



COVERSHEET

Minister	Hon Simon Watts	Portfolio	Energy
Titles of Cabinet Papers	Enabling Carbon Capture, Utilisation and Storage Policy Approach for Carbon Capture, Utilisation and Storage	Date to be published	27 March 2025

List of documents that have been proactively released		
Date	Title	Author
October 2024	Enabling Carbon Capture, Utilisation and Storage	Office of the Minister for Energy
16 October 2024	Enabling Carbon Capture, Utilisation and Storage ECO-24-MIN-0223 Minute	Cabinet Office
9 October 2024	Regulatory Impact Statement: Enabling Carbon Capture and Storage	MBIE
9 October 2024	Climate Implications of Policy Assessment: Enabling Carbon Capture and Storage	MBIE
December 2024	Policy Approach for Carbon Capture, Utilisation and Storage	Office of the Minister for Energy
11 December 2024	Policy Approach for Carbon Capture, Utilisation and Storage ECO-24-MIN-0305 Minute	Cabinet Office
26 November 2024	Regulatory Impact Statement: Further decisions on an enabling framework for Carbon Capture and Storage	MBIE

Information redacted

YES

Any information redacted in this document is redacted in accordance with MBIE's policy on Proactive Release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Some information has been withheld for the reasons of Confidential advice to Government, Negotiations, and National Economy.

In Confidence

Office of the Minister for Energy

Office of the Minister of Climate Change

Cabinet Economic Policy Committee

Enabling Carbon Capture Utilisation and Storage

Proposal

- 1 This paper seeks agreement to key elements of an enabling regime for Carbon Capture Utilisation and Storage (CCUS) to support New Zealand to achieve its climate change targets and to support security of energy supply.

Relation to government priorities

- 2 The proposals in this paper contribute to goals around rebuilding the economy. They play a key role in ensuring that climate change policies are aligned and do not undermine national energy security as per the National/NZ First coalition agreement.

Executive Summary

- 3 CCUS involves capturing carbon dioxide (e.g. from large point sources like gas production facilities) and then either using it (e.g. in food and beverage manufacturing) or storing it (e.g. by injecting it into deep geological formations).
- 4 CCUS is increasingly being used internationally to reduce greenhouse gas emissions (through permanent storage of carbon or reinjection into geothermal fluid) and as an input to industrial processes and products, thus buttressing industrial activities and supply chains. CCUS can also support economic and energy security goals, and it can reduce the cost of producing/using energy.
- 5 We consulted on regulatory proposals to enable CCUS in New Zealand. Feedback confirmed that regulatory change will be needed to enable some forms of CCUS.¹ In particular, we need to create an NZ ETS incentive for the permanent storage of carbon dioxide (CO₂) to occur, and an approval and monitoring/verification/liability system so that the Crown is not overly exposed to risk.
- 6 This paper seeks Cabinet's agreement to:
 - 6.1 enable businesses to gain an NZ ETS benefit for permanently sequestered carbon
 - 6.2 ensure businesses undertaking the storage activity are liable for any leakage of emissions into the atmosphere unless this liability is transferred to the Crown.
- 7 We will seek further decisions in December on amendments needed to provide a fit-for-purpose consenting, monitoring, and verification regime for CCUS.

¹ Regulatory changes are not needed to support use of CO₂ or geothermal reinjection of CO₂.

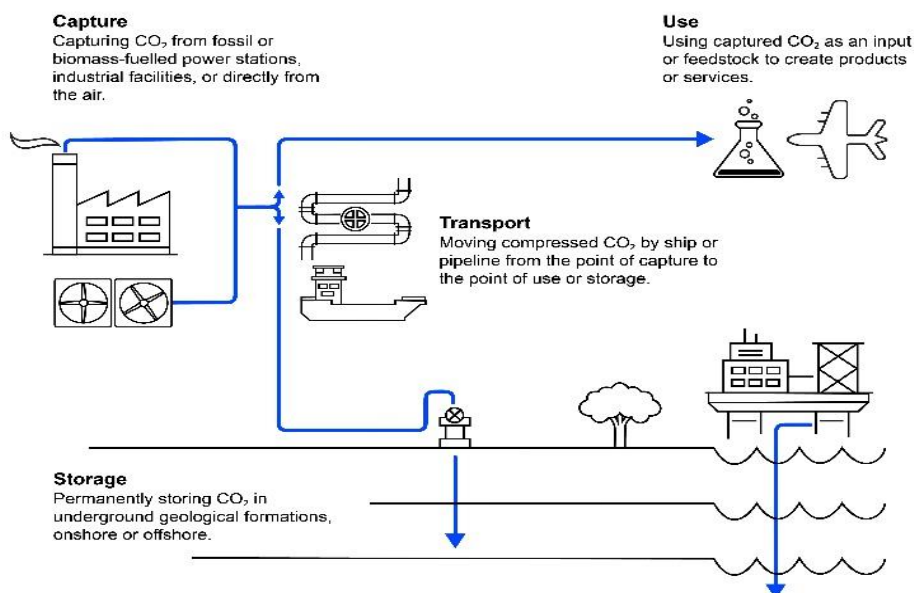
- 8 The proposed approach draws heavily on overseas models. There are many similarities in the design of CCUS regimes in Australia, the European Union, Norway, and California. Lessons have been drawn from each of these jurisdictions.
- 9 Officials estimate that a CCUS regime may enable activities that would result in approximately 1 million tonnes of abatement in each of emissions budgets 2 and 3.

Background

CCUS has a number of potential benefits

- 10 CCUS is the process of capturing CO₂ and either using it or storing it to prevent it from entering the atmosphere. Figure 1 below provides a visual overview of steps involved in different CCUS activities.

Figure 1: Schematic of potential CCUS activities (Source: IEA)



- 11 In relation to **storage**, geothermal reinjection of CO₂ is already occurring and is enabled under current regulatory settings. Additional forms of storage, such as geological storage in depleted oil and gas reservoirs, are being actively explored in New Zealand (but as described below will need regulatory change to be enabled). The Intergovernmental Panel on Climate Change (IPCC) has expressed high confidence that permanent underground storage of CO₂ can be achieved – if the geological reservoirs are appropriately selected and managed. There are several benefits to further enabling carbon storage technologies in New Zealand:

- 11.1 It will increase the range of options that New Zealand has to achieve emissions budgets. If deployed, it could decrease the cost of meeting emission budgets.²

² Consistent with our Government’s net-based, least-cost approach to meeting targets, CCS will not lead to additional net emissions reductions in the long-run. This is because any sequestration that occurs will free up New Zealand Units (NZUs) for use by other participants.

- 11.2 It can potentially lower the net cost of producing natural gas, adding to our energy security.³
- 11.3 It supports our existing hard-to-abate industries to continue to operate through the transition.
- 12 In relation to carbon capture and **use**, carbon is already used in food and beverage manufacturing, in glasshouses, and as an input to industrial processes and products. In future, carbon may also be used as a feedstock to make low emission fuels, such as sustainable aviation fuel. As the carbon is used, it is considered to be emitted under international emissions accounting.

CCUS could contribute to meeting emissions budgets 2 and 3

- 13 Officials have met with many of our major industrial companies and oil and gas producers to understand firms' intentions for the next few years. Officials estimate that a CCUS regime may enable activities that would result in roughly 1 million tonnes of additional abatement in each of emissions budgets 2 (2026-2030) and 3 (2031-2035)⁴.
- 14 Note that this depends on private decisions yet to be made and will be impacted by factors such as the NZ ETS price and expected gas and carbon availability. It is not uncommon for other jurisdictions to provide financial incentives in addition to emissions pricing, but it is not our intent to do so. The NZ ETS provides a financial incentive for CCUS to occur.
- 15 The most promising permanent storage opportunity is at Todd Energy's Kapuni plant. This is a high CO₂ gas field, so the financial incentive through the NZ ETS for Todd Energy to consider CCUS is relatively strong (if their NZ ETS liability can be reduced through CCUS). If CCUS does proceed at Kapuni, Todd Energy has submitted that the storage capacity would be sufficient to also sequester third-party carbon.

Regulatory / legislative changes to enable CCUS in New Zealand

- 16 We consulted on regulatory proposals to enable CCUS in New Zealand. Feedback confirmed that regulatory change, as well as legislative change, will be needed to enable some forms of CCUS but not others:

16.1 Regulatory changes are not needed to support Carbon Capture and Use

There is no regulatory change needed to support carbon capture and use. As the carbon is used (and therefore considered to be emitted under international emissions accounting protocols) the current treatment under the NZ ETS is appropriate. The incentive for companies to capture CO₂ for use comes from the revenue from selling CO₂.

³ CCS may change the economics of producing gas, which could in turn, affect the amount of gas that is produced domestically. This will not necessarily increase emissions from fossil fuel use in New Zealand. For example, depending on how markets evolve, any extra gas produced domestically may offset coal imports.

⁴ This is based on officials' medium CCS deployment scenario, which results in 1.0 MT of abatement in EB2 and 0.9 MT of abatement in EB3.

If, in time, some forms of carbon capture and use (e.g. embedding carbon in certain products) are recognised as being countable towards New Zealand's international climate change targets then it would be appropriate to include that form of use in our domestic regime. We intend to future proof the relevant legislation in this regard.

16.2 Regulatory changes are not needed to support geothermal reinjection

Top Energy is currently reinjecting CO₂ at its Ngāwhā geothermal power plant beside Kaikohe. Other operators of geothermal plants are either following suit or are undertaking/considering reinjection trials. Geothermal reinjection is already supported through the NZ ETS (via the ability to apply for a unique emissions factor) and the RMA (under existing approvals for reinjection of geothermal fluid).

Nothing has arisen in consultation to suggest regulatory changes are required to support this activity. Moreover, the issues with assigning liability for CO₂ leakage do not arise as geothermal emissions are naturally occurring (beyond those directly associated with geothermal energy production) and so do not contribute to New Zealand's emissions inventory.

16.3 Regulatory change will be needed to enable other forms of storage

For other forms of storage (beyond geothermal reinjection), there is no current mechanism to reward a party under the NZ ETS. This is despite international recognition of geological sequestration as a means for a country to reduce their carbon emissions. This means there is insufficient incentive for a company to invest in these storage activities.

Further, current regulations covering the approval, monitoring, verification, and liability for these activities may not be fit for purpose. This is likely to require amendment of primary legislation in addition to changes to regulations.

Key features of an enabling framework for CCS

17 Below are the key features of an enabling framework for CCUS. This reflects that there are three interrelated functions that need to be undertaken:

17.1 A financial incentive for CCUS operators,

17.2 A permission and monitoring function, and

17.3 A clear long-term liability framework.

Financial incentive

18 There is no current mechanism to reward a party who undertakes permanent storage through CCUS. Our objective is to create a level playing field for emissions reduction and removal technologies, to enable businesses to reduce emissions at least cost.

19 We propose that in the case of an existing NZ ETS participant undertaking CCUS, their NZ ETS obligation should be reduced by the amount of carbon that they permanently

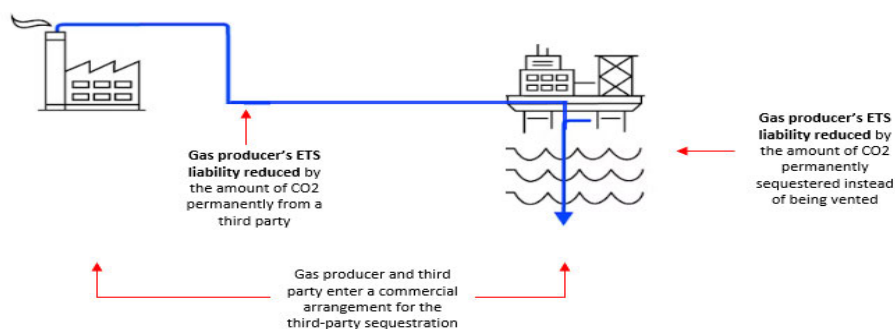
sequester. That is, there is a one-to-one relationship between the amount of carbon sequestered and the change in the participant’s NZ ETS obligations.

20 The reward mechanism would apply:

20.1 irrespective of the form of storage, as long as it is recognised internationally as a reduction in New Zealand’s carbon emissions, thereby enabling new forms of storage as technology develops, and

20.2 irrespective of the source of the carbon, thereby enabling an NZ ETS participant to sequester carbon from a third-party.

Figure 2: Illustration of options to reduce a NZ ETS participant’s liability



21 To illustrate, if Todd Energy undertook CCUS at Kapuni, any carbon that Todd Energy sequestered would be deducted from their NZ ETS obligation. If carbon from a nearby industrial facility was also sequestered into the Kapuni field, then this carbon would also be deducted from Todd’s NZ ETS obligation.

22 We will report back to Cabinet in December on amendments needed to provide a reward under the NZ ETS for a business who is not an existing NZ ETS participant – for example, in what circumstances NZUs could be granted. This would also apply to existing NZ ETS participants if they sought reward, as opposed to a deduction, such as if their volume of carbon stored is greater than carbon emitted.

Permission and ongoing monitoring functions

23 There is not currently a bespoke regime to approve and monitor a CCUS operation. A CCUS monitoring regime would include a number of items such as the way of verifying the quantity of CO₂ injected, and an assessment of risks emergent, including if there is leakage of any carbon into the atmosphere.

24 Our objectives are to ensure that:

24.1 firstly, emissions sequestered are monitored and accurately reported, and

24.2 secondly, the effects and risks of CCUS, including those associated with leaks, are adequately understood and addressed, while

24.3 thirdly, not creating a disproportionate compliance burden for businesses.

25 Confidential Advice to Government

26 In particular, the RMA currently:

- 26.1 requires an approval for a discharge activity to occur,
- 26.2 allows for the placement of conditions where the activity is approved by a resource consent,
- 26.3 provides for monitoring of a site following the completion of operations,
- 26.4 can allow for remediation actions to be taken if this is appropriate, and
- 26.5 provides for a bond to be posted in some situations.

27 Further consideration is needed to determine how fit for purpose for CCUS those legislative provisions are. The detail of the regulatory framework is important; many submitters were clear that they needed certainty before they could move forward with any CCUS plans.

Liability function

28 A major uncertainty relates to who would be liable for any carbon leakage into the atmosphere. This will be a key factor underpinning investment decisions.

29 We propose that any party undertaking CCUS would remain liable, through the NZ ETS, for any leakage of emissions into the atmosphere. This liability may transfer to the Crown after a period if certain conditions are met, including if evidence indicates that the injected carbon has been completely and permanently contained. This is consistent with international regimes and provides a balance between:

- 29.1 *Assigning liability to the party who can mitigate the risk of carbon leakage* – it is important to create a strong incentive for the CCUS operator to ensure the CCUS site is secure.
- 29.2 *Limiting fiscal risk to the Crown* – without any provision to establish operator liability under the NZ ETS, the Crown would be liable for any increase in New Zealand’s emissions (under our international climate change agreements).
- 29.3 *Providing investment certainty and not imposing disproportionate compliance burden* – transfer of NZ ETS liability to the Crown after a period, if it can be shown the carbon is behaving in the manner expected and is not leaking, limits ongoing financial risk to investors.

30 To illustrate:

- 30.1 a gas producer sequesters 100,000 tonnes of CO₂ in year 1,

⁵ The RMA is relevant for on-shore (and territorial sea) developments such as Kapuni. The EEZ Act covers possible developments in the EEZ.

- 30.2 its NZ ETS obligation would reduce by 100,000 tonnes in that year,
- 30.3 if, 20,000 tonnes of CO₂ leaked from the geological storage reservoir in year 3,
- 30.4 then the gas producer's NZ ETS obligation would increase by 20,000 tonnes.

Cost-of-living implications / Use of external resources / Population implications

- 31 No cost-of-living implications. External contractors were not used in the preparation of this paper. There are no population / human rights implications associated with this paper.

Financial Implications

- 32 This paper has no direct financial implications. We will report back in December on any financial implications resulting from this regime, including discussion of any set-up costs involved. Proponents of CCUS proposals will be expected to cover the costs of the assessment of their proposals. The December Cabinet paper will cover these matters, as well as more discussion of management of long-term liabilities.

Treaty Implications

- 33 During public consultation, Ngā Iwi o Taranaki expressed concern at the ongoing use of resources of Taranaki (where the most promising CCUS sites are located). There will be further iwi engagement in the next stage of the work.
- 34 The Crown acknowledged in 2012 that Māori have rights and interests in freshwater and geothermal resources as per Rt Hon Bill English's affidavit to the High Court. In this context, and in the context of Treaty settlements, CCUS is expected to be of interest to Māori. It is possible that development of a CCUS regime may require further engagement to meet obligations under Treaty Settlements and other arrangements. Engagement with iwi and Māori will support upholding those commitments and mitigate risks.

Legislative Implications

- 35 Confidential Advice to Government
- 36 This paper seeks authority for the Ministers of Energy and Climate Change to make technical policy decisions and subsequently issue drafting instructions for the CCRA changes that will be needed. These relate to regulations / regulation-making powers to allow CCUS activities (including liabilities) to be included when assessing NZ ETS obligations. The only regulations proposed to be changed at this stage relate to participants with existing NZ ETS obligations.
- 37 It is anticipated that decisions sought in the proposed December Cabinet paper will be high level. This December paper will also seek delegations for joint Ministers (including the Minister for RMA Reform) to make more detailed policy decisions for the purposes of issuing drafting instructions. Confidential Advice to Government

Regulatory Impact Statement

- 38 The Regulatory Impact Analysis panel consisting of representatives from the Ministry of Business, Innovation and Employment and the Ministry for the Environment has reviewed the Carbon Capture and Storage Regulatory Impact Statement (RIS). The panel has determined that the RIS **partially meets** the quality assurance standards for regulatory impact analysis.

Climate Implications of Policy Assessment (CIPA)

- 39 The CIPA team confirms that the CIPA requirements apply to this proposal. There is a potential impact of approximately 1 MtCO₂-e in EB2 and 900 KtCO₂-e in EB3 if CCUS is deployed at Kapuni (prior to consideration of the so-called waterbed effect). The CIPA team has reviewed the modelling and associated emissions estimates at a high level and consider them reasonable.

Consultation

- 40 The Treasury and the PCO were consulted in the preparation of this paper. DPMC (Policy Advisory Group) was informed.

Proactive Release

- 41 This paper will be proactively released subject to suitable withholdings.

Recommendations

The Minister for Energy and the Minister of Climate Change recommend that the Committee:

- 1 **Note** that the lack of an enabling framework for the forms of carbon capture and storage (CCUS) involving permanent storage of the carbon is a gap in New Zealand's regulatory landscape
- 2 **Note** that regulatory change is neither needed nor proposed to enable carbon capture and use or geothermal reinjection
- 3 **Note** that the CCUS regime is likely to consist of the following features:
 - a. Application to all forms of storage that are countable against New Zealand's international climate change targets,
 - b. A financial incentive (the NZ ETS) for storage operators,
 - c. An assessment and monitoring function, and
 - d. A clear long-term liability framework
- 4 **Note** that the first CO₂ storage activity in New Zealand (outside geothermal) is likely to occur at Todd Energy's plant at Kapuni
- 5 **Agree** that activities must be countable against New Zealand's international climate change commitments to be eligible to enter the CCUS regime

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- 6 **Agree** to amend legislative and regulatory settings under the CCRA to permit those with existing NZ ETS obligations to claim value from CCUS activities against their existing NZ ETS liabilities
- 7 **Note** we will report back in December on the mechanism to reward CCUS by parties without existing NZ ETS obligations
- 8 **Agree** that the number of units payable (or equivalent reduction in NZ ETS obligation) if CCUS occurs, or repayable if there is leakage from a site, is equivalent to the tonnes of CO₂ that are either sequestered or leak from a CCUS site
- 9 **Agree** that CO₂ produced by a third party is permitted to enter the storage facility, but the legislative and regulatory responsibilities (including any post-operation liabilities) for the CCUS activity remains with the company undertaking the storage activity
- 10 **Agree** that the company undertaking the storage activity should remain liable for any leakage of emissions into the atmosphere unless this liability is transferred to the Crown
- 11 **Note** that we will report back to Cabinet in December on the detail of the proposed monitoring requirements, and liability regime, including the timeframe and circumstances for possible transfer of liability to the Crown
- 12 **Agree** that the Minister for Energy and Minister of Climate Change are authorised to further clarify and develop policy matters relating to the proposals in this Cabinet paper relating to the CCRA changes and associated regulations referred to above in a manner not inconsistent with the policy recommendations contained in the paper
- 13 **Invite** the Minister of Climate Change and Minister for Energy to issue drafting instructions for the CCRA changes (and supporting regulations) referred to above
- 14 Confidential Advice to Government
- 15 **Direct** the Minister for Energy, Minister of Climate Change, and Minister for RMA Reform to report to ECO by December 2024 on the high-level changes to the RMA, EEZ Act, and other legislation needed to operationalise the CCUS regime
- 16 Confidential Advice to Government

Hon Simeon Brown
Minister for Energy

Hon Simon Watts
Minister of Climate Change

APPENDIX 1: Features of international CCUS regimes

While there are some differences, international CCUS these regimes have many features in common:

Integrated CCUS activities into their **existing ETS/carbon pricing systems, to provide a clear financial incentive** for CCUS operators and businesses to capture and store carbon permanently. In many cases, there is additional financial support provided to support CCUS activities.⁶

Established **clear permitting, consenting, and monitoring requirements for CCUS activities**, with different obligations for different activities, at different steps across key phases of a CCUS project timeline (pre-injection, during injection, and post-closure), to manage and mitigate perceived environmental and other risks related to those activities.

Established **clear long-term liability frameworks** to provide certainty about who pays for harms and damages (including CO₂ leakage) which may occur as a direct or indirect result of injection and storage operations. Some jurisdictions entertain that liability may eventually transfer from a private CSS operator to a state or national government, after a specified period of time (such as 15, 20 or 100 years).⁷ A bond or security is sometimes paid.

⁶ Canada provided a refundable investment tax credit, valued at \$3.1 billion over the first 5 years, and around \$7.6 billion up to 2030. The Norwegian Government has provided NOK 16.8 billion (\$2.6 billion NZD) for the development of the 'Longship' CCUS project. There are a range of subsidies / tax credits in California. When stacked together, it is estimated that CO₂ reductions using CCUS are worth between \$220 and \$244 NZD per ton.

⁷ In California, the CCUS operator remains liable for at least 100 years. In other jurisdictions, the liability period is a lot shorter.