



Australian
National
University

ANU Principles for Carbon Removal

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ANU Below Zero

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Key Terms

Additionality

Both an emission reduction relative to a counterfactual baseline that would not have occurred in the absence of a carbon removal activity and whether a project would be carried out without the incentive associated with the carbon credit payment.

Carbon removal

The process of drawing carbon dioxide out of the atmosphere and storing it for the long-term.

Co-benefit

A positive externality of carbon removal activities.

Leakage

The unintended production of emissions as a negative externality of carbon removal activities.

Permanence

The length of time for which carbon is stored (also known as durability)

Scalability

The ability to increase the scale of a carbon removal activity.

Executive Summary

The University has committed to reduce greenhouse gas emissions to net zero by 2025 and below zero by 2030 from energy, waste, university travel and direct on campus activities as part of ANU Below Zero. To achieve our goal of removing more emissions from the atmosphere than we release, ANU will have to purchase high-quality carbon credits in the short-term, and, from 2030 onwards, the goal is to have only carbon removal projects that are linked with ANU research and teaching, based on ANU owned or leased land, or through partnerships.

While strong emissions reductions are the primary focus of the University's Below Zero approach, there will always be emissions that are difficult to abate. To remove these emissions and more with efficacy and integrity, the ANU Below Zero Carbon Removal Principles and Projects Working Group (the Working Group) have developed the *ANU Principles for Carbon Removal* (the Principles) to guide our carbon removal activities and carbon credit purchases.

Since early 2021, the Working Group have engaged in ongoing consultation with the University's Australia-leading experts in the carbon removal space to understand the opportunities and challenges of engaging in carbon removal to achieve ANU Below Zero goals. This collaborative process, along with drawing from a range of reputable sources¹, has led to the development of the Principles that will act as a template for best practice for carbon removal activities.

The Principles provide 17 guiding principles for the University's approach to carbon removal, articulated around 5 pillars:

- Overall ANU approach to carbon removal
- Co-benefits and Safeguards
- Additionality
- Permanence
- Measurement, Reporting and Verification (MRV)

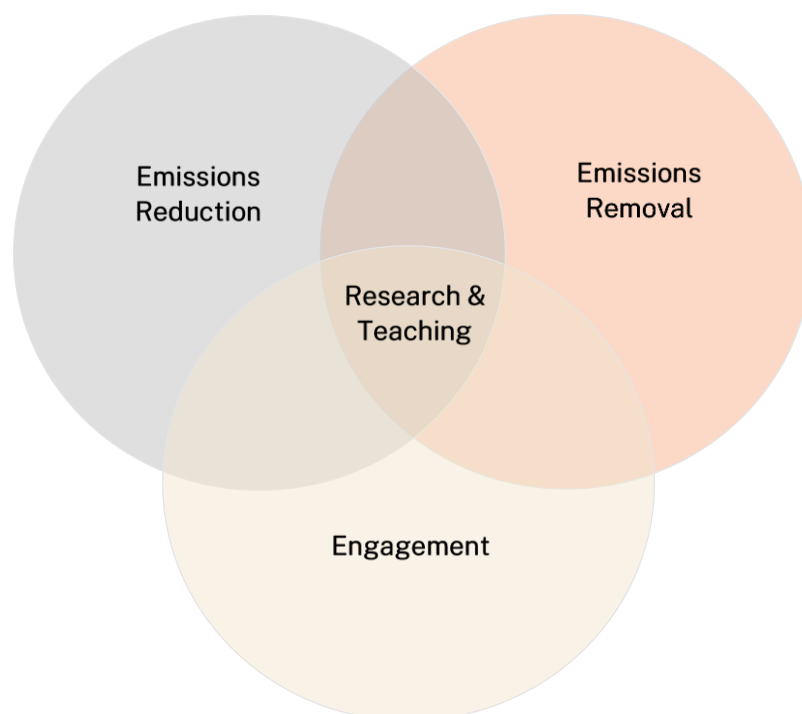
This document is designed to guide ANU in the planning, implementation, measurement, reporting and verification of carbon removal projects, and for the procurement of carbon credits, ensuring accountability and integrity. The Principles will ultimately be used to develop an ANU policy on carbon removal for endorsement by the University Executive. The Principles are designed as a working document for encouraging ideas, input and productive critique, and will be formally reviewed by the Working Group biennially.

¹ [COP26 Universities Alliance briefing paper \(2021\)](#); [Microsoft Criteria for high-quality carbon offsets \(2022\)](#); [Oxford Principles \(2020\)](#)

Introduction

As governments, corporations and individuals dial-up climate action in response to climate change, our first priority is to urgently reduce our direct and indirect emissions (Scope 1, 2 and 3). Although our primary priority, rapid emissions reduction alone is insufficient to limit climate change, we must also remove emissions from the atmosphere, according to the Intergovernmental Panel on Climate Change's (IPCC) *Mitigation of Climate Change* report².

ANU has responded to the climate crisis via the Below Zero initiative, which aims to transition ANU from being part of the problem to becoming part of the solution – to achieve net zero emissions by 2025 and to remove more emissions from the atmosphere than we release by 2030. To achieve our goals, there are three integrated workstreams actioning Below Zero, each with a primary focus on emissions reduction, emissions removal or engagement, with research and teaching at the core of all three workstreams.



The three integrated ANU Below Zero workstreams

The Emissions Removal Workstream, led by the Emissions Removal Manager, will bring together expertise from ANU and beyond to deliver the University's approach to removing greenhouse gases from the atmosphere, broadly termed "carbon removal"³. The Emissions Removal Workstream will in the first instance coordinate the purchase of high-quality carbon credits, before shifting to carbon removal projects that are linked with ANU research and teaching, based on ANU owned or leased land, or through partnerships to achieve the University's carbon removal aspirations.

² [IPCC \(2022\)](#)

³ Although "carbon removal" is a more narrow term (i.e. carbon dioxide only) than "emissions removal" (all greenhouse gases), "carbon removal" is more widely used and understood, so will be used for ease of communication henceforth.

The timeline for this process is as follows:

- **2025:** Net zero with carbon credit purchases
- **2030:** Below zero with carbon removal connected to ANU land, research, teaching and partnerships
- **Beyond 2030:** Progressively drawdown historical emissions, starting with those accumulated over the lifetime of the Below Zero program

For ANU to achieve our goal of removing more carbon from the atmosphere than we emit, we need to explore nature-based, technological and hybrid carbon removal solutions. There are numerous challenges in developing effective approaches to carbon removal, as methods vary in readiness, affordability, durability, scalability and co-benefits, as is being brought to light in growing criticisms of carbon credit markets.

Carbon credits available through internationally traded markets vary significantly in quality and cost, due to differences in the methods, monitoring and governance of carbon credit schemes. The Australian carbon credit market, which had previously been considered to offer a high-quality product, has also received recent criticism due to an alleged lack of efficacy and integrity of the scheme, casting doubt onto the quality of many Australian carbon credits⁴.

Concerns surrounding the quality of both domestic and international carbon credits highlight the need for ANU to develop rigorous standards by which it develops its own carbon removal activities and purchases carbon credits. Engaging in low-quality removal projects or purchasing substandard credits will endanger our ANU2025 vision for a culture of excellence in everything we do, expose ANU to reputational risk and lead to a failure to deliver on the goals of ANU Below Zero by underachieving on carbon removal. There is also an opportunity to fill the gap in best practice approaches to meet carbon removal goals that concurrently address biodiversity, agricultural, climate adaptation, water resource management, First Nations' rights, livelihood and cultural practice co-benefits.

Carbon removal methods are rapidly evolving and what is considered best-practice today may not be considered best-practice in the future. To keep abreast with best-practice and be a first mover in the early uptake of carbon removal approaches as they emerge, the University will require a systematic approach to building its carbon removal capabilities for both its own climate action ambitions and to fulfil its mission of conducting research that transforms society and creates national capability. This approach is reflected in the Principles.

⁴ [Macintosh \(2022\)](#); [Macintosh et al. \(2022a\)](#); [Macintosh et al. \(2022b\)](#)

The Principles

To ensure that the Principles continue to reflect best-practice, this document will be reviewed biennially by the ANU Below Zero Carbon Removal Principles and Projects Workstream.

Overall ANU approach to carbon removal

Principle 1a: Reducing greenhouse gas emissions at their source is preferable to drawing them down later

We must first reduce the emissions associated with our activities and only remove greenhouse gas emissions from the atmosphere as a last resort for emissions that are very difficult to abate. This is because emissions reduction is both cheaper and energetically easier than emissions removal, and releasing one tonne of carbon dioxide (CO₂) into the atmosphere can be more damaging than the positive impacts of removing one tonne of CO₂⁵.

Principle 1b: Only carbon credits and removal projects on Australian land can be counted towards ANU Below Zero targets

This is aligned with our role as Australia's national university and it allows for greater traceability of credits and mitigates the risk of double counting.

Principle 1c: The cost of carbon credits that offset the carbon emitted during business practices will be covered by the relevant ANU business unit where the emissions originated (polluter pays)

This will apply only to the University's business related activities.

Principle 1d: The University will integrate research and teaching into all ANU carbon removal projects and partnerships

All carbon removal projects on ANU owned or leased land, and any partnerships focussed on carbon removal will involve activities associated with the University's core business of research and teaching.

Principle 1e: ANU will seek to build capacity in carbon removal research in Australia and overseas

ANU will support and fund innovative research in carbon removal projects, technologies and governance. The University will help establish and/or meaningfully contribute to partnerships or coalitions with other universities, research institutions, Traditional Owners, landholders and organisations working on carbon removal. By sharing and diversifying the financial investment as well as the research and administrative workloads across institutions, a robust and collaborative system supported by sector-wide networks can be maintained.

Principle 1f: ANU will inform and strengthen standards within carbon removal markets

As per the ANU 2025 Strategic Plan, the University is committed to ensuring our research is translated and communicated to shape national and global debates. ANU will constructively engage with critical stakeholders and policymakers to ensure broad public understanding of carbon removal, as well as effective governance of carbon crediting schemes both in Australia and internationally.

⁵ [Zickfeld et al. \(2021\)](#)

Co-benefits and Safeguards

Principle 2a: ANU will assess rigorously carbon removal projects across all stages to ensure they advance the United Nations Sustainable Development Goals, do not cause harm, and are consistent with the other Principles

ANU will draw on existing global best-practice to develop an environmental, social and economic life-cycle assessment approach to apply across carbon removal projects and carbon credit procurement.

Principle 2b: ANU will develop long-term partnerships and work in collaboration with Traditional Owners, other landholders, local communities and other stakeholders across all project phases

Respectful and mutually beneficial partnerships, including First Nations representation and participation, are central to the success of the ANU Below Zero Initiative. ANU will act in accordance with appropriate guidelines, protocols and concepts from international and Australian best-practice, including Free, Prior and Informed Consent (FPIC)⁶.

Principle 2c: ANU will prioritise projects that generate co-benefits in priority areas

Priority co-benefits from ANU carbon removal projects encompass: (i) supporting First Nations' connections to Country and traditional knowledge; (ii) economic benefits to local communities; (iii) biodiversity conservation and landscape regeneration; (iv) improved water quality and supply for drinking water provision and ecosystem health; (v) sustainable agricultural and renewable energy production; (vi) improved public health and well-being outcomes under extreme weather events and disasters; (vii) increasing soil stability against erosion; and (viii) enhancing adaptation to climate change. ANU will create and use a framework/project assessment tool to identify and evaluate both co-benefits and negative externalities (if any) for each project.

Principle 2d: ANU will diversify its portfolio of carbon removal projects across sectors and geographies to demonstrate best-practice methods and support knowledge sharing across different contexts

ANU will contribute to knowledge regarding carbon removal opportunities across multiple contexts. Importantly, this means trialling new technologies and approaches, documenting both successes and failures, assessing effective governance approaches, and a commitment to work with other organisations seeking to reduce their emissions to both net zero and below zero.

Additionality

Principle 3a - ANU carbon removal projects must clearly demonstrate additionality

Carbon removal connected to ANU should be additional, meaning the activities represent emission reduction relative to a counterfactual baseline that would not have occurred in the absence of the carbon removal activity, nor without the incentive of the carbon credit payment.

⁶ [FAO \(2016\)](#)

Principle 3b - ANU will collect baseline data that are robust, conservative and site specific to assist in demonstrating additionality

Additionality can be difficult to determine and verify, and ultimately involves some degree of subjectivity since the counterfactual world in which the offsetting activity was not performed cannot be observed directly. To assist in this determination, ANU will collect baseline data that are robust, conservative and site specific for carbon removal activities as evidence of a comparative counterfactual. See Principle 5 for further information on Measurement, Reporting and Verification (MRV).

Permanence

Principle 4a: The biophysical permanence of removed carbon should be ~100 years or longer

Projects will model dynamic carbon stocks and flows through seasons, years and decades ensuring durability estimates of contracted carbon removal. This principle increases the quality of carbon credits by avoiding reversal risks and leakage, as well as encourages long-term life cycle carbon accounting. This principle also incentivises the future-proofing of carbon removal activities that are likely to face the physical impacts of a changing climate.

Principle 4b: ANU aims to prioritise long-term partnerships for carbon removal

To ensure both the permanence of carbon and provide certainty to landholders, project proponents and partners.

Measurement, Reporting and Verification (MRV)

Principle 5a: ANU will meet and exceed current best practices and requirements in measurement, reporting and verification of carbon removal activities

This approach will enable ANU to assess expected and actual project outcomes, identify and manage risks, evaluate returns on investment and co-benefits, and develop mitigation strategies to address potential negative impacts, including the greenhouse gas emissions generated by the project ('project emissions') and out-of-system production of greenhouse gas emissions (known as leakage).

Principle 5b: Modelling frameworks, measured results and management methods will be made publicly available (and compared with other approaches) to accelerate responsible and equitable adoption across the carbon removal sector

ANU will make all data, modelling and measurement frameworks used for carbon removal projects publicly available. Dissemination of data, modelling and measurement will take place via both academic journal publications and public communications. ANU will not just rely on making information available but also aim for active engagement.

Principle 5c: The Emissions Removal Workstream will regularly report on ANU carbon removal programs

ANU will make information on its carbon removal projects and credit purchases publicly available, with the frequency of reporting increasing over time, starting with annually, biannually, and eventually in real-time using remote sensing.

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