SUBMISSION

Submission to the Climate Change Authority

Submission to the 2026 Australian Carbon Credit Unit (ACCU) Scheme review public consultation

8 December 2025

The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.

Australia's recent announcement of an emissions reduction target of 62–70% below 2005 levels by 2035 will require effort from both public and private sectors to reduce the country's greenhouse gas emissions. The Australian Carbon Credit Unit (ACCU) Scheme can incentivise private investment in the reduction of carbon emissions, enabling Australia to reach emission reduction targets and ultimately achieve net zero. This is particularly important as a way to offset emissions from hard-to-abate sources. The Scheme can continue to evolve to ensure integrity, encourage innovation, and enable broader participation. Strengthening transparency, supporting emerging technologies, and reducing barriers to entry will be key to maintaining public trust and delivering lasting climate benefits.

ATSE makes the following recommendations:

Recommendation 1: Establish Australian Carbon Credit Unit (ACCU) Scheme methods that drive emerging research, development, and deployment of innovative emissions reduction technologies.

Recommendation 2: Encourage smaller landholders' participation in the Australian Carbon Credit Unit (ACCU) Scheme through financial assistance, upskilling and assistance for carbon monitoring.

Recommendation 3: Strengthen the Australian Carbon Credit Unit (ACCU) Scheme's focus on permanence by introducing incentives for longer-term carbon storage commitments.

Recommendation 4: Support transparency of Australian Carbon Credit Unit (ACCU) Scheme projects through expanded public access to project data.

Incentivising research and development for emerging emission reduction technologies and practices

ACCU methods offer a pathway to incentivise the development and adoption of technologies and practices that are essential for Australia to meet its emission reduction targets and achieve net zero. The ACCU Scheme can stimulate research into key technologies and practices by establishing methods that may pave the way for significant emission-reduction developments. Considerations should be taken for technologies and practices that can deliver true additionality and permanence, especially as several past and existing methods lack legitimacy in these areas (Merzian et al. 2021). While the Government has now discontinued a number of these methods, establishing future high-integrity methods will require contributions from both government and industry, with private-sector investment playing an important role.

One area with significant potential for future ACCU methods is novel carbon dioxide removal (CDR). Since the inception of the Emissions Reduction Fund, soil carbon projects have faced legitimacy issues and low uptake (ATSE 2021). Novel CDR methods are approaches that remove CO_2 from the atmosphere and store it durably, with methods including ocean alkalinity enhancement, direct air carbon capture and storage, and biomass carbon removal and storage (CSIRO, 2025). While current novel CDR approaches are mostly deployed on small scales and are less mature than conventional approaches, Australia could become a global leader in novel CDR due to its rich natural resources and a highly skilled workforce. Novel CDR approaches also offer greater resilience to extreme weather events and climate change, as they store CO_2 in more stable, less reversible forms (CSIRO 2025). As additionality is a key requirement for ACCU methods, and that the Climate Change Authority estimates Australia will need at least 133 Mt of CO_2 removal by 2050, developing CDR methods can help fill this critical gap (CSIRO 2025). However, these methods currently have low to medium technological readiness, signalling a need for increased research and development (R&D) (Malakar et al., 2025). Supporting novel CDR removal methods within the ACCU framework could contribute to national emissions targets and enhance Australia's capacity for innovation in climate mitigation.

Methane mitigation methods are another area that shows promise but requires more development. Methane mitigation methods represent technologically mature options suitable for carbon offset methods, but despite regulatory approval, face low uptake due to high costs and logistical challenges (Dairy Australia 2025). Additionally, increased nitrogen efficiency methods such as nitrification inhibitor-coated fertilisers and biological

nitrogen inhibitors have shown promise in increasing nitrogen use efficiency. Nitrification inhibitor-coated fertilisers use certain plant root traits that inhibit the nitrification of fertiliser nitrogen, reducing nitrous oxide emissions and therefore saving nitrogen for crop uptake, lowering the greenhouse gas (GHG) cost associated with fertiliser production (Clean Energy Finance Corporation 2025). The use of these fertilisers can reduce nitrous oxide emissions by 80% (Clean Energy Finance Corporation 2025). Biological nitrogen inhibitors are natural compounds released by plants that suppress soil-nitrifying microorganisms, improving nitrogen use efficiency and reducing GHG emissions (Wang et al. 2021). While there are promising small-scale Australian efforts, funded by the Grains Research & Development Corporation and others, these methods still require real-world validation.

Through incentivising methods that reward true additionality, permanence, and innovation, the ACCU Scheme can attract greater private sector investment in emissions reduction and removal technologies. Globally, the private sector investment makes up more than half of all climate finance, with similar trends being seen in Australia (Lee et al. 2025). Many companies are already researching and trialling their own insetting[1] and abatement methods to meet corporate sustainability goals (CBH Group 2025; Horngren et al. 2023; Wine Australia 2024). The ACCU Scheme can support private innovation by providing methods that align corporate climate initiatives with national targets, while achieving real emissions reductions and abatement by ensuring that these methods meet the Offset Integrity Standards. However, given the complexity of high-integrity methods, there is a need for complementary demand-side policy support measures that help accelerate emissions reduction while high-integrity methods are being developed. Incentives for direct emissions reduction in high-emitting areas such as the heavy vehicle and coal, oil and gas sectors, may be one aspect in achieving this. This approach would incentivise industry to develop new methods that are targeted where they are most needed and likely to deliver additionality. Supporting emerging areas, such as novel CDR, methane mitigation, and nitrogen efficiency methods through robust, science-based approaches may give industry the confidence to invest in projects that align with ACCU methods and Australia's climate goals.

Recommendation 1: Establish Australian Carbon Credit Unit (ACCU) Scheme methods that drive emerging research, development, and deployment of innovative emissions reduction technologies.

Encouraging Scheme participation from small landholders

The participation of small landholders and farmers can assist the ACCU Scheme in broadening the scope of carbon reduction activities. However, the high cost of project establishment and implementation has significantly limited their participation since soil carbon methods were introduced in 2014, which are the most viable methods for farmers (Pudasaini et al. 2025). Barriers include high upfront costs, limited access to information, uncertainty around financial returns, and the overall complexity of the scheme (Pudasaini et al. 2025). Establishing a soil carbon project involves substantial expenses that often exceed expected returns in the first decade. Costs arise from collecting historical data, developing land management strategies, conducting baseline soil sampling, and compiling these into a baseline report. Ongoing transaction costs, including registration, reporting, auditing, verification, and market access, further the financial burden (Pudasaini et al. 2025). Income generation under the soil carbon method is typically delayed, as ACCUs for soil carbon methods are issued only every five years, with 25% withheld to manage measurement and sequestration risks (Emissions Reduction Fund 2021).

These combined challenges have deterred many small landholders from participating, despite their significant potential to contribute to national emissions reductions. Targeted incentives and support programs, such as upskilling in carbon measurement and management, could make participation more viable. Additionally, an option for small landholders who are implementing smaller vegetation projects to have the Clean Energy Regulator conduct ongoing monitoring using remote sensing, similar to how the now-discontinued Environmental Planting Pilot method was conducted, may reduce regulatory concerns. The Commonwealth Government's discounted loans for farmers investing in emissions reduction technologies could be expanded or complemented by similar programs focused on ACCU project establishment (Collins and Bowen 2025).

[1] Carbon-reduction or sequestration activities carried out within a company's own value chain, opposed to offsetting emissions by purchasing credits from external organisations (Bahtia 2022).

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Recommendation 2: Encourage smaller landholders' participation in the Australian Carbon Credit Uni (ACCU) Scheme through targeted incentives, upskilling and assistance for carbon monitoring.

Increasing Scheme integrity through robust permanence requirements

To ensure methods within the ACCU Scheme deliver long-term benefits, permanence requirements and incentives should be structured to maintain carbon storage for as long as possible. The current system, which counts permanence periods of either 25 or 100 years, could be revised to encourage longer commitments and offer a broader range of options between and beyond these periods. ACCUs issued in 2025 under the 25-year permanence period will expire in 2050, the same year Australia aims to achieve net zero emissions. This highlights a critical gap in long-term emissions reduction planning. To ensure the ACCU Scheme continues to support a net zero future, methods that prioritise enduring carbon reduction beyond 2050 should be strengthened. The Clean Energy Regulator could consider introducing graduated permanence incentives, where longer-term commitments yield higher rewards, such as increased ACCU issuance or higher market value, or a penalty for shorter permanence requirements, similar to the security buffer currently in place. The security buffer requires projects with a 25-year permanence period to receive a 20% reduction in ACCUs issued, whereas 100-year projects receive the full allocation. This approach could strike a fair balance between 25- and 100-year options while aligning incentives with Australia's long-term climate goals.

Recommendation 3: Strengthen the Australian Carbon Credit Unit (ACCU) Scheme's focus on permanence by introducing incentives for longer-term carbon storage commitments.

Supporting Scheme transparency through increased information sharing and accessibility

There has been ongoing concern regarding the integrity of carbon credits and offset projects, largely due to limited transparency around how credits are awarded and how methods operate. Information on methods, including their mechanisms, effectiveness and outcomes of projects, is not readily accessible, leading to reduced confidence in the Scheme's integrity. Greater transparency on how methods are developed, selected, and applied would help build trust and accountability. This aligns with the 2022 Independent Review of Australian Carbon Credit Units, which recommended increased visibility of the ACCU Scheme data and the rationale behind credit issuance decisions. While changes were made last year to increase Scheme transparency through amendments to the Carbon Credits (Carbon Farming Initiative) Rule 2015, providing more information may help strengthen confidence in the Scheme's credibility. Specifically, increased transparency on crediting period details, offset reports, audit reports and the location of land sector projects may be beneficial.

Further improvements to transparency could also enable independent project rating systems, similar to those used in international carbon markets. Currently, Australia lacks a domestic project rating framework due to insufficient publicly available project data (Macintosh 2025). These ratings help investors identify high-integrity projects and avoid those with weaker performance or governance issues. Expanding access to project information within the ACCU Scheme would make such a framework possible, enhancing market trust and increasing investment in credible emissions reduction projects.

Recommendation 4: Support transparency of Australian Carbon Credit Unit (ACCU) Scheme projects through expanded public access to project data.

ATSE thanks the Climate Change Authority for the opportunity to respond to the 2026 ACCU Scheme review public consultation. For further information, please contact academypolicyteam@atse.org.au.

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