CLIMATE CHANGE AUTHORITY

2023 Review of the Carbon Credits (Carbon Farming Initiative) Act 2011

December 2023

The Climate Change Authority recognises the First Nations people of this land and their ongoing connection to Culture and Country. We acknowledge First Nations people as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living cultures, and pay our respects to their Elders.

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Australian Pipelines and Gas Association
Australian Pork Limited
Australian Projections Pty Ltd
Bioenergy Australia
BP Australia Pty Ltd
Bushfire Survivors for Climate Action
Business Council for Sustainable Development Australia
Business Council of Australia
Carbon Market Institute
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Climate Friendly
Climate Resource
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Eco Markets Australia
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EnergyAustralia
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The Global CCS Institute
Wilderness Society
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WWF-Australia

The authority also received anonymous or confidential submissions from 12 organisations and numerous individuals. These contributions have improved the quality of the review and provided evidence to help inform the authority's recommendations.

The Department of Climate Change, Energy, the Environment and Water, the Clean Energy Regulator and other government agencies also provided technical input. The views expressed in the review are the authority's own and should not be taken as the views or positions of any of the entities listed.

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Acronyms

ACCU	Australian Carbon Credit Unit
ANAO	Australian National Audit Office
CARB	California Air Resources Board
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAC	Direct Air Capture
DCCEEW	Department of Climate Change, Energy, Environment and Water
ERF	Emissions Reduction Fund
FullCAM	Full Carbon Accounting Model
GHG	Greenhouse Gas
FPIC	Free, Prior and Informed Consent
IPCC	Intergovernmental Panel on Climate Change
ITMOs	Internationally Transferred Mitigation Outcomes
NDC	Nationally Determined Contribution
NGER	National Greenhouse and Energy Reporting
NRM	Natural Resource Management
OIS	Offset Integrity Standards
SMC	Safeguard Mechanism Credit
tCO_2-e	Tonne of carbon dioxide equivalent
UNDRIP	United Nations Declaration on the Rights of Indigenous People
UNFCCC	United Nations Framework Convention on Climate Change

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Summary

Key points

While ambitious and urgent cuts to emissions are the priority, the Australian Carbon Credit Unit (ACCU) Scheme can help smooth the transition to net zero emissions.

The ACCU Scheme is fundamentally well designed, and the time is right to make some changes to ensure it remains fit-for-purpose.

Greater transparency and more regular reviews of methods for calculating abatement will bolster integrity and instil more confidence in the scheme.

There's more the ACCU Scheme can do to support First Nations, rural, regional and remote communities.

It is in Australia's national interest to keep up with global carbon market developments.

Australia is well-positioned to be a leader in the global effort to remove carbon from the atmosphere and store it long-term.

While ambitious and urgent cuts to emissions are the priority, the Australian Carbon Credit Unit (ACCU) Scheme can help smooth the transition to net zero emissions

The authority framed this year's review with the question 'is the ACCU Scheme fit for purpose in the Paris Plus context?' The authority uses the term 'Paris Plus' to describe the various agreements, targets, cross-border instruments and other initiatives and behaviours that contribute to the goals of the Paris Agreement. With markets and governments reorienting to net zero emissions, it is timely to ask whether Australia's domestic climate change policies are fit for purpose in this post-Kyoto Protocol era of ambitious and urgent cuts to emissions and rapidly evolving international carbon markets.

This review of the ACCU Scheme together with the authority's concurrent review of the *National Greenhouse and Energy Reporting Act 2007* (NGER Act), and recent research into Australia's sequestration potential (published 17 April 2023), form a timely prelude to the authority's forthcoming advice to government on sectoral pathways to net zero emissions and Australia's 2035 emissions reduction targets, due for completion in 2024.

In the near term, while businesses reduce emissions and develop low or no emissions commercial substitutes, the ACCU Scheme can help address very difficult to abate emissions. By facilitating trade in offsets, markets can smooth the transition for businesses while they make the necessary changes. However, net zero plans will only be successful if offsets are deployed wisely, and not just to displace or delay the direct reduction of emissions. Ambitious and urgent cuts to emissions are the priority.

The ACCU Scheme could also play an important role in financing and scaling the removal of carbon from the atmosphere. Planting and regrowing forests are cost effective and relatively well understood ways to remove and store carbon, and an important part of the ACCU Scheme. New technologies are emerging and will be needed to store carbon in greater quantities and more durably in the transition to net zero emissions by 2050 and net negative emissions in the longer term.

The ACCU Scheme is fundamentally well designed and the time is right to make some changes to ensure it remains fit-for-purpose

Last year the government commissioned an independent review of Australian Carbon Credit Units, chaired by Professor Ian Chubb (the Chubb Review), to ensure ACCUs and the carbon crediting framework maintain a strong and credible reputation supported by participants, purchasers and the broader community. The Chubb Review found the ACCU Scheme "was fundamentally well-designed when introduced" but could nevertheless still be improved. The authority agrees with this view.

Unlike most offsets schemes, which operate in a voluntary self-regulated system, the ACCU Scheme is established in legislation, with robust governance, compliance and enforcement structures. The governance framework of the ACCU Scheme incorporates the Clean Energy Regulator, the Carbon Abatement Integrity Committee (to be established in 2024, formerly known as the Emissions Reduction Assurance Committee), and the Climate Change Authority, each with a role to play in upholding integrity. This robust, regulated setting is a strength and a rarity in carbon offsets schemes.

Nonetheless, there will be opportunities for improvement as long as the scheme continues to grow and the world changes around it.

Greater transparency will bolster integrity and instil more confidence

For the ACCU Scheme to function at its best, market participants such as project investors, ACCU buyers and the broader community must have access to sufficient information to support their confidence in the integrity of ACCUs. In addition to upholding the integrity of the ACCU Scheme, the government has a role in making that information available.

To this end, the authority recommends more information be made available about:

- method prioritisation
- ACCU projects
- the operation of measures within the Scheme that bolster integrity, and
- attributes of individual units such as vintage, project permanence and non-carbon benefits.

The new Australian Carbon Exchange, and the Unit Register, both anticipated to be launched in 2024, present opportunities to enhance the transparency of the scheme. They could pave the way for ratings agencies to enter the market to assess carbon unit quality and provide more information – which is starting to happen in the voluntary carbon market.

In addition to greater transparency, better guidance for project participants would strengthen existing integrity mechanisms, such as existing risk of reversal buffers and permanence period discounts, as well as tools and method development more generally. This would, for example, help farmers and land managers better understand their options as custodians of emissions reduction opportunities, hard-to-abate emissions, and sequestration potential.

Methods for calculating abatement must be reviewed regularly and updates applied to all projects

To ensure that the abatement credited under the ACCU Scheme continues to be real and additional, the methods for calculating abatement are reviewed and updated for developments in science, technology, government policies and markets. To provide greater confidence methods are working as intended over time, the authority recommends that methods incorporate deliberately sloping emissions baselines and shorter default crediting periods, and that method reviews be undertaken more frequently.

When a method is updated, projects operating under the old version should be required to transition to the new method within two years. Currently, there is no requirement for projects to move to the latest available method for their project activities until the end of a crediting period, which can be 25 years for some types of projects.

The effectiveness of key integrity mechanisms such as the risk of reversal buffer and permanence period discount should also be regularly and transparently reviewed.

The above measures should create a virtuous cycle of continuous improvement. However, they need to be implemented in a way that does not create so much uncertainty and risk that project proponents are deterred from participating in the scheme. This can be addressed through the development and implementation of a framework for risk sharing between the government and scheme participants and adherence to a set and published timetable for reviews.

It is in Australia's national interest to keep up with global carbon market developments

Carbon market rules under the Paris Agreement were agreed in 2021. The norms and practices within both regulated and voluntary carbon markets are evolving rapidly in response. These include approaches to promoting efforts to reduce, rather than offset, emissions, as well as ensuring additionality and supporting the long-term storage of carbon.

There is a risk Australia is lagging global norms on acceptance of older, 'vintage' carbon offsets for use in the Safeguard Mechanism and granting units for permanence periods less than 100 years. In this report the authority recommends steps to enable Australia to catch up and keep up.

Internationally, most carbon markets adopt 100 years as the period for which carbon must be stored (sequestered) to be considered valid for counterbalancing emissions. For sequestration projects under the ACCU Scheme, a permanence obligation helps keep carbon out of the atmosphere by requiring it to be maintained in trees and in soils. The ACCU Scheme currently credits projects with either a 25-year permanence period or a 100-year permanence period. The authority recommends encouraging projects with the shorter period transition to a 100-year permanence period, and considering further approaches to ensure the scheme-wide average storage duration is at least 100 years.

It makes sense – and it is in Australia's national interest – to play a leading role in the development of a robust, liquid, high integrity, trusted and effective global carbon market, as the authority said in its 2022 Review of International Offsets. In its second Annual Progress Report, recommended the Australian Government develop and publish a National Carbon Market Strategy, reiterating a 2022 recommendation. The authority will continue to advise on the role of international carbon markets in its review of sectoral pathways to net zero and advice on Australia's 2035 targets.

The ACCU Scheme can be much more than the sum of its tonnes

Many ACCU projects contribute to positive environmental, economic and societal outcomes, creating opportunities for First Nations, rural, regional and remote communities and supporting biodiversity. However, reporting of non-carbon benefits is not regulated in the ACCU Scheme and voluntary non-carbon benefit reporting frameworks are immature. The lack of oversight of this part of the ACCU market leaves the scheme open to 'greenwashing' and creates risks to market integrity. The government can improve reporting and verification of non-carbon benefits associated with ACCU projects and ensure trusted information is available to the market.

The emerging Nature Repair Market presents an opportunity to align markets to operate together in a way consistent with the government's biodiversity and emissions reduction priorities. With some additional support, regional Natural Resource Management organisations could also play a role to help ACCU projects align with other regional priorities.

The government could take some simple steps to amplify benefits for First Nations communities by supporting participation in the scheme, the processes of seeking and giving consent for projects on lands where First Nations rights and interests exist, and a self-determined approach for First Nations communities to verify and communicate non-carbon benefits.

Australia is well-positioned to be a leader in the global effort to remove carbon from the atmosphere and store it long-term

Meeting the Paris Agreement objectives for limiting global warming is only possible with both rapid reductions in global greenhouse gas emissions and the removal of emissions from the atmosphere at a far greater scale than is presently the case. Indeed, it is increasingly likely that globally we will need to achieve net negative emissions. Furthermore, as economies approach net zero, emissions reduction opportunities should be exhausted, with the remaining emissions attributable to only the hardest-to-abate sources. The scope for trade in credits that represent emissions reductions, as opposed to removals, will narrow.

Opportunities to increase nature-based sequestration are limited, as nature-based technologies compete for land and water to varying degrees and become saturated over time. Greater focus needs to be placed on developing removals technologies that store carbon more durably than trees and soils can. That is, engineered removals such as direct air capture with carbon storage, and mineral carbonation.

The authority considers engineered removals to be the way of the future for offsets markets. Scaling-up engineered removals is a long game that Australia should commence as soon as possible. It is a nascent industry, current technologies are expensive, and government support is needed. However, Australia is

endowed with sequestration potential to support the long-term storage of carbon removed from the atmosphere. The development of a carbon sequestration industry presents economic opportunities for Australia, particularly for its regions. This industry could support both Australian and global decarbonisation efforts.

Australia should continue to work with other countries to enable reporting of engineered removals in national greenhouse gas inventories and amend the ACCU Scheme to support engineered removals, alongside other measures. This will pave the way for ACCU methods and projects for engineered removals.

Recommendations and Rationale

Recommendation	Rationale
Recommendation 1: Transfer ACCU projects to varied methods and require application of updated tools within two years of their making, unless the Carbon Abatement Integrity Committee advises otherwise.	Methods and their tools are updated from time to time, for example to correct errors and reflect advancements in the science. At present, method variations apply to new entrants and project proponents that choose to voluntarily adopt a varied method. In the scheme's infancy, crediting periods were established to provide certainty for investors. Now it is a more mature scheme, the time has come to adjust the balance between scheme-wide integrity and market certainty in favour of integrity. Implementing this recommendation will ensure older projects are held to the same standard as new projects and give older projects at least two years notice of the change. The Carbon Abatement Integrity Committee may advise a more rapid transition if there are serious integrity concerns, or slower if the changes are minor and the administrative costs to the regulator and proponents outweigh the benefits. Implementing this recommendation will also reduce the risk that ACCUs from older projects are devalued because they are perceived to be of lower integrity.
Recommendation 2: When implementing the Chubb Review's recommendation to amend the newness requirement, ensure methods continue to deduct abatement resulting from historic levels of activity.	The ACCU Scheme has a 'newness' requirement that projects must not have begun the method activity prior to registration. The Chubb Review recommended amending the newness requirement to focus on new abatement, rather than new activity (Chubb Review Recommendation 6). The authority agrees this could reduce legislative complexity and enable people who have already started an activity to participate in the scheme. The authority further recommends the amendment uphold integrity by ensuring credits are issued for abatement resulting from an additional level of activity.

Recommendation 3: Require the Carbon Abatement Integrity Committee to more frequently review the additionality of methods and publish these assessments.	Over time, activities that were once additional might become common practice, profitable in their own right, or cease to be additional for another reason. ACCU projects can apply to claim ACCUs for the duration of their crediting period, which can be 25 years for some project types. The changing additionality status of activities could be managed by more frequently reviewing methods. A review could result in: a) the revocation of that method. b) a change in the assessment of additionality under that method. c) a crediting period extension. d) a new method being created for the same activity. Implementing this recommendation would strengthen integrity in this dynamic context by ensuring additionality is reviewed more often, with more transparency.
Recommendation 4: Require project baselines to account for: a) the risk of a proportion of project activity becoming non-additional over time b) climate-driven changes in carbon stocks.	Over time, some abatement from activities might cease to be additional. Also, the stock of carbon on the land may change as a result of climate-driven processes without human intervention. These changes can be mistakenly attributed to project activities and credited with ACCUs, unless they are accounted for in project baselines. Implementing this recommendation would enable project proponents to better understand their real abatement potential in a changing environment and manage risks and business decisions accordingly. It would also provide greater confidence in the integrity of the ACCU Scheme.
Recommendation 5: Publish: a) all information used to determine net abatement from project offsets reports b) adverse audit findings c) easy-to-understand material on the evidence base, assumptions and limitations of method tools. Limited exceptions for (a) and (b) could be created to allow proponents to request non-disclosure of personal and commercially sensitive information.	Implementing this recommendation will enhance transparency and increase confidence in the scheme by informing the Carbon Abatement Integrity Committee's assessment of whether tools are fit for use, enabling ACCU purchasers to do their due diligence and manage reputational risks, and enabling civil society to make informed assessments of integrity.

Recommendation 6: a) Make information about the permanence period of ACCUs (i.e., the permanence period of the project that generated the ACCU) readily available to buyers, such as in the forthcoming Unit Register. b) Allow projects to vary their permanence period from 25 to 100 years. c) In developing Australia's plan to achieve net zero emissions by 2050, consider i) the equivalence of carbon sequestration under the ACCU Scheme and the emissions ACCUs are used to offset and ii) increasing the average permanence and durability of carbon stored under the scheme.	For ACCUs to genuinely offset emissions, the durability of sequestration credited under the ACCU Scheme should align with the durability of emissions they are being used to offset. Internationally, most carbon markets adopt 100 years as the period for which carbon must be stored. However, there are ongoing discussions about treatment of different types of greenhouse gases in offsets markets, such as carbon dioxide and biogenic and fossil methane. In the short-term, governments can better enable the market to differentiate existing sequestration units based on their permanence periods and provide the flexibility for projects to vary their permanence period. Implementing this recommendation would improve the scheme's alignment with international norms of permanence, build confidence in the integrity of ACCUs, and clarify the role of offsets in Australia's 2050 net zero plan.
Recommendation 7: Undertake regular assessments of the risk of reversal buffer and permanence period discount to ensure they are well-calibrated. Publish the assessments, including: a) the volume of abatement corresponding to the risk of reversal buffer and permanence period discount. b) any impact of reversal events; and c) other relevant information.	Further information on the conservativeness embedded in the ACCU methods would build understanding and trust in the scheme. Implementing this recommendation will enhance transparency and help ensure existing measures are, and remain, appropriately calibrated, particularly the risk of reversal (carbon losses) in a changing climate.
Recommendation 8: Task and resource the Carbon Abatement Integrity Committee to: a) include the risk of market leakage in its method assessments to the extent practicable b) regularly assess the risk of carbon leakage during the life of a method c) publish its assessments of carbon leakage.	There are some deficiencies in how the ACCU Scheme takes account of carbon leakage. Under the ACCU Scheme, carbon leakage occurs when increases in emissions or reductions in removals occur outside the project boundary as a consequence of the project activity. At present, the ACCU Scheme does not take account of leakage beyond a project proponent's direct control.

Recommendation 9: Task and resource the Carbon Abatement Integrity Committee to: a) develop, adopt and apply an approach to prioritising methods for development that is evidence-based and takes account of the likely abatement outcome in the near and longer term, cost, technology readiness, resource efficiency, risk of adverse impacts, and non-carbon benefits. b) publish information about the approach and how it has informed decisions in the method triage process.	The Chubb Review recommended a transparent, proponent-led process for developing and modifying methods, with the CAIC involved in setting priorities for method endorsement and approval. The authority further recommends adopting a transparent, evidence-based approach to prioritising methods and publishing information to help method proponents understand the triage process and make better-informed decisions about method development and project establishment.
Recommendation 10: a) Enable non-carbon benefits to be reported as attributes of ACCUs in the forthcoming Unit Register, subject to meeting minimum quality standards; and b) Support First Nations organisations to develop a self-determined approach for verifying benefits from ACCU projects flowing to First Nations communities and people.	Investors and ACCU buyers are seeking accurate, quality information about the benefits ACCU projects provide for biodiversity, First Nations communities and other priority areas beyond abatement. The Clean Energy Regulator does not currently publish or provide assurance on claims of non-carbon benefits, and systems for voluntary reporting of non-carbon benefits are not mature. The lack of transparency about whether non-carbon benefits reported by project proponents are genuine leaves them open to 'greenwashing' and risks market credibility. Requiring proponents to meet a minimum standard to report non-carbon benefits improves the transparency and integrity of these claims without placing the requirement for verification on the Clean Energy Regulator. However, any consideration of specific First Nations non-carbon benefits must be endorsed and accepted as genuine in a manner determined by First Nations people. Implementing this recommendation is a step towards ensuring non-carbon benefits are reported efficiently and with integrity.

Recommendation 11: a) Amend the CFI Act to require project proponents to have applied best-practice principles to seek free, prior and informed consent (FPIC) from Native Title holders and claimants over relevant land prior to the registration of an area-based project on that land; and b) When implementing the Chubb Review's recommendation to support Native Title Representative Bodies and other relevant bodies in the application of FPIC, extend this support to include Native Title claimants, and consider supporting other service providers to advise people seeking and giving consent to ACCU Scheme projects.	Current requirements for seeking consent for ACCU projects from Native Title holders and claimants do not meet best-practice principles for seeking free, prior and informed consent (FPIC). ACCU projects and the process of seeking and giving consent to ACCU projects are complicated and not well understood by project proponents and/or Native Title holders and claimants. Implementing this recommendation will enable better processes and negotiations on seeking and giving consent. It will also bring the ACCU Scheme in line with best practice principles for seeking FPIC.
Recommendation 12: Enable better participation of First Nations people in the ACCU Scheme by: a) building the capability of First Nations people to have equitable access to the carbon market, including by making information more available and accessible; and b) resourcing First Nations organisations to provide advice about the ACCU Scheme and providing startup funding for First Nations-led projects; and c) supporting greater involvement in the development of new ACCU Scheme methods.	There are opportunities to make it easier for First Nations people to participate in the ACCU Scheme. For example, information about the scheme could be made available in more languages and modes of delivery. First Nations organisations could play a greater role in sharing information and advice about the ACCU Scheme among First Nations people, with other market participants and with the broader community. This would build broader understanding of the benefits for First Nations people as well as the ways First Nations knowledge about caring for Country can contribute to meeting Australia's emissions reduction targets. The reform process for proponent-led method development (following the Chubb Review) represents an opportunity to remove barriers. Implementing this recommendation will address barriers to participation and enable First Nations people to better access the benefits of the scheme.

Recommendation 13: In consultation with stakeholders, amend the CFI Act to expand the role of regional Natural Resource Management (NRM) plans and organisations in informing the planning and establishment of ACCU projects, and resource NRM organisations accordingly.	Regional NRM organisations are already heavily engaged in strategic regional planning and implementation of other land management projects. At present, ACCU project proponents are required to consider NRM plans. This requirement could be strengthened to require consistency with regional NRM plans. However, consulting with project proponents is beyond the current remit of NRM organisations. NRM organisations may require additional resourcing to undertake new functions, such as updating NRM plans with a greater focus on ACCU projects and greater engagement with ACCU project proponents. Implementing this recommendation will be a step towards enabling better consideration of the local social, economic and environmental context of ACCU projects at the planning stage, which would help mitigate the risk of adverse impacts on regions.
Recommendation 14: Support the establishment of a carbon dioxide removal industry by: a) continuing to engage internationally to identify technical solutions to reporting of engineered removals and promote their adoption into inventory reporting rules. b) amending the CFI Act to include engineered removals. c) calling for method development proposals in engineered removal technologies. d) providing support through existing programs for the development of engineered removal methods.	At present, engineered removal methods are ineligible for the ACCU Scheme, as the CFI Act only includes sequestration via living biomass, soil, or dead organic matter. ACCU methods for engineered removal technologies do not yet exist. Funding, including through existing programs, to enable proponents to develop methods would encourage innovation in this nascent industry. Currently UNFCCC/Paris Agreement emissions estimation and reporting rules do not expressly cover how countries can measure and account for engineered removals in their national inventories. Establishing a reporting methodology, in the content of the IPCC 7th Assessment Cycle, would encourage more countries to adopt engineered removals and expand innovation on these technologies around the world.
Recommendation 15: Make information about the vintage of ACCUs readily available through a mechanism such as the forthcoming Unit Register.	There is growing interest in the vintage of carbon units internationally, and some ACCU buyers have expressed an interest in preferencing ACCUs with a newer vintage. However, information about ACCU vintage is not readily available. The Clean Energy Regulator holds data about the date of issuance of ACCUs, rather than the date abatement was generated. Information about the date of ACCU issuance is currently published on the project register and could be much more readily available to ACCU buyers through mechanisms like the forthcoming Unit Register.

Authority's response to Recommendation 7 of the Chubb Review:

Recommendation 7 of the Chubb Review requested the authority provide advice on the introduction of a scheme-wide integrity mechanism to support additionality and conservativeness.

Having considered the merits of a new scheme level integrity mechanism, the authority proposes the government instead refine the existing mechanisms within the ACCU Scheme for assuring additionality and conservativeness, as per recommendations 1-8 in this report.

The risks to integrity standards not being met vary across the ACCU Scheme. They are dependent on method activity, regulations, market trends, location, climate, and time. Because of this, the calibration of each integrity mechanism has its own rationale. Modifying existing mechanisms consistent with this rationale provides a level of traceability for monitoring their effectiveness in assuring integrity and to assess whether further changes are needed.

Chapter 1: Introduction

The Climate Change Authority (authority) is a statutory agency, established to provide independent, expert, evidence-based advice to the Australian Government on Australia's response to climate change.

The authority is required to review the operation of the Australian Carbon Credit Unit (ACCU) Scheme, every three years, under the *Carbon Credits (Carbon Farming Initiative) Act 2011* (CFI Act). The ACCU Scheme operates under the CFI Act and its supporting instruments, including the *Carbon Credits (Carbon Farming Initiative) Rule 2015* (CFI Rule) and methodology determinations (ACCU Scheme methods).

The objects set out in section 3 of the CFI Act are to:

- remove greenhouse gases from the atmosphere, and avoid emissions of greenhouse gases, in order to meet Australia's obligations under international agreements
- create incentives for people to undertake certain offsets projects
- increase carbon abatement (meaning removal from the atmosphere or avoidance of emissions of greenhouse gases) in a way that is consistent with the protection of Australia's natural environment and improves resilience to the effects of climate change
- authorise the Commonwealth's purchase of units that represent carbon abatement
- facilitate the achievement of Australia's greenhouse gas emissions reduction targets.

1.1 Focus of this review

The ACCU Scheme was designed more than ten years ago. Over the last decade it has been instrumental in developing Australia's national carbon market and helping incentivise activities to reduce Australia's net emissions, primarily through the storage of carbon in the land sector.

As the world transitions to net zero emissions, carbon markets have an integral role to play as part of the plan for faster, deeper decarbonisation. Alongside urgent and ambitious action to reduce emissions at their source, the ACCU Scheme can support the achievement of Australia's emissions reduction goals.

The government introduced reforms to the Safeguard Mechanism that took effect from 1 July 2023 to drive emissions reductions in Australia's highest emitting industrial facilities. Safeguard facilities are expected to drive carbon market demand by purchasing ACCUs to help them meet their declining emissions caps (Safeguard baselines).

Offsets can smooth the transition for businesses with hard-to-abate emissions while they move as fast as they can to address their emissions in line with the Paris Agreement. In the longer term, markets can play an important role in getting to net negative emissions. But carbon markets must have integrity and they must be effective.

The drive for carbon market integrity has picked up speed. Since the Paris Agreement was struck in 2015, the climate architecture established to support the agreement has continued to evolve. Carbon market rules (Article 6 of the Paris Agreement) were agreed in 2021. The rules, norms and practices of carbon markets are still evolving and it makes sense to take a continuous improvement approach to carbon markets for the long term. As the authority said in its 2022 Review of International Offsets, 'it makes sense – and it is in Australia's national interest – to play a leading role in the development of a robust, liquid, high integrity, trusted and effective global carbon market'.

In recognition of the changing international and domestic operating environment for the ACCU Scheme and the recent Chubb Review, the authority has targeted the following key issues:

- Securing integrity – integrity is more important than ever as Australia transitions to net zero. The authority is considering key offsets standards including additionality, permanence and leakage.
- Valuing non-carbon outcomes – how the scheme can achieve other positive outcomes, including co-financing of technology deployment, boosting environmental benefits, and benefits for First Nations, rural, regional and remote communities.
- Managing supply and demand – what an increase in ACCU demand means for land managers and how to support participation in the scheme.
- Scaling emissions removals – how the scheme could support engineered removals.
- Alignment with the Paris Agreement – what it means for the ACCU Scheme to be aligned with the Paris Agreement including an increased emphasis on integrity.

Building on the Chubb Review

The Australian Government commissioned a review into the integrity of the ACCU Scheme through the *2022 Independent Review of Australian Carbon Credit Units* chaired by Professor Ian Chubb (Chubb Review) (Hon Chris Bowen MP, 2022; Chubb et al., 2022). The Chubb Review was commissioned partly in response to concerns raised by several Australian academics, conservation groups and think tanks about the ACCU Scheme's integrity (ANU, 2023).

The Chubb Review found the ACCU Scheme 'was fundamentally well-designed when introduced' and that it can still be improved. The authority agrees with this view. In the spirit of continuous improvement, the Chubb Review recommended changes to clarify governance, improve transparency, boost confidence in the scheme's integrity, and support non-carbon outcomes. The Chubb Review states it did not assess individual projects, instead focusing on governance arrangements – in recognition of the scheme's mechanisms for regular review and improvement.

Different government entities are responsible for reviewing the operation and performance of different parts of the ACCU Scheme:

- The Department of Climate Change, Energy, the Environment and Water (DCCEEW) is primarily responsible for policy development.
- The Clean Energy Regulator (the regulator) is responsible for assessing project applications and the ongoing compliance of registered projects. The regulator is supported in this effort by independent auditors on the Register of Greenhouse and Energy Auditors. The Australian National Audit Office (ANAO) is currently undertaking an audit of ACCUs to assess the effectiveness of the regulator's issuing, compliance and contracting activities (ANAO, 2022; ANAO, 2023). The authority had recommended in its 2020 review of the CFI Act that the ANAO undertake a performance audit of the regulator (CCA, 2020). The ANAO is due to publish its audit report in April 2024.
- The authority is responsible for reviewing the operation of the CFI Act.
- The Emissions Reduction Assurance Committee, which will be replaced by the Carbon Abatement Integrity Committee (CAIC) in 2024, is responsible for reviewing the compliance of ACCU methods with the Offsets Integrity Standards. The authority has referred to this body as the Integrity Committee throughout this report reflecting the interim period before the CAIC is formally established.

The government has accepted all of the Chubb Review recommendations in principle and, as discussed through this report, has made progress with consulting on and implementing them. The authority will continue to monitor the implementation of the Chubb Review recommendations and the government's policy developments.

The authority's review has built on the recommendations made by the Chubb Review and directly addresses Chubb Review Recommendation 7. Recommendation 7 of the Chubb Review requests the authority provide advice on the introduction of a scheme-wide integrity mechanism to support additionality and conservativeness. Having considered the merits of a new scheme-level integrity mechanism, the authority recommends the government instead refine the existing mechanisms within the ACCU Scheme for assuring additionality and conservativeness, as per recommendations 1-8 in this report.

1.2 Approach to conducting this review

In undertaking this review, the authority has conducted public consultation and evidence-based analysis to develop its advice for the Minister for Climate Change and Energy (the Minister) with the purpose of improving the operation of the ACCU Scheme.

The Climate Change Authority Act 2011 (Authority Act) requires the authority to have regard to the principle that any measures to respond to climate change should:

- be economically efficient
- be environmentally effective
- be equitable
- be in the public interest
- take account of the impact on households, business, workers and communities
- support the development of an effective global response to climate change
- be consistent with Australia's foreign policy and trade objectives
- take account of the matters set out in Article 2 of the Paris Agreement[1]
- boost economic, employment and social benefits, including for regional and rural Australia.

Public consultation contributed significant input to this review, including in response to its 2023 Issues Paper 'Setting, tracking and achieving Australia's emissions reduction targets' on the authority's 2023-24 work program. Of the 137 submissions received from organisations, 68 addressed the ACCU Scheme Review, along with some of the submissions received from individuals. The submissions are available via the authority's website. The authority also undertook face-to-face rural and regional consultation in six regional communities across Australia.

The authority worked with First Nations communities to understand their views on and knowledge of the ACCU Scheme. In particular, the authority engaged with First Nations organisations involved in the carbon market. The authority appreciates the valuable feedback from these communities and organisations which informed our analysis. Given the scope of the engagement, the authority acknowledges that while the advice received was often from those with direct experience with the ACCU Scheme, their views should not be assumed to be representative of all First Nations peoples' views or experiences.

The authority also engaged with stakeholders through events, webinars and roundtables. ACCU Scheme participants, carbon market investors, environmental organisations and members of the public were among those that engaged with the authority during this review.

The Chubb Review suggested the authority consider the potential price impacts of a scheme-wide buffer. The authority contracted First Nations business SJT Consulting who worked with carbon market analysts RepuTex to explore the potential price impacts of a buffer. While this was only one piece of the authority's analysis on this issue, the analysis provided insights into possible future carbon market dynamics. The analysis is available on the authority's website.

[1] Article 2 of the Paris Agreement includes the global average temperature goal of 1.5°C above pre-industrial levels and the recognition of differing capabilities of Party countries in contributing towards increasing climate resilience and finance flows in a way that does not threaten food security.

1.3 About the ACCU Scheme

The ACCU Scheme has been operating in Australia in various forms since 2011. It began as the Carbon Farming Initiative, a voluntary carbon crediting scheme that was established to reduce greenhouse gas emissions in the land sector,[2] assist Australia in meeting its emissions reduction targets under the Kyoto Protocol, and complement the now repealed Carbon Pricing Mechanism.

The government amended the CFI Act in 2014 to create the Emissions Reduction Fund. The Emissions Reduction Fund expanded coverage of the scheme to enable projects to occur across the economy and to provide for government purchase of abatement through auctions run by the regulator. The government also introduced the Safeguard Mechanism to ensure abatement delivered by the Emissions Reduction Fund was not displaced by a significant rise in industrial emissions (CER, 2021b).

The scheme is now known as the ACCU Scheme and is undergoing change as the government implements the Chubb Review recommendations. The government's Safeguard Mechanism reforms mean facilities will drive demand for ACCUs, replacing the government as the main buyer of ACCUs.

The ACCU Scheme credits landholders, communities, and businesses achieving abatement under eligible offsets projects. Each ACCU represents one tonne of carbon dioxide equivalent (tCO_2-e) emissions avoided or stored by a project. There are currently 33 approved methods available for project registration (CER, 2023a).

[2] Agriculture; legacy waste (emissions from waste deposited prior to 1 July 2012, when the carbon pricing mechanism was introduced); and land use, land use change and forestry (LULUCF).

A summary of the legislative framework of the ACCU Scheme is provided at Figure 1.1.

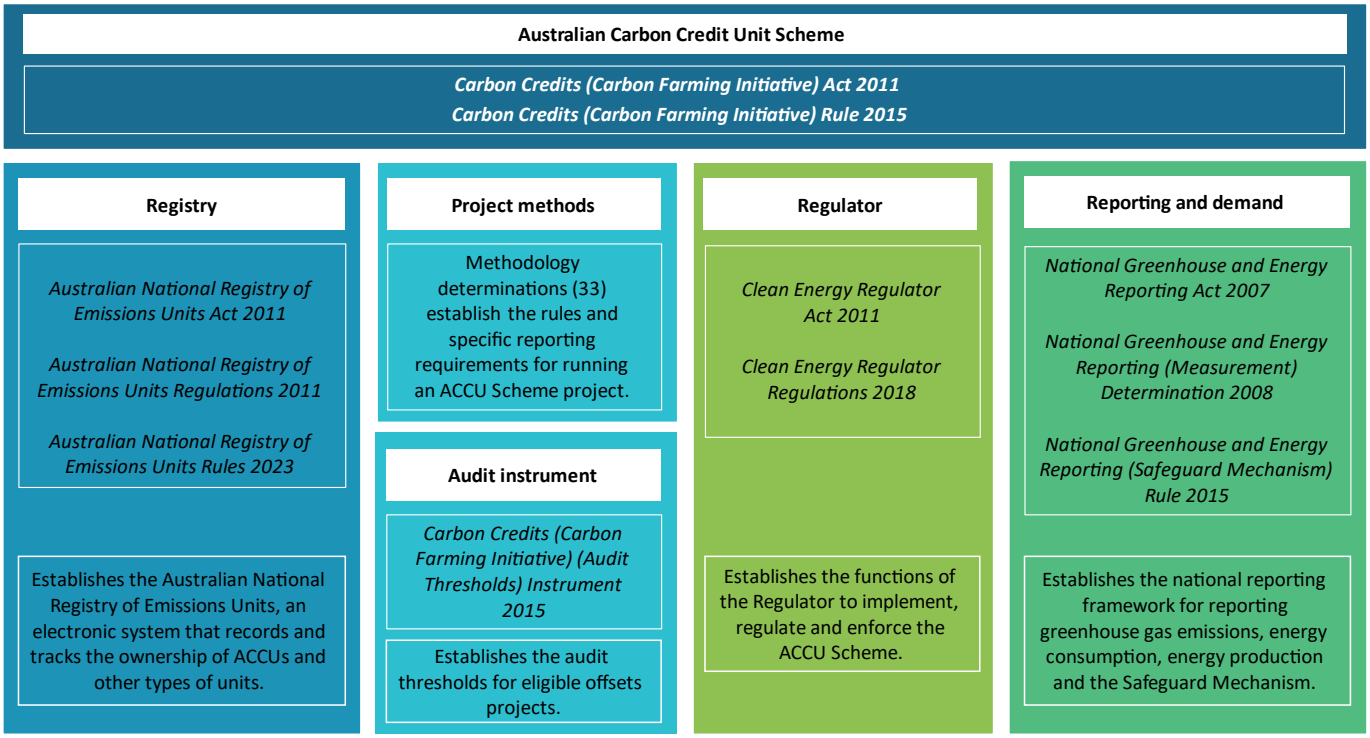


Figure 1.1: Legislative framework of the ACCU Scheme as at November 2023.
Source CCA Analysis, 2023

Crediting

Methods are the rule books that specify the requirements for project eligibility, project activity and the approach for estimating abatement to inform the calculation of the number of ACCUs that will be issued to projects. Methods are legislative instruments made by the Minister (Figure 1.2).

Method development is currently undertaken by the DCCEEW (DCCEEW, 2023d). The government has prioritised the completion of the new Savanna Fire Management and Integrated Farm and Land Management methods, while preparations for a proponent-led method development process are underway (DCCEEW, 2023d).

The Chubb Review recommended the establishment of a transparent proponent-led process for developing and modifying methods, finding the current process to be impeding timely and effective emissions reductions (Chubb Review Recommendation 5). The new process aims to give flexibility to the proponents to develop or adapt new approaches to carbon abatement, promoting innovation and supporting emissions reduction at scale. The interim method development framework released by DCCEEW provides initial guidance on what this process could look like and clarifies that a proponent could be any party, including industry, academia or government (DCCEEW, 2023e). As part of this new process, DCCEEW is consulting on how it could support proponents to prepare Expressions of Interest (EOIs) and potential future methods (DCCEEW, 2023a).

Recommendation 2 of the Chubb Review advised that the Emissions Reduction Assurance Committee should be re-established as the Carbon Abatement Integrity Committee. This recommendation is still in the process of being implemented as set out in the Implementation Plan released by DCCEEW in June 2023 (DCCEEW, 2023d). The Integrity Committee will have responsibility for setting priorities for method endorsement and approval, as well as ensuring compliance with the Offsets Integrity Standards and ACCU Scheme Principles that are being developed by DCCEEW. If compliant and endorsed by the Integrity Committee, the method will then move to the Minister for approval.

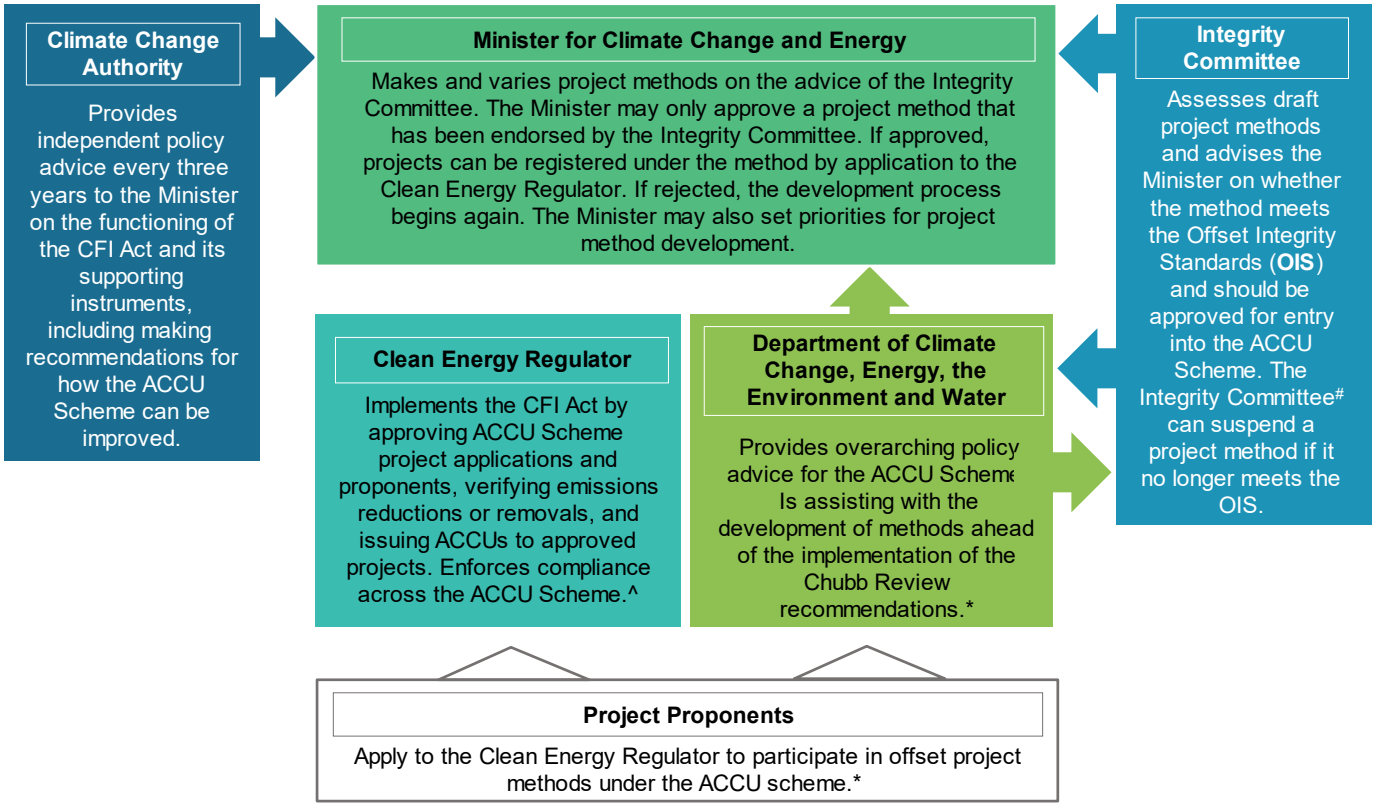


Figure 1.2: Governance structure and roles within the ACCU Scheme as at November 2023.

The government is reforming the ACCU Scheme in response to the Chubb Review and these roles and responsibilities may change in the near future. Potential changes to implement Chubb Review recommendations have been set out in the Implementation Plan released by DCCEEW in June 2023.

^ Consistent with Recommendation 3 of the Chubb Review, the Clean Energy Regulator will cease running auctions, with this function transitioning to a different government entity.

 # Recommendation 2 of the Chubb Review advised the Emissions Reduction Assurance Committee should be re-established as the Carbon Abatement Integrity Committee.

** Recommendation 5 of the Chubb Review advised that project method development should shift to project proponents, with support from DCCEEW.*

Source: CCA Analysis, 2023 based on (Chubb et al., 2022)and (DCCEEW, 2023a).

Offsetting and Offsets Integrity Standards

Upholding the integrity of ACCUs is vital for ensuring they support genuine abatement and Australia's transition to net zero. Six offsets integrity standards are specified in the CFI Act (s 133). The Offsets Integrity Standards establish the fundamental criteria for ensuring ACCUs represent real abatement that is visible to Australia's National Greenhouse Accounts and would have been unlikely to occur in the absence of the ACCU Scheme.

The Offsets Integrity Standards are assessed at the method level by the Integrity Committee.

The interpretation, assessment, and verification of how methods meet the Offsets Integrity Standards are complicated by the range and variability of method activities. The Chubb Review found the Offsets Integrity Standards to be complex and recommended they be more clearly defined, and further supplemented by ACCU Scheme Principles (Chubb Review Recommendation 6).

The government has since released a discussion paper proposing six principles, informed by international schemes as well as the authority's 2022 Review of International Offsets (DCCEEW, 2023a). They are intended to complement the Offsets Integrity Standards to guide new method proposals and method development. Unlike the integrity standards, they are proposed to serve as a guide rather than as formal requirements to be met (DCCEEW, 2023a).

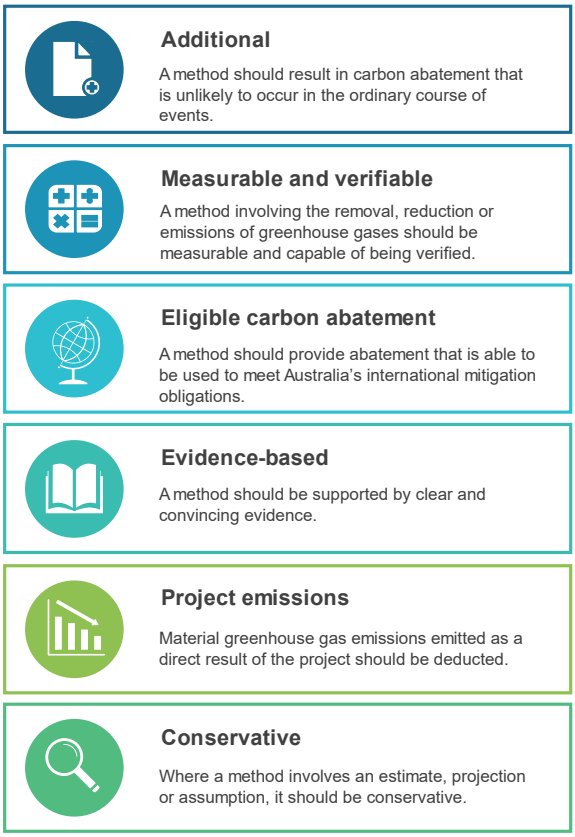


Figure 1.3: Offset Integrity Standards

Source Information Paper: Committee considerations for interpreting the Emissions Reduction Fund's offset integrity standards (CER, 2021a).

The government's proposed principles are:

- Integrity
- Transparency
- Equitable access, participation and benefit sharing
- Practicality
- Environmental and regional sustainability
- Respect for First Nations.

The authority shares the Chubb Review's view that unnecessary complexity and high costs can impede participation and limit the scheme's ability to generate more abatement. The authority also considers that efforts to increase participation should not come at the cost of integrity: maintaining a high level of integrity supports market confidence which in turn encourages participation.

Purchasing

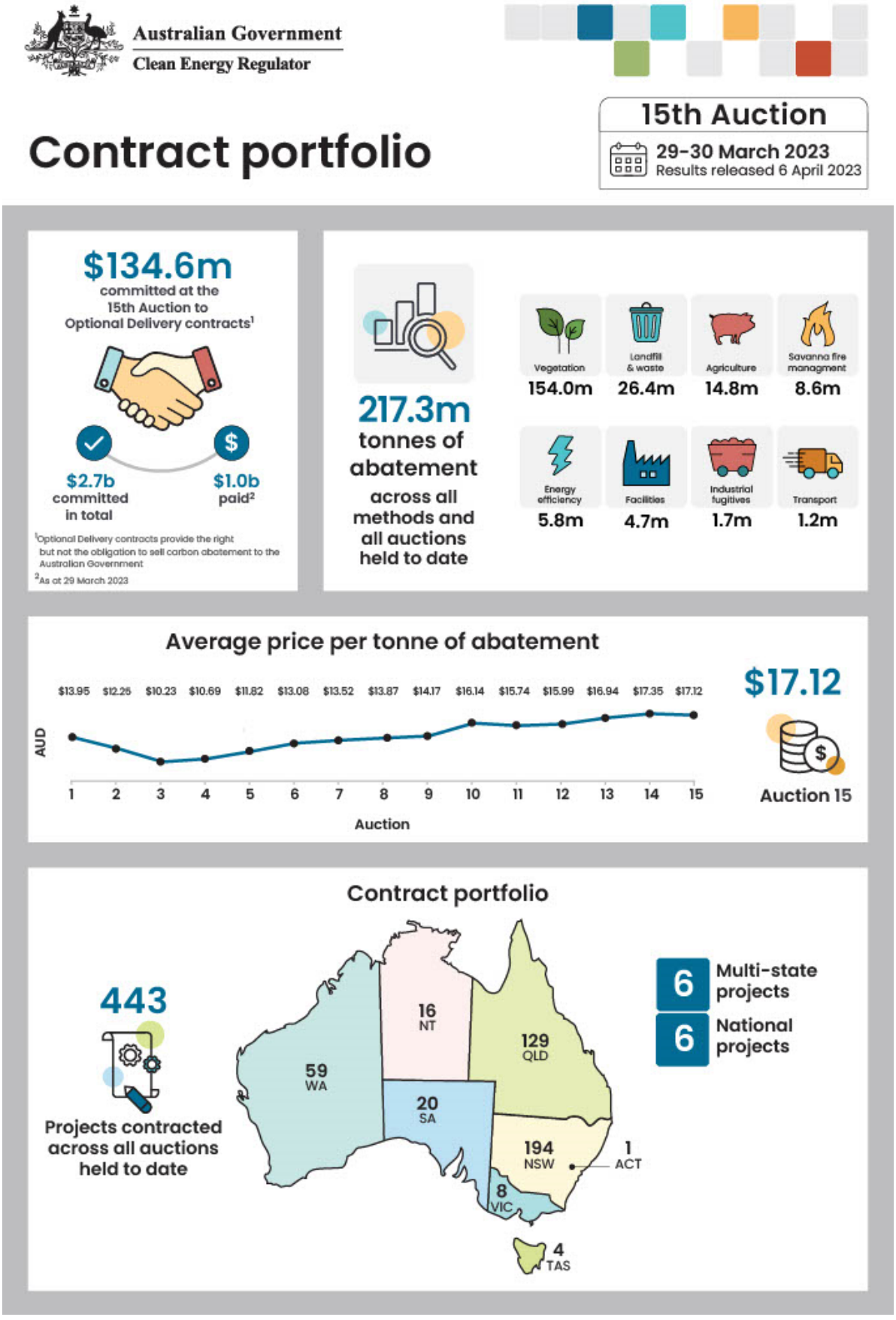


Figure 1.4: ACCU Scheme Volumes and Prices of Abatement Committed to by government via Carbon Abatement Contracts as of 30 March 2023.

Source: (CER, 2023b)

The regulator, on behalf of the government, can enter into carbon abatement contracts for the purchase of ACCUs from registered ACCU Scheme projects (CFI Act, s 20B[1]). Since the ACCU Scheme was established, the regulator has held 15 auctions.

The Chubb Review recommended the regulator's multiple roles should be narrowed, including removing the function of government purchasing of ACCUs, to minimise potential conflicts of interest and improve confidence in scheme governance (Chubb Review Recommendation 3). In response, the government is consulting on the appropriate agency to conduct purchasing, and potentially expanding the focus from 'least cost' abatement to target ACCUs from projects that deliver additional benefits (DCCEEW, 2023a). The government has proposed this new focus could prioritise:

- New method development – to support uptake of new activities.
- Innovation – to accelerate uptake of pre/early-commercial technologies.
- Increasing social, cultural, environmental and economic benefits.

The government is also exploring approaches for realising these benefits, including through targeted or banded auctions or through targeted contracting (DCCEEW, 2023a). The authority makes a number of recommendations for the government to support non-carbon benefits (Chapter 3) and the uptake of new engineered removals technologies (Chapter 5).

Strong demand for ACCUs in the secondary market resulted in a 200% increase in ACCU spot prices in 2021 (CER, 2022c). In response, the government introduced arrangements to encourage transparent and orderly exits from fixed delivery contracts and promote market stability (CER, 2022c). Fixed delivery contracts were discontinued from Auction 14 in April 2022. To date, three pilot fixed delivery exit auctions have been held whereby project proponents can opt-in to release ACCUs scheduled for delivery to the government in an identified 6-month period (CER, 2023e). Through these arrangements, of the 18 million eligible ACCUs, more than 8 million were released from fixed delivery contracts to the secondary market (CER, 2023e; DCCEEW, 2023a).

The secondary carbon market provides another option for scheme participants to trade and sell ACCUs generated from their projects. The secondary market fetches a higher price for ACCUs compared to government contract prices, with the generic spot price sitting around $30-35 over the past year (CER, 2023i). Stratification is prevalent in the ACCU market. For example, ACCUs from Human Induced Regeneration projects fetch a small premium compared to most other units while ACCUs from savanna fire management and environmental planting projects fetch a significant premium. ACCUs can be sold at a premium for many reasons, including perceived higher integrity, preferences for sequestration projects, or if there are non-carbon benefits attached to the project. As more Safeguard facilities enter the ACCU market, closer to their first compliance obligation in early 2025, material increases in demand are forecast to push the ACCU spot price higher (SJT Consulting and RepuTex, 2023).

BOX 1.1 – Australian Carbon Exchange

The Clean Energy Regulator is developing an Australian Carbon Exchange to simplify trading in the ACCU market and support increasing demand from the corporate sector. The exchange will operate like a stock exchange, for the purchase, clearing and settlement of ACCUs and potentially other units and certificates (CER, 2023c).

The exchange will integrate with a new, centralised Unit Register for units and certificates tied to schemes administered by the regulator. The exchange and Unit Register are expected to be operational in 2024 (CER, 2023h).

Together, the exchange and register are intended to improve market transparency (including pricing) and lower transaction costs for the individuals and businesses that participate in the market.

A summary of the crediting and purchasing mechanisms of the ACCU Scheme is provided at Figure 1.4. This reflects the situation as at November 2023, that is before the commencement of the Australian Carbon Exchange and Unit Register.

BOX 1.2 – Cost containment measure explainer

The Safeguard Mechanism includes a cost containment measure that provides Safeguard facilities with an option to purchase ACCUs from the government if they exceed their baselines. ACCUs purchased from the cost containment measure are fixed at $75 in 2023-24, increasing each year with the Consumer Price Index plus 2%. This aims to provide facilities with certainty around the maximum compliance costs they may face if they exceed their baselines and ACCU prices increase substantially (DCCEEW, 2023i).

Offsets sold under the cost containment measure are sourced from ACCUs delivered to the government under Carbon Abatement Contracts from 12 January 2023 (DCCEEW, 2023i). Funds received from the purchase of offsets will be allocated to the Powering the Regions Fund to support additional abatement to meet Australia's targets (DCCEEW, 2023i).

As at the end of August 2023, there are just over one million ACCUs in the cost containment measure (CER, 2023i).

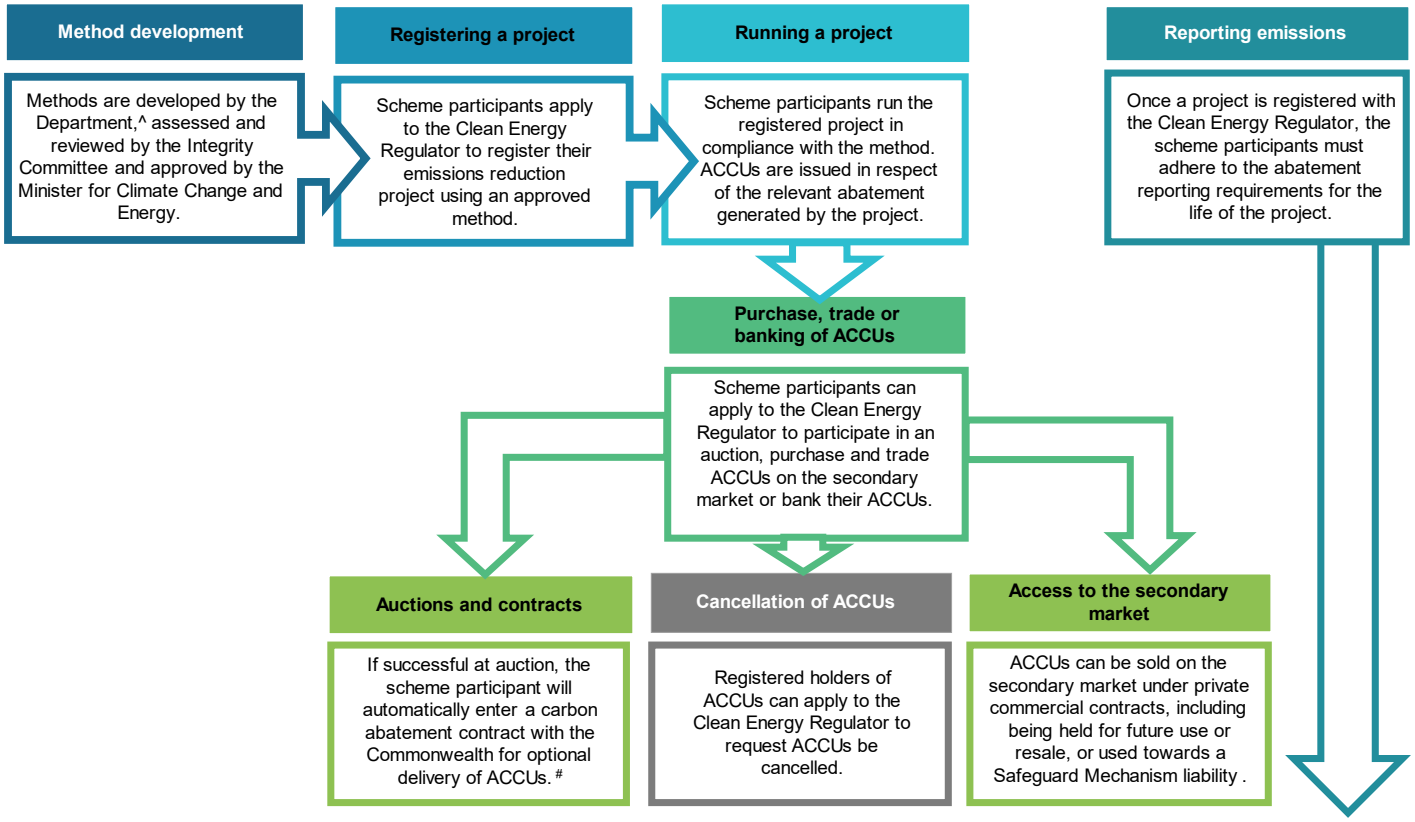


Figure 1.5: Crediting and purchasing mechanisms under ACCU Scheme as at November 2023.

The government is reforming the ACCU Scheme in response to the Chubb Review and these roles and responsibilities may change in the near future. Some elements have yet to be introduced including the Australian Carbon Exchange. Potential changes to implement Chubb Review recommendations have been set out in the Implementation Plan released by DCCEEW in June 2023.

^ Recommendation 5 of the Chubb Review advises that project method development should shift to project proponents, with support from the department.

 # Optional delivery contracts were introduced from Auction 10 in March 2020 and remain available at auction. Fixed delivery contracts were available at auction until Auction 13 in October 2021 but were discontinued from Auction 14. Exit arrangements for fixed delivery contracts were announced in March 2022, three pilot fixed delivery exit windows have been held to date.

Source: CCA Analysis, 2023, based on (Chubb et al., 2022) and (DCCEEW, 2023a).

Chapter 2: Securing Integrity

A culture of continuous improvement can uphold the integrity of the ACCU Scheme in a changing world. Requiring mandatory transition to the latest methods and method tools within two years would ensure crediting remains aligned with the latest science while allowing enough time to prepare.

Abatement activities that would not take place today without the support of the ACCU Scheme will become 'business as usual' as the world decarbonises. **More frequent and transparent method reviews** will help ensure the ACCUs continue to represent additional abatement.

The ACCU Scheme will play an important role in Australia's net zero future, but it will need to evolve. In the near term, it means **aligning with international norms around permanence**. In planning for 2050, it means deciding how ACCUs can be generated and used.

Greater transparency of ACCU Scheme processes and outcomes will build confidence in the scheme. Project offsets reports, audit results, data underpinning risk buffers, and method prioritisation and review processes provide valuable information to the market and enhance accountability of all market participants.

Ensuring integrity of the ACCU Scheme remains crucial for the achievement of Australia's climate change objectives. Australia has legislated a target of net zero emissions by 2050 and ACCUs are expected to play an important role.

Projects have historically delivered about 12-13 million ACCUs per year (16 million in recent years) (CER, 2023d). In response to the Safeguard Mechanism reforms, ACCU issuance could triple to about 40 million per year by 2035 to meet rising demand (SJT Consulting and RepuTex, 2023; EY, 2023).

Governments play a crucial role in ensuring the integrity and credibility of carbon markets. Recent criticisms of voluntary carbon markets, as well as the ACCU Scheme, have highlighted the need for transparency and accountability of all actors to support robust oversight and continuous improvement.

In this chapter, the authority recommends how the government can strengthen the integrity of the ACCU Scheme, including building on the findings of the Chubb Review.

2.1 Embedding the latest evidence

The ACCU Scheme and CFI legislation were designed for methods to evolve over time in response to developments in estimation techniques, science, technologies and practices (CCA, 2017). Methods are primarily updated to improve carbon abatement estimates based on the best available evidence and ensure the integrity of methods. Method variations may include a variety of updates, including to allow additional activities under the method or to enable new measurement approaches.

Currently, existing project proponents are not obligated, but can choose, to transition to new methods or variations. They can continue to apply the method and tool versions in place at the commencement of the project for the duration of their crediting period, which can be up to 25 years. When the scheme was first established, crediting periods were to provide certainty for investors by establishing a period for which the number of credits that may be issued for a project would not be affected by method variations.

However, it is now a more mature scheme, linked to the acquittal of emissions liabilities under the Safeguard Mechanism, and the integrity of offsetting is under greater scrutiny. The need to administer old methods and maintain the relevant tools adds an administrative burden and costs for the regulator and DCCEEW (CCA, 2017). It is time to adjust the balance between scheme-wide integrity and market certainty in favour of integrity. This will support ongoing market confidence in the quality of offsets being generated by ACCU projects and mitigate the related reputational risks to investors.

The authority considered this issue in its 2017 and 2020 Emissions Reduction Fund (ERF) Reviews and is supported by the former government's Report of the Expert Panel examining additional sources of low cost abatement, all of which endorsed project proponents transitioning to new methods (CCA, 2017; CCA, 2020; King et al., 2020). The authority's view is that the government should require project proponents transition to method variations and updated tools within two years of their making unless the Integrity Committee advises otherwise. For example, the Integrity Committee may advise a more rapid transition if there are serious integrity concerns, or slower if the changes are minor and the administrative costs to the regulator and proponents outweigh the benefits of transitioning within two years.

The government is currently consulting on the requirement for projects to transition to varied or new methods via legislative rules (DCCEEW, 2023a). This would be informed by the Integrity Committee's advice on the need for transition and any transitional arrangements required. The government's consultation paper notes the authority's previous ERF Review recommendations and observes that the two-year transition time may not be appropriate for every method variation. The government's proposed changes would ensure all projects, existing and new, would need to transition to the latest method with careful consideration of the impacts and necessary support incorporated. The authority supports the government's proposal as one solution and recommends a two-year transition period be set as a default.

The authority has previously recommended requirements to transition to method variations and updated tools be accompanied by a risk sharing framework, whereby the risks to project outcomes from method errors or scientific improvements are shared between participants and government (CCA, 2020). The authority is still of the view that a risk sharing framework would reduce uncertainty for project proponents and investors while bolstering the integrity of the scheme.

Recommendation 1:	
Transfer ACCU projects to varied methods and require application of updated tools within two years of their making, unless the Carbon Abatement Integrity Committee advises otherwise.	Methods and their tools are updated from time to time, for example to correct errors and reflect advancements in the science. At present, method variations apply to new entrants and project proponents that choose to voluntarily adopt a varied method. In the scheme's infancy, crediting periods were established to provide certainty for investors. Now it is a more mature scheme, the time has come to adjust the balance between scheme-wide integrity and market certainty in favour of integrity. Implementing this recommendation will ensure older projects are held to the same standard as new projects and give older projects at least two years notice of the change. The Carbon Abatement Integrity Committee may advise a more rapid transition if there are serious integrity concerns, or slower if the changes are minor and the administrative costs to the regulator and proponents outweigh the benefits. Implementing this recommendation will also reduce the risk that ACCUs from older projects are devalued because they are perceived to be of lower integrity.

2.2 Additionality

Additionality is arguably the most fundamental integrity standard to ensure the scheme has a real impact on emissions. To be additional means the abatement is beyond business-as-usual or natural variation and occurs due to the incentive provided by the ACCU Scheme. Non-additional abatement would have occurred in the absence of the ACCU Scheme as a result of normal practices, natural processes, other government policies and regulations, or market forces. It doesn't make sense to issue ACCUs for things that were going to happen anyway: there's no new abatement there that can counterbalance or offset emissions. Buying offsets issued for non-additional abatement would be paying for nothing.

The ACCU Scheme includes one test of additionality at the method level and three tests at the project level, as well as more mechanisms to reinforce the tests.

The first test requires that methods comply with the additionality standard. The authority agrees with the Chubb Review's finding that financial additionality is an inappropriate test at the method level, and that a common practice test is more practical and evidence-based. This supports the approach taken by Integrity Committee to date, noting financial additionality tests can apply at the project level in how applicants demonstrate newness.

Three project-level additionality tests, or 'in lieu requirements' contained in the methods and legislative rules, must be satisfied before the regulator can declare a project to be eligible (CFI Act, s 27[4A]):

- **Newness requirement** – the project must not have begun prior to registration
- **Regulatory additionality requirement** – the project must not be required under law, or in some instances the level of activity must go beyond what is legally required
- **Government program requirement** – the project must be unlikely to be carried out under specified government programs.

Additional mechanisms in the ACCU Scheme to ensure additionality include:

- **Project eligibility criteria** – to define activities that would be unlikely to occur without ACCUs
- **Baselines** – to deduct any non-additional or counterfactual level of abatement
- **Crediting periods** – to limit crediting to the length of time the activity remains additional
- **No double counting test** – to prevent the same abatement being credited multiple times.

2.2.1 Newness test

The general approach to the newness test specified in the CFI Act is that the project activity must not have commenced prior to declaration as an eligible offsets project. However, some methods allow for pre-existing project activity. In these cases, the method deducts the influence of this pre-existing project activity on estimates of project abatement. For example, if a project proponent undertakes savanna fire management activity prior to registration, the methods calculations will reflect this and only credit further abatement that the project achieves.

With the aims of reducing complexity and increasing participation, particularly of early adopters, the Chubb Review recommended refocusing how additionality is interpreted at the project level—to focus on new abatement rather than new activity. This proposed change would require amending the newness test to generally allow entry to prospective proponents who have already commenced a method activity.

In a separate statement, the Chair of the review panel elaborated that baselines should reflect the pre-registration activity to allow entry to the scheme and limit crediting for abatement delivered after this time (Chubb et al., 2022). The authority agrees with the Chubb Review. When implementing the Chubb Review's recommendation to amend the newness requirement, the government should ensure additional abatement is supported at the method level with calculations to deduct past and future abatement resulting from historical activity and ensure it is not credited. This would ensure that abatement is additional by only crediting increases in activity beyond historical levels.

Recommendation 2:	
When implementing the Chubb Review's recommendation to amend the newness requirement, ensure methods continue to deduct abatement resulting from historic levels of activity.	The ACCU Scheme has a 'newness' requirement that projects must not have begun the method activity prior to registration. The Chubb Review recommended amending the newness requirement to focus on new abatement, rather than new activity (Chubb Review Recommendation 6). The authority agrees this could reduce legislative complexity and enable people who have already started an activity to participate in the scheme. The authority further recommends the amendment uphold integrity by ensuring credits are issued for abatement resulting from an additional level of activity.

2.2.2 More frequent and published assessments

As economies transition towards net zero, abatement activities that are additional today will necessarily become common practice. This will be good news for the climate. However, it means over time some activities will stop generating additional abatement and will cease to be eligible under the ACCU Scheme.

The authority's view is more frequent and regular reviews of additionality are needed to ensure the ACCU Scheme keeps up with the transition and mitigate the risk that ACCUs are issued for abatement that is no longer additional. This could be managed by shortening default crediting periods for new projects (CFI Act, s 69), triggering earlier 'crediting period extension' reviews. This would also give rise to more regular review of project baselines. The government would need to resource the Integrity Committee to conduct more frequent reviews and give consideration of the impact on project viability under specific methods.

A crediting period is the period of time a project is able to apply to claim ACCUs. Default crediting periods are currently seven years for emissions avoidance and 25 years for sequestration and savanna projects. The Integrity Committee advises on the appropriate length of crediting periods for each methodology and can recommend a different period be specified.

Shorter default crediting periods could be set, for example at five years (instead of seven) for new emissions avoidance projects and 15 years (instead of 25) for new sequestration projects. The Integrity Committee could use these shorter default crediting periods and if necessary, recommend a different period. For example, maintain a 25-year credit period for sequestration projects with high ongoing costs, such as the savanna fire management method. The Integrity Committee would continue to be able to recommend either extending the crediting period (through a crediting period extension review) or the making of a new method for the same activity (where the method is due to sunset) as long as the abatement remains additional.

In responding to the authority's 2023 Issues Paper, some stakeholders raised concerns about the negative impacts that insufficient or shorter crediting periods could have on investment and project viability (Australian Pork Limited, EDL Energy, Bioenergy Australia and anonymous submissions). This could be addressed by the Integrity Committee retaining the ability to specify an alternative crediting period when developing a method. This would allow the Integrity Committee to advise for specific methods to have different crediting periods, where justified.

The government in its consultation paper on implementation of the Chubb Review recommendations has proposed that any changes to crediting periods be made when the method is reviewed as part of periodic method reviews (DCCEEW, 2023a). The proposal includes the Integrity Committee having the ability to suggest transitional arrangements if required. The risk-sharing framework proposed by the authority (CCA, 2020) could also assist here (see section 2.1)

Recommendation 3:	
Require the Carbon Abatement Integrity Committee to more frequently review the additionality of methods and publish these assessments.	Over time, activities that were once additional might become common practice, profitable in their own right, or cease to be additional for another reason. ACCU projects can apply to claim ACCUs for the duration of their crediting period, which can be 25 years for some project types. The changing additionality status of activities could be managed by more frequently reviewing methods. A review could result in: a) the revocation of that method. b) a change in the assessment of additionality under that method. c) a crediting period extension. d) a new method being created for the same activity. Implementing this recommendation would strengthen integrity in this dynamic context by ensuring additionality is reviewed more often, with more transparency.

2.2.3 Setting and updating baselines

Baselines are the mechanism against which the quantity of additional abatement achieved by a ACCU project is measured, and hence are fundamental to determining the amount of ACCUs to be credited. Baselines represent the level of emissions or sequestration that would have occurred without the project taking place. Baselines can be based on *historic data* (what happened prior to the project commencing), or *counterfactual projections* (a future scenario where the project doesn't happen). In this section the authority's focus is on counterfactual baselines.

At present, counterfactual baselines generally do not take account of the economic transition or physical impacts of climate change. As a result, ACCU projects could be credited for non-additional abatement that occurs because of the economic shifts underway or the changing climate.

Counterfactual baselines should take account of abatement projected to occur in the absence of the project, including as a result of climatic changes, shifting regulations and market forces as the world decarbonises. Baselines could be sloped to take account of projected changes. For example, the Chubb Review recommended sloping baselines for landfill gas methods, recognising the need to better reflect increasing regulatory standards and expectations. Dynamic baselines – those that reference external stimuli that can change over time, such as rainfall – could similarly account for climate-driven changes.

Sloping and dynamic baselines are ways to mitigate the risk of a proportion of project activity being credited for non-additional abatement. Sloping and dynamic baselines can also offer a smooth exit from the ACCU Scheme when activities cease to be additional: rather than a rapid and steep exit, crediting would wind back and projects would gradually exit the scheme.

Recommendation 4:	
Require project baselines to account for: a) the risk of a proportion of project activity becoming non-additional over time b) climate-driven changes in carbon stocks.	Over time, some abatement from activities might cease to be additional. Also, the stock of carbon on the land may change as a result of climate-driven processes without human intervention. These changes can be mistakenly attributed to project activities and credited with ACCUs, unless they are accounted for in project baselines. Implementing this recommendation would enable project proponents to better understand their real abatement potential in a changing environment and manage risks and business decisions accordingly. It would also provide greater confidence in the integrity of the ACCU Scheme.

2.2.4 Transparency of project performance and appropriate use of tools

The ACCU Scheme was originally designed to enable publication of information to promote transparency and public confidence in the scheme, while protecting the commercially sensitive information provided to the regulator by ensuring that any disclosure is carried out within specified constraints.

Since then, the need to promote transparency and confidence in the scheme has grown and the ACCU Scheme has matured enough that it makes sense to consider whether constraints around release of information remain fit-for-purpose.

The Chubb Review recommended the protected information provisions be amended to maximise transparency while maintaining protection of commercial-in-confidence information. The authority supports the Chubb Review's recommendation.

In consulting on how to implement this recommendation, the government has identified additional types of information the regulator could publish, including the location of projects, further detail on project activities, and crediting period start dates (DCCEEW, 2023a).

The authority supports the government's proposed way forward and has identified additional areas where information could be disclosed to support market operation and confidence:

- Information within project offsets reports that informs net abatement estimates
- Adverse audit findings, once proponents have been given an opportunity to rectify
- Clear and accessible information on method tools, their assumptions and limitations.

The Integrity Committee, project proponents, investors, buyers and civil society could benefit from transparency about how method tools work and better information about how they should be used. Such information could inform decisions on whether tools are suitable for project application and how they would need to be applied (tool guidelines). Investors may use this information to make informed investment decisions that result in real abatement and positive outcomes for the environment. Making this information accessible to the public would enable people to make their own assessment of whether tools are being used properly.

The Full Carbon Accounting Model (FullCAM) was originally designed for Australia's National Greenhouse Gas Accounts and is also used for vegetation methods in the ACCU Scheme (DCCEEW, 2020). FullCAM is regularly internationally reviewed, revised and accepted as a rigorous tool for accounting national land sector emissions as part of Australia's international reporting.

There are differing views on the correct application of FullCAM based on different interpretations of the same source material. This includes whether FullCAM can be applied to human-induced regeneration projects where there may already be existing mature vegetation or if the model's calibration limits it to commencing with largely clear land (Paul & Roxburgh, 2020). The Chubb Review found 'using FullCAM is a suitable basis for estimating aggregate carbon storage in native vegetation, ***when applied appropriately at the project level***' (Chubb et al., 2022).

With the aim of ensuring appropriate application, the government provides FullCAM Guidelines for ACCU projects. However, there are no similarly accessible information products on (i) the data used to calibrate the tool, and (ii) its applicability for the project conditions and how they may vary.

Recommendation 5:	
Publish: a) all information used to determine net abatement from project offsets reports b) adverse audit findings c) easy-to-understand material on the evidence base, assumptions and limitations of method tools. Limited exceptions for (a) and (b) could be created to allow proponents to request non-disclosure of personal and commercially sensitive information.	Implementing this recommendation will enhance transparency and increase confidence in the scheme by informing the Carbon Abatement Integrity Committee's assessment of whether tools are fit for use, enabling ACCU purchasers to do their due diligence and manage reputational risks, and enabling civil society to make informed assessments of integrity.

2.3 Conservativeness

The ACCU Scheme's conservativeness standard aims to mitigate the risk of over-crediting. It requires method estimates, projections and assumptions to be made to substantially reduce the risk of an over-estimate of abatement. This means where there is uncertainty, erring on the side of caution and taking an approach that lowers estimates of potential abatement. The higher the degree of uncertainty of an estimate, projection, or assumption, the higher the degree of conservativeness required. This conservativeness means method variations or updates to reflect improved approaches are more likely to result in an increase to abatement estimates.

Conservativeness includes consideration of:

- **the concept of permanence** - ensuring any loss or 'reversal' of carbon sequestered by projects is either restored, associated ACCUs relinquished, or the loss insured against; and
- **the potential for ACCU Scheme carbon leakage** - increases in emissions or reductions in removals that occur outside the project boundary as a consequence of the project activity.

Methods, in particular sequestration methods, are subject to several mechanisms to ensure conservativeness, including:

- **Risk of reversal buffer** – to address the risk of carbon losses during the permanence obligation period from natural events, such as bushfires (applies to all sequestration projects and carbon capture and storage projects)
- **Permanence period discount** – a discount of 20%[3] applies to all sequestration projects with a 25-year permanence period (instead of 100 years). This seeks to mitigate the risk that the project activity stops before 100 years have passed
- **Leakage discount factor** – included in some methods to address the risk of ACCU Scheme carbon leakage
- **Temporary discount factor** – included in some methods to address the risk of crediting abatement that may not be maintained over time
- **Sampling variance discount factor** – included in some methods to address the risk of crediting abatement not attributable to the project activity.

[3] Some method types such as plantation forestry with 25-year permanence periods are subject to a 25% discount to reflect higher risks of reversal under these methods.

BOX 2.1 – How conservativeness is managed in soil carbon projects

A soil carbon project involves building carbon in agricultural soils by increasing the amount of decomposing plant material and microbes in the soil. These changes must result from project management activities that change agricultural soil conditions to improve crop and pasture growth. Examples of activities include improving fertiliser application, re-establishing pasture, retaining stubble after a crop is harvested or modifying grazing practices.

Permanence discounts (including **risk of reversal buffer** and the **permanence period discount**) result in a 5% (100-year permanence period) or 25% (25-year permanence period) reduction in ACCUs issued. These discounts are a legislative requirement to address the risk of carbon reversal that cannot be recovered. The CFI Act applies these to all sequestration projects, with the CFI Rule providing different values by exception.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) found soil carbon to have the highest combined risk to the accumulation and maintenance of carbon stock, as part of the authority's 2020 ERF Review (CSIRO, 2020). It is therefore likely a higher risk of reversal buffer may be found to be appropriate for soil carbon methods should comprehensive assessments of the buffer be conducted.

The 2021 soil carbon method then applies two further discounts to address other risks.

- The temporary discount factor aims to ensure credited carbon stock change is due to management change and not other factors such as climate variability. The discount withholds 25% of estimated abatement after only two sampling rounds are undertaken. This can be returned after a third sampling round, when the confidence of attribution is higher.
- The sampling variance discount factor seeks to remove 'statistical noise' from high variability in carbon stocks across the land and at different depths. The more consistent the increase in soil carbon is across samples, the lower the discount to crediting.

2.3.1 Permanence

Greenhouse gases vary greatly in their climate impact, due to differences in their ability to trap heat energy and the amount of time they last in the atmosphere. Carbon dioxide persists in the atmosphere until sequestered in the biosphere, oceans and rocks, with almost one third of an original emission lasting beyond 1,000 years[4] (Archer, 2009). In contrast, methane has a relatively short duration in the atmosphere, estimated at 12 years, but a much more intense warming impact.[5]

The concept of 'permanence' in carbon markets refers to an agreed length of time that sequestered carbon is required to be maintained by project proponents. The ACCU Scheme currently uses a 100-year definition of permanence. The idea that 100 years, rather than thousands of years, is representative of permanence is a policy compromise incorporated in the ACCU Scheme, and other carbon crediting schemes, to balance scientific rigour with the practical constraints of a scheme's administration. During a permanence period, a project proponent must restore or hand back credits when carbon is lost.

Climate policy and carbon markets are underpinned by the idea that 'a tonne is a tonne' - where different types of abatement are treated equally. The authority's view is that climate policy and carbon markets need to move towards recognising 'like for like' where the attributes of different types of sequestration align with the nature of emissions being offset.

The ACCU Scheme is currently dominated by biological sequestration – carbon stored in vegetation and soil. While biological sequestration is essential, it is a relatively vulnerable form of storage. More durable forms of sequestration that make use of geological or mineral storage are currently significantly more expensive. There is a need for the scheme to strengthen its approach to permanence, including shifting in focus to more durable forms of storage over time (Chapter 5). Incentivising increased durability under the ACCU Scheme will improve the alignment between the durability of sequestration and the emissions it offsets.

'Durability' refers to how well a carbon stock resists loss of carbon due to environmental changes, human activities, and other natural disturbances. A more durable carbon stock means there is a greater likelihood that stored carbon would persist beyond 100 years without requiring ongoing renewal. The degree of vulnerability to reversals differs, for example, between the carbon stored in fire-prone forests and the carbon mineralised in sub-surface rock (CSIRO, 2022).

The government should review the alignment of the equivalence between the carbon sequestration credited under the ACCU Scheme and the emissions ACCUs are used to offset. This review should consider the treatment of existing 25 and 100-year permanence periods and inform longer-term plans to ensure the average durability and permanence of the ACCU Scheme is appropriate for the nature of emissions it will offset over time.

25-year permanence periods

When a project proponent applies to register a sequestration project, they must nominate a permanence period of either 25- or 100-years. According to project registration data as of 1 October 2023, there were 1,326 sequestration projects, with three quarters of them having nominated a 25-year permanence period (CER, 2023d). This trend has increased to nine-in-ten new sequestration projects over the last three years (CER, 2023d).

Projects with 25-year permanence periods are bound by the permanence obligations for 25 years and are generally credited 20% less (one method has a 25% discount). Shorter permanence periods present risks that the sequestered carbon is lost and not renewed, and present reputational risks to buyers, sellers and government.

[4] Interpreted from Figure 1 of (Archer, 2009).

[5] Measured over a 100-year timeframe, methane has 28 times the warming potential as carbon dioxide (*National Greenhouse and Energy Reporting Regulations 2008*, s 2.02)

The inclusion of a 25-year option was introduced in 2014 to overcome barriers to participation. The authority's consultation suggests these barriers are likely to persist, including Australian Government regulations and policies complicating state governments' ability to consent to a 100-year commitment on leasehold or other Crown land (where the majority of projects are currently undertaken); impacts on native title rights and the consent process; the impact on land value, finance and insurance from the requirement to maintain carbon stocks long after crediting stops; and succession planning.

Ceasing the option of a 25-year permanence period for new projects could help increase the permanence of carbon sequestered under the scheme by ensuring new projects are required to be bound by the permanence obligations for 100 years. The authority's view is that the 25-year permanence period option should be retained to support the agriculture sector's participation and recognise the valuable abatement from land managers under the ACCU Scheme. However, the government should review the discount and treatment of projects with 25-year permanence periods and consider how the scheme can overall achieve higher average permanence.

A first step to encourage increased permanence under the ACCU Scheme would be to allow projects to vary their permanence period 25-years to 100-years. This is not currently possible under the ACCU Scheme. Submissions to the authority's Issues Paper recognised how providing the option to extend permanence periods would reduce the risk of lost carbon stocks not being restored and better align the scheme with the international norm of 100-year permanence periods (AGL, Corporate Carbon, Queensland Conservation Council and Climate Resource submissions). Submissions to the Chubb Review made similar points. To incentivise the variation, some submissions called for projects that change to 100 years to receive credits corresponding to the past abatement that had been subject to the 20% discount while they had a 25-year permanence period. This is the approach proposed by the government in its discussion paper on the implementation of the Chubb Review recommendations (DCCEEW, 2023a). The authority in principle supports the government's approach.

Supporting projects to nominate 100-year permanence periods would require extensive engagement and capacity building of participants and interest holders. This would help to overcome potential issues including the need to make transitional arrangements for existing loans and contractual arrangements, native title rights and the consent process, and lease arrangements for projects on crown lands. The interaction between permanence periods and native title rights is complex. Legal advice should be sought on the potential implications on native title, as well as other interest holders.

In addition to the roles project proponents and the government play in ensuring permanence, buyers can also play a role. The market should be given information to discern between projects with different permanence periods and price them accordingly. Buyers, such as those under the Safeguard Mechanism or Climate Active, could preference – and potentially pay a premium for – offsets from projects with longer permanence periods.

The authority recommends making permanence periods identifiable on ACCUs to enable the market to readily differentiate them. For example, the government could use the regulator's new Unit Register to identify whether ACCUs are from a project with a 100-year permanence period or 25-year permanence period.

There are a number of ways to manage activities that rely on less durable carbon or shorter permanence periods. The United Nations Framework Convention on Climate Change (UNFCCC) outlined some possible approaches in a recent paper calling for input on approaches to managing removal activities under Article 6 of the Paris Agreement (UNFCCC, 2023). One approach, for example, might require four credits from projects with 25-year permanence periods to equate to one credit from projects with 100-year permanence periods. These approaches are still under development but could inform the ACCU Scheme's policies and support the scheme's alignment with international frameworks.

The authority's Sequestration Insights Paper suggested that Australia lead the development of a global evidenced-based framework to enable different forms of sequestration to be classified against an agreed set of attributes, such as durability, and inform how they may best be used, particularly for counterbalancing emissions (CCA, 2023a). This was a theme that some stakeholders reflected in the authority's consultation process.

> *"We should have a statistical definition of the anticipated duration of the common types of sequestration, so that different sequestration paths can be classified by their likely duration."*
>
> **Climate Tasmania**

Another driver for the need for increasing use of durable carbon stocks is the recognition that there are limits to how much land can be used for biological sequestration relative to other food and fibre uses, and that this type of sequestration is vulnerable to disturbances and climate variability. A better understanding of Australia's carbon sequestration potential would inform the ACCU Scheme's balanced use of different carbon stocks and policy mechanisms to ensure long-term permanence. In the 2023 Annual Progress Advice Report, the authority recommended the government develop a sophisticated modelling capability to analyse and forecast sequestration (Recommendation 33, (CCA, 2023b)).

The authority recommends the government prioritise work to better understand the nature of different types of greenhouse gas emissions and sequestration technologies, and develop a plan to improve the alignment of sequestration with hard-to-abate emissions.

Recommendation 6:	
a) Make information about the permanence period of ACCUs (i.e., the permanence period of the project that generated the ACCU) readily available to buyers, such as in the forthcoming Unit Register. b) Allow projects to vary their permanence period from 25 to 100 years. c) In developing Australia's plan to achieve net zero emissions by 2050, consider i) the equivalence of carbon sequestration under the ACCU Scheme and the emissions ACCUs are used to offset and ii) increasing the average permanence and durability of carbon stored under the scheme.	For ACCUs to genuinely offset emissions, the durability of sequestration credited under the ACCU Scheme should align with the durability of emissions they are being used to offset. Internationally, most carbon markets adopt 100 years as the period for which carbon must be stored. However, there are ongoing discussions about treatment of different types of greenhouse gases in offsets markets, such as carbon dioxide and biogenic and fossil methane. In the short-term, governments can better enable the market to differentiate existing sequestration units based on their permanence periods and provide the flexibility for projects to vary their permanence period. Implementing this recommendation would improve the scheme's alignment with international norms of permanence, build confidence in the integrity of ACCUs, and clarify the role of offsets in Australia's 2050 net zero plan.

2.3.2 Risk of reversal

The risk of reversal buffer builds a degree of conservativeness into the ACCU Scheme, insuring it against temporary or permanent carbon store losses. The CFI Act allows for different risk of reversal buffer values to be set when establishing method determinations.

Australia is experiencing climate change at an increasing pace with average Australian land and ocean warming increasing around 1.5°C since 1910 and 1°C since 1900 respectively (CSIRO and The Bureau of Meteorology, 2022). The impacts of this warming are already evident with Australia facing more extreme fire weather and longer fire seasons, declining rainfall and more intense heavy rainfall events, and increasing sea levels (CSIRO and The Bureau of Meteorology, 2022). These events are expected to impact carbon stored through sequestration projects. This risk is likely to be of greater concern as climate related extreme weather events become more frequent (CCA, 2022). As the effects from these weather events will not be felt evenly, risk factors such as the type of activity being undertaken, the location of the project and specific region climate conditions should be considered (CCA, 2020; CSIRO, 2020).

BOX 2.2 – CASE STUDY: California's Compliance Offsets Program Forest Buffer Account

The Compliance Offsets Program (the program) is a Californian offset scheme established as a cost-containment element under the California's cap-and-trade system. It is regulated by the California Air Resources Board (CARB). The CARB assesses projects against six Board-approved Compliance Offset Protocols (California Air Resources Board, n.d.). Approved projects are issued ARB Offset Credits (credits) for every tonne of carbon reduced or sequestered. Forest projects make up more than 80% of all projects (CARB, 2023).

California's cap-and-trade system covers around 450 entities and limits California's greenhouse gas emissions from around 85% of responsible sources, with the aim to reduce emissions by 40% below 1990 greenhouse gas levels by 2030 (California Air Resources Board, 2015a; International Carbon Action Partnership, n.d.). The program works as a cost containment element of the cap-and-trade system by offering a cost-effective way for regulated entities to reduce emissions. However, regulated entities are only able to use a small portion of offsets towards their compliance obligations, currently offsets can only be used for up to 4% of their compliance obligations through to 2025 (California Air Resources Board, 2021).

The program builds in conservative approaches to ensure real, permanent and additional carbon reductions, including deductions for potential statistical uncertainty, carbon market leakage, minimum baseline levels and mandatory contributions to a Forest Buffer Account for risk of reversal (California Air Resources Board, 2021).

The Forest Buffer Account acts as an insurance for involuntary reversals. The portion of credits regulated entities are required to contribute to the Forest Buffer Account is calculated based on the level of different risks to the specific projects. Risks include from wildfires, diseases, or pest outbreaks as well as social, management and financial risks. The Forest Protocol is the legislation that underpins the percentage of credits to be contributed to the Forest Buffer Account. This sets out the risks as per the example below, with projects simply adding the percentages for each risk level relevant to the project.

Forest Project Risk Types

Risk Category	Risk Type	Description
Natural Disturbance	Wildfire	Loss of project carbon through wildfire

Natural Disturbance Risk I – Wildfire

Project Specific Circumstances	Contribution to Reversal Risk Rating
Forest project that has conducted fire risk reduction work on the project area that contributed to lowering the fire risk for the entire project area as confirmed in the form of written communication from either the local or state fire protection agency who has direct responsibility for fire protection over the project area. The methodology for how the project-specific assessment is being applied must be submitted as part of the Offset Project Data Report.	2%
Forest project that has not conducted fire risk reduction work on the project area	4%

Source: (California Air Resources Board, 2015b)

According to CARB, in 2021 projects typically contributed 17 to 19% of their issued credits to the Forest

Buffer Account (California Air Resources Board, 2021). The Forest Protocol has been amended a number of times since its initial adoption. Each time an amendment is made the risks and relevant science are reviewed.

CARB transparently accounts for involuntary risks of reversal through publishing the Forest Buffer Account balance and the number of ARB Offset Credits retired from the buffer (Figure 2.1). To September 2023, the Forest Buffer Account held more than 31.6 million and around 1.7 million had been retired due to involuntary reversals.

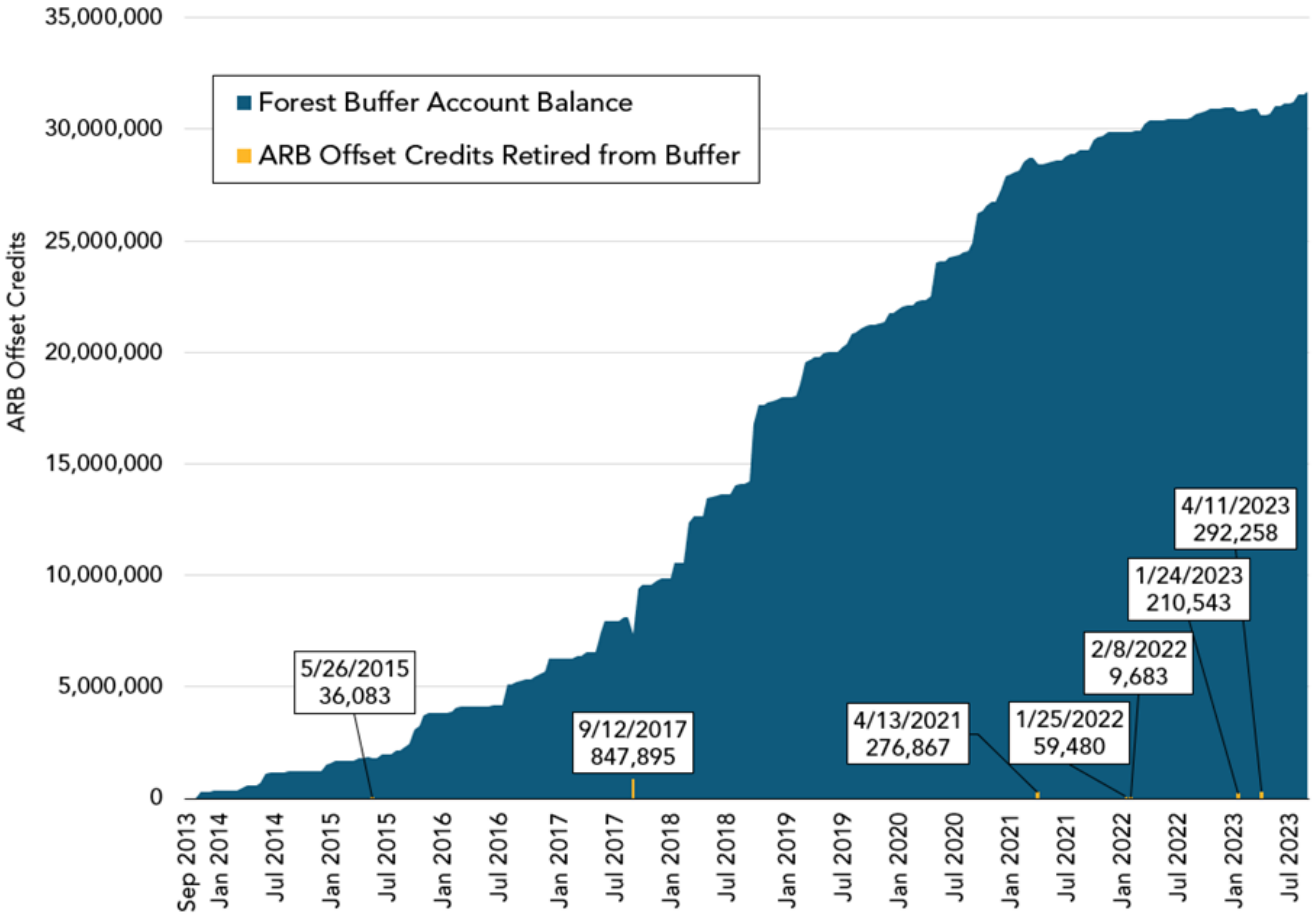


Figure 2.1 Forest Buffer Account Balance over time

Source: (CARB, 2023)

The CARB's approach to risk of reversal allows for nuanced contributions based on the individual project's risks in an easy-to-calculate fashion. The transparency of credits has allowed better scrutiny of the risk calculations and reversals. While the Forest Buffer Account has received some criticisms, many experts rebut these claims, using publicly available data to do so (California Air Resources Board, 2021). Every time the legislation goes through an update a public process is undertaken to ensure it reflects the latest science and improvements.

The authority's 2017 and 2020 ERF Reviews recommended that the risk of reversal buffer and the permanence period discount be monitored, reviewed, adjusted and reported to ensure changes in climate risks or significant reversal events are reflected. The Chubb Review supported the authority's 2020 and 2017 recommendations relating to permanence (Chubb et al., 2022).

With increased warming and extreme weather events, it will be more important that the risk of reversal buffer and the permanence period discount take account of projected climate risks. This would require the buffer and discount to be regularly assessed to ensure scheme-wide abatement levels are protected against the fast-changing environment. A number of submissions to the authority's May 2023 Issues Paper identified a need for these mechanisms to account for climate risks, have greater transparency and to be reviewed for appropriateness to minimise integrity risks in the scheme (Business Council for Sustainable Development Australia, Carbon Market Institute, Climate Friendly, Climate Resource and NRM Regions Australia submissions).

The authority's view is greater transparency of the operation of the risk of reversal buffer and the permanence period discount would support an assessment of their adequacy. It is difficult to know if the risk of reversal buffer and permanence period discount are well-calibrated due to a lack of information about the tonnes of abatement captured under these mechanisms as well as losses to reversal events. Reversal events are required to be reported to the regulator, if either more than 50 hectares or 5% (whichever is smaller) of the total project area is affected by bushfire, but these are not publicly disclosed (CER, 2020). For example, approximately six sequestration projects were impacted by the 2019-2020 bushfires (CER, 2023g). Collectively these projects had been issued around 3,500 ACCUs. Data on the carbon stocks that were lost or restored because of the bushfires is not publicly available.

California's Compliance Offset Program (Box 2.3) demonstrates an alternative approach to calculating risks of reversal, which is more nuanced - based on scientific evidence and the specific risks certain projects face. This is of increasing importance as more projects come online and climate risks continue to increase.

The regulator does not issue ACCUs for the risk of reversal buffer and the permanence period discount. The authority supports this approach as it builds conservativeness in the scheme and does not create expectations for this abatement to be issued in the future. However, the authority's view is that these mechanisms should be regularly reviewed to ensure they account for climate risks facing Australia. To promote transparency, the regulator should quantify and publish the volume of abatement corresponding to the reversal buffer and permanence period discount, and information, once available, on the impacts of reversal events.

Recommendation 7:	
Undertake regular assessments of the risk of reversal buffer and permanence period discount to ensure they are well-calibrated. Publish the assessments, including: a) the volume of abatement corresponding to the risk of reversal buffer and permanence period discount. b) any impact of reversal events; and c) other relevant information.	Further information on the conservativeness embedded in the ACCU methods would build understanding and trust in the scheme. Implementing this recommendation will enhance transparency and help ensure existing measures are, and remain, appropriately calibrated, particularly the risk of reversal (carbon losses) in a changing climate.

2.3.3 ACCU Scheme carbon leakage

Under the ACCU Scheme, carbon leakage occurs when increases in emissions or reductions in removals occur outside the project boundary as a consequence of the project activity. The ACCU Scheme's Integrity Committee has considered the risk of carbon leakage from the ACCU Scheme during method development and periodic method reviews.

The Integrity Committee has defined the two forms of leakage as follows (CER, 2021a):

- **Direct leakage**, also known as 'activity shifting', occurs when project abatement is negated by the emitting activity being shifted elsewhere as a direct consequence of carrying out a project. For example, revenue generated from an avoided clearing of native forest project on one property leads to increased clearing rates on other properties managed by the same project proponent.
- **Indirect leakage**, also known as 'market leakage', occurs when project abatement is negated by market-induced increases in emissions or reductions in removals outside of the project boundary. For example, a project to reforest grazing land could lead to reduced meat production and higher meat prices, which could trigger an increase in deforestation elsewhere.

When the ACCU Scheme was first designed under the CFI Act, the stated intention was the government would work with stakeholders to identify ways to account for the impact of indirect leakage in methods (*Explanatory Memorandum, Carbon Credits (Carbon Farming Initiative) Bill 2011)*. When the government amended the CFI Act in 2014 to create the Emissions Reduction Fund, the approach to indirect leakage changed. Methods would only need to account for indirect leakage when a Ministerial direction required it *(Explanatory Memorandum, Carbon Farming Initiative Amendment Bill 2014*).

Although relocation of activities can be due to a range of factors, market leakage could be estimated at the method level. The regular monitoring of national trends in the activities covered by ACCU methods could provide valuable insight into changes in the risk of carbon leakage occurring. For example, trends in the clearing of forested land that could possibly be eligible to register under the ACCU method for avoided clearing of native regrowth. This could inform the Integrity Committee's advice on variations to methods, or whether the risk means abatement can no longer be conservatively estimated under the scheme.

Different methods would face different risks of market leakage, so it would make more sense to apply a leakage buffer at the method level, rather than scheme-wide.

For many ACCU Scheme abatement activities, the National Greenhouse Accounts include metrics for monitoring and reporting domestic activity in the National Inventory Reports. For example, spatial layers of forest cover monitoring the human-induced change in woody biomass over time, and industrial emissions reported under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act).

There have been limited details published on the analysis undertaken and findings of the Integrity Committee's assessments of carbon leakage. Greater transparency about leakage and how it is assessed would build market confidence.

Recommendation 8:	
Task and resource the Carbon Abatement Integrity Committee to: a) include the risk of market leakage in its method assessments to the extent practicable b) regularly assess the risk of carbon leakage during the life of a method c) publish its assessments of carbon leakage.	There are some deficiencies in how the ACCU Scheme takes account of carbon leakage. Under the ACCU Scheme, carbon leakage occurs when increases in emissions or reductions in removals occur outside the project boundary as a consequence of the project activity. At present, the ACCU Scheme does not take account of leakage beyond a project proponent's direct control.

2.3.4 A new scheme-wide buffer

The Chubb Review recommended the authority, *'provide advice to the Minister on the merits of a mechanism at the scheme level to provide further assurance of additionality and conservativeness in a transparent manner'*. The Chubb Review also asked that the authority, in providing its advice, consider the impacts a mechanism may have on the ACCU price, and any implications for the cost-effectiveness of abatement.

The Chubb Review considered a mechanism could address risks to two offsets integrity standards:

- Additionality – risks introduced by changes proposed by the Chubb Review to increase scheme participation (Chubb Review Recommendation 6); and
- Conservativeness – the risk of carbon leakage, as examined in the report by the Australian Academy of Science (AAoS, 2022).

Having considered the merits of a new scheme-level integrity mechanism, the authority proposes the government instead refine the existing mechanisms for assurance of additionality and conservativeness (Recommendations 1-8).

The authority's view is that increasing participation in the ACCU Scheme is not the only way to increase abatement. There are several mechanisms to incentivise abatement in the land sector. Chapter 4 considers the choices land managers must make and the support needed to reduce costs and complexity to participate in abatement measures.

The Chubb Review indicates that a potential new mechanism would apply on top of existing buffers (risk of reversal and permanence period), for further assurance of integrity. The authority's reasoning for not recommending a scheme-level mechanism is as follows.

The risks to integrity standards not being met vary across the ACCU Scheme. They are dependent on method activity, regulations, market trends, location, climate, and time. Because of this, the calibration of each integrity mechanism specified by the Integrity Committee has its own rationale. Modifying existing mechanisms consistent with this rationale provides a level of traceability for monitoring their effectiveness in assuring integrity and to assess whether further changes are needed.

Creating a new scheme-level buffer, on top of the existing buffers for conservativeness, would be a blunt approach to address risks to integrity that vary in their likelihood and magnitude across the scheme. It could also potentially impose unnecessary cost on comparatively low-risk projects. By not clearly linking it to a specific risk (for example, of non-permanence) or rationale it would be hard to assess its effectiveness.

There is a risk that a scheme-level mechanism would be relied upon for the impression of integrity, not enable the same level of scrutiny as more targeted mechanisms, and ultimately result in a less conservative outcome. The same concerns arise if the new mechanism also consolidated existing buffers. In either approach, a new scheme-level mechanism would be imprecise and opaque.

The majority of organisations' submissions to the authority's 2023 Issues Paper that expressed a position on a new scheme-level integrity mechanism were against the idea, and many instead favoured strengthening existing mechanisms through method design (Australian Industry Greenhouse Network; Australian Petroleum Production & Exploration Association; Alinta Energy; Carbon Market Institute; Climate Friendly; Glencore; Origin Energy; Woodside Energy; and four confidential submissions). The prevailing reasoning was risks varied by method and that a scheme-level mechanism was a blanket approach that risks unfairly burdening high-integrity methods.

Additionally, there were other submissions that suggested such a mechanism would be more appropriately applied on the demand-side (Australian Conservation Foundation; Australian Pork Limited; HESTA Super Fund; and WWF Australia). For example, this could be through increasingly requiring more ACCUs to offset each tonne of emissions above a certain threshold. The authority has not provided advice on the merits of a demand-side mechanism. However, the authority is considering this issue and will monitor the use of ACCUs when advising the government on the effectiveness of the Safeguard Mechanism to incentivise on-site abatement as part of the 2026-2027 review of the Safeguard Mechanism.

Potential impacts a mechanism may have on the ACCU price

The authority has explored the possible price impacts of a potential new scheme-wide buffer. The authority commissioned SJT Consulting and RepuTex to undertake modelling of the effects on carbon market and price dynamics to 2035 of two theoretical scheme-level buffer values equal to mandatory withholdings of 5% and 10%. A buffer of 20% was also included to see the impacts of an equivalent shortage of supply.

The indicative analysis found a potential new scheme-level buffer could be expected to initially tighten the market, increasing prices earlier than without the buffer (SJT Consulting and RepuTex, 2023). This higher price may bring forward new project development to increase the ACCU supply to keep pace with increases in demand. The theoretical buffer scenarios of 5% and 10% resulted in a smoother supply growth, with similar but slightly higher ACCU prices than without the buffers. The 20% scenario resulted in much higher prices than no buffer. There are significant uncertainties in the carbon market and the analysis did not consider the impacts of a buffer on individual project viability.

The analysis was indicative only, based on the evidence available as of June 2023. As with any modelling, the market analysis was limited by the assumptions and simplifications made. For example, the analysis did not consider the impact of different buffers (and their complexities) on individual ACCU Scheme projects' ACCU issuance. While a buffer may decrease the yield per project and disincentivise some projects, the subsequent reduction in supply could increase ACCU prices and incentivise other projects. Similarly, the analysis had to make several assumptions concerning policies the government was consulting on at the time. These include the availability of future methods and the continued release of projects from fixed delivery carbon abatement contracts.

Further detail is available in the ACCU Market Analysis report on the authority's website.

2.4 Method prioritisation

The government is currently developing a new proponent-led method development process, implementing Recommendation 5 of the Chubb Review. The government has released interim guidelines for method development while the new Integrity Committee and proponent-led method development process are being established (DCCEEW, 2023e).

The interim guidelines indicate what stakeholders may be required to submit in an Expression of Interest for a new method. The Expression of Interest should include the types of projects and project activities, baseline emissions, project boundaries, how it will meet the Offset Integrity Standards and proposed ACCU Scheme Principles, and potential industry engagement. The Integrity Committee would be involved with the endorsement and approval of method proposals to be developed into draft methods by method developers (Chubb et al., 2022; DCCEEW, 2023a). Under the recommendation the Minister can still nominate priorities but is not required to do so and may only make or vary methods endorsed by the Integrity Committee.

The authority's view is that a method prioritisation framework, underpinned by the evidence-based standard, should be established to support the Integrity Committee's method Expression of Interest guidelines and the prioritisation of new methods. This standard would require that abatement achieved under the ACCU Scheme is enabled by clear and convincing evidence, supporting more, high integrity abatement. It could help address concerns raised by stakeholders responding to the authority's 2023 Issues Paper, including method development priorities being ad hoc, the need to implement a science-based approach, and that a proponent-led process could lead to the development of methods driven by self-interest or lacking integrity and additionality (e.g., Queensland Conservation Council submission).

The authority recommends the Integrity Committee considers the following criteria when determining which methods to prioritise.

- Pace and scalability – What is the potential uptake of the activity and likely volume of abatement? Is the activity cost effective? What is the level of business support for the activity? What are limitations to how quickly and widely the activity can be adopted and deliver abatement?
- Resource efficiency – Are the estimated emissions reductions delivered at an acceptable cost and with a reasonable degree of certainty? Could the activity be better supported by other government measures?
- Technology readiness – Is the technology already delivering abatement and commercially available? If not, is a methodology the appropriate tool to help it get there?
- Risk of adverse impacts – Could the activity have adverse social, environmental or economic impacts? For sequestration activities, what is the durability of the activity? What are the likely risks to the climate resilience of the activity?
- Non-carbon benefits and product use – What non-carbon benefits is the activity likely to produce? How likely will these non-carbon benefits occur? Will the abatement be converted into products?
- Alignment with broader government climate priorities – Does the activity align with broader climate goals?

The authority has based this framework on a previous set of criteria used to enable the Minister to set method development priorities (DEE, 2018) and the authority's own analysis.

The Integrity Committee should make public this method prioritisation framework along with a clearly defined interpretation of the framework and how this is applied through the triage process. This would provide guidance to proponents submitting proposals for methods. The Integrity Committee should publish its prioritisation assessments of each proposal to continue to improve transparency in the ACCU Scheme.

Recommendation 9:	
Task and resource the Carbon Abatement Integrity Committee to: a) develop, adopt and apply an approach to prioritising methods for development that is evidence-based and takes account of the likely abatement outcome in the near and longer term, cost, technology readiness, resource efficiency, risk of adverse impacts, and non-carbon benefits. b) publish information about the approach and how it has informed decisions in the method triage process.	The Chubb Review recommended a transparent, proponent-led process for developing and modifying methods, with the CAIC involved in setting priorities for method endorsement and approval. The authority further recommends adopting a transparent, evidence-based approach to prioritising methods and publishing information to help method proponents understand the triage process and make better-informed decisions about method development and project establishment.

Chapter 3: Realising the scheme's potential

Systems for reporting and verifying non-carbon benefits are integral to upholding integrity and credibility and attracting a premium in the ACCU market. The ACCU Scheme and the emerging Nature Repair Market have an opportunity now to align and operate together in a way consistent with the government's biodiversity and emissions reduction priorities.

More opportunities should be available for First Nations individuals and organisations to participate in and benefit from the ACCU Scheme. Although ACCU projects provide important benefits for many First Nations people, current systems for developing methodologies, for seeking and granting consent, enabling project participation, sharing benefits, and valuing Traditional knowledge can be improved.

Better informed planning of ACCU projects can ensure local contexts are considered and unintended negative impacts on natural resource management and regional communities are avoided. Better aligning projects with regional Natural Resource Management plans could enhance planning and implementation of ACCU projects, ensure projects appropriately consider the local context, and maximise climate resilience and landscape health.

The government no longer needs to be the main buyer of ACCUs and can turn its attention to incentivising ACCU projects that provide additional public goods including biodiversity and other nature positive outcomes, Closing the Gap, and regional development.

3.1 Non-carbon benefits

ACCU projects can create additional benefits beyond emissions avoidance and sequestration. The additional benefits are often referred to as non-carbon benefits or co-benefits. These can include improving outcomes for biodiversity and ecosystem function, soil health, water quality and use, and farm productivity and profitability (Climate Friendly & Charles Sturt University, 2023; CCA, 2020). Important economic, social and cultural benefits for First Nations people are discussed in Chapter 3.2.

Demand is growing for premium carbon credits that go beyond carbon to include non-carbon benefits (Forest Trends Ecosystem Marketplace, 2022). There is also an increasing focus on outcomes beyond carbon as governments and businesses move to report their nature-related risks and measure broader sustainability outcomes. This includes through the implementation of the Taskforce on Nature-related Financial Disclosures framework (TNFD, 2023).

However, non-carbon benefits can be difficult to measure and verify, and thus risk being misconstrued for the purpose of greenwashing. The regulator does not currently provide information on, or assurances of, the authenticity of claims of non-carbon benefits by ACCU sellers (CER, 2022a).

The Chubb Review found that current arrangements for attributing non-carbon benefits to ACCUs are 'not mature' (Chubb et al., 2022, p. 28) and recommended that the regulator develop procedures to support transparency of different project characteristics and types of non-carbon benefits associated with ACCUs (Chubb et al., 2022). The government has committed to improving the accessibility of online information which will enable the identification of non-carbon benefits, including through the development of the new Unit Register and the Australian Carbon Exchange (DCCEEW, 2023d; DCCEEW, 2023a).

The Chubb Review stated that 'Proponents who claim a co-benefit should provide evidence and verification of co-benefits to the regulator before they can be published' (Chubb et al., 2022, p. 29). The authority agrees with the intent of this recommendation. The authority recommended in its Review of International Offsets that the government 'build investor confidence in the identification and valuation of non-carbon benefits by developing criteria and standards that enable transparent reporting and assessment of different types of non-carbon benefits' (CCA, 2022, p. 51).

The government's implementation plan for the Chubb Review does not provide details on how the government will determine whether non-carbon benefits are genuine (DCCEEW, 2023d). The authority's view is strong verification should be undertaken to prevent inaccurate, false or misleading information being published on the forthcoming Unit Register, the Australian Carbon Exchange or publicly.

Currently non-carbon benefits are measured and verified under various government and private standards and schemes outside the ACCU Scheme, and there are government programs that encourage carbon projects that embed non-carbon benefits (Appendix B). Legislation to create a market for biodiversity certificates, the Nature Repair Market Bill 2023 (Box 3.1) is currently before the Australian Parliament (as of November 2023).

Not all non-carbon benefits can be treated in the same way. First Nations organisations that consulted with the authority raised specific concerns about the potential measurement and verification of any non-carbon benefits flowing back to First Nations communities. These concerns included the need for any mechanisms that claim First Nations non-carbon benefits arising from ACCU projects to be self-determined or co-designed by First Nations people, and to incorporate flexibility for the range of local contexts for those projects and their respective benefits. First Nations organisations expressed the need to ensure control is retained over how benefits are communicated to carbon market participants, and emphasised the value of direct engagement between First Nations project proponents and ACCU purchasers.

There were also concerns that price premiums related to claims of First Nations benefits might not be shared

with the communities involved (Wilinggin Aboriginal Corporation and Kimberley Land Council submissions).

It is the authority's view that the absence of national guidance or standards for the verification and communication of claims of non-carbon benefits poses a risk to the credibility of the ACCU Scheme. Implementation of the Chubb Review recommendations, and the creation of the Australian Carbon Exchange and new Unit Register, provides an opportunity to establish mechanisms that improve transparency and integrity regarding claims of carbon and non-carbon outcomes. It could present an opportunity for First Nations people to determine an approach that ensures claims and validation of First Nations non-carbon benefits respect the unique nature of these benefits and the projects that generate them.

Recommendation 10:	
a) Enable non-carbon benefits to be reported as attributes of ACCUs in the forthcoming Unit Register, subject to meeting minimum quality standards b) Support First Nations organisations to develop a self-determined approach for verifying benefits from ACCU projects flowing to First Nations communities and people.	Investors and ACCU buyers are seeking accurate, quality information about the benefits ACCU projects provide for biodiversity, First Nations communities and other priority areas beyond abatement. The Clean Energy Regulator does not currently publish or provide assurance on claims of non-carbon benefits, and systems for voluntary reporting of non-carbon benefits are not mature. The lack of transparency about whether non-carbon benefits reported by project proponents are genuine leaves them open to 'greenwashing' and risks market credibility. Requiring proponents to meet a minimum standard to report non-carbon benefits improves the transparency and integrity of these claims without placing the requirement for verification on the Clean Energy Regulator. However, any consideration of specific First Nations non-carbon benefits must be endorsed and accepted as genuine in a manner determined by First Nations people. Implementing this recommendation is a step towards ensuring non-carbon benefits are reported efficiently and with integrity.

BOX 3.1 – The Nature Repair Market

In August 2022, the Australian Government announced a policy to address nature repair through a regulated voluntary biodiversity market. This initiative forms part of the Nature Positive Plan (Minister for the Environment and Water, 2022) released later in 2022. The Nature Repair Market Bill 2023 was introduced to Parliament in March 2023 (Minister for the Environment and Water, 2023). The bill seeks to establish a voluntary national market for biodiversity certificates, which would operate in parallel to the carbon market. Tradeable certificates will be issued to projects that protect, manage and restore nature (Explanatory Memorandum, Nature Repair Market Bill 2023).

The bill enables carbon credits and biodiversity certificates to be generated from the same project area, or 'stacked', to ensure investment in carbon farming projects can also deliver and incentivise biodiversity benefits (Explanatory Memorandum, Nature Repair Market Bill 2023). As part of its implementation of the recommendations from the Chubb Review, the government is giving consideration to linking carbon and biodiversity benefits in the regulator's registry. The government is also consulting with stakeholders on how to ensure alignment of information on ACCUs with the Nature Repair Market (DCCEEW, 2023d).

Some stakeholders have indicated support for the stacking of carbon credits and biodiversity certificates (Australian Institute of Marine Science, Carbon Market Institute, Eco Markets Australia, and Farmers for Climate Action submissions to the Nature Repair Market Bill exposure draft). Others have raised concerns regarding the need to ensure carbon and biodiversity outcomes are additional (NRM Western Australia submission to the Nature Repair Market Bill exposure draft; Climate Friendly Issues Paper submission) and do not enable 'double dipping' to earn income for biodiversity benefits from both 'premium ACCUs' and biodiversity certificates for the same project (Australian Land Conservation Alliance submission to the Nature Repair Market Bill exposure draft). Stakeholders have also requested a clear distinction and separation in the regulation, where relevant, of non-carbon benefits by both the ACCU Scheme and the Nature Repair Market (Australian Land Conservation Alliance submission to the Nature Repair Market Bill exposure draft).

> *'If carefully handled, biodiversity certificates under the nature repair market could be a recognised tool for delivering transparency for environmental co-benefits delivered by carbon projects. However, this would require further work and consultation to ensure that effectively stapling the two 'products' does not lead to unintended outcomes in either market'*
>
> **The Nature Conservancy submission to the Nature Repair Market Bill exposure draft.**

An objective of the CFI Act is to generate carbon abatement in a way that is consistent with the protection of Australia's natural environment and improves resilience to the impacts of climate change. The Chubb Review recommended that the regulator's remit should extend to monitoring and publishing the impact of the ACCU Scheme on environmental protection and resilience to climate change, to better understand how the scheme is meeting this objective of the CFI Act (Chubb et al., 2022). In response, the government has committed to *'consider how to monitor and publish information to improve understanding of the impact of the ACCU Scheme [on these matters]*' (DCCEEW, 2023d).

More broadly, stakeholders suggest that there should be alignment between the CFI Act and the Nature Repair Market Bill (Carbon Market Institute submissions to the Nature Repair Market Bill exposure draft and the authority's 2023 Issues Paper). This should be part of government efforts to improve the design and implementation of the CFI Act and ensure it is consistent with the government's biodiversity commitments and policies, such as the Nature Positive Plan and the '30 by 30' target to protect and conserve 30% of Australia's land and oceans by 2030.

3.2 First Nations knowledge and leadership

The authority consulted with First Nations people and organisations to understand their views on the ACCU Scheme. The authority would like to acknowledge that the perspectives presented in this chapter should not be taken as a representation of the broad diversity of views of all First Nations people.

ACCU projects that are owned by First Nations people provide a range of social, cultural and environmental benefits (Kimberley Land Council submission). These include fostering employment and economic opportunities, building technical skills and legal and economic expertise, supporting the transfer of Traditional knowledge, enabling First Nations people to fulfill cultural obligations to care for Country, and generating financial benefits for local communities (Box 3.2; Indigenous Carbon Industry Network submission to the 2022 Chubb Review; (Robinson, 2016)). In 2022 there were 39 First Nations-owned projects in Australia, representing 7% of total ACCUs generated. Most of these projects (35) use the savanna fire management methods (ILSC, n.d.).

Submissions to the authority's 2023 Issues Paper emphasised the need to prioritise the inclusion of First Nations people in decision-making processes and ensure equitable sharing of economic benefits from carbon and biodiversity management activities (Environmental Defenders Office, Wilderness Society and Wilinggin Aboriginal Corporation submissions). As described in Chapter 3.1, First Nations organisations have also called for the development of systems to measure and communicate the benefits of First Nations carbon projects to be self-determined by First Nations people (Indigenous Carbon Industry Network and Kimberley Land Council submissions to the 2022 Chubb Review).

BOX 3.2 – Core benefits of savanna fire management projects

Empowering First Nations people to care for Country can have economic, health, wellbeing, educational and cultural benefits for communities (AIATSIS, 2011; Janke et al., 2021; Yaqoot et al., 2022). This includes through First Nations-owned ACCU projects. The non-carbon benefits to First Nations communities in Australia from carbon farming have been referred to by some participants as 'core benefits'. This framing recognises that for First Nations-led carbon farming projects, the priority is the achievement of outcomes for First Nations people and communities associated with the project, and the connection to Country and cultural practices, rather than considering these as in addition, or supplementary, to the carbon outcomes.

Submissions to the authority's 2023 Issues Paper reflected the value of savanna fire management projects under the ACCU Scheme (Wilinggin Aboriginal Corporation, Arnhem Land Fire Abatement and Kimberley Land Council submissions). For example, Kimberley Land Council identified that savanna fire management has 'generated $20 million in revenue for First Nations communities over the past 10 years', as well as significant environmental, cultural and social benefits (Kimberley Land Council submission, p.3).

However, organisations highlighted risks to savanna fire management projects due to the increasing severity and changing nature of weather events on managed land, as well as growing resourcing requirements and direct and indirect costs (Wilinggin Aboriginal Corporation, Arnhem Land Fire Abatement and Kimberley Land Council submissions). These organisations also raised concerns that the design and implementation of the ACCU Scheme impacts the potential economic and broader benefits available to First Nations communities from savanna fire management. This includes through processes that do not consistently ensure benefits of ACCU projects are shared equitably with First Nations communities, and insufficient resources to support First Nations people to give free, prior and informed consent to new projects and to develop and implement new methods.

Seeking consent from First Nations people for ACCU projects

A barrier to greater participation of First Nations people in carbon markets has been the process for obtaining consent for area-based projects (for example, savanna fire management and vegetation projects) from Native Title groups. The United Nations Declaration on the Rights of Indigenous People (UNDRIP) requires States to consult with First Nations peoples to obtain their free, prior and informed consent (FPIC) before making any legislative and administrative changes that will impact them (UN, 2007). UNDRIP was adopted by the government in 2009 (Attorney-General's Department, n.d.). There are several opportunities to improve the ACCU Scheme's requirements for seeking FPIC for ACCU projects.

The CFI Act enables projects to receive conditional approval from the regulator prior to obtaining consent from eligible interest holders (CFI Act, s 28). This is intended to provide flexibility through enabling project proponents to 'obtain the necessary consents after going to auction and securing a contract for the project' (Explanatory Memorandum, Carbon Credits (Carbon Farming Initiative) Bill 2014, p.27). This means a project could have been implemented for up to five years before obtaining this consent. Projects that proceed without proper, prior consultation and consent from First Nations people risk disempowerment of these communities and can undermine cultural practice and land rights (Kimberley Land Council submission to the 2020 ERF Review). Conversely, seeking FPIC can ensure projects build goodwill and buy-in from parties involved, benefit from Traditional knowledge, and reduce the project's exposure to governance or reputational risks (ICIN, 2020).

The timeframes required for seeking FPIC can vary and delays in these timelines may be perceived as a barrier or disincentive by some project proponents. The Indigenous Carbon Industry Network suggests that early engagement with First Nations communities can avoid project delays and increased costs, and that the time required for seeking FPIC needs to be respected and factored into project planning (ICIN, 2020). This view was supported by First Nations organisations that participated in the authority's consultation.

The authority's 2020 ERF Review recommended requiring FPIC from Native Title holders prior to the registration of area-based projects on Native Title land (CCA, 2020). This was also recommended by the Chubb Review (Chubb et al., 2022), and supported by submissions to the authority's 2023 Issues Paper (Kimberley Land Council, Wilinggin Aboriginal Corporation and WWF submissions). The government has accepted in principle the Chubb Review's recommendation to remove the option to conditionally register ACCU projects prior to obtaining consent (DCCEEW, 2023d; Australian Government, 2023).

The government has consulted on options to implement FPIC, including by aligning the ACCU Scheme with the approach for seeking consent from Native Title holders outlined in the Nature Repair Market Bill 2023. This would enable Native Title holders to give written conditional or unconditional agreement prior to a project's registration and to consent before ACCUs are issued (Nature Repair Market Bill 2023, s 18; (DCCEEW, 2023a)). The government is also consulting on a draft standard for First Nations engagement and participation in decision-making, as part of *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) reforms. This is being developed through a co-design process led by the Indigenous Advisory Committee (DCCEEW, 2023f).

The regulator currently provides guidance on seeking consent from Native Title groups (CER, 2018). The Indigenous Carbon Industry Network has developed a best-practice guide for seeking FPIC from First Nations communities (ICIN, 2020). The Australian Carbon Industry Code of Conduct also requires reasonable efforts to seek FPIC (Carbon Market Institute, 2021). However, stakeholders have raised that there is a lack of recognition of the principles of FPIC within the CFI Act (Indigenous Carbon Industry Network submission to the 2022 Chubb Review), and submissions to the authority's 2023 Issues Paper advocate for FPIC to be a pre-requisite to carbon project approval (Kimberley Land Council, Wilderness Society and Wilinggin Aboriginal Corporation submissions). In conjunction with amending the CFI Act to remove conditional approval, the authority recommends the government require project proponents to apply best-practice principles in relation to seeking FPIC, to bring the ACCU Scheme in line with best-practice and enhance negotiations for seeking and giving consent.

Adopting best-practice FPIC principles could include making the Australian Carbon Code of Conduct compulsory, as part of the government's consideration of accrediting and regulating carbon service providers and carbon market advisers in response to Recommendation 12 of the Chubb Review (DCCEEW, 2023d). Additionally, the Chubb Review asked project proponents to consider the benefit of seeking consent from not only Native Title holders but also Native Title claimants. The Kimberley Land Council and Wilinggin Aboriginal Corporation affirmed this recommendation in their submissions to the authority's 2023 Issues Paper and the authority supports this approach.

First Nations organisations that participated in the authority's consultation suggested that when reforming the scheme's consent requirements, the government should also consider the broader range of First Nations land tenure arrangements, such as non-exclusive possession Native Title lands (Kimberley Land Council and Wilinggin Aboriginal Corporation submissions). The authority intends to continue to monitor for improved alignment between the rights and interests granted under the CFI Act and other acts, such as the Native Title 1993 Act.

The authority's consultation with First Nations organisations highlighted the need for additional resourcing for Native Title Representative Bodies and other service providers to advise First Nations people on the ACCU Scheme. First Nations organisations also noted that consultation and reporting timeframes are often insufficient for First Nations people to give informed consent and should be extended or made more flexible. The government is consulting on what support and resources would support First Nations eligible interest holders, project proponents and communities to consider and provide consent (DCCEEW, 2023a). The government should provide additional funding for Native Title Representative Bodies and service providers to advise on ACCU projects, to better support First Nations people to provide FPIC in a smooth and timely manner. This should include working with First Nations people to ensure the ACCU Scheme supports the timeframes required for best practice FPIC to be sought.

Recommendation 11:	
a) Amend the CFI Act to require project proponents to have applied best-practice principles to seek free, prior and informed consent (FPIC) from Native Title holders and claimants over relevant land prior to the registration of an area-based project on that land; and b) When implementing the Chubb Review's recommendation to support Native Title Representative Bodies and other relevant bodies in the application of FPIC, extend this support to include Native Title claimants, and consider supporting other service providers to advise people seeking and giving consent to ACCU Scheme projects.	Current requirements for seeking consent for ACCU projects from Native Title holders and claimants do not meet best-practice principles for seeking free, prior and informed consent (FPIC). ACCU projects and the process of seeking and giving consent to ACCU projects are complicated and not well understood by project proponents and/or Native Title holders and claimants. Implementing this recommendation will enable better processes and negotiations on seeking and giving consent. It will also bring the ACCU Scheme in line with best-practice principles for seeking FPIC.

First Nations participation in method development

Increased First Nations participation in method design can lead to better outcomes by including, respecting and valuing First Nations expertise and knowledge, and by improving opportunities for projects that benefit First Nations communities. There are calls for ACCU Scheme method design to value First Nations intellectual property and allow for First Nations-led processes (ICIN, 2023). First Nations organisations have highlighted the opportunity to grow the potential for carbon projects on First Nations lands, with the inclusion of First Nations Traditional knowledge and development of new methods (ICIN, 2022; ILSC, n.d.). Working closely with First Nations people and organisations to develop methods will ensure methods are practical to implement and reduce barriers for their uptake (Kimberley Land Council submission to the 2020 ERF Review).

The government should continue to strengthen its engagement with First Nations people on method development, such as through greater participation in working groups and technical committees for the development of new ACCU methods, in a way that enables First Nations-led processes and respects First Nations intellectual property.

First Nations organisations consulting with the authority have also raised the need to ensure current and new methods are accessible and feasible for First Nations communities to adopt. Some First Nations organisations also supported the government's reforms to enable proponent-led method development (Arnhem Land Fire Abatement submission to the 2022 Chubb Review). Other First Nations organisations encouraged the government to consider First Nations benefits when prioritising the development of new methods (Kimberley Land Council, 2023). These actions should be considered as part of the government's reforms to create a new proponent-led method development process in response to the Chubb Review, as discussed in Chapter 2.4.

Supporting greater participation and ownership

The government should continue to create stronger platforms for the participation of First Nations people in ACCU Scheme governance structures and processes, to ensure equitable sharing of benefits from projects and to better value and include Traditional knowledge. This includes providing greater representation and/or engagement of First Nations people in the Integrity Committee, through the implementation of Chubb Review Recommendation 2.3. It also includes improving informal linkages with existing First Nations engagement processes, such as the Indigenous Advisory Committee established under the EPBC Act [section 505A]. These actions would support the government's Closing the Gap Implementation Plan 2023, which seeks to make practical changes to better enable First Nations engagement in decision-making and policy development (NIAA, 2023).

There are actions government can take to support the development of First Nations-owned carbon projects. First Nations organisations have highlighted the complexity of the carbon market and a lack of trusted, independent sources of information as barriers (Kimberley Land Council, Indigenous Carbon Industry Network and NAILSMA submissions to the 2022 Chubb Review). There are existing initiatives to improve the accessibility of the carbon market and information about participating in it. For example, the Indigenous Carbon Industry Network and Indigenous Professional Services are engaged in the development of the Carbon Farming Outreach training package. The training package intends to ensure the training is designed and developed in consultation with First Nations people and meets their specific needs in carbon farming.

However, further resourcing is needed to better enable First Nations organisations such as Native Title Representative Bodies, land councils and other First Nations carbon industry bodies to support and advise First Nations communities on ACCU projects (Indigenous Carbon Industry Network and Kimberley Land Council submissions to the 2022 Chubb Review). Growing opportunities for First Nations-led projects and investments in capability would also facilitate FPIC discussions. Stakeholders have also called for additional financial support to fund the startup costs of projects before they earn income (Kimberley Land Council submission to the 2020 Review of the Emissions Reduction Fund; Indigenous Carbon Industry Network submission).

Another opportunity is to empower First Nations people with limited or no land tenure to participate in carbon projects (ICIN, 2022; ILSC, n.d.). This can include supporting the creation of First Nations jobs through the carbon farming industry (NAILSMA submission to the 2022 Chubb Review) and incentivising engagement by non-First Nations owned carbon projects with First Nations organisations (ICIN, 2022). The government is also continuing to support First Nations participation and value Traditional knowledge for carbon projects through its implementation and expansion of the Indigenous Rangers Program (NIAA, n.d.) and this should be continued.

Recommendation 12:	
Enable better participation of First Nations people in the ACCU Scheme by: a) building the capability of First Nations people to have equitable access to the carbon market, including by making information more available and accessible b) resourcing First Nations organisations to provide advice about the ACCU Scheme and providing startup funding for First Nations-led projects c) supporting greater involvement in the development of new ACCU Scheme methods.	There are opportunities to make it easier for First Nations people to participate in the ACCU Scheme. For example, information about the scheme could be made available in more languages and modes of delivery. First Nations organisations could play a greater role in sharing information and advice about the ACCU Scheme among First Nations people, with other market participants and with the broader community. This would build broader understanding of the benefits for First Nations people as well as the ways First Nations knowledge about caring for Country can contribute to meeting Australia's emissions reduction targets. The reform process for proponent-led method development (following the Chubb Review) represents an opportunity to remove barriers. Implementing this recommendation will address barriers to participation and enable First Nations people to better access the benefits of the scheme.

3.3 Regional impacts and governance

Australia's landscapes deliver a range of environmental, social, economic and cultural benefits. Strategically planning how land is used at local and regional scales can balance multiple demands on land (Climate-ADAPT, 2023), such as for agricultural production, ACCU projects, infrastructure and conservation. This can contribute to the achievement of the third object of the CFI Act, which is to increase carbon abatement in a manner that is consistent with the protection of Australia's natural environment and improves resilience to the effects of climate change.

Natural Resource Management (NRM) organisations play a key role in strategic land use planning at the landscape or catchment scale. These organisations design and implement regional NRM plans that prioritise local environmental assets for protection or restoration. NRM organisations are directly connected with land managers in their regions, including though providing independent support on how to achieve productivity and environmental outcomes (NRM Regions Australia submission to the 2022 Chubb Review; (DAWE, 2022)). The peak body for NRM organisations, NRM Regions Australia, has highlighted the positive contribution that NRM organisations are already making towards landscape-scale planning, and suggests that NRM organisations are well placed to have an enhanced role in projects for carbon and nature markets as a result (NRM Regions Australia submissions to 2020 Review of the Emissions Reduction Fund, 2022 Chubb Review and the Nature Repair Market Bill 2023 Inquiry; (CCA, 2017)).

Managing risks of adverse regional impacts

The CFI Act contains provisions to ensure ACCU projects do not adversely impact environmental, economic, cultural and social considerations. These include that projects must abide by Commonwealth, state and territory environmental and planning laws, not be regulated as a type of project that has adverse impacts on the environment or communities ('the negative list'), and not be restricted by provisions in the method to manage environmental impacts or other risks (Explanatory Memorandum, Carbon Credits (Carbon Farming Initiative) Bill 2011, p.14).

The CFI Act requires that when specifying new excluded offsets projects, the Minister for Climate Change and Energy must have regard to projects that pose a material risk to local communities and land access for agricultural production. In 2022 the government agreed on a new rule to give the agriculture minister the power to veto any native forest regeneration projects under the ACCU Scheme that would have an adverse impact on agricultural production or regional communities (Carbon Credits (Carbon Farming Initiative) Rule 2015 CFI Rule, s 20C; (DCCEEW, 2022b)).

ACCU projects have the potential to achieve positive social and economic outcomes for rural and regional communities through providing additional, diversified income streams to landholders (CCA, 2020). However, there are some concerns agricultural production will be displaced, poorly managed properties will become havens for feral animals and present a fire risk, and projects managed in absentia will cause people and income to vacate a community (Rabobank Issues Paper submission; Southern Queensland Landscapes submission to the 2020 Review of the Emissions Reduction Fund; (Chubb et al., 2022; DISER, 2022; McCosker, 2021)). These concerns are especially important to consider given anticipated increases in demand for ACCUs due to Safeguard Mechanism reforms (CER, 2023j) and uncertainty surrounding how this demand might be met (Carbon Market Institute, 2023).

Aotearoa New Zealand provides an international example of a governance system that is aiming to balance local community and landscape-scale considerations in carbon project planning. The New Zealand government has recently amended regulations to give local councils the power to develop their own rules and policies to manage the location of plantation forests (Ministry for Primary Industries, 2023). This seeks to empower councils and communities to decide which areas of land can be used for forestry, while balancing landholders' rights to manage their own land (New Zealand Government, 2023). Studies have also called for more participatory processes for local communities to ensure their local needs and values are included in the planning for carbon farming projects (Jassim, 2022).Strategic land use planning processes at regional scales could play a greater role in addressing concerns and further mitigating the risk of adverse impacts of ACCU projects. Several studies are underway to investigate the impacts of carbon farming in regions, including one commissioned by the Australian Government, together with state governments and the South West Queensland Regional Organisation of Councils. Studies like these, together with enhancing the role of regional NRM plans in the planning of carbon projects, will go some way towards addressing the challenge of managing adverse regional impacts.

Alignment with Natural Resource Management plans

When the CFI Act was first implemented, it was recognised that local communities should have the opportunity to have a say about the type and location of ACCU projects (Explanatory Memorandum, Carbon Credits (Carbon Farming Initiative) Bill 2011). The CFI Act requires that applications for new ACCU projects are accompanied by a statement of consistency with the relevant regional NRM plan when they are registered. In its current form this consists of a self-assessment of consistency by project proponents, which means NRM organisations may not become aware of prospective projects until after project registration. Project proponents also must notify the regulator if a project becomes inconsistent with the plan. The peak body for NRM organisations, NRM Regions Australia, has raised concerns that the level of compliance with these requirements is variable and lacks oversight (NRM Regions Australia submissions to the 2022 Chubb Review; (NRM Regions Australia, 2023)).

At the time of writing, the government is seeking feedback on a proposal that project proponents be required to demonstrate engagement with NRM organisations at the point of project registration (DCCEEW, 2023a). The authority's 2017 ERF Review noted the limited effect of the statement of consistency and sought to improve engagement with local NRM organisations to enable them to provide specific advice and guidance on projects (CCA, 2017). The voluntary Australian Carbon Industry Code of Conduct reflects this consideration, by requiring consultation with NRM organisations (Carbon Market Institute, 2021).

The authority considers project proponents should provide evidence to demonstrate that area-based projects are aligned with the relevant regional NRM plan. This would likely increase opportunities to achieve multiple benefits from ACCU projects beyond carbon in NRM regions and local communities (NRM Regions Australia, 2023). It would also enable an expanded role of regional NRM organisations in providing advice about ACCU projects. The authority also recommends that the government consult with First Nations people on this proposal, to ensure it supports First Nations people to participate in the scheme and care for Country according to Traditional knowledge and practices.

The authority recognises that additional requirements for engagement with NRM organisations should be balanced with the need to efficiently manage and assess ACCU project applications without undue resourcing demands on project proponents and regional NRM organisations. In this context, the authority recommends the government continue to work with regional NRM organisations to refine the way the ACCU Scheme efficiently supports the role of regional NRM organisations and NRM plans in project planning, implementation and ongoing management.

Regional NRM plans and organisations are well positioned to provide information and guidance about risks of climate change to carbon farming projects due to factors like shifts in temperature and rainfall patterns. The authority considers that NRM organisations will need additional support for a strengthened role informing carbon farming project planning and helping project proponents consider ecological and climate risks and impacts. The authority notes that the government is also considering regional planning as part of its response to the independent review of the EPBC Act (DCCEEW, 2022a). National efforts to strengthen regional planning approaches should be coordinated to maximise their effectiveness, avoid duplication or unintended outcomes, and not cause undue burdens or delays in approval for valid projects.

Recommendation 13:	
In consultation with stakeholders, amend the CFI Act to expand the role of regional Natural Resource Management (NRM) plans and organisations in informing the planning and establishment of ACCU projects, and resource NRM organisations accordingly.	Regional NRM organisations are already heavily engaged in strategic regional planning and implementation of other land management projects. At present, ACCU project proponents are required to consider NRM plans. This requirement could be strengthened to require consistency with regional NRM plans. However, consulting with project proponents is beyond the current remit of NRM organisations. NRM organisations may require additional resourcing to undertake new functions, such as updating NRM plans with a greater focus on ACCU projects and greater engagement with ACCU project proponents. Implementing this recommendation will be a step towards enabling better consideration of the local social, economic and environmental context of ACCU projects at the planning stage, which would help mitigate the risk of adverse impacts on regions.

Chapter 4: Supply, demand and competition for resources

Demand for ACCUs is set to rise over coming years, but there is a delay between the demand signal and supply reaching the market. Most of this supply is forecast to come from sequestration activities, such as storing carbon in soil or the regeneration of native forests.

Farmers and other land managers will need to decide whether to sell offsets or retain sequestration for their own use. Some of the hardest-to-abate emissions come from the agriculture sector and some of the greatest sequestration opportunities are in the land sector. More support is needed to build understanding of on-farm emissions reduction pathways to net zero by 2050.

This chapter establishes foundations for considering the role of the ACCU Scheme in Australia's pathway to net zero emissions by 2050. It outlines a scenario of ACCU supply and demand to 2035, and reaffirms the authority's earlier advice about Australia's sequestration potential and transition planning in the agriculture and land sectors.

4.1 Carbon market dynamics

The future levels of supply and demand for ACCUs are uncertain. However, it is very likely there will be a large increase in demand over the coming decade, mainly as a result of the government's reforms to the Safeguard Mechanism (discussed below). The level of demand could differ due to numerous factors including changes to policy, improved technologies and investor or customer demands.

Total demand for ACCUs was 6.5 million in 2022 (CER, 2022b). By 2035:

- modelling commissioned by the authority forecasts total demand for ACCUs could reach around 44 million (SJT Consulting and RepuTex, 2023).
- EY forecast total ACCU demand to be around 36 million[6] (EY, 2023).

To plan and enable an orderly transition to net zero emissions by 2050, Australians will need to better understand potential emissions reductions and sources of ACCU supply. Although ACCU supply is likely to climb significantly in response to rising demand, there could be a tight demand-supply balance over the medium term (see Figure 4.1). It is expected that the land sector will continue to be an important source of offsets (SJT Consulting and RepuTex, 2023), while engineered removals could support longer term supply (see Chapter 5).

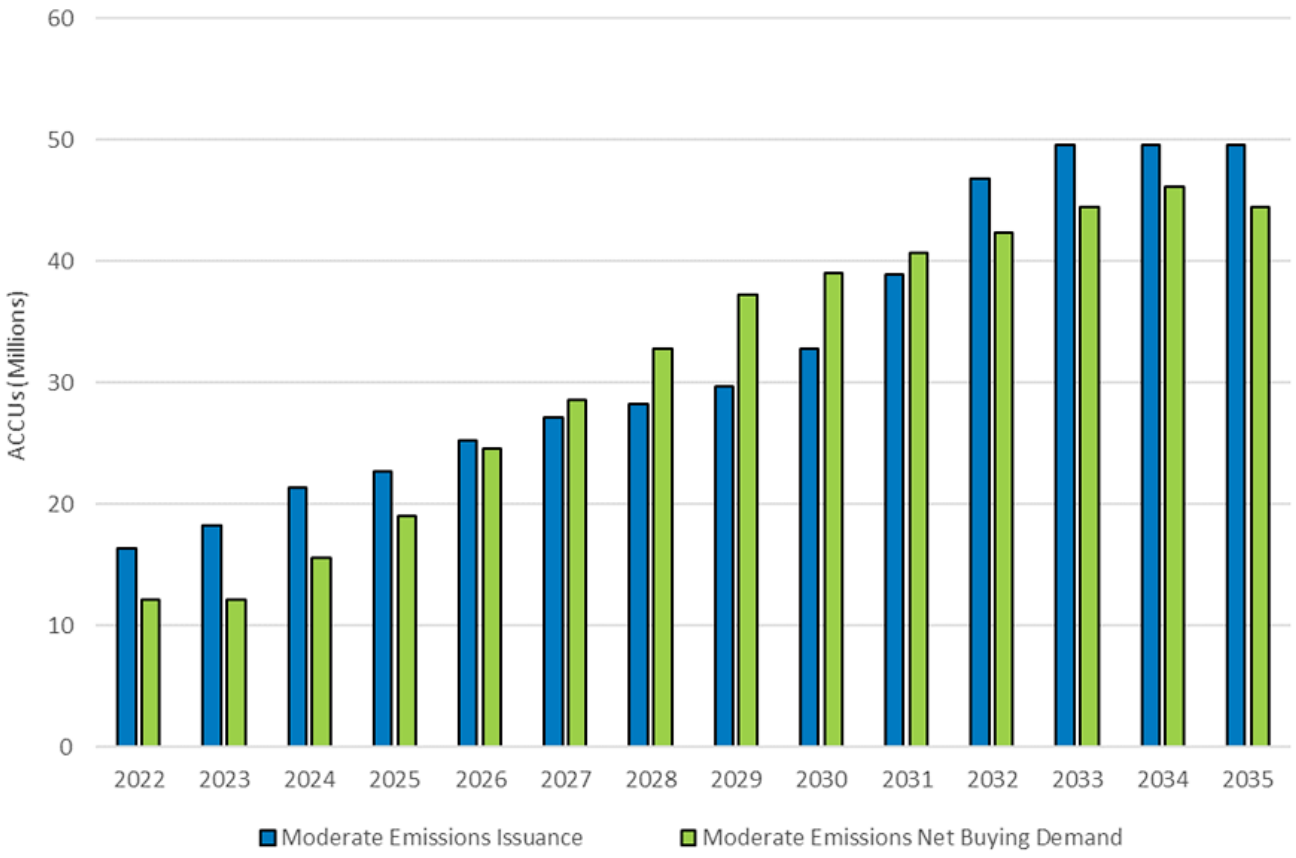


Figure 4.1: Estimated ACCU Issuance and Net ACCU Demand (Millions of ACCUs) – Moderate Emissions Case

Source: (SJT Consulting and RepuTex, 2023)

[6] Calculated on the basis that Safeguard demand is around 21 million ACCUs (Exhibit 07, page 23) and makes up 59% of total ACCU demand in 2035 (Exhibit 10, page 29) (EY, 2023).

Safeguard demand

The Safeguard Mechanism is the government's policy for reducing emissions at Australia's largest industrial facilities. Facilities which emit more than 100,000 tCO_2-e per year are covered by the mechanism and subject to a mix of emissions-intensity and industry average baselines. Following reforms which commenced from 1 July this year, the baselines for most facilities will decline by 4.9% per year until 2030.

In addition to reducing their emissions, covered facilities have the following options for ensuring their net emissions comply with their baselines:

- acquiring and surrendering ACCUs to meet their compliance obligations.
- acquiring and surrendering Safeguard Mechanism Credits (SMCs) - Safeguard facilities will automatically generate tradeable SMCs when their emissions fall below their baselines (CER, 2023k).
- entering into five-year multi-year monitoring periods (up to 2030) (CER, 2023f).

Progressively tightening baselines under the Safeguard Mechanism reforms is expected to drive emissions reductions on site but also lead over time to a significant increase in demand for ACCUs (DCCEEW, n.d.). At some facilities options for reducing emissions, particularly in the short-term may be limited, reflecting a lack of viable low emissions solutions or reliable clean energy supply.

SJT and Reputex forecast between one and five million SMCs may be issued in 2025 following the first 2023-2024 reporting year. Modelling suggested this could grow to between three and 12 million by the 2030s (SJT Consulting and RepuTex, 2023). However, it also found the continuous decline of baselines is likely to reduce SMC availability in the market longer term. Facilities may also bank SMCs for future use.

There are policy and market drivers for facilities to prioritise on-site emissions reductions. The government is providing Safeguard Transformation Stream grants through the Powering the Region fund to support emissions reductions activities for trade-exposed Safeguard facilities (DCCEEW, 2023h). ACCU prices are forecast to increase over time, with on-site abatement likely to become relatively more attractive as they do. Perceived reputational benefits could drive on-site abatement relative to the reputational risks of ACCU usage. Facilities that surrender ACCUs equal to or more than 30% of their baselines, will be required to provide a statement to the regulator setting out why onsite abatement has not taken place. Approval for a facility to enter into a multi-year monitoring will require facilities to provide a firm and credible plan to reduce emissions intensity before the end of the five-year period.

Other demand

Non-Commonwealth demand for ACCUs, including for voluntary use and state and territory compliance, tripled from a low base of around 500,000 ACCUs in 2019 to around 1.5 million ACCUs in 2022 (CER, 2022b). SJT and Reputex forecast total demand from the voluntary segment to continue to grow over the coming decade, albeit at a slower pace, to reach 7.5 million ACCUs by 2035 (SJT Consulting and RepuTex, 2023).

Publication of more facility-level National Greenhouse and Energy Reporting (NGER) data, as proposed in the authority's 2023 review of the NGER legislation, could increase corporate accountability and stimulate greater ACCU demand (CCA, 2023c). Programs such as Climate Active could also bolster demand for ACCUs.

Demand from investors, traders and intermediaries is forecast to grow from 8 percent in 2022 to around one third in 2030 (SJT Consulting and RepuTex, 2023). The Australian Carbon Exchange being developed by the regulator, which should assist in improving price discovery and liquidity, will likely support growth in investor demand (CER, 2023c). The exchange will also be integrated with a new Unit Register. Globally, there are also now carbon credit ratings agencies which help assess carbon credit quality and can provide the market information (Wawrzynowicz et al., 2023). These are currently focused on voluntary carbon markets.

Supply

While some Safeguard facilities are already investing in ACCUs, either through over the counter trades or through offtake agreements with projects, it is expected that demand will ramp up in the lead up to their first compliance obligation in early 2025.

There are currently more than 27 million ACCUs in private holdings - ACCUs that have been issued but have not yet been surrendered or cancelled for other purposes (CER, 2023i). Holdings have grown quickly over the past year as more than half of government contracted ACCU supply is now flowing into holdings via the exit arrangements that began in March 2022 (CER, 2023e).

Over the next few years, annual ACCU issuance is expected to exceed the annual demand for ACCUs (Figure 4.1). Demand in the short to medium-term will most likely be met from existing credits or already-contracted supply. This may dampen the ACCU price, weakening the signal for new projects to come online (SJT Consulting and RepuTex, 2023).

Modelling commissioned by the authority indicates annual demand could potentially outstrip annual supply by 2026-2027 (SJT Consulting and RepuTex, 2023). This would likely stimulate growth in the number of ACCU projects and supply of ACCUs. However, due to the multi-year lag between project registration and ACCU issuance, large influxes of new supply are unlikely to flow into the market before 2031 (see Figure 4.1).

4.2 Emissions and abatement in the agriculture and land sectors

Improving the understanding of Australia's sequestration potential

Australia does not yet have a clear understanding of the country's biological sequestration potential. The amount of carbon that can be stored in the landscape is limited by competing land uses, water availability, and local climate conditions (CCA, 2023a), and biological sequestration is vulnerable to environmental and climate impacts, such as bushfires. On the other hand, biological sequestration is an established, cost-effective option for removing carbon from the atmosphere and sequestering it, and often brings benefits for communities, biodiversity, clean water and healthy soils.

The ACCU Scheme is a driver of biological sequestration activities for use as carbon offsets, such as growing trees or storing carbon in vegetation or the soil. Other carbon removal and sequestration technologies are discussed further in Chapter 5.

In 2023, the authority published a paper on Australia's sequestration potential, *Reduce, remove and store: The role of carbon sequestration in accelerating Australia's decarbonisation* (Sequestration Insights Paper, (CCA, 2023a)). Although the authority's report provides an assessment of *technical* and *economic* sequestration potential, further work is needed to understand Australia's *realisable* sequestration potential (Figure 4.2).

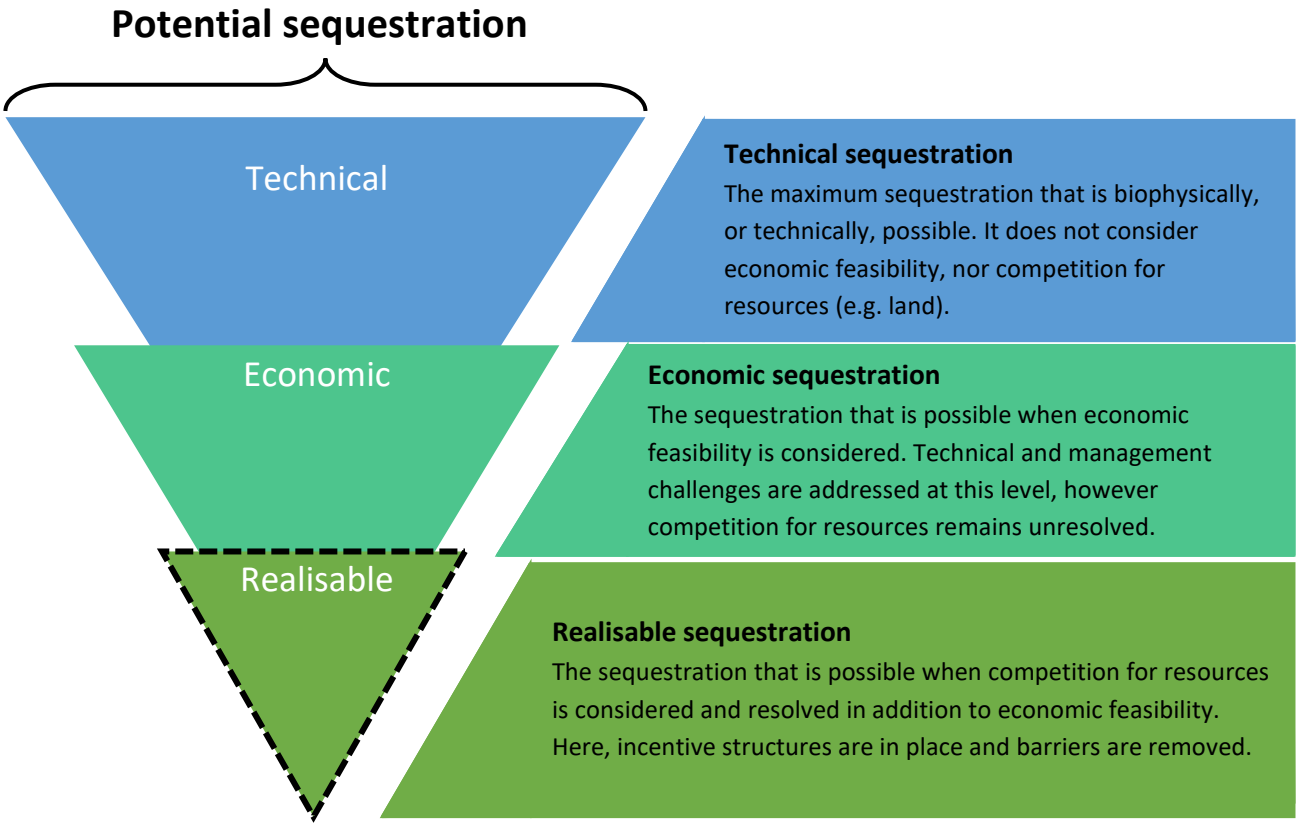


Figure 4.2: Three tiers of sequestration potential
Source: Adapted from CSIRO for (CSIRO, 2022; CCA, 2023a)

As described in Chapter 4.1, ACCU demand is projected to increase. This will result in strong demand for land sector sequestration. However, a balance will need to be struck between the use of the land for producing food and fibre, providing cultural values, and representing a sustainable source of natural capital – biodiversity, clean water, and healthy soils (CCA, 2023a). This balance should be informed by First Nations people and rural and regional communities as well as by science and economics.

Greater certainty about the potential for the land sector to store carbon can inform decisions about how to use this sequestration capacity, including towards Australia's emissions reduction targets and agriculture and land sectoral decarbonisation pathways. The authority is also considering sequestration potential as part of its advice on targets for Australia's next Nationally Determined Contribution, and further work will be needed to understand Australia's land-based sequestration potential through to 2050 and beyond.

Farm-level reporting

The agriculture and land sectors are key sources of emissions reduction opportunities and biological sequestration, but these sectors also have hard-to-abate emissions of their own. Understanding the sources and sinks of agriculture and land sector emissions is an important step in managing these emissions and enabling participation by land managers in the ACCU Scheme.

Governments at all levels are implementing significant policies and programs to reduce emissions in these sectors. These activities will increasingly interact with the ACCU Scheme and further necessitate measurement and monitoring of emissions in the agriculture and land sectors.

Farmers are also under increasing pressure from markets, financial institutions and supply chains to measure, report and reduce their on-farm emissions (CCA, 2023b).

As farmers increasingly face the need to address their emissions, they may need to look towards carbon sequestration to reduce their own net emissions, an emerging concept known as 'insetting', rather than selling offsets. There are initiatives emerging to support farmers to make informed decisions about whether to use carbon stored on their farm for insetting versus selling offsets, such as through the Victorian Government's On-Farm Emissions Action Plan Pilot (Agriculture Victoria, 2023).

Some industry organisations, private companies, and Rural Research and Development Corporations are developing tools for measuring on-farm emissions ((Meat and Livestock Australia, 2023; MyFootprint, 2023; Agricultural Innovation Australia, 2023); Australian Dairy Industry Council submission)). However, these tools vary in their requirements and standards, and aren't currently required to meet any government-endorsed minimum standard.

There are other initiatives emerging to support farmers through the government's Climate Active program, which certifies voluntary climate action. Climate Active has consulted on a draft insetting guideline (Climate Active, 2022), which shows how businesses can measure and include carbon sinks from trees and shrubs they have planted in their carbon account, without the creation of offset units. Climate Active is also developing broader technical guidance which will help businesses prepare agricultural carbon accounts. The guidelines are complementary and facilitate reporting of both sources and sinks of emissions.

The authority recommended in its 2023 Annual Progress Report that the government fund a program to help farmers measure and report their on-farm emissions, de-risk carbon farming and provide the information investors and lenders are calling for to help decarbonise their portfolios (CCA, 2023b). The design of this program should integrate with and build upon existing tools, frameworks and measures to ensure emissions are measured efficiently and consistently. To build on existing work and avoid duplication, it should also expand on work underway by the government and recent commitments in the 2023-24 Budget, with a focus on farm-level outreach and engagement, such as the Carbon Farming Outreach Program.

For these same reasons, it should be designed to integrate or coordinate with similar state and territory government programs. Such a program would also coordinate with other extension programs supporting farmers to understand their emissions, such as the Landcare Farming Carbon Benchmarking Project (Landcare, 2022).

The authority also recommended that the government, in its Net Zero 2050 Plan and sectoral decarbonisation plans, set clear expectations about the role for the land and agriculture sectors (CCA, 2023b). This will be considered by the authority's work developing emissions reductions pathways for the agriculture and land sector in 2024.

In its 2023 Review of the NGER legislation, the authority recommends introducing reporting requirements under the NGER scheme for large, over-threshold emitters in the agriculture and land sectors. This includes government working with stakeholders on appropriate ways to cover large emitters over equivalent thresholds as for other economic sectors and develop robust standards and methods for calculating agriculture and land sector emissions and removals. Agriculture emissions are proposed to be reported on a voluntary basis in the first instance, with mandatory reporting proposed by 2026-27 for the agriculture sector, and 2027-28 for the land sector (CCA, 2023c).

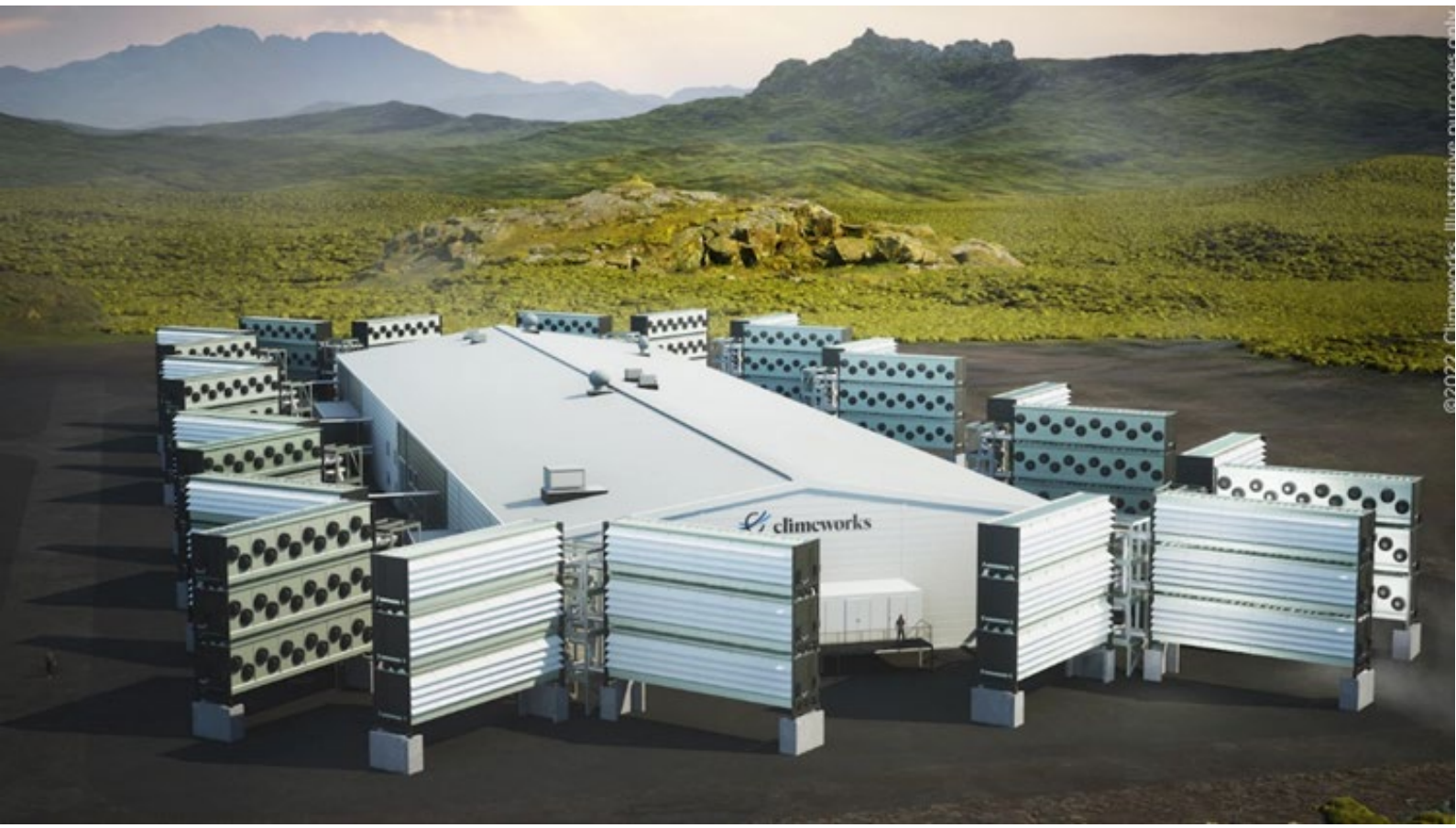
Chapter 5: The road to net negative

The rate of global carbon dioxide removal from the atmosphere needs to increase from around 2 billion tonnes a year (Gt CO_2/yr) in 2020 to 6 Gt CO_2/yr by 2050 if the world is to meet the temperature goals of the Paris Agreement and achieve net zero by 2050.

Engineered forms of removals need to be scaled up dramatically and the ACCU Scheme could enable co-financing. Including engineered removals in the ACCU Scheme would require amendment of the CFI Act and development of new methods. ACCU projects would generate a revenue stream for this nascent industry, alongside public finance.

Australia should continue to work with other countries to enable reporting of engineered removals in national greenhouse gas inventories, supporting deployment of engineered removals in Australia and internationally.

As well as strong and urgent emissions cuts, removing carbon from the atmosphere and storing it long term is critical to achieving the temperature goals of the Paris Agreement. However, engineered removals - technologies which draw down and store atmospheric carbon durably - are ineligible to participate in the ACCU Scheme.



5.1 The need for removals

In pathways consistent with the Paris goals, around 6 billion tonnes of carbon dioxide (Gt of CO_2) would need to be removed from the atmosphere per year by 2050 globally, and about 14 Gt per year by 2100 (IPCC, 2022b). This compares to current global annual rates of carbon dioxide removal of around 2 Gt, almost all of which is via biological sequestration (Smith, et al., 2023). The scope to increase nature-based sequestration is limited, as nature-based technologies compete for land and water to varying degrees and become saturated over time.

Engineered removal technologies such as direct air capture and mineral carbonation will need to be scaled up by orders of magnitude to limit warming to the Paris Agreement objectives, but it will take substantial investment (Smith, et al., 2023). However, they are currently far more costly than biological forms of sequestration. In 2022, the authority commissioned the CSIRO to undertake research into the current costs of engineered removal technologies and possible cost reduction opportunities (CSIRO, 2023; CSIRO, 2022).

The CSIRO's research found that abatement costs were high:

- Direct Air Capture at about $900/tonne
- ex-situ mineral carbonation at over $200/tonne
- biochar at $60/tonne.

In contrast, the spot price of generic ACCUs has been around $30-35 over the past year (CER, 2023i).

A range of measures will be needed to reduce their cost and make these technologies financially viable, including support for research and development (CSIRO, 2023). Adding methods for engineered removals under the ACCU Scheme could support their development, particularly if supported with public-private co-financing arrangements.

Some private sector initiatives already aim to address the high cost of engineered removals. For example, Microsoft's US$1 billion Climate Innovation Fund and the Xprize Foundation's US$100 million Prize for Carbon Removal provide funding to accelerate research in early-stage engineered removals (Microsoft, n.d.; XPrize, n.d.). Similarly, the Frontier group (a collaboration between Stripe, Alphabet, Meta and others) employs advance market commitments (that is, making advance purchases of carbon removals achieved through innovative technologies) to encourage their development. Frontier has contracted with Australian company Aspiradac to purchase 500 tonnes of carbon removal achieved through its innovative solar-powered DAC technology (Frontier, 2023).

Image 1 Southern Green Gas Aspiradac Solar powered DAC project.

Carbon markets across the world are increasingly supporting engineered removals to meet national climate targets. The Government of the United Kingdom signalled its intent to include engineered removals in their emissions trading scheme with the expectation that this will drive investment (Gov.UK, 2023). Similarly, the Government of New Zealand is considering how to include and incentivise carbon dioxide removals in its emissions trading scheme (NZ Ministry for the Environment, 2023).

Carbon dioxide removal and storage technologies have different growth pathways (CSIRO, 2022; CCA, 2023a):

- Biological forms of sequestration, including via trees and soil (biosequestration), are currently the most affordable and most deployed carbon dioxide removal technologies. However, biosequestration is limited by the availability of land and water, and prioritising one use may come at the expense of others. In addition, biosequestration is more vulnerable to environmental and climate impacts, such as bushfires.
- Engineered removals (approaches which rely on chemical processes to capture atmospheric greenhouse gases, such as direct air capture, mineral carbonation and biochar) can provide more secure and durable storage than biosequestration, but are generally more costly and less technologically mature.
- Both engineered and biosequestration can offer beneficial economic and environmental outcomes, especially for Australia's First Nations people and regional communities.

The authority's Sequestration Insights Paper (CCA, 2023a) notes a carbon sequestration industry presents economic opportunities for Australia, particularly for its regions. This industry could support global decarbonisation by exporting expertise and technology and by providing carbon sequestration services in Australia to other countries.

5.2 International accounting and the National Inventory

Australia's National Greenhouse Gas Inventory System is used to report Australia's greenhouse gas emissions under international frameworks (i.e., the Paris Agreement and the UNFCCC) and measure progress against mitigation targets (DCCEEW, 2023g). Currently, UNFCCC and Paris Agreement emissions estimation and reporting rules do not expressly cover how countries can measure and account for engineered removals in their national inventories.

Rules for the estimation and reporting of national greenhouse gas inventories under the UNFCCC and Paris Agreement are adopted by consensus (IPCC, 2023). This process takes time. There is some flexibility for countries to estimate and report emissions (or removals) before formal methodologies are adopted. This means that countries can collaborate on developing and trialling novel reporting approaches, which the Intergovernmental Panel on Climate Change (IPCC) Taskforce on National Greenhouse Gas Inventories can consider when developing formal rules (IPCC, 2023).

To date, no country has accounted for engineered removals in their national inventory. However, Iceland's 2023 National Inventory Report mentioned the joint Climeworks and Carbfix project at the Hellisheiði Power Station and indicated that methods to report the project's carbon dioxide removals in Iceland's national inventory were being considered (Environment Agency of Iceland, 2023).

Image 2 Located in Iceland, the Climeworks' Orca plant is the world's first and largest carbon dioxide removal facility via direct air capture and storage. © Climeworks, reproduced with permission.

Australia should continue to work with other countries to develop methods of reporting engineered removals in national greenhouse gas inventories under existing frameworks and support the explicit inclusion of engineered removals in IPCC inventory guidelines. Incorporating engineered removals into the IPCC inventory guidelines would support deployment of engineered removals in Australia and internationally. Australia is currently exploring options for facilitating the reporting of the emissions impact of engineered removal technologies such as Direct Air Capture (DCCEEW, 2022c; DCCEEW, 2023c).

5.3 Removals under the ACCU Scheme

Abatement efforts fall into three broad categories: reducing emissions; avoiding activities that emit greenhouse gases; and removal and sequestration of carbon from the atmosphere. Methods are available under the ACCU Scheme for projects that fall within each of these categories, but as discussed in Chapter 1, the vast majority of credits have been issued for biological removals.

As economies transition towards net zero, emissions reduction opportunities should be exhausted, with the remaining emissions attributable to only the hardest-to-abate sources. Approaching net zero, the scope for trade in credits that represent emissions reductions will narrow, as trading away such credits to be used to offset emissions elsewhere will, in accounting terms, leave the emissions unabated from the activity that generated the credits in the first place. The emissions reductions cannot be counted twice towards the achievement of net zero.

However, this is not the case with credits that represent removals of carbon from the atmosphere, which can continue to help address emissions that are difficult to abate, and as discussed above will likely play a necessary role in growing negative emissions in the future. As such, it is important to examine opportunities for the ACCU Scheme to support a broader range of removals technologies.

Some emissions reduction activities will remain additional and critical to a just transition to net zero and to supporting cost-effective abatement. For example, there are limited market drivers available to encourage the continued management of fires in Australia's savanna regions or to reduce certain agricultural emissions. While ACCU methods exist for savanna fire management, a potential future emissions reduction method to mitigate methane emissions from enteric fermentation (e.g., feed supplements) could incentivise technology development and drive down costs.

Given that many of the engineered removal technologies that will be needed in coming years are currently at early stages of technical and commercial readiness, the ACCU Scheme can play a useful role. The creation of ACCU methods for engineered removals would support the development of ACCU projects and could contribute to improving the financial viability of engineered removals activities. Funds generated by the sale of ACCUs could provide a useful source of revenue for engineered removal activities, improving commercialisation and driving deployment of engineered removal technologies. Increased uptake through the ACCU Scheme could lead to lower costs as volumes increase.

In addition, ACCUs generated by engineered removal technologies could attract premium prices due to confidence in their integrity, particularly relating to permanence and additionality, and a philanthropic interest in supporting these important technologies. For example, Microsoft recently purchased 315,000 tonnes of removals at over US$600/tonne (Ramkumar, 2023).

The CFI Act will need to be amended before it can enable the development of ACCU methods for engineered removals. The CFI Act currently limits the definition of sequestration offset projects to sequestration via living biomass, soil, or dead organic matter (CFI Act, s 54). The CFI Act does currently facilitate carbon capture and storage projects, as these meet the definition of emissions avoidance offsets projects because carbon is captured at the source (CFI Act, s 53). It is the authority's view that removal of carbon from the air, rather than point sources, should be eligible under the CFI Act.

ACCU methods for engineered removal technologies do not yet exist and would need to be developed to enable this nascent industry to participate in the scheme. The government has already adopted the Chubb Review recommendation of a new proponent-led process for development of new methods, and this is expected to encourage method innovation (Australian Government, 2023). There may be a case for direct support of method development, given the need for rapid progress in this area.

Recommendation 14:	
Support the establishment of a carbon dioxide removal industry by: a) continuing to engage internationally to identify technical solutions to reporting of engineered removals and promote their adoption into inventory reporting rules. b) amending the CFI Act to include engineered removals. c) calling for method development proposals in engineered removal technologies. d) providing support through existing programs for the development of engineered removal methods.	At present, engineered removal methods are ineligible for the ACCU Scheme, as the CFI Act only includes sequestration via living biomass, soil, or dead organic matter. ACCU methods for engineered removal technologies do not yet exist. Funding, including through existing programs, to enable proponents to develop methods would encourage innovation in this nascent industry. Currently UNFCCC/Paris Agreement emissions estimation and reporting rules do not expressly cover how countries can measure and account for engineered removals in their national inventories. Establishing a reporting methodology, in the content of the IPCC 7th Assessment Cycle, would encourage more countries to adopt engineered removals and expand innovation in these technologies around the world.

Chapter 6: Fit for Paris

Australia will soon need to decide whether to participate in international carbon trading under the Paris Agreement in its plan to achieve net zero emissions by 2050. Decisions include whether to import and/or export, how much, and with whom.

Regardless of whether Australia participates in international markets in the near term, it makes sense for the ACCU Scheme to align with international best practice. Better alignment with the Paris Agreement would include greater transparency of unit information regarding vintage.

Under the Paris Agreement all countries must define and deliver Nationally Determined Contributions (NDC). Countries may cooperate on emissions reductions through the market and non-market mechanisms established under Article 6 of the Paris Agreement (see section 6.1 – Article 6 explainer, below).

Australia's current NDC leaves open the possibility of using international carbon units under the Paris Agreement (Australian Government, 2022, p. 8). Specifically, Australia's NDC notes:

> *Should Australia decide to use cooperative approaches under Article 6 of the Paris Agreement towards achievement of its NDC or to authorize the use of internationally transferred mitigation outcomes towards the NDCs of other Parties, it would report on such use or authorization through its Biennial Transparency Reports and consistent with guidance adopted under Article 6.*
> **(Australian Government, 2022, p. 9)**.

The Australian Government has yet to decide whether it will participate in international carbon markets. ACCUs are not authorised for export under Article 6. Australia does not accept international units under the Safeguard Mechanism, nor has Australia entered any agreements to export or receive Internationally Transferred Mitigation Outcomes (ITMOs).

If the Australian Government decides to participate in Article 6 it will be necessary to update national institutional and regulatory infrastructure in alignment with the Paris Agreement to support the import and/or export of ITMOs. The Australian National Registry of Emissions Units (ANREU) legislation presents a ready-made framework which could be updated to reflect units available under the Paris Agreement and enable the appropriate recording and tracking of these units (see *Australian National Registry of Emissions Units Act 2011*). Trading under Article 6.2 would also require the government to enter cooperative approaches with another country prior to the first transfer of units.

The authority has previously recommended the Australian Government develop a National Carbon Market Strategy that, among other things, clarifies the role of domestic and international units and identifies the circumstance in which ACCUs may be authorised for export (CCA, 2022); see also section 6.3 below.

6.1 Article 6 explainer

Carbon markets are a long-standing feature of international climate agreements. Under the Kyoto Protocol (the international agreement preceding the Paris Agreement) developed countries could purchase abatement generated in other countries and use it to meet their own emissions reductions targets (UNFCCC, 1997). From 2021, the Paris Agreement became the primary international instrument under which Australia develops and reports on its emissions reduction targets.

The Paris Agreement provides for the international trading of carbon to help countries meet their emissions reductions targets through the rules set out under Article 6. Article 6 of the Paris Agreement was included in the original text in 2015 but the detailed rules were only agreed in 2021. Article 6 sets out two types of market-based instruments to enable carbon trading, as well as non-market approaches provided for under Article 6.8.

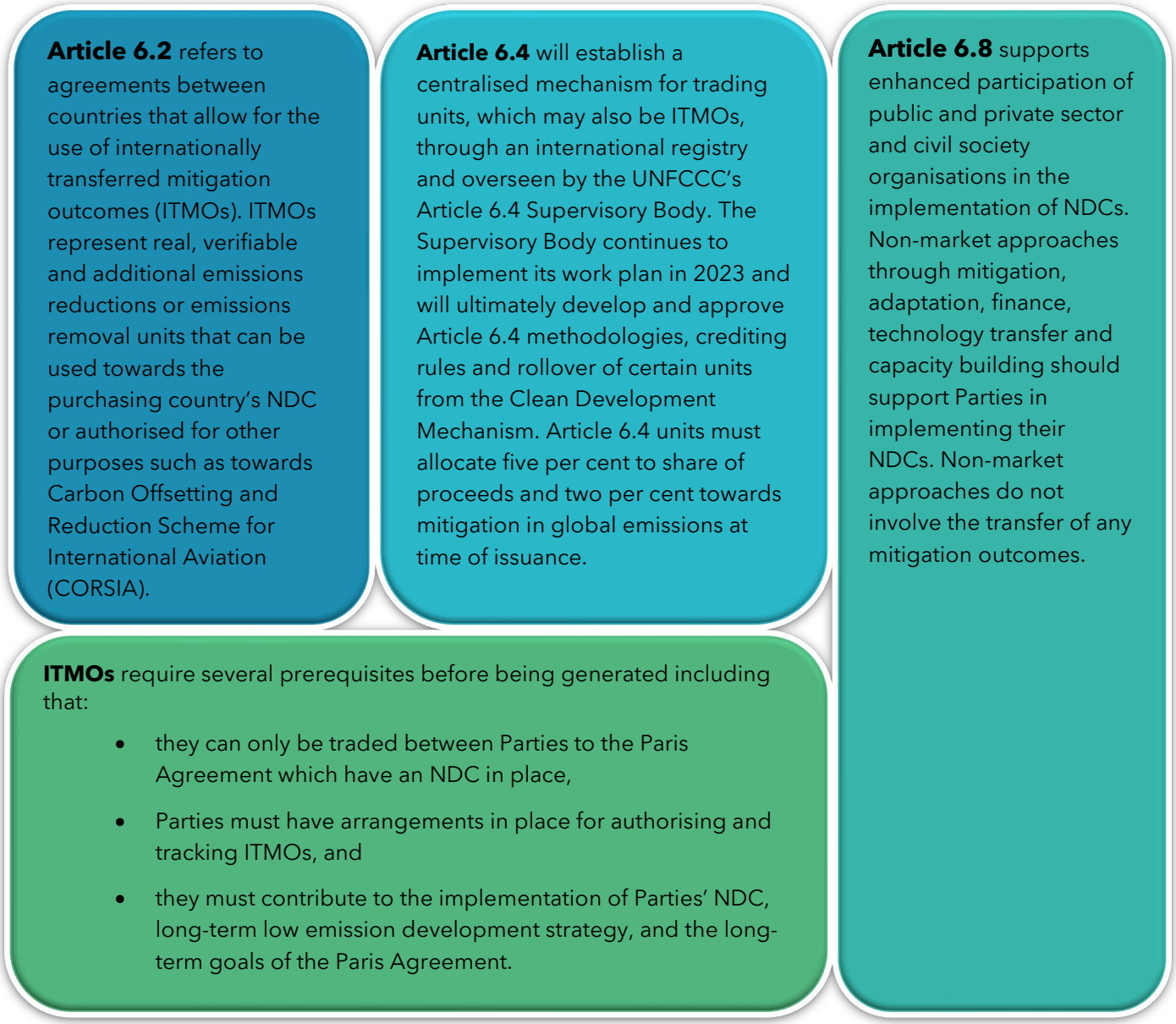


Figure 6.1: Article 6 explainer

Source: CCA analysis, 2023 based on various Paris Agreement documents.

Because Article 6 of the Paris Agreement establishes a common framework under which countries can trade carbon, there is a significant emphasis on preventing double counting. Double counting occurs when more than one Party counts the same emission reduction or removal towards meeting its NDC.

'Corresponding adjustments' are an accounting measure whereby countries engaging in the trading of carbon are required to record the trade in their reporting of progress towards achievement of their NDCs: the seller must subtract the amount sold from its greenhouse gas emissions inventory, and the purchaser can add that amount to its accounts. ITMOs (traded in tCO_2-e) must be used within the same NDC implementation period in which they were generated (UNFCCC, 2021).

6.2 Vintage

Under Article 6 of the Paris Agreement, traded abatement to be used towards a country's NDC must be real, verified and additional, not lead to a net increase in emissions within and between NDC implementation periods, and generate mitigation from 2021 onwards (UNFCCC, 2021). In other words, the vintage of units traded under Article 6 must be no older than 2021, based on the date of generation.

While the Australian Government does not currently engage in the trading of ACCUs under Article 6, the Article 6 Rulebook provides internationally agreed guidance around high integrity carbon markets that is useful guidance for the ACCU Scheme. Having information about when abatement was generated enables units to be aligned with the Paris Agreement.

The vintage of a unit can refer to the year the credit was issued, when the project was registered, or when the mitigation was generated (as is the case under Article 6; also described as when abatement occurred).

Typically, a unit will hold value indefinitely regardless of vintage until it is cancelled. However, compliance requirements may dictate what vintage is eligible to be retired. For example, in its Review of International Offsets, the authority recommended the government adopt a five-year rolling vintage period for demand-side use of international units in the context of the voluntary national carbon neutral scheme (CCA, 2022). This recommendation did not extend to the ACCUs used under Climate Active or the Safeguard mechanism.

The regulator currently publishes information regarding the issuance of ACCUs on its project register (CER, 2023d). The government is proposing the regulator publish ACCUs issued for each reporting period (DCCEEW, 2023a).

The issuance of ACCUs does not accurately represent when the abatement occurred because ACCUs are issued after the end of a reporting period. For sequestration projects, reporting periods can be up to five years after mitigation is generated, and issuance later again (see CFI Act s 76).

To assist buyers more accurately understand the year mitigation is generated, the authority suggests information about ACCU vintage:

- be expressed as a reporting period date range and, where possible, a specific year.
- be made available on the Unit Register and/or Australian Carbon Exchange, attaching vintage details to specific units.

The government could work towards aligning vintage to international expectations being the year in which mitigation is generated. This could be achieved by disclosing the reporting year, where possible.

Recommendation 15:	
Make information about the vintage of ACCUs readily available through a mechanism such as the forthcoming Unit Register.	There is growing interest in the vintage of carbon units internationally, and some ACCU buyers have expressed an interest in preferencing ACCUs with a newer vintage. However, information about ACCU vintage is not readily available. The Clean Energy Regulator holds data about the date of issuance of ACCUs, rather than the date abatement was generated. Information about the date of ACCU issuance is currently published on the project register and could be much more readily available to ACCU buyers through mechanisms like the forthcoming Unit Register.

6.3 Developing an Australian Carbon Market Strategy

In the 2022 Review of International Offsets, the authority recommended the Australian Government develop and publish a National Carbon Market Strategy to establish how Australia will use carbon markets to achieve net zero emissions by 2050 (Review of International Offsets Recommendation 7).

As part of this broad recommendation, the authority advised:

- making Australia's carbon price more visible and understandable will help embed decarbonisation in everyday decision-making;
- clarifying the role of high integrity domestic and international units in the mix of voluntary and compliance related mitigation action will provide certainty and help smooth and accelerate Australia's decarbonisation;
- upholding the integrity of offsets markets – in both the ways they are generated and the ways they are used – will help build confidence and trust in Australia's approach; and
- enhancing links between carbon markets and international trade and measurement standards, which could underpin Australia's engagement in the development of a robust, liquid, high integrity, trusted and effective global carbon market.

The authority advised the strategy should be developed before the delivery of Australia's next NDC in 2025, to inform decisions about the next emissions reduction target by mapping the use of offsets to 2050. This should include identifying any circumstances in which ACCUs may be authorised for export for example, for use by Australian airlines under the international aviation market measure, or for contributions to overall mitigation in global emissions.

Understanding the role for carbon markets in Australia's transition to net zero will provide guidance to project developers, greater certainty for Safeguard facilities and clarity on the government's expectations of direct emissions reductions. The government has announced its intention to consult in late 2023 on the possibility of establishing the legislative framework for international units (DCCEEW, 2023i). The government also intends to consider the role of international units in a review of the Safeguard Mechanism in 2026-27 (DCCEEW, 2023i).

The international context has continued to develop since the Review of International Offsets. Since publishing in August 2022, several jurisdictions have indicated their intent to use international units in achieving emissions reduction under their NDC. As at November 2023, Japan, Singapore, South Korea, Sweden, Switzerland, United Arab Emirates were at various stages of implementing Article 6.2, from establishing bilateral agreements or memoranda of understanding to letters of intent. There has also been increasing standardisation in the voluntary carbon market from supply and demand bodies (ICVCM, 2023; VCMI, 2023).

Participants in the authority's 2022 Review of International Offsets had mixed views on Australia participating in international markets. Twelve months on, the authority sought views on several related issues through its consultation *Issues Paper: Setting, Tracking and Achieving Australia's Emissions Reductions Targets*. Two key themes were repeatedly identified: whether international units should be used, and if so, the nature of the measures to ensure their integrity.

Some submissions cautioned against the use of international units (Doctors for the Environment Australia, FutureSuper, Queensland Conservation Council, Australian Parents for Climate Action) and others specifically called for the exclusion of international units for compliance purposes (Climate Council, Australian Conservation Foundation, Greenpeace Australia Pacific).

The Australian Conservation Foundation wrote:

> *International carbon markets should have no role in meeting legislated or regulated emissions reduction requirements in Australia and only a very limited role in meeting voluntary commitments.*
> *ACF recommends against efforts to set up policy infrastructure for international offsets, as flagged through SGM reform, and instead would encourage the government to focus efforts on limiting use of ACCUs, ensuring ACCU integrity, and pursuing biodiversity/nature positive benefits alongside carbon outcomes from our domestic offsets market.*

Conversely, Woodside Energy Ltd observed:

> *…a clear pathway for inclusion of international carbon credits in the Safeguard Mechanism is important to maintain carbon credit market liquidity. A broader market supply base would reduce the exposure to temporal supply and demand imbalances in the domestic carbon market and support the growth of the Australian economy.*
> *In addition to benefits to the Australian economy, there is potential for international offset use to support investment in climate change mitigation projects in developing countries, transfer or diffusion of technology in the host countries, as well as improvement in the livelihood of communities through the creation of employment or increased economic activity.*

The Grattan Institute noted:

> *Imports and exports of offsetting units will become more important as all countries move towards net zero. There is no need to assume Australia must be self-sufficient in offsetting units, but local supply requires our governments to implement strong policies to drive emissions reduction coupled with policies to encourage removal of carbon dioxide from the atmosphere. The Federal Government should introduce rules to support international trade in offsetting units, both for exports and imports.*

Stakeholders commonly noted that should the government permit the import of international units for compliance purposes in Australia, the thresholds for ACCUs should extend to international units: international units should be of equal or better quality than ACCUs and underpinned by integrity standards.

In the 2020 ERF Review, the authority noted that Australia could potentially export ACCUs in the future to countries transitioning to net zero emissions due to a large, geological stable land mass and highly regarded offsets mechanism. The authority's more recent report on sequestration potential noted limited availability of geological and biological storage of Australia's key trading partners will likely drive them to demand sequestration undertaken elsewhere.[7]

In its Review of International Offsets, the authority advised that preparing to maintain alignment with the international approach to carbon markets would best position Australia to participate. This includes making a policy decision on the role for international units for import or export, and the type of offsets Australia is willing to accept towards its national target, including the criteria for acceptable ITMOs.

The authority considers Australia's trading of ITMOs for import or export should not proceed if it increases the net cost of meeting Australia's targets. Further research to inform the development and implementation of a carbon market strategy should include:

- Comprehensive analysis of the magnitude of Australia's realisable, human-induced sequestration, supported by modelling as called for by the authority (see the authority's 2023 Annual Progress Report, Recommendation 33).
- Criteria of acceptability, including evidence of guardrails to avoid adverse impacts and ensure abatement.
- Analysis of the likely future supply of ACCUs and the need to offset hard-to-abate emissions in Australia.

The authority will inform this work through its sectoral pathways review and 2035 targets advice, both due in 2024.

[7] Japan's Roadmap to 'Beyond-Zero' Carbon recognises the critical role of sequestration in the nation's approach. Singapore's Carbon Tax is also expected to drive demand for sequestration.

Appendix A – Analysis of the costs and benefits

The authority is required to have regard to the principles set out in the *Climate Change Authority Act 2011* when performing its functions. The cost benefit table below presents a summary of the recommendations' outcomes against these criteria. Further analyses of the costs and benefits of the recommendations are made throughout the report.

Recommendation	Cost	Benefit
Recommendation 1: Transfer ACCU projects to varied methods and require application of updated tools within two years of their making, unless the Carbon Abatement Integrity Committee advises otherwise.	General policy development costs for DCCEEW. Assessment costs for the Carbon Abatement Integrity Committee, consistent with existing responsibilities. Potential participatory costs for participants, to build understanding of variations they would otherwise have not transitioned to. Returns on investment on existing projects could be lower than expected.	Reduces costs for the regulator and DCCEEW to maintain old methods and tools. Strengthens the environmental effectiveness of the scheme by improving integrity of ACCUs through alignment with best available evidence. Increases confidence that an ACCU represents real abatement. Reduces the risk that ACCUs are issued for non-additional abatement and thus reduces the risk that buyers, including government and businesses, would need to find further abatement elsewhere to meet emissions targets. Returns on investment on existing projects could be higher than expected.
Recommendation 2: When implementing the Chubb Review's recommendation to amend the newness requirement, ensure methods continue to deduct abatement resulting from historic levels of activity.	Potential assessment costs for the Carbon Abatement Integrity Committee, when assessing how draft methods deduct for historic levels of activity. Potential general policy development costs for DCCEEW.	Clarity for scheme participants of the additionality standard, including the objective of the newness provision. Ongoing assurance of additionality. Maintains confidence that ACCUs are issued for additional abatement.

Recommendation 3: Require the Carbon Abatement Integrity Committee to more frequently review the additionality of methods and publish these assessments.	Administration costs to government to implement. Assessment and administration costs for the Carbon Abatement Integrity Committee. Potential lower issuance of ACCUs to project proponents due to changes in crediting periods. Potential general policy development costs for DCCEEW.	Strengthens the environmental effectiveness of the scheme. Increases market and public confidence in the ongoing additionality of abatement under the scheme. Reduces the risk that ACCUs are issued for non-additional abatement and thus reduces the risk that buyers, including government and businesses, would need to find further abatement elsewhere to meet emissions targets.
Recommendation 4: Require project baselines to account for: a) the risk of a proportion of project activity becoming non-additional over time; and b) climate-driven changes in carbon stocks.	Assessment and administration costs for the Carbon Abatement Integrity Committee. Potential lower issuance of ACCUs to existing projects. Potential general policy development costs for DCCEEW.	Increases market and public confidence in the ongoing additionality of abatement under the scheme. Strengthens the environmental effectiveness of the scheme as it minimises the risk of an ACCU representing temporary changes in carbon stocks. Reduces the risk that ACCUs are issued for non-additional abatement and thus reduces the risk that buyers, including government and businesses, would need to find further abatement elsewhere to meet emissions targets.

Recommendation 5: Publish: a) all information used to determine net abatement from project offsets reports b) adverse audit findings c) easy-to-understand material on the evidence base, assumptions and limitations of method tools. Limited exceptions for (a) and (b) could be created to allow proponents to request non-disclosure of personal and commercially sensitive information.	Scheme administration costs for the Clean Energy Regulator. Potential general policy development costs for DCCEEW. Potential costs for participants to apply for exceptions to information disclosure.	Increases confidence in the scheme from greater transparency on how project abatement is determined. Enables civil society, ACCU purchasers and investors to make informed assessments of the integrity of projects.
Recommendation 6: a) Make information about the permanence period of ACCUs (i.e., the permanence period of the project that generated the ACCU) readily available to buyers, such as in the forthcoming Unit Register. b) Allow projects to vary their permanence period from 25 to 100 years. c) In developing Australia's plan to achieve net zero emissions by 2050, consider i) the equivalence of carbon sequestration under the ACCU Scheme and the emissions ACCUs are used to offset and ii) increasing the average permanence and durability of carbon stored under the scheme.	General policy development costs for DCCEEW. Scheme administration and assessment costs for the Clean Energy Regulator. Potential costs to other government agencies who either contribute to the review or advise on the plan.	Strengthens the environmental effectiveness of the scheme by enhancing the management of non-permanence risks. Improves the scheme's alignment with international norms of permanence. Increased transparency for the market to differentiate ACCUs by their comparative permanence and price them accordingly. Greater flexibility for participants to extend their permanence period and be credited accordingly. Reduces the risk that ACCUs are inappropriately issued for impermanent abatement and thus reduces the risk that buyers, including government and businesses, would need to find further abatement elsewhere in the economy to meet emissions targets.

Recommendation 7: Undertake regular assessments of the risk of reversal buffer and permanence period discount to ensure they are well-calibrated. Publish the assessments, including: a) the volume of abatement corresponding to the risk of reversal buffer and permanence period discount. b) any impact of reversal events c) other relevant information.	Scheme administration costs for the CER. Potential general policy development costs for DCCEEW.	Insures the scheme against risks of reversal and impermanence as these mechanisms are more appropriately calibrated. Increases market and public confidence in the scheme from greater transparency of mechanisms that build conservativeness in the scheme. Enables better scrutiny and calibration of existing mechanisms. Assists in appropriately pricing reversal and permanence risks into government and market decisions.
Recommendation 8: Task and resource the Carbon Abatement Integrity Committee to: a) include the risk of market leakage in its method assessments to the extent practicable b) regularly assess the risk of carbon leakage during the life of a method c) publish its assessments of carbon leakage.	Assessment and administration costs for the Carbon Abatement Integrity Committee. Potential general policy development costs for DCCEEW.	Strengthens the environmental effectiveness of the scheme by adjusting the level of conservativeness to account for market leakage. Increased confidence in the scheme from greater transparency on how carbon leakage is assessed. Helps ensure environmental outcomes are achieved. Reduces the risk that ACCUs are issued for abatement negated by leakage, and thus reduces the risk that buyers, including government and businesses, would need to find further abatement elsewhere in the economy to meet emissions targets.

Recommendation 9: Task and resource the Carbon Abatement Integrity Committee to: a) develop, adopt and apply an approach to prioritising methods for development that is evidence-based and takes account of the likely abatement outcome in the near and longer term, cost, technology readiness, resource efficiency, risk of adverse impacts, and non-carbon benefits. b) publish information about the approach and how it has informed decisions in the method triage process.	Assessment and administration costs for the Carbon Abatement Integrity Committee. Potential general policy development costs for DCCEEW to support the Carbon Abatement Integrity Committee.	Improves efficient allocation of resources in method development. Strengthens the environmental effectiveness of the scheme by prioritising methods that are evidence-based, provide non-carbon benefits and align with broader climate goals. May lead to increased abatement through new methods being better aligned with market opportunities. Ensures a fair and transparent process for method prioritisation. Improves the quality of proposals and reduces administrative burden of dealing with sub-par proposals from greater transparency and information provided.
Recommendation 10: a) Enable non-carbon benefits to be reported as attributes of ACCUs in the forthcoming Unit Register, subject to meeting minimum quality standards; and b) Support First Nations organisations to develop a self-determined approach for verifying benefits from ACCU projects flowing to First Nations communities and people.	General policy development costs for DCCEEW. Potential implementation costs for Clean Energy Regulator. Potential reporting and verification costs for scheme participants to demonstrate projects meet minimum requirements, depending on what form these requirements take.	Provides a minimum standard for claims and verification processes for non-carbon benefits, to ensure disputes or criticism of the integrity of non-carbon benefits are not detrimental to confidence in the ACCU Scheme more broadly. Improves transparency of information about ACCUs published by the regulator for scheme participants. Gives investors' confidence that non-carbon benefits associated with ACCUs are genuine and verified. Respects the distinct value of First Nations non-carbon benefits and the projects that generate them.

Recommendation 11: a) Amend the CFI Act to require project proponents to have applied best-practice principles to seek free, prior and informed consent (FPIC) from Native Title holders and claimants over relevant land prior to the registration of an area-based project on that land; and b) When implementing the Chubb Review's recommendation to support Native Title Representative Bodies and other relevant bodies in the application of FPIC, extend this support to include Native Title claimants, and consider supporting other service providers to advise people seeking and giving consent to ACCU Scheme projects.	General policy development costs for DCCEEW. Costs for financial support provided to Native Title Representative Bodies and other service providers for DCCEEW.	Brings the ACCU Scheme in line with best-practice principles for seeking free, prior and informed consent. Ensures First Nations people have fair and equal opportunities to understand the implications of ACCU projects on their lands, and to determine whether they consent to projects proceeding. Ensures First Nations organisations are equipped to support First Nations eligible interest holders to navigate the complexities of the ACCU Scheme and the consent process.

Recommendation 12: Enable better participation of First Nations people in the ACCU Scheme by: a) building the capability of First Nations people to have equitable access to the carbon market, including by making information more available and accessible b) resourcing First Nations organisations to provide advice about the ACCU Scheme and providing startup funding for First Nations-led projects c) supporting greater involvement in the development of new ACCU Scheme methods.	General policy development and implementation costs for DCCEEW. Costs for financial support and resourcing provided to First Nations organisations for DCCEEW.	Empowers First Nations Australians to meaningfully contribute to the design of new methods, including ensuring methods incorporate Traditional knowledge and expertise, and deliver positive outcomes for First Nations outcomes. Strengthens the relevance and applicability of methods to Australian landscapes through the inclusion of Traditional knowledge. Provides opportunities for First Nations people to participate in and benefit from the ACCU Scheme, even if they have limited or no land tenure. Contributes to Closing the Gap Implementation Plan 2023 through better enabling First Nations engagement in decision-making and policy development.

Recommendation 13: In consultation with stakeholders, amend the CFI Act to expand the role of regional Natural Resource Management (NRM) plans and organisations in informing the planning and establishment of ACCU projects, and resource NRM organisations accordingly.	General policy development and program delivery costs for DCCEEW. Costs for additional support for regional NRM organisations. Potential costs for scheme participants to support greater engagement with NRM organisations.	Helps ensure ACCU projects consider local contexts to enhance non-carbon benefits and mitigate the risk of adverse impacts in regions. This includes reducing the risk of negative trade-offs between ACCU projects and agricultural production, environmental outcomes and rural communities. Resources regional NRM organisations to provide the necessary advice and support to project proponents. These organisations are well positioned to provide this advice and information, given their existing remit implementing land management projects that reflect local environmental and community contexts across regional Australia.

Recommendation 14: Support the establishment of a carbon dioxide removal industry by: a) continuing to engage internationally to identify technical solutions to reporting of engineered removals and promote their adoption into inventory reporting rules. b) amending the CFI Act to include engineered removals. c) calling for method development proposals in engineered removal technologies. d) providing support through existing programs for the development of engineered removal methods.	General policy development costs for DCCEEW. Potential costs for method development borne by scheme participants with any support provided by government. Benefits in establishing new industry and to climate from removing emissions from atmosphere.	Opens additional sources of permanent engineered abatement and removals to support Australia to meet its emissions reduction targets and global net negative. Ensures engineered removals are consistently and transparently accounted for in national inventories and are easily comparable across jurisdictions and uses.
Recommendation 15: Make information about the vintage of ACCUs readily available through a mechanism such as the forthcoming Unit Register.	General policy development costs for DCCEEW. Scheme administration costs for the Clean Energy Regulator.	Increases market and public confidence in the scheme from greater transparency of the units available under the scheme. Enables choice about purchasing and accepting older units. Enables alignment of the scheme with potential future international rules.

Appendix B – Examples of non-carbon benefits schemes or initiatives

Table B1: Examples of government carbon plus non-carbon benefits schemes

Scheme or initiative name	Jurisdiction	Non-carbon benefits included	Requirements for measurement and verification of non-carbon benefits	How it works
Carbon + Biodiversity Pilot	Commonwealth	• Biodiversity improvements • Shelter for stock or other animals • Protecting dams and waterways • Reducing soil erosion	Doesn't require measurement of non-carbon benefits using an established framework, but projects must abide by Pilot planting protocols, which are designed to maximise benefits to biodiversity. Participants must also maintain projects for at least 25 years.	Participants undertake mixed-species environmental plantings as part of an ACCU project to create carbon and biodiversity benefits. Participants are issued ACCUs and also receive a biodiversity payment to cover a portion of costs (value depends on multiple project factors).
Land Restoration Fund	Queensland Government	• Environmental, including improvements in biodiversity, soil and waterway health • Socioeconomic outcomes that improve resilience and strength of local communities • First Nations outcomes that provide business opportunities and support cultural and customary connections	Requires the use of the Land Restoration Fund (LRF) Co-benefits Standard. This includes two levels of assurance: proponent assurance, and the third-party assurance by Accounting for Nature for environmental benefits and the Core Benefits Verification Framework for First Nations benefits.	Participants undertake ACCU projects that also achieve environmental, economic and social benefits. The Queensland Government purchases ACCUs delivered by these projects and may pay an additional premium for these credits, to account for the provision of non-carbon- benefits. The LRF also invests in research, innovation and market development.

High Impact Partnerships grants	NSW Government	• Environmental, including biodiversity conservation, soil health, water quality, sustainable pest and weed management, drought or flood resilience • Social, including increased social capital, improved physical or mental health • First Nations cultural outcomes, including First Nations community empowerment, protection of sacred sites • Economic, including improved productivity, lower input costs, investment in regional communities	Doesn't require use of minimum standard. Participants must describe non-carbon benefits that can be measured. Participants can use an existing standard or reference other recognised priorities, such as a published conservation management action for a threatened species.	The NSW government supports ACCU projects that achieve noncarbon benefits through the provision of $500k-$2M grants that support the delivery of carbon abatement plus non-carbon benefits. Grants must be matched by project partners.

Sources: (*Carbon Credits (Carbon Farming Initiative) Act 2011* s 168) (DCCEEW, 2023b) (Queensland Government, 2023) (NSW Government, 2022)

Table B2: Examples of non-government carbon plus non-carbon benefits schemes

Scheme or initiative name	Non-carbon benefits included	Requirements for measurement and verification of non-carbon benefits	How it works
GreenCollar NaturePlus	Biodiversity outcomes as defined by the Accounting for Nature environmental accounting framework.	Uses the Accounting for Nature Framework.	Participants undertake projects that restore biodiversity, which is verified by Accounting for Nature as an independent third party. Participants are issued with NaturePlus credits, which can then be sold to investors.
Firesticks Alliance and Aboriginal Carbon Foundation Cultural Fire Credit	Environmental, social and cultural core benefits: • Cultural, including maintenance and passing on of Traditional knowledge systems • Environmental, including preservation of remnant vegetation through cool burns • Social, including increased social capital through community participation on projects • Educational, including First Nations-led monitoring, research, data sharing and verification • Economic, including a diversity of First Nations-led economic opportunities • Wellbeing, including connection to Country and community • Health, including increased physical activity through participation in projects	Uses the Aboriginal Carbon Foundation Core Benefits Verification Framework. This distinguishes its focus on 'core benefits' of projects, rather than 'co-benefits'. A core benefits framing prioritises the achievement of outcomes for Aboriginal and Torres Strait Islander peoples from carbon farming activities, rather than considering these to be additional to a primary focus on abatement.	The Firesticks Alliance and Aboriginal Carbon Foundation supports First Nations-led cultural fire projects. These projects can generate Cultural Fire Credits, which can then be sold to purchasers and investors. The initiative also provides mentoring and leadership support to develop communities' capacity to practice cultural burning and ultimately generate Cultural Fire Credits.

Aboriginal Carbon Foundation Community Credits and Farmer Credits	Community credits: cultural, social and environmental benefits Farmer credits: social and environmental benefits	Uses the Aboriginal Carbon Foundation Core Benefits Verification Framework.	The Aboriginal Carbon Foundation generates and sells ACCUs from carbon projects that create a range of environmental, cultural and social core benefits, depending on the credit type.

Sources: (GreenCollar, 2021) (Eco-Markets Australia, 2020) (Firesticks Alliance and Aboriginal Carbon Foundation, 2022) (Aboriginal Carbon Foundation, 2023)

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