabilities. To provide a reasonable environment for insurers to operate, regulatory clarity should be established. Once a project is compliant with the regulation, it should be insurable.

Financial instruments should also be developed to address the special needs of such projects, which usually require massive research and development in the early stage, and significant capex and opex. Such instruments may include green loans (working capital) and green bonds.

19 - What measures should be implemented to monitor CCS projects for potential leakage and ensure early detection?

Unfortunately, due to the wide differences in CCUS/CDR methodologies and techniques, it is difficult to set constant measures across projects. Leakages and reversals should be initially assessed as a part of the methodology of the proposed project, and the MRV method should address the nature and likelihood of the leakages.

It is important to note that MRV is costly, challenging the ability of some projects to become profitable at all. This should be taken into account when defining the time frames and accuracy of leakage monitoring.

20 - Do you agree that trailing liability provisions are needed? How do you think they should be managed?

No.

21 - Are inconsistencies in existing legislation for consenting and permitting impacting investment?

It is difficult to determine whether inconsistencies in the existing legislation impact investments in CCS/CDR and to what extent, however we note consistently signals from carbon buyers and investors who would feel more comfortable to support CDR if they knew for fact that the activity is legal, regulated and welcomed by the Government. It would also be of value to provide clarity as to which existing legislation rules in the case of CCS/CDR, and how possible conflicts between legislations are solved efficiently.

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.

We believe that the decision should be made through the lens of efficiency and reduction of obstacles for the development of effective and responsible CCS/CDR. If adding a bespoke legislation means delays and constant conflicts with the existing regulatory regime, we would probably prefer the Government to solve those conflicts tactically through amendments to the existing ones. We also see a need for additional legislation that would anchor the efforts, principles and procedures related to CCS/CDR, such as funding, research, data collection, etc.

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?

N/A as it relates to CCS only.

24 - Should there be a separate permitting regime for CCU activity if there is no intention to store the CO₂?

N/A.

25 - Are there regulatory or policy barriers to investment and adoption of CCU technologies?

N/A.

26 - What potential markets for CO₂ derived products do you see as most critical in New Zealand?

N/A.

27 - Are there any specific barriers to transportation of CO₂?

N/A.