



CARBON MARKETS & AUSTRALIA'S NET ZERO CHALLENGE

Carbon Market Report
2024

Acknowledgments

Acknowledgement of Country

The Carbon Market Institute (CMI) acknowledges the diversity of Australia's First Nations peoples as the Traditional Custodians of the lands and waterways across Australia. We pay our respects to Elders, past and present.

Other acknowledgements

CMI is a member-based institute accelerating the transition towards a negative emissions, nature positive world. We champion best practice in carbon markets and climate policy, with around 150 members including primary producers, carbon project developers, Indigenous organisations, legal, technology and advisory services, insurers, banks, investors, corporate entities and emission intensive industries.

The 2024 CMI-Westpac Carbon Market Report, 'Carbon Markets & Australia's Net Zero Challenge' forms part of the CMI's ongoing research initiative. The report is the first in a new annual series that examines how Australia's carbon market is evolving, with the latest insights from a range of experts, including decarbonisation researchers, nature specialists, corporate lawyers, carbon market participants, financial market specialists, technology specialists, and decarbonisation advisors.

CMI would like to acknowledge Gabriella Warden and Kurt Winter's work in coordinating and preparing this report, with support from Thomas Hann, Janet Hallows and Emily Tammes.

CMI could not have delivered the report without its 2024 Carbon Market Report sponsor and contributor, Westpac Institutional Bank. We also extend special gratitude to this year's member authors from S&P Global, Aurecon, Climateworks Centre, the Indigenous Carbon Industry Network, the Australian Climate and Biodiversity Foundation, the ASX, Gilbert + Tobin, Trovio and Tasman Environmental Markets. Thank you for lending your patience and expertise to this inaugural publication.



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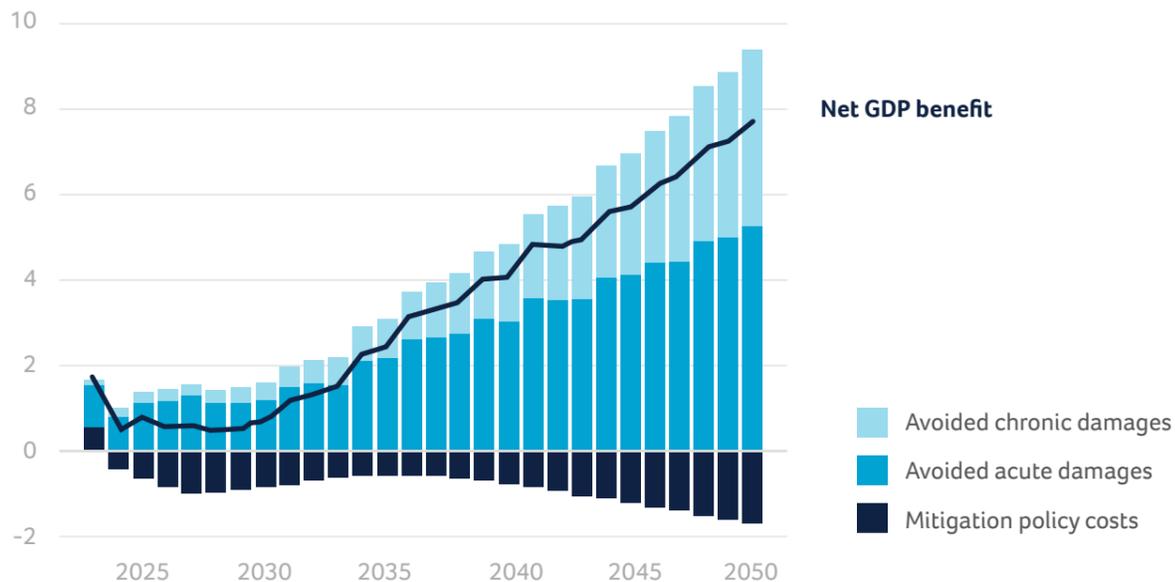


Introduction

JOHN CONNOR
CARBON MARKET INSTITUTE

After a turbulent few years, we are entering a critical stage in the challenge of achieving net zero emissions by 2050. This is a goal that still has bipartisan support in Australia, as well as in other countries. It is also backed by key agencies like the International Monetary Fund, which recognise that the economic costs of inaction vastly outweigh the required investment (see Figure 1).¹

Figure 1. World potential GDP benefit under net zero carbon emissions by 2050 (percent deviation from reference scenario)



Source: International Monetary Fund (IMF)

Countries also recognise the net zero challenge is a historic economic opportunity and are competing for advantage with policy packages like the US Inflation Reduction Act and EU Green Deal. With all countries sharing new 2035 national climate targets next year, a recent survey conducted for the Carbon Market Institute (CMI) showed 59% of Australians agreed it is important that all parties share strong 2035 targets and plans before the next election. Just 17% disagreed.²

There is also a broad consensus that businesses have a crucial contribution to make. 77% of Australians expect businesses to take responsibility for all their emissions now or become carbon negative.

Many businesses have committed to the net zero challenge and to supporting the Paris Agreement. This comes as pressure intensifies from investors and regulators to change investment strategies and to avoid greenwashing in speaking to that action.

¹ <https://www.imf.org/en/Blogs/Articles/2023/12/05/benefits-of-accelerating-the-climate-transition-outweigh-the-costs#:~:text=As%20the%20chart%20of%20the,higher%20than%20under%20current%20policies>

² CMI polling results, conducted by Essential Research, March 2024.



Action by companies to rapidly reduce their own emissions, as well as emissions in their supply chains, is therefore essential. However, as organisations including the international Science-Based Targets initiative have pointed out, businesses need to act beyond just what is currently possible within their own operations and supply chains.

Often, taking these essential extra steps will involve the use of carbon markets. Yet too often we think about carbon markets in isolation. Too often, we ignore how they have changed, and overlook further changes that are on the horizon. And all too often we under-estimate the ways in which carbon markets can contribute to the fight against climate change and biodiversity loss, both now and in the future.

This Carbon Market Report explores these challenges and is the inaugural report in a new annual series launched by the CMI, with the support of Westpac.

The report comes as carbon markets are now clearly into a new phase, witnessing major readjustments in how companies use and choose carbon credits. The net zero challenge has rightly become central to all carbon policy, with companies needing to manage their use of carbon credits in that context, rather than simply as a tool for neutrality offsetting.

The annual series aims to present those interested in Australia's carbon market with expert insights from key organisations from CMI's membership – decarbonisation researchers, nature specialists, corporate lawyers, carbon market participants, financial market specialists, technology specialists, and decarbonisation advisors.

These diverse specialists examine how Australia's carbon market is evolving from various perspectives, offering insights, answers, and some provocations.

Our contributors

Westpac's contribution explains how the Australian Carbon Credit Unit (ACCU) scheme helps to create an effective climate change policy ecosystem by encompassing and connecting technology, capital, and the community.

Westpac also stresses the need for regular "health checks" of the carbon market, to ensure it is operating in a way that is optimum in terms of capital allocation and social benefit.

Independent think-tank, the Climateworks Centre, examines how much additional land sequestration Australia will need, even if all sectors of the economy take very ambitious decarbonisation action. It finds Australia may need an 8-fold increase in annual sequestration rates.

Climateworks highlights the importance of boosting levels of land sequestration in a way that is fair to farmers and other land managers, and that recognises the needs of all those who depend on and enjoy our natural landscapes. It argues that carbon markets alone cannot be expected to deliver this increased sequestration and that additional fiscal measures will be needed.

The Australian Climate and Biodiversity Foundation, chaired by former head of Treasury Ken Henry, agrees that further public funding and policies will be needed but describes how carbon markets and their participants can spur the development of nature markets, suggesting three key innovations.

The Foundation points out that the new focus on nature repair presents major opportunities for carbon market participants and says Australia's success in restoring natural capital will depend heavily on their participation and experience.

Indigenous Peoples have legally recognised rights across 58% of the nation reports the Indigenous Carbon Industry Network (ICIN). To ensure the integrity of projects held by Indigenous Peoples and secure prospects for the equitable expansion of the industry by and for Indigenous Peoples, ICIN provides critical points for consideration by all – including proponents engaging and partnering with Indigenous Peoples in the carbon industry, investors, policy developers and decision makers.

Of course, it will be crucial to expand carbon markets in a way that simultaneously improves transparency and allows organisations to better manage uncertainty and risk, and two of our contributors focus on these aspects.

The ASX elaborates on its plans for a suite of Environmental Futures Contracts serving the markets for Australian Carbon Credit Units, Large-scale renewable energy Generation Certificates (LGCs), and New Zealand carbon units (NZUs).

The ASX says the new futures contracts will help to scale-up carbon and renewable energy trading markets, which in turn will help speed the transition and lower costs.

S&P Global notes that the Australian carbon market is pivoting to one in which Safeguard compliance is the main driver of ACCU prices. It forecasts a steady rise in Safeguard Mechanism credit issuance from 1 million in 2024, to 11 million in 2034, but says Safeguard credits are likely to trade at a discount to ACCUs.

Trovio, a digital environmental assets registry services provider, discusses tamper-proof digital ledger technologies that will provide a transparent, fully auditable framework for the entire lifecycle of carbon credits.

These technologies will also facilitate enhanced data analytics by independent rating agencies and similar organisations, points out Trovio, which has a registry contract with the Clean Energy Regulator and is also working with Accounting for Nature.

Law firm Gilbert + Tobin explains what companies need to do to use carbon credits responsibly, and what disclosure practices they should implement.

Gilbert + Tobin discusses the need for sophisticated due diligence and data disclosure and outlines the rise of mandatory disclosure requirements about carbon credit use in the EU and California as well as recent proposals here.

Ensuring integrity must be a primary consideration for all carbon markets, including our own.

The contribution from Tasman Environmental Markets (TEM), Australia's largest provider of voluntary carbon credits, describes a range of global voluntary carbon market integrity developments, and explains how the aviation industry's 'CORSIA' scheme and the Core Carbon Principles released at the end of last year by the Integrity Council for Voluntary Markets are increasingly being used internationally as indicators of credit integrity.

It is crucial for policymakers and business leaders to understand this emerging carbon market integrity ecosystem, to ensure both integrity and scalability of the market, TEM explains.

Aurecon, an international, Australia-based engineering, design and advisory firm, explains that carbon markets are utilised by many jurisdictions and corporations around the world as a decarbonisation lever.

With the help of a well-functioning, high-integrity and mature domestic carbon market backed by recent and scalable changes to the Safeguard Mechanism, Australia can aspire to set and reach an ambitious 2035 emissions reductions target, Aurecon says.

Where to now?

There is no denying the rollercoaster ride that Australia's carbon market has experienced since it was established more than a decade ago by the Clean Energy Act 2011 and the Carbon Farming Initiative Act 2011, reflecting Australia's tumultuous political journey in embracing effective carbon pricing.

Australian Carbon Credit Units started out as part of the Carbon Pricing Mechanism, which was a broad-based, mandatory emissions trading system. Following the repeal of the Carbon Pricing Mechanism in 2014, they then underpinned the government-funded trading scheme under the Emissions Reduction Fund (ERF) with a compliance Safeguard Mechanism seeking to constrain emissions growth.

In 2024, they underpin a stronger compliance Safeguard Mechanism driving emissions reduction sending a growing carbon price signal to large emitting facilities through compounding annual reduction requirements. They also help to meet the needs of the rapidly growing number of organisations that are taking voluntary action in the net zero challenge. They can support deepening and broadening of the mechanism as well as accelerating broader investment in climate and biodiversity solutions.

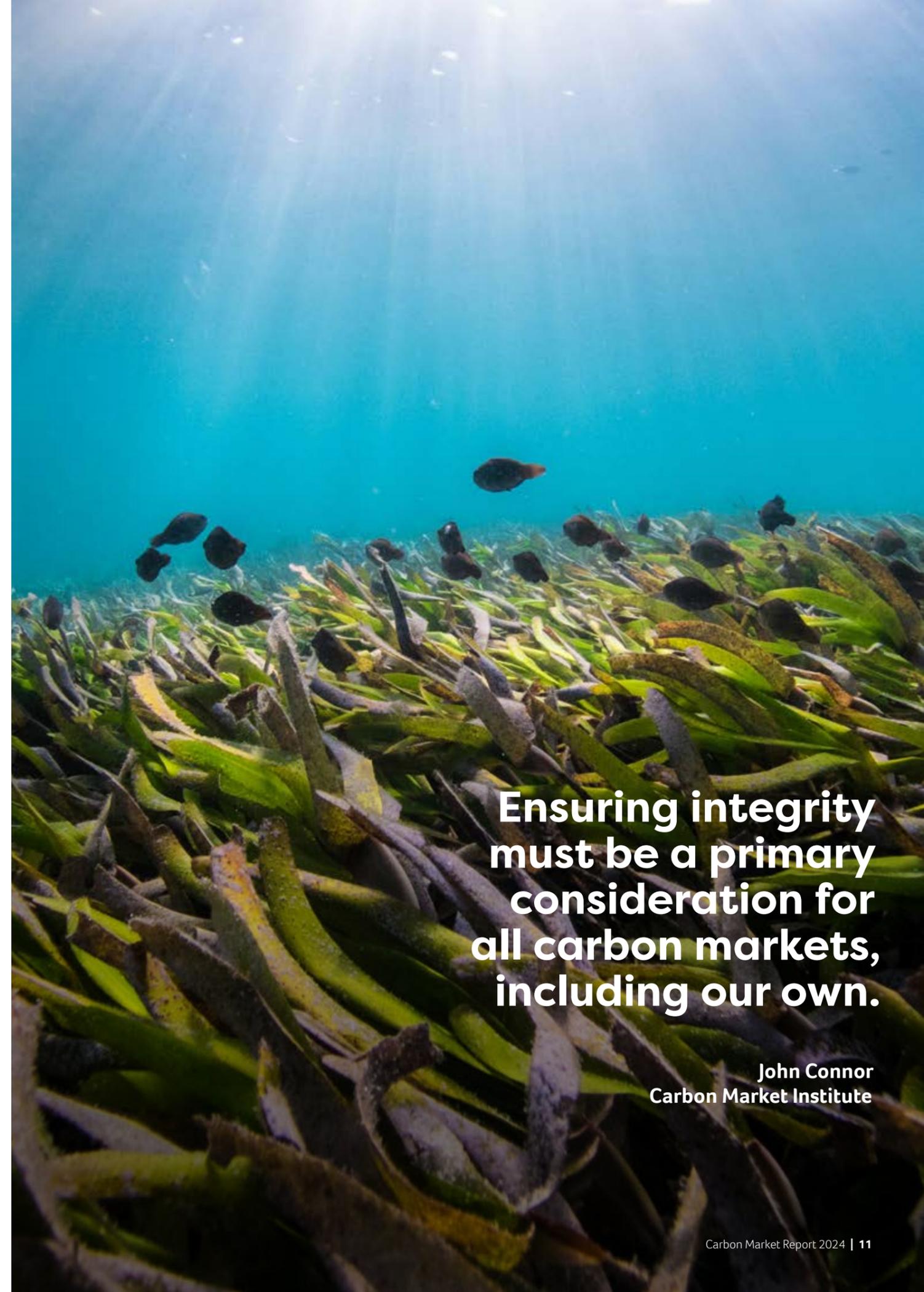
Carbon and nature markets are important tools in boosting investment in climate and biodiversity solutions and in sharpening investment strategies from companies and countries. As is noted in this report, since they create less tangible assets than traditional commodity markets, they require a higher level of trust to operate efficiently with investor and community confidence.

A higher integrity carbon market ecosystem is emerging in response to criticisms and as markets move from a neutrality to net zero alignment phase. Maintaining and ensuring the effectiveness of the integrity frameworks here and internationally will remain the responsibility of all market participants, as well as governments which need to adequately resource administrative and regulatory functions.

As Australia develops net zero sectoral plans and 2035 emission reduction targets, an informed carbon market strategy will be of crucial importance in boosting investment within business supply chains and across the economy. We hope that this report provides insights in how carbon markets can contribute to the net zero challenge.

I'd like to thank Westpac and all contributing authors for supporting this inaugural report and look forward to ongoing contributions from across CMI's membership in coming years.

The Carbon Market Institute (CMI) is a member-based institute accelerating the transition towards a negative emissions, nature positive world. It champions best practice in carbon markets and climate policy.



Ensuring integrity must be a primary consideration for all carbon markets, including our own.

John Connor
Carbon Market Institute

KEY POINTS

Governance regimes for all commodity markets have evolved over time, and the Australian carbon market is no exception.

The ACCU scheme is helping to create a climate change policy ecosystem that encompasses and connects technology, capital, and the community.

We need that ecosystem in place to meet the Paris goals.

We need regular health checks of the carbon market, to ensure it is operating in a way that is optimum in terms of capital allocation and social benefit.

Improvements to registry arrangements and the emergence of futures contracts are important and positive developments.

By some projections, Australia is set to become one of the largest producers of carbon credits in the world in the next decade.

The carbon market's role in developing an effective climate change policy ecosystem

KOSTA KATHEKLAKIS
WESTPAC INSTITUTIONAL BANK

Carbon markets are a relatively new addition in the world of commodities. And, like all early-stage commodity markets, the design of the carbon market has had to evolve significantly. For Australia's carbon market, the journey to today has been a difficult one, although ultimately it has survived and thrived. Only ten years ago participants were grappling with the repeal of the carbon price legislation.

Now, as we approach the close of the first year of operation of the reformed Safeguard Mechanism, the Australian carbon market is emerging as a tool that is building critical linkages and helping to create a climate change policy ecosystem that encompasses and connects technology, capital, and the community.

This is a crucial development, as having that ecosystem in place is essential if Australia is to play its role towards meeting the goals of the Paris Agreement.

A key requirement for successful carbon markets is to ensure that the rules continually evolve to provide participants confidence in the governance arrangements. This is especially critical in the case of Australia's carbon market, given its unique blend of qualities taken from both compliance and voluntary schemes. The federal government's swift commitment to implementing the sixteen recommendations from the Chubb Review³ has set Australia on a steadier path towards realising this important goal.

In the future, the market will continue to benefit from regular health checks, including its three-yearly Climate Change Authority statutory review, whose most recent assessment considered supply demand dynamics, the efficiency of crediting mechanisms, and the evolution of legal frameworks.⁴

These reviews provide a platform to deliver an early signal of potential market changes. In conjunction with regular dialogue with scheme participants, this process of continuous improvement should reinforce confidence in scheme integrity and make it

³ The Independent Review of ACCUs (Chubb Review) was commissioned by the federal government in 2022 to ensure Australia's carbon crediting framework was fit for purpose and high integrity. (I Chubb et al. 2022, 'Independent Review of Australian Carbon Credit Units: Final Report', www.dcccew.gov.au/sites/default/files/documents/independent-review-accu-final-report.pdf)

⁴ Climate Change Authority 2023, '2023 Review of the ACCU Scheme',

more likely that the market delivers the greatest possible social benefit, in turn supporting returns for those investing in carbon abatement projects.

As more capital is deployed towards abatement—whether that be focused on creating ACCUs or investing in operations to reduce emissions at the facility level—effective risk management tools can help to protect those investments. These risk management tools may also serve as a valuable mechanism for scheme participants to access funding through Sustainable Finance or sale and repurchase transactions with existing undeployed inventory.

Two key developments ahead for the market in 2024 that will support risk management are the introduction of futures contracts by the ASX, and the uplift in the richness of information available in the Australian National Registry of Emissions Units (ANREU).

The updated registry, which will support recommendations from both the Chubb Review and the Climate Change Authority, promises to deliver increased transparency about project design, implementation, and performance.

The benefits of this increased transparency are expected to be two-fold. On the supply side, the public sharing of project documentation and audit reports will encourage a minimum standard of project execution, with those that fall short of the standard likely to experience a lack of demand for their product, or a lack of investment in future projects. On the demand side, it should arm buyers of ACCUs and other units with greater granularity of information to assess the alignment of a particular methodology, project, or proponent with their own compliance or ESG objectives.

Greater confidence in the rigour with which ACCU projects are executed and regularly reviewed should serve to mitigate the integrity risks that, to date, have caused some buyers of ACCUs to significantly narrow the scope of their purchases, or to hold off buying altogether. Over time, as more data flows into the uplifted national registry, there will be greater consistency in the data available to all participants in the ACCU scheme to assess integrity risks more effectively for the projects they hold in their portfolio and assess delivery risk associated with going upstream into primary project investment.

The evolution of a liquid and efficient futures market for ACCUs through the ASX is expected to provide more price certainty to both compliance entities and project developers, when assessing their risk management options. Futures will also open the market up to a wider range of participants seeking exposure to the Australian carbon market. As we have seen in the case of the EU Emissions Trading System, a close alignment between the legislative infrastructure that establishes the scheme and the compliance requirements imposed on market participants will be critical to the success of futures contracts.

Combining the effective management of financial, integrity and delivery risks should provide a basis for attracting more capital into the Australian carbon market which, in turn, encourages investment in the carbon abatement projects that are needed to make faster progress in cutting national emissions.

As transfers of risk and capital start to occur within the scheme more efficiently, having a consistent legal framework to standardise physical and financial contracts will be essential to ensure the success of the overall market ecosystem.

⁵ Reputex Energy, February 2024 www.reputex.com

The Australian Financial Markets Association in March 2024 launched a consultation with the carbon market aimed at achieving this goal. Once this standardisation exercise is embedded into practice, it will be important to ensure adequate awareness of these standard documents throughout the various channels of governance of the market. This ensures that decision makers considering potential changes to the scheme are best placed to consider more holistically the impact on scheme participants, as well as their environmental and social merits. In turn, this is likely to further serve to build integrity and credibility, and attract more market participants.

No market is perfect, and the Australian carbon market is likely to experience bouts of volatility and uncertainty. However, the more that we consider the market as part of a broader ecosystem, the greater chance we will have to ride through those periods.



The Australian carbon market is in a different place to where it was 10 years ago. A positive narrative towards carbon pricing and reducing emissions to meet our international objectives is emerging due to the groundswell of demand from both compliance entities that are subject to the Safeguard, and voluntary participants that want to meet more aspirational ESG commitments.

At Westpac we have seen increasing interest for forward contracts as both emitters and developers seek to hedge future demand and supply as market participants formulate their approach to managing their carbon footprint and exposure to carbon prices.

Some projections have Australia set to become one of the largest producers of carbon credits in the world in the next 10 years.⁵ If realised, this is likely to further support the growing credibility of the ACCU scheme on the global stage, and of the policy and legislative foundations on which the market is built.

Westpac Institutional Bank (WIB) delivers a broad range of financial products and services to corporate, institutional and government customers operating in, or with connections to, Australia and New Zealand. Westpac's climate ambition is to become a net-zero climate resilient bank. This includes transitioning our operational and financed emissions and aligning our lending portfolio to net-zero by 2050 consistent with a 1.5°C pathway, while aiming to strengthen our climate change resilience.



KEY POINTS

The Australian carbon market is pivoting to one in which Safeguard compliance is becoming the main driver of ACCU prices.

The combination of more active buying by large emitters, and the anticipated emergence of more sophisticated methods for earning ACCUs, will result in a more mature and liquid Australian carbon market.

ACCU demand is expected to jump to nine million units in 2024, due to Safeguard-liable buyers, and to a peak of 31 million in 2031, before subsiding to 24 million by 2035.

On the supply side, the government is projecting an issuance figure of 19 million in 2024, which it expects to rise to 31 million in 2033.

Many buyers are paying a small premium for parcels of so-called Generic ACCUs that don't include ACCUs from the now repealed 2015 Avoided Deforestation method.

ACCU from environmental plantings projects and Indigenous-operated savanna fire management projects to trade at a significant premium.

After the Safeguard reforms: ACCU supply, demand and price trends

KSHITIZ GOLIYA & AGAMONI GHOSH
S&P GLOBAL

2024 will be a pivotal year for the Australian carbon market, with rising demand from entities covered by the country's reformed Safeguard Mechanism compliance scheme set to outpace voluntary buying, and become the main driver of Australian Carbon Credit Unit (ACCU) prices. At the same time, changes to the ACCU Scheme as part of the Government's implementation of the 2022 Independent Review of ACCUs (Chubb Review) recommendations are having flow through impacts on the market.⁶

Strong buying by large emitters, as they prepare for the reformed Safeguard's February 2025 first compliance deadline, coupled with the anticipated emergence of more sophisticated methodologies for earning ACCUs, will result in a more mature and active trading market.

The impact of these changes is becoming apparent in the ACCU market, which is currently dominated by trades in two types of ACCUs – 'Generic' ACCUs that are generated by avoided emissions-based projects, such as landfill gas capture (LFG) and avoided deforestation (AD) and do not generally support additional co-benefits, and human-induced regeneration (HIR) units created by projects that support nature-based sequestration through vegetation regrowth through changed land management practices.

ACCU transaction volumes touched a record high of 13 million in the first quarter of 2023, due to rising demand from compliance participants and corporate entities for voluntary purposes, with holdings by Safeguard entities and market intermediaries rising throughout the year.

Spot trades of Generic and Human-Induced Regeneration ACCUs

While Generic and HIR ACCU prices usually move in a similar direction, Generic prices have seen more active price movement over January and February 2024, compared with HIR. The Platts Generic ACCU price started 2023 on a strong note on the back of newly released draft regulations related to the Safeguard Mechanism reforms.

In 2023, the Generic ACCU price touched a year-high of A\$39/tCO₂-e in April, before sliding to A\$24/tCO₂-e in July on ample supply and a lack of anticipated compliance buying. The market was expecting a strong rise in compliance buying following the release of the Safeguard draft regulations but that anticipated buying activity didn't materialise until the last quarter of 2023. The price then stabilised at around A\$31/tCO₂-e over September-November, before starting a steady rise to A\$35/tCO₂-e levels over December-February.

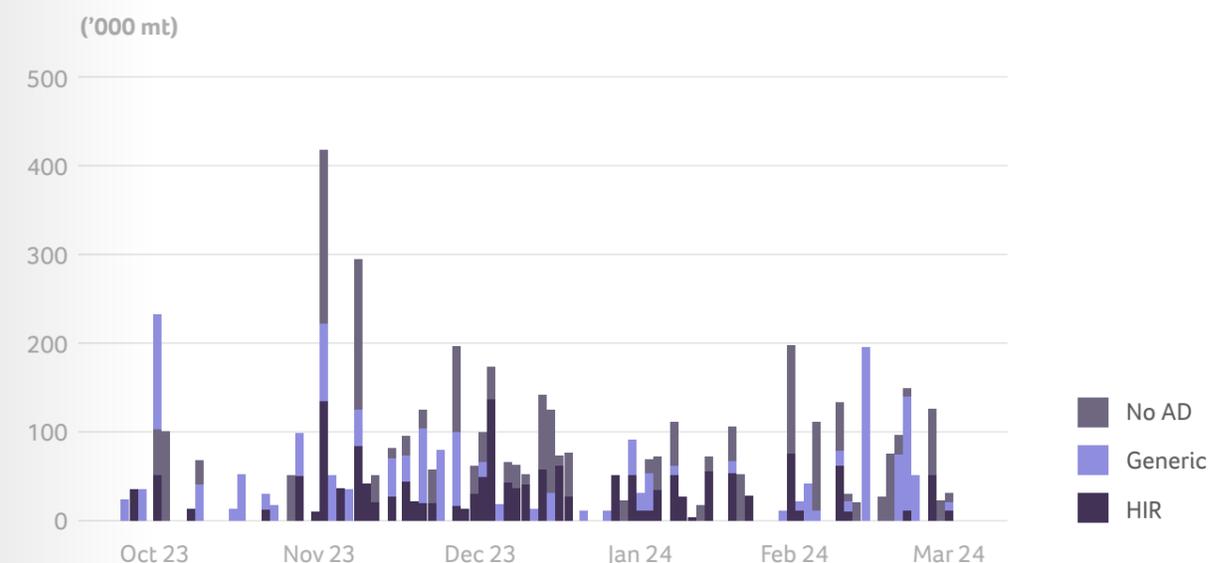
The Generic ACCU price has also seen the emergence of a 'No Avoided Deforestation' differential since July 2023, which awards

a premium to Generic ACCUs that exclude units from projects operating under the 2015 AD method that was revoked in February 2023.⁷ The 'No AD' premium has ranged from zero to 35 cents in the past few months, according to S&P Global data. Generic ACCUs accounted for the biggest basket of ACCUs traded from October 2023 through to February 2024, with 'No AD' transactions accounting for the majority of trading volume within this basket.

At least 2.2 million Generic ACCUs were traded in the last quarter of 2023, followed by about 2 million in the first two months of 2024, according to brokered and over-the-counter (OTC) volumes tracked by Platts. 'No AD' accounted for most Generic transactions, with highest monthly volume between October 2023-February 2024 seen in November, at 540,000 units.

HIR was the single biggest method in terms of trading volumes and represented the second biggest basket of units in the spot market, after Generics. At least 1.12 million HIR ACCUs were traded in the last quarter of 2023, which is nearly half the volume of Generics traded in the same quarter. This trend continued in the first two months of 2024, with Generic trades reported at 1.45 million and HIR at 583,000.

Figure 1: Platts tracked spot ACCU trading volumes



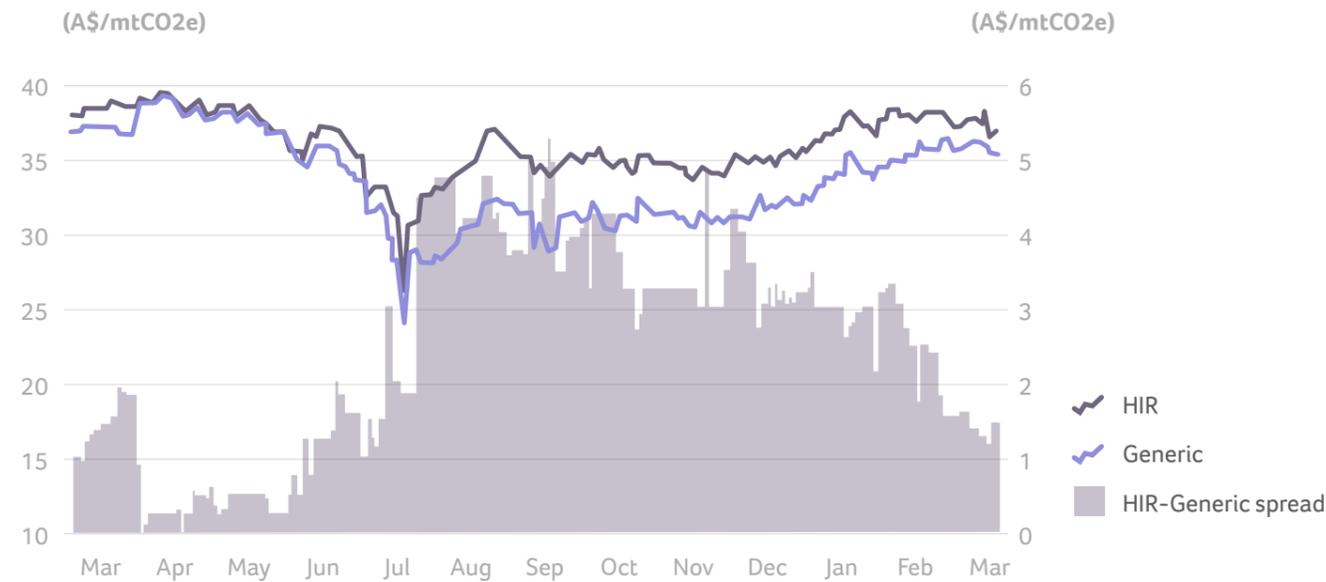
Source: S&P Global Commodity Insights, © 2024 by S&P Global Inc.

As demand for ACCUs has increased, the price difference, or "spread", between HIR and Generic ACCUs has narrowed, and market participants expect it to crunch further as prices rise (see Figure 2).

⁶ The Australian government commissioned the Independent Review of ACCUs to ensure Australia's carbon crediting framework was fit for purpose to support the Safeguard reforms and respond to concerns raised about ACCU Scheme integrity. Implementation is ongoing and underway in a three-stage approach (DCCEEW 2023, 'Independent Review of Australian Carbon Credit Units: Implementation Plan', <https://www.dcceew.gov.au/sites/default/files/documents/accu-review-implementation-plan.pdf>)

⁷ In response to Chubb Review recommendation 9. See: I Chubb et al. 2022, 'Independent Review of Australian Carbon Credit Units: Final Report', <https://www.dcceew.gov.au/sites/default/files/documents/independent-review-accu-final-report.pdf>

Figure 2: Platts HIR-Generic ACCU spread narrows



Note: Prices as of March 5, 2024
Source: S&P Global Commodity Insights, © 2024 by S&P Global Inc.

The HIR-Generic spread narrowed to zero in March 2023, when the Generic price was at its year-high. However, the spread widened again, with HIR ACCUs at one point in September trading at a A\$5.25 premium to Generics, as Generic ACCU prices collapsed.

With the Generic price rising again, the spread with HIR has started to narrow again, falling to as low as A\$1.20 by the end of February this year. HIR project developers have been holding off on trading at lower price levels, to maintain a premium over Generics. However, as HIR price levels near A\$40, more units are expected to be sold. This is expected to further narrow the spread to below A\$1.

While some in the market believe in a price premium for projects with co-benefits, the narrowing spread between HIR and Generics is in line with those in the market that feel that each ACCU should only represent 1tCO₂-e, and hence there should be no price differential. Some traders and buyers also believe that a single price for ACCUs, especially for HIR and Generics, will create better opportunities for hedging and exchange-based contracts.

Premium methods see continued demand, prices relatively stable

The price for higher priced ACCUs has largely remained stable, although Platts has observed a fall in Platts Savanna Fire Management (SFM) ACCUs that are not Indigenous operated.

Figure 3: Platts ACCU premium and differentials

ACCU Category	Price (A\$/mtCO ₂ e)
Generic	35.20
Human-Induced Regeneration	36.65
No AD differential	0.20
Environmental Plantings	57.00
Savanna Fire Management Non-Indigenous	35.60
Savanna Fire Management Indigenous	48.90

Note: Prices as of March 5, 2024
Source: S&P Global Commodity Insights, © 2024 by S&P Global Inc.

While SFM Non-Indigenous ACCUs were trading at a premium to HIR ACCUs in 2023, the comparative prices flipped in January 2024. As of 28 February 2024, Platts SFM Non-Indigenous ACCUs were assessed at a discount of A\$1.80 to HIR ACCUs, compared to November 2023, when they traded at a premium of as high as A\$4.50.

In contrast, the Platts SFM Indigenous and Environmental Plantings (EP) ACCU prices have continued to maintain a high premium, even though spot trading for these ACCUs has remained limited, due to low supply and the high prices. Platts assessed SFM Indigenous ACCUs at A\$48.90 and EP ACCUs at A\$56 as of March 19.

While the supply of EP ACCUs continues to be constrained by certain project developers holding EP ACCUs for internal use, there has been renewed interest in investing in these projects due to their high quality, as well as the potential to generate higher returns in coming years. A total of 73 EP projects were registered in 2023, compared with 53 in 2022.

The EP method is set to expire in September 2024 under existing legislative rules.⁸ A revised EP method is expected to be ready for consideration by the Emissions Reduction Assurance Committee (ERAC) by June 2024.

The market is also awaiting the release of Integrated Farm and Land Management (IFLM) method. The IFLM method was proposed to allow the generation of ACCUs by combining into a single method the activities of several other sequestration methods. Dependent on progress made to support the initial scope of the method, the government plans to be in a position to take a draft method to the ERAC for advice in the second half of 2024.

There was some spot market activity for SFM Non-Indigenous ACCUs. However, for higher-priced EP and SFM Indigenous ACCUs, the majority of transactions continued to be executed on an OTC basis.

While Platts doesn't publish prices for plantation-based ACCUs, there has been increasing interest in these projects. This is even as policy uncertainty increases for Pine-based forestry projects in New Zealand, where ahead of the October 2023 New Zealand election and change in government, the previous Labour government had initiated a review of the Emissions Trading Scheme (NZ ETS) to ascertain whether the existing settings were diverting investments more into offsets through forestry rather than abatement at source.

A total of 52 plantation-based projects were registered under the ACCU Scheme in 2023 compared with just 14 in 2022, according to Clean Energy Regulator (CER) data. In terms of ACCUs, 98,980 were issued to plantation projects in fiscal year 2022-23 (July-June), compared with 71,531 in FY 2021-22.

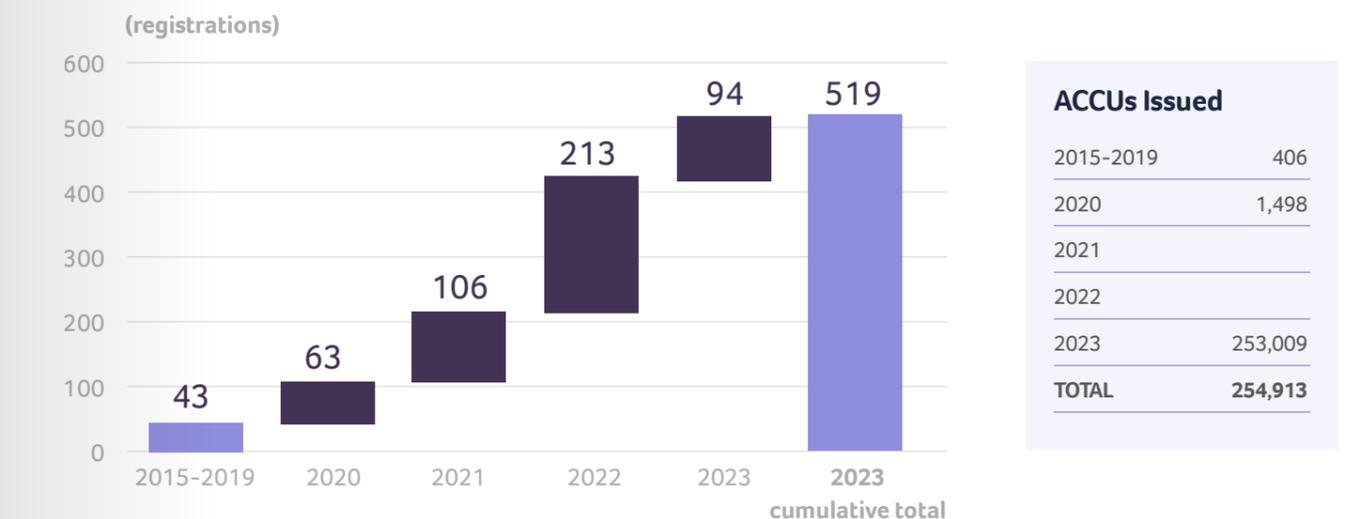
Plantation-based ACCUs were valued higher than HIRs but below EP and SFM Indigenous ACCUs.

While soil carbon sequestration has seen a large number of project registrations, buyers are yet to start procuring Soil Carbon ACCUs in substantial volumes. The last soil ACCU trade, in about October 2023, was for 2,000 ACCUs at a price of A\$54 each. However, no trade has been heard at the same levels since.

While soil project developers have suggested a price for their credits at levels similar to SFM Indigenous and EP ACCUs, buyers and intermediaries are not ready to pay such higher prices. The latter have valued Soil Carbon ACCUs somewhere between HIR and SFM Indigenous ACCUs.

Soil project registrations were reported at 94 in 2023 and 213 in 2022, with reasonably strong issuances seen over the past one year. CER data showed that 101,697 soil ACCUs have been issued in fiscal year 2023-24 (July-June), preceded by 151,312 in FY 2022-23.

Figure 4: Soil ACCU issuances take off in Australia Platts ACCU premium and differentials



Note: Prices as of March 3, 2024
Source: Australian Clean Energy Regulator (CER).

⁸ Under Carbon Credits (Carbon Farming Initiative) Act 2011, a method will automatically repeal about 10 years after registration, <https://cer.gov.au/schemes/australian-carbon-credit-unit-scheme/accu-scheme-methods/method-variations-and-expiry>.



Cost Containment Measure

The market is divided on the future outlook for ACCU prices, with the government expecting the ACCU price to rise to A\$60 or higher by 2030.⁹

This suggests that the price will fall short of the government's cost containment measure price, which starts at A\$75 and will gradually rise.¹⁰

In the first half of 2023, there was no consensus on whether the government would be able to stock enough ACCUs to build its cost containment measure reserve, due to low prices offered under the auctions relative to the spot ACCU price. However, with Platts Generic ACCU price falling to as low as A\$24 in the middle of 2023, significant volumes of ACCUs were delivered to the government under carbon abatement contracts. As a result, ACCU holdings under the cost containment measure had increased to a substantial 1.2 million by the end of third quarter of 2023, according to the CER.

It is unclear if similar volumes will be delivered to the government this year to further bolster cost containment measure holdings. Nearly 8.4 million ACCUs have already exited from carbon abatement contracts, representing 63% of total ACCUs that were to be originally contracted delivered to the government. It remains unclear whether the government will continue to offer the exit option from 2024 onwards, with the market still awaiting a government announcement on the future of the exit arrangements beyond the pilot exit windows previously provided.

Support and demand

Total ACCU issuances for 2023 rose to a record high of 7 million by the third quarter, according to CER data.

The CER has said it expects to issue around 17 million ACCUs for 2023, slightly lower than the 17.7 million issued in 2022, with the 2023 slowdown linked to the new audit requirements for HIR projects.

The demand for ACCUs from Safeguard entities is expected to rise significantly in 2024 on the looming February 2025 deadline for the surrender of ACCUs to meet their newly set emission baselines, which will gradually tighten over coming years.

The government has forecast ACCU demand to jump to nine million units in 2024, and touch a peak of 31 million in 2031, before subsiding to 24 million by 2035. On the supply side, the government is projecting an issuance figure of 19 million in 2024, which it expects to rise to 31 million in 2033. This will be dependent on the development of future ACCU methods.

The government expects annual ACCU demand to surpass issuances in 2028, before flipping again in 2033. The gap between demand and issuances is expected to be met by market participants' accumulated holdings of ACCUs, which are expected to increase from 38 million units in 2024 to 51 million units in 2026, and then drift down to 39 million in 2032, according to the government figures.

Safeguard-liable entities are currently mostly focused on lowest cost abatement, which is driving trading in Generic and HIR ACCUs. While some entities prefer to buy 'No AD' units to avoid perceived reputational risks, there continues to be significant demand for Generics, without any exclusion.

Entities that are not simply choosing their ACCUs on the basis of cost might be doing so because of the Safeguard Mechanism reform requirement that they disclose the type of ACCUs that are used for offsetting emissions. However, there are some emitters and investors that are opting to invest in premium ACCU projects, such as EP and Plantations, both for internal compliance reasons, and because of the prospect of future higher returns.

Changes such as the September 2023 expiry of the HIR method, and proposed introduction of the IFLM method, will play an important role in determining future supplies of ACCUs. The market is also looking to get clarity on the rationalisation of baselines for landfill gas projects, which produce a significant volume of ACCUs within the Generic basket.

Big emitters shaping the trend for compliance buying

The large emitters in Australia covered under the Safeguard Mechanism are using a mix of investment and procurement strategy. That is, companies are investing in their own projects, as well as signing futures and spot OTC deals to secure ACCU supply.

Large emitters continue to focus on Generic and HIR ACCUs, although they are also making some investments in Plantation and EP projects. HIR projects, in particular, provide large emitters with the benefit of co-benefits at a more affordable price point, compared with other co-benefit rich methods, such as EP and Indigenous-operated SFM projects.

The recent approval of Santos' Barossa project has created a new source of potential demand for ACCUs, as the new Safeguard rules require net zero emissions for new gas reservoirs from day one.

Barossa's reservoir CO₂ emissions are expected to be 1.18 million tCO₂-e (MtCO₂-e) in 2025 and rise to 2.47 MtCO₂-e by 2027, according to data from S&P Global Commodity Insights upstream E&P content (Vantage). The emissions are expected to stabilise at these levels until at least 2032. Such high emissions levels are expected to represent a significant demand centre for ACCUs.

While the Barossa project has high emissions intensity, the ACCU demand from this project might be offset by the commissioning of the Bayu-Undan Carbon Capture and Storage (CCS) project, which could substantially reduce the reservoir CO₂ emissions from the gas field.

Considering the first gas injection in 2028, the Bayu-Undan project is expected to store 1.48 Mt of reservoir CO₂, according to S&P Global Vantage estimates. This could leave Santos with a requirement to offset around 0.98 MtCO₂-e emissions in 2028.

The reservoir emissions can be reduced to zero starting 2029 as gas injection is projected to reach a peak of 2.47 Mt, the data showed.

The startup of the Moomba CCS project, which is the only CCS project registered to generate ACCUs, might further reduce the demand for ACCUs from Santos-owned Safeguard entities.

Safeguard Mechanism Credits

Safeguard Mechanism Credits (SMCs) are a new category of carbon credits introduced as part of the 2023 Safeguard Mechanism reforms.

Under the new rules, Safeguard facilities that reduce emissions beyond their baselines will be issued SMCs as a financial incentive for higher on-site abatement. These SMCs can be sold to other facilities to fulfill Safeguard compliance as an alternative to ACCUs. SMCs can be held, but not surrendered, by other market participants and intermediaries. No issuance of SMCs has been reported yet and the market is unclear about their potential price, compared with ACCUs.

The introduction of SMCs sets Australia apart from most other countries with compliance markets, as it is one of the few nations that is attempting to combine a mature and regulated offset market with an allowance-based system.

The government has forecast a steady rise in SMC issuance from 1 million in 2024 to 11 million in 2034. However, brokers and traders have suggested that they are likely to be priced at a discount to Generic ACCUs, as non-compliance buyers may not be interested in buying SMCs that they cannot surrender. This will reduce the pool of buyers for SMCs compared to Generics.

This is important as voluntary buyers accounted for 800,000 ACCU cancellations over January-September 2023, compared with 54,968 from Safeguard entities.

Conclusion

The demand for ACCUs in 2024 is expected to be driven by Safeguard entities, and this shift has potential to push the price of ACCUs to \$40-levels or higher.

The pace of development of new methods such as IFLM and a revised EP method through 2024 will have a significant impact on future supply of ACCUs and also send a strong price signal for the existing credits.

Platts, part of S&P Global, is the world's largest price reporting agency that brings transparency to global commodity markets by publishing daily prices for a wide range of commodities including, oil, gas, grains, metals, hydrogen, carbon and power.

⁹ Government's price projections based on forecasts from Reputex and E&Y Australia, www.dccew.gov.au/sites/default/files/documents/australias-emissions-projections-2023.pdf

¹⁰ The cost containment measure was introduced following concerns from emitters about a potential shortfall in supply as a result of Safeguard compliance-driven demand. It will allow above-baseline Safeguard entities to purchase ACCUs to support compliance directly from the government at a stable price point. The price of ACCUs in the cost containment measure is \$75/t in 2023-24 and will rise annually by the Consumer Price Index (CPI) plus 2% (Clean Energy Regulator 2023, 'The Safeguard Mechanism for financial years commencing on or after 1 July 2023', cer.gov.au/home/schemes/safeguard-mechanism).

KEY POINTS

Carbon markets are utilised by many jurisdictions and corporations around the world as a lever to decarbonise their economies. They can provide flexible and cost-effective options to achieve ambitious emission reduction targets.

The carbon market provides hard-to-abate sectors with a flexible way of meeting emissions reduction obligations by financing abatement in other areas of the economy while sector-specific solutions are still commercialising.

In Australia we have a mature and high-integrity carbon market, driven by compliance demand from the Safeguard Mechanism as well as voluntary targets set by businesses.

The primary supply source for carbon credits in Australia has been the land sector, and this trend is expected to continue. There is, however, a saturation point of carbon sequestration activities that has implications for how far the Australian economy can rely on these activities.

Demand for ACCUs is currently mainly from the Safeguard Mechanism and state and territory targets, but this is likely to increase as more sectors of the economy are required to decarbonise rapidly.

The carbon market, along with on-site decarbonisation can be used to support Australia achieving an ambitious national emissions reduction target for 2035.

The role of carbon markets in Australia's sectorial decarbonisation and national emissions reduction targets

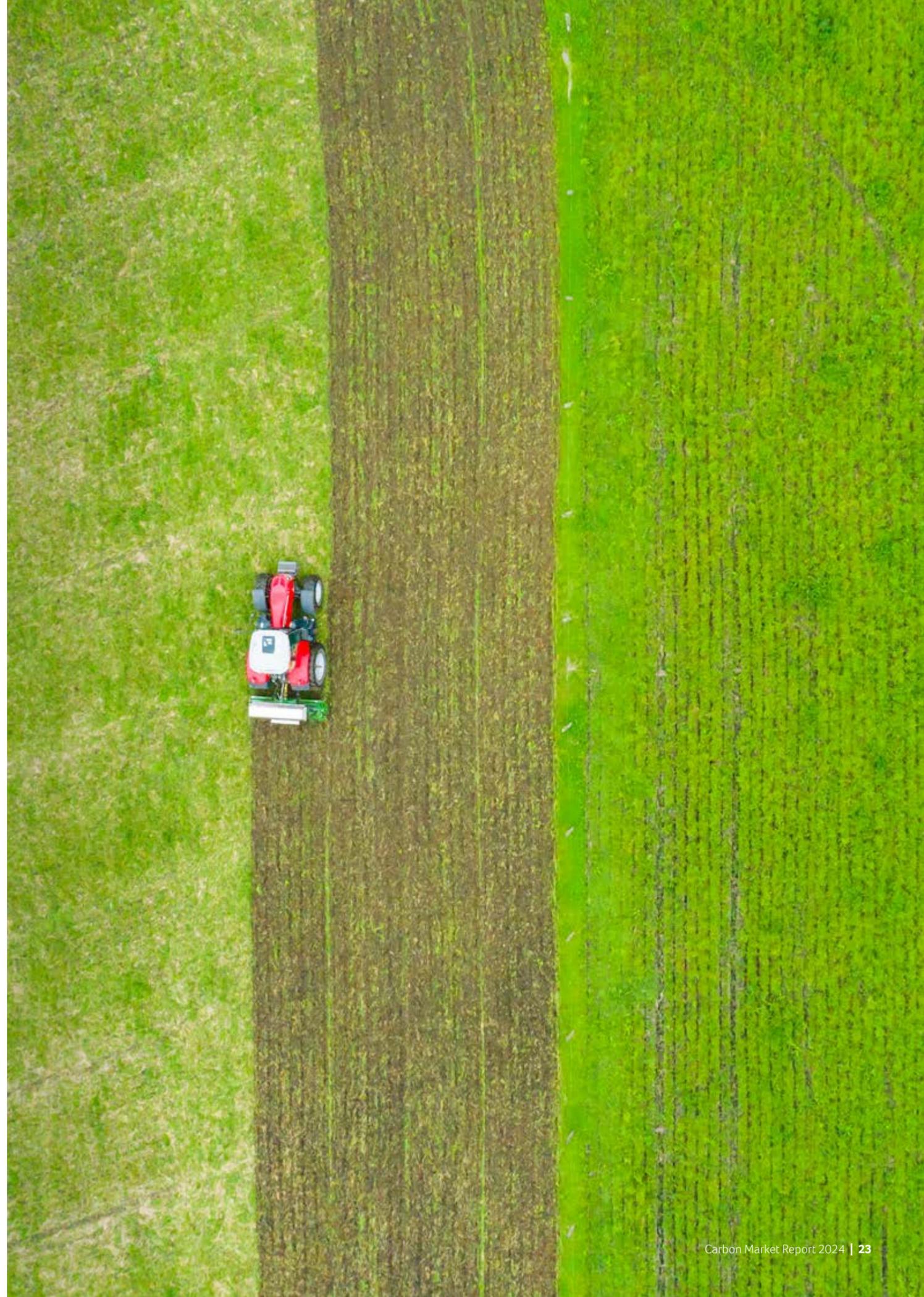
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Carbon markets play a pivotal role in putting a price on carbon emissions

A high integrity carbon market is a critical tool for countries to achieve ambitious emissions reduction targets whilst encouraging a thriving economy. A price on carbon emissions allows businesses to evaluate the cost of inaction, versus a business case for investment in cleaner technologies and practices. In addition, by enabling emissions reductions to occur where they are most cost effective, a carbon market ensures that ambitious emissions reduction targets can be achieved at the lowest cost, promoting economic efficiency and competitiveness.

Carbon markets are utilised by various economies across the globe to decarbonise, however, their detailed design and policy objectives can vary. In Australia, the reformed Safeguard Mechanism is a form of "baseline decline and credit" emissions trading system (ETS) where credits are provided for emissions below a limit, whilst the European Union ETS is a "cap-and-trade" mechanism, where permits are provided up to an emissions limit. While each approach has its nuances, both schemes use a carbon market for the same objective: decarbonising the economy.

Carbon markets can be used to achieve both compliance and voluntary emission reduction targets. Compliance markets, like those under the Safeguard Mechanism and EU ETS described above, usually involve entities that are regulated and able to use the carbon market to satisfy their regulatory requirements. On the other hand, voluntary markets are dominated by corporates and individuals who wish to offset their emissions through the purchase and surrender of carbon credits.

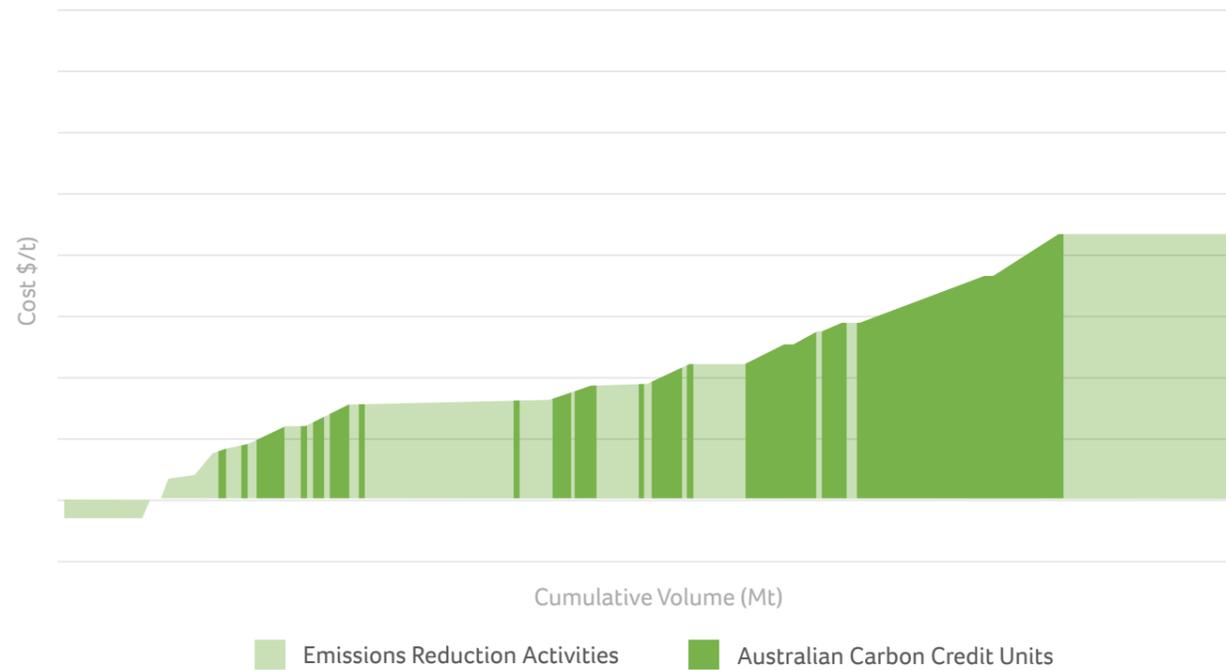


Flexibility and cost-effectiveness

Depending on their design, carbon markets can provide organisations with flexible options to achieve emissions reduction targets. That is, emission reduction targets, whether driven by voluntary goals or compliance schemes, can be achieved through onsite emission reduction activities (ERAs) such as energy efficiency improvements or investment in cleaner technologies, or

alternatively, through the purchase and surrender of carbon credits in cases where onsite reductions are not possible or economic. Figure 1 below is an illustrative graph which shows a variety of potential emission reduction activities stacked by increasing cost (lighter green bars), alongside ACCU generation options (darker green bars). In industries where ERAs are expensive or limited, ACCUs can be used to bridge the gap, smoothing decarbonisation pathways.

Figure 1: Illustrative depiction of the price of Emissions Reduction Activities vs Australian Carbon Credit Units



Source: Aurecon

An overview of the Australian carbon market

The ACCU Scheme plays an important role in incentivising abatement activities in Australia. Through the scheme, project developers can register emission reduction projects under various methodologies and generate carbon credits, called ACCUs, for either avoiding emissions or sequestering carbon. The majority of ACCUs generated so far have been from the land and waste sectors of the Australian economy, but have been used by both compliance buyers, such as organisations covered by the Safeguard Mechanism, and voluntary buyers.

Historically, ACCU demand was driven by the Commonwealth Government's Emissions Reduction Fund (ERF)¹¹ but recent policy changes have resulted in a shift towards a strengthened compliance market.

The reformed Safeguard Mechanism commenced in July 2023 and is set to play an important role in Australia achieving its Nationally Determined Contributions (NDCs) under the Paris Agreement. NDCs are progressively more ambitious emissions reduction targets that Paris Agreement signatory countries must submit every five years.

As a declining ETS, the Safeguard Mechanism applies to facilities that report under the National Greenhouse and Energy Reporting (NGER) scheme and emit more than 100,000 tCO₂-e of direct emissions in a financial year. The covered facilities have emissions limits or "baselines" that decline by 4.9% annually¹² to 2030, and zero by 2050.

Facilities with emissions below their baselines receive Safeguard Mechanism Credits (SMCs); an SMC is equivalent to one tCO₂-e emissions 'allowance'. On the other hand, facilities that exceed their baselines have a carbon liability and must surrender ACCUs or SMCs for every additional tCO₂-e.

¹¹ Under the ERF the Australian government held bi-annual auctions to purchase ACCUs from project developers and incentivise emissions avoidance and sequestration.
¹² 4.9% is the decline rate up to 2030, with the rate of baseline decline post-2030 to be confirmed in the future.



At present, Australia's Safeguard Mechanism covers only high-emitting industrial facilities and excludes the electricity sector.¹³ However, carbon markets can also be applied as a policy solution in other sectors to drive emissions reductions and support decarbonisation.

The Australian carbon market is a crucial tool to meet national emissions reduction targets

The 2023 emissions projections¹⁴ released by the Australian Government shows that Australia needs to accelerate decarbonisation to meet its NDC for 2030, which targets emissions reductions across the economy of 43%, based on 2005 levels. In 2025, Australia's 2035 NDC is due and the Government will need to submit a more ambitious 2035 emission reduction target to continue a trajectory to net zero by 2050. The majority of the emission reductions in the current decade are expected to come from the electricity sector, however, ambitious targets for the

future will require the entire economy to decarbonise. We know that maturity levels will vary across sectors, and progress will occur at different paces.

To ensure emissions reduction targets are achieved, it is critical not only to send strong market signals, but to ensure that signals are timely to allow the market to respond accordingly. Strong signals and consistency in policies will provide clarity and certainty to investors and companies, enabling them to make informed decisions about long-term investments in low carbon technologies, projects, and infrastructure.

In addition to direct decarbonisation, the ACCU Scheme can play an essential role – assisting to offset emissions from hard-to-abate sectors as the 2050 net-zero target deadline approaches.

The Australian Government has announced the development of a Net Zero Plan to inform our decarbonisation pathway to net zero by 2050. As a part of developing a plan that is ambitious yet achievable, the Climate Change Authority (CCA) is undertaking a review into the decarbonisation pathways needed for different

¹³ Electricity generators are exempt from receiving a Safeguard baseline, instead all facilities are grouped under a sectoral baseline. Due to other policy measures decarbonising the electricity grid, it is not expected that this sector will breach its sectoral baseline.
¹⁴ 2023 Australian Emissions Projection <https://www.dcceew.gov.au/climate-change/publications/australias-emissions-projections-2023>



Potential emissions reduction activities expected to be implemented by 2030 at Safeguard facilities include the electrification of diesel equipment, process efficiency improvements within the mining and alumina industries, and reduced fugitive emissions released at gas and mining sites.

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sectors of the Australian economy to achieve net zero by 2050. These will be used to inform decisions about a 2035 NDC. Each sector will have a different relationship with the Australian carbon market; some sectors may be a source of demand for ACCUs, while others may supply ACCUs. Others will have limited interaction with the carbon market. Relationships between Australian sectors and the domestic carbon market are outlined below.

Demand sources for carbon credits

The main demand source for carbon credits is expected to be the industrial, energy, resources, and waste sectors. This is primarily driven by the Safeguard Mechanism and its widespread coverage of facilities within these industries.

Potential emissions reduction activities expected to be implemented by 2030 at Safeguard facilities include the electrification of diesel equipment, process efficiency improvements within the mining and alumina industries, and reduced fugitive emissions released at gas and mining sites. Carbon capture and storage (CCS) is likely to play an increasing part in reducing emissions in high emission intensive industries, such as coal mining and liquefied natural gas (LNG) production.

It is possible that through the implementation of these activities, facilities may be able to generate SMCs and participate in the carbon market. However, many of these activities are large-scale industrial upgrades with multi-year timeframes, that can be more expensive than the expected cost of generating ACCUs. In the interim, ACCUs will continue to be needed to meet compliance requirements.

Looking ahead, if the whole of economy is to decarbonise, the Government will be looking for every possible lever to facilitate this transition. It is possible that at some stage the emissions threshold for Safeguard Mechanism may be dropped to include all facilities reporting under the NGER scheme, that is those that produce over 25,000 tCO₂-e per year, and potentially expanding coverage to other sectors of the economy.

Supply sources of carbon credits

To date the land sector has been the major supply source of ACCUs, followed by the waste sector, and this trend is expected to accelerate mirroring increasing preferences worldwide for removal credits over avoidance credits.

At present, the land sector is a carbon sink, and it is expected to remain a carbon sink for the long term. Vegetation sequestration activities undertaken in the land sector are the key source of ACCU supply, and abatement incentivised by the ACCU Scheme serves to increase the size of the land sector carbon sink. This is expected to continue with various Australian states also creating their own land and biodiversity management programs that leverage land-based ACCU methods.

Vegetation sequestration activities can occur on agricultural land. The agriculture sector is currently a net producer of emissions, largely from methane from ruminant digestion. The agriculture industry is in a critical phase of research and development for its pathway forward to net zero. Many of the abatement options available (such as feed supplements and animal genetics and husbandry practices) show promise, but have not been assessed for commercial viability, scalability, and integration within whole farm systems. As the rest of the economy decarbonises, agriculture's share of national emissions is expected to increase.

Primary producers are acutely aware of this, and are already setting low-carbon targets for their produce. They could meet these goals through either the cancellation of third-party ACCUs or by 'insetting' – where credits from on-site abatement activities, never enter the market and are instead used to reduce the producer's net emissions.

If the sector needs a greater supply of ACCUs, fewer credits will be available to offset other sectors' emissions. There is also a saturation point of carbon sequestration activities that theoretically dictates how far the Australian economy can rely on these activities to offset emissions elsewhere in the economy. Other social and economic considerations will also influence the extent of these activities. This has the potential to cause a strain on carbon credit supply, and all things being equal, has the potential to drive up prices in the future. If that were the case, businesses would be incentivised to explore on-site emissions reductions sooner than later.

Conclusion

For Australia to be able to successfully achieve ambitious decarbonisation targets, it needs a high-integrity carbon market that can be scaled and provides reliable price signals to market participants. Australia's carbon market will continue to play an important role in helping Australia to achieve ambitious emissions reduction targets while promoting economic growth. Both sequestration activities incentivised by the ACCU Scheme, and implementation of emissions reduction activities take time to scale. Therefore, providing long-term policy certainty now, and setting up the correct institutional structures, can ensure that ambitious targets can be set and met.

Aurecon is an international design, engineering and advisory company bringing ideas to life to create a better future for people and the planet. Their Carbon Markets team provide clients with a comprehensive toolkit for decarbonisation while helping them navigate this rapidly evolving area of the economy.



KEY POINTS

Land-based sequestration will have a crucial role to play as Australia shifts to net zero, by providing a counterbalance to residual emissions, Climateworks' modelling shows.

While Australia's land sector is already sequestering carbon, Australia may need up to an eight-fold increase in the annual rate of sequestration, and given the land-use changes to do so, guidance to achieve this should include consideration of a broad range of factors.

These sequestration estimates assume ambitious emissions reductions occur in all sectors, including agriculture, and are not based on using sequestration as a substitute for ambitious action elsewhere in the economy.

Policymakers cannot expect the carbon market alone to deliver the scale of additional sequestration required, and fiscal measures such as tax policies that incentivise sustainable land use will also be needed.

A holistic, systems-level approach to balancing land use for agriculture, carbon sequestration, and nature repair is important. Climateworks is working with Deakin University on a model capable of identifying optimal land use in ways that balance trade-offs and co-benefits.

How farmers, land managers and regional communities can help us stay within 1.5°C

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Australia stands at a pivotal moment as it develops its next commitment under the Paris Agreement (known as a nationally determined contribution, or NDC). Recent scenario modelling by Climateworks illustrates that achieving net zero emissions within the bounds of the Paris Agreement temperature goals is still attainable for Australia. These scenarios, released in 2023, provide least-cost pathways for decarbonising Australia's economy in line with the Paris Agreement's central aspiration of limiting global temperature rise to both well below 2°C (1.8°C) and 1.5°C.¹⁵

Climateworks' decarbonisation scenarios highlight the importance of land-based sequestration to reach net zero. While Australia's land sector is already sequestering carbon, up to eight times more sequestration may be needed. This potential increase presents challenges for managing competing land uses into the future. However, the modelling results point to potential opportunities for a growing carbon market.

The role of sequestration in achieving net zero emissions

Climateworks' latest scenario modelling underscores the significance of both emissions reduction efforts and carbon sequestration in least-cost decarbonisation pathways for Australia. While Australia has the means to decarbonise most sectors of its economy, some sectors lack commercially available technologies at present. These sectors are termed 'hard to abate'. Even with low-emissions technologies becoming more cost-effective over time, Climateworks' modelling shows land-based sequestration plays a significant role in counterbalancing residual emissions in 'hard to abate' sectors.

The amount of sequestration varies greatly depending on the level of ambition, from 1.6 gigatonnes of sequestration in the 1.8°C scenario to 4.5 gigatonnes in the 1.5°C scenario (see Figures 1 and 2, respectively). Land-based sequestration in the 1.5°C scenario in 2050 is around eight times what Australian land currently sequesters each year. Most of this sequestration would come from the increased uptake of established land-based practices, such as planting trees and ecosystem restoration.

¹⁵ Climateworks Centre (2023) Climateworks Centre decarbonisation scenarios 2023, www.climateworkscentre.org/scenarios2023

Other forms of sequestration included in the modelling are direct air capture and carbon capture and storage. However, the results show a negligible role for carbon capture and storage (CCS), which is limited to specific industrial processes, and does not show a marked role for direct air capture until at least the 2040s, when the technology is assumed to be commercially viable.

Figure 1.
Emissions by sector for well below 2°C scenario

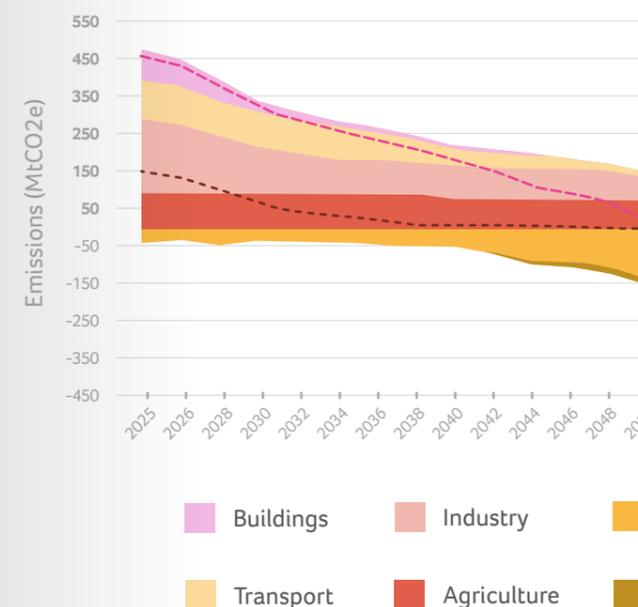
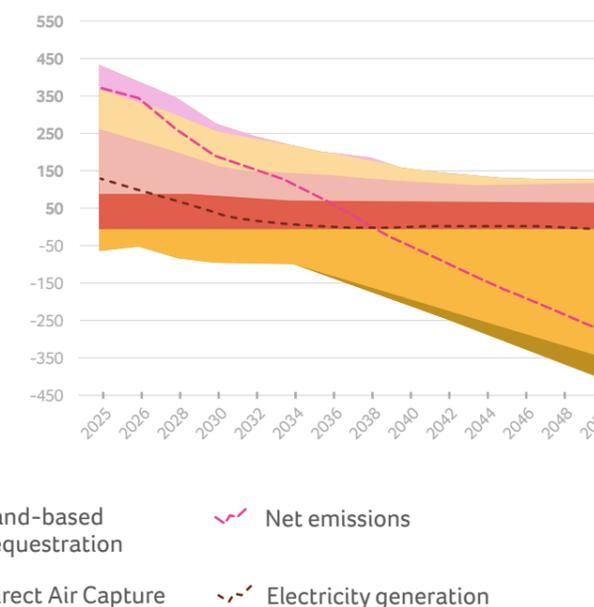


Figure 2.
Emissions by sector for well below 1.5°C scenario



Source: Climateworks

In Climateworks' modelling, sequestration (with the majority delivered through the land sector) is not a replacement for efforts to reduce emissions in other sectors.¹⁶ For example, even before considering land-based sequestration, total emissions from buildings, transport, industry, energy and agriculture reduce by 56 per cent (under the 1.8°C scenario) and 68 per cent (under the 1.5°C scenario) by 2035 compared with 2005 levels. Both the 1.5°C and 1.8°C scenarios assume that agricultural production will increase, creating fairly steady total emissions for the sector despite lower emissions intensity. The model assumes sequestration is used to counterbalance 'hard to abate' emissions from sources such as cement production, long-haul trucking, aviation and parts of the agriculture sector.

The model assumes that as current and emerging technologies evolve, some that are currently too expensive to deploy will become cost effective. Examples of these include electric trucks and hydrogen production for long-haul transport and heavy industry. Climateworks also expects that new technologies, not currently in the model, can be developed to address a broader range of 'hard to abate' emissions, for example in the cement industry. Achieving net zero emissions demands the simultaneous deployment of emissions reduction and carbon sequestration strategies.

Furthermore, given the remaining carbon budget and current global emissions, global temperatures are likely to exceed a 1.5°C rise above the pre-industrial average for at least one year between 2023 and 2027 (World Meteorological Organization 2023). Therefore, beyond compensating for residual emissions from 'hard to abate' activities, there is a role for sequestration to draw down additional carbon dioxide to manage this period of 'overshoot' and bring temperatures back down.

Finally, despite its promise, carbon sequestration poses practical and theoretical challenges, necessitating careful consideration of land use priorities and balancing of various economic, environmental, and cultural considerations. Because of these factors, government guidance and policy are needed to ensure that carbon sequestration credits are employed judiciously, targeting areas where they are most needed – to balance residual emissions that cannot currently be reduced by other means.

¹⁶ This Climateworks modelling does not account for transfers or the purchase of offsets between sectors and therefore cannot estimate the size of the carbon market contribution to land-based sequestration.

A carbon market is one part of the suite of solutions needed

Given the critical role of land-based sequestration in addressing climate change as part of Australia's action under the Paris Agreement, it is incumbent upon governments to implement policies and initiatives that foster the economic viability nationwide of increased sequestration.

To achieve this, land managers must have the right incentives and be empowered to make informed decisions regarding land use and management. These decisions should benefit them and their communities economically and contribute to broader national objectives.

A market for carbon credits is one of the most common policy tools to incentivise additional land-based sequestration – either for voluntary action by companies or as part of compliance with other climate policies. In Australia, the domestic carbon market is principally established through the Australian Carbon Credit Unit Scheme (ACCU Scheme) and reformed Safeguard Mechanism. Companies also engage with a range of international carbon crediting schemes to support their climate commitments. Australia's carbon market can support the national transition to net zero emissions for businesses or entities lacking cost-effective decarbonisation technologies or substitutes for their services. However, to ensure integrity, companies using carbon credits should do so as part of a science-aligned transition plan that demonstrates credits are being used where alternatives are not viable.

Alongside Australia's carbon market, the recently legislated Nature Repair Market is expected to create incentives for protecting and restoring biodiversity that will likely also increase sequestration. However, given the scale of sequestration required, and the practical challenges of achieving this scale, carbon and biodiversity markets are only part of a suite of policies needed to increase land-based sequestration. These markets should be balanced with additional policies and initiatives including fiscal measures such as tax policies that incentivise sustainable land use.

Work underway on a Sustainable Finance Strategy for Australia that would incentivise sustainable land management practices and disincentivise harmful practices will also be pivotal. Central to this is the development of an ambitious Sustainable Finance Taxonomy aligned with climate and nature goals, which will help redirect financial capital and increase transparency about the impact of investment.¹⁷

Addressing trade-offs and co-benefits is a crucial part of policy design

A holistic, systems-level approach to balancing land use for agricultural production, carbon sequestration and nature repair is important to address trade-offs and optimise land uses. Effective carbon markets maximise co-benefits for regional communities by delivering economic diversification for the natural environment, and more broadly, by protecting and enhancing ecosystem services.

Agricultural and land use policies must be carefully crafted to avoid incentivising activities that lead to high emissions and instead encourage land use practices that optimise carbon sequestration, biodiversity, ecosystem services and appropriate agricultural production. Prioritising nature-based solutions can simultaneously address multiple objectives. The principles behind nature-based solutions¹⁸ help to avoid projects that create negative impacts or significant trade-offs. For example, afforestation (planting trees in ecosystems that have not previously been forested) and reforestation with monocultures or introduced tree species can contribute to carbon sequestration. Such solutions, however, are often detrimental to biodiversity and may undermine an ecosystem's capacity to adapt to climate change. Prioritising nature-based solutions instead might involve protecting existing ecosystems, restoring degraded ecosystems with diverse native species, or managing working lands used for agriculture or forestry more sustainably.

Australia's land supports different and sometimes competing activities and services, including agricultural production, carbon sequestration, and nature restoration, for the benefit of regional communities and the nation. Optimally balancing these land use needs requires careful consideration of trade-offs and co-benefits. This is particularly complex in the agricultural sector because decisions about activities can affect emissions from production as well as land-based sequestration levels. Policy and investment frameworks therefore need to be able to guide decisions by the land manager to be in line with what is best overall for Australia.

Climateworks is working with Deakin University to upgrade the Land Use Trade-Offs (LUTO 2) model,¹⁹ which will provide data on how this challenge can be addressed. Outcomes for agriculture and biodiversity will depend on how well the carbon market is set up to balance trade-offs and co-benefits. Effectively aligning or linking carbon and biodiversity markets should help reduce the need for trade-offs between nature and carbon projects and other land uses. However, how and where land-based sequestration projects are implemented should also be guided by a nuanced analysis of how best to optimise land use, in conjunction with broader agricultural and environmental policies.

Moreover, although land-based sequestration has the potential to play a large role in Australia's Paris-aligned mitigation, there are issues around the degree to which land-based sequestration is equivalent to and can fully offset emissions from fossil fuels and industrial processes (known as 'equivalency').

Carbon dioxide emissions from fossil fuels add to the long-lived carbon stock in the atmosphere and oceans. However, carbon sequestration from the land sector primarily operates through biological processes – predominantly photosynthesis – that are part of a much more dynamic carbon cycle, with rapid turnover. For example, sequestered carbon in forestry is re-released into the atmosphere when vegetation dies, so understanding how land-based sequestration can balance out emissions is highly complex.

Furthermore, risks of reversing land-based sequestered carbon dioxide increase from climate change itself, for example, through more intense fires or droughts. Scientifically rigorous consideration of how to address the limitations in equivalency between fossil fuel and industrial emissions and biological sequestration is needed to ensure integrity in carbon accounting and policy design that

underpin carbon markets.

Ensuring high integrity in the quantitative measures and processes of the carbon market is one essential part of building and maintaining a social licence for the scheme. Consultation with Indigenous and local communities will also be an important part of integrity, as well as appropriate health and safety and human rights dimensions.

Conclusion

Australia's 2035 NDC is due in 2025 and work to inform the level of ambition is underway as part of action by all countries under the Paris Agreement. The stark reality is that the opportunity for the global carbon budget to stay within 1.5°C is limited, and global efforts are not yet in line with either temperature goals of the Paris Agreement.

Nevertheless, Climateworks' scenario modelling underscores the indispensable role of the land sector in achieving net zero emissions, which could involve scaling Australia's land-based sequestration by up to eight times current levels. With careful management of integrity, trade-offs and co-benefits, and accompanied by complementary policy tools like tax incentives,

carbon markets and nature-based solutions can be part of a path to incentivise and accelerate critical emissions reduction across the Australian economy.

Reaching our targets hinges not only on the success of the carbon market, but on the suite of additional policies and initiatives to address practical challenges and unlock the scale and pace of sequestration that underpins least-cost pathways to net zero emissions. By embracing innovation, fostering sustainable practices and promoting policy coherence, Australia can chart a path toward net zero emissions, while restoring nature and supporting regional communities.

Climateworks Centre bridges the gap between research and climate action, operating as an independent not-for-profit within Monash University. Climateworks develops specialist knowledge to accelerate emissions reduction, in line with the global 1.5 degrees Celsius temperature goal, across Australia, Southeast Asia and the Pacific.



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¹⁷ The Australian sustainable finance taxonomy project is a joint industry-government initiative to develop an Australian sustainable finance taxonomy. The first phase of the taxonomy will encompass the development of climate change mitigation criteria. We expect subsequent phases to address nature related risk www.asfi.org.au/taxonomy

¹⁸ See IUCN Global Standard for Nature-based Solutions

¹⁹ LUTO 2 is a spatial optimisation model that analyses how best to meet agricultural demand, reduce agricultural emissions and enhance sequestration to stay within carbon budgets, and meet biodiversity related goals, while taking into account water use, by overlaying a range of potential land uses and land management practices.



Top priorities for a thriving Indigenous carbon industry

The Indigenous carbon industry is a major national existing and emerging industry. It began with the successful West Arnhem Land Fire Abatement (WALFA) project launched in the Northern Territory in 2006, and has grown to 39 Indigenous-owned projects, across two carbon methods so far. This number is predicted to increase significantly – for further information on this read ICIN’s ‘Mapping the Opportunities for Indigenous Carbon in Australia’ report.

Indigenous-led carbon projects are unique as they not only benefit the environment but provide cultural, social and economic outcomes - reconnecting Traditional Owners with their ancestral lands, enabling the passage of traditional knowledge from elders to future generations and creating hundreds of jobs, often in very remote areas. Indigenous-led carbon projects successfully marry latest scientific research, traditional caring for Country practices and cutting-edge technology, and are tested examples of Aboriginal economic self-determination.

Over the past 50 years, many Aboriginal and Torres Strait Islander people have been able to reclaim their land rights. The establishment of dedicated ranger groups to lead caring for Country programs under the guidance of Elders, the creation of Indigenous Protected Areas and innovative provision of ecosystem services, provide the setting from which the Indigenous carbon industry has been able to develop and thrive.

The Indigenous Carbon Industry Network (ICIN) is now well positioned and recognised by members as the industry’s national peak body. ICIN is led by a 100% Aboriginal Board of Directors who all have leadership experience in the carbon industry. ICIN is owned by its full members, 26 Indigenous organisations who own and run carbon projects that generate premium Indigenous carbon credits. ICIN’s objective is to support Indigenous groups to own, run and manage their own carbon projects on their land. The Indigenous Carbon Projects Guide was developed to help Indigenous groups across Australia understand the opportunities and risks of getting involved in the carbon market.

Indigenous Peoples have legally recognised rights across 55% of Australia, with the latest ICIN research demonstrating that this figure has now increased to 58% of the nation. The Indigenous carbon industry is an Indigenous-led space. To ensure the integrity of projects held by Indigenous Peoples and secure prospects for the equitable expansion of the industry by and for Indigenous Peoples, the following critical points are provided for consideration by all – including proponents engaging and partnering with Indigenous Peoples in the carbon industry, investors, policy developers and decision makers.

Culture and Country

- Indigenous Peoples are driven by a strong cultural identity and connection and practice that fosters their commitment to care for Country, respect Country and culture and support self-determination of Indigenous communities.
- Indigenous land managers are working hard to manage their Country and are experts in land and sea management informed by many thousands of generations of practice.
- Traditional rights in and obligations to Country have been passed down and followed for thousands of years. These rights and obligations are based in fundamental principles centred on connection to Country, respect and consent.

Engagement and partnerships

- Indigenous Peoples seek respectful partnerships.
- Although the carbon market is still a relatively new market, some third parties have already exploited the rights of Indigenous Peoples to carbon.
- Traditional Owners/Indigenous Peoples must be respected as equal partners, and not simply a gateway or ‘tick and flick’ to access and exploit traditional lands for the commercial gain of others.
- Engagement with Indigenous Peoples about emerging biodiversity markets has to be meaningful if it is to create good outcomes for Country.

Rights and interests

- The Free, Prior and Informed Consent of Native Title holders for a carbon project is required by law. View ICIN’s Seeking free, prior and informed consent from Indigenous communities for carbon projects best practice guide which is a starting point for a respectful relationship.
- Gaining consent from Traditional Owners for a non-Indigenous owned and run carbon project does not result in this project being able to generate premium Indigenous carbon credits. There needs to be an established mechanism and decision-making structure that defines the eligibility of such a credit to be applied and/or qualified.
- Indigenous Peoples want to be properly informed about developments that impact on their Country if there is to be a true sincere inclusion of practice.
- Carbon method design must value Indigenous IP and be Indigenous-led and co-designed.

These points have been drawn together from a statement developed by 100 representatives of Indigenous groups across Australia based on their experiences in the carbon industry (National Indigenous Carbon Forum 2023 Statement).

The Indigenous carbon industry is a story of great success with bright future prospects if the direction provided above is explored and implemented through practice and policy by all involved in the sector. ICIN acknowledges the work of its full members who all own and run their own carbon projects. We remain committed to strengthening and growing the Indigenous carbon industry.

The Indigenous Carbon Industry Network (ICIN) is the national peak body supporting First Nations engagement in the carbon industry. The company is owned by its Full Members, including 25 Indigenous organisations that produce carbon credits through their land management activities, caring for country.



KEY POINTS

Nature is in crisis, demanding transformational change in how the world operates.

Nature Positive — halting biodiversity loss and repairing and restoring nature — is now the goal at the international level, and in Australia.

This requires an end to historical patterns of human development that have traded-off environmental degradation in exchange for short-term commercial benefits.

The restoration of natural capital must have primacy. Whilst we should be capable of ensuring an acceptable improvement in the living standards of those alive today, there can be no escaping the fact that large scale environmental repair is vital to safeguarding the living standards of future generations.

The repair of nature requires three foundational innovations. Firstly, we must more strongly incentivise and enable carbon projects that protect and restore ecosystems, including developing new ACCU methods that deliver critical co-benefits for nature. Secondly, we must establish the infrastructure to support high integrity nature repair markets that complement the carbon market, with a focus on strict standards, science-based measurement methods backed by environmental accounting, robust verification, and transparent markets. And thirdly, we need a new public fund to kick-start nature markets.

The new focus on nature repair presents major opportunities for carbon market participants. Our collective success in restoring natural capital depends heavily on their participation.

Ensuring high integrity, aligned markets for climate change mitigation and nature repair

DR KEN HENRY & WARRICK JORDAN
THE AUSTRALIAN CLIMATE & BIODIVERSITY FOUNDATION

“**Nature is in crisis, placing human and planetary health at risk. This decade must be the turning point where we recognize the value of nature, place it on the path to recovery and transform our world to one where people, economies and nature thrive**”

Nature Positive Initiative, December 2023²⁰

Introduction

After decades of valiant efforts to reshape business decision-making, markets, and policy to conserve biodiversity, the past two years have seen widespread acknowledgment that a fundamental shift is needed in how the world conceptualises this challenge.

This shift is centred around ‘Nature Positive’ (N+) – a goal that moves beyond a managed decline of nature in a trade-off with material progress, to preventing further degradation and investing in repairing the damage done. In short, achieving more nature, not less.

The Nature Positive goal is shaping international agreements such as the 2022 Global Biodiversity Framework, driving the reform of Australia’s domestic policy environment, stimulating market development, and being incorporated into business strategies, operations and disclosures.

This reorientation towards repairing nature has direct implications and major opportunities for participants in Australia’s carbon market.

Aspects of Nature Positive fundamentally orientate towards market responses. The imperative to reprioritise high integrity credit

20 Nature Positive Initiative (2023) The Definition of Nature Positive www.naturepositive.org

supply in ACCU markets, including responding to market demand for credits with verified environmental co-benefits, aligns with Nature Positive. Momentum establishing the core infrastructure for nature repair and biodiversity markets presents opportunities for stapling value adding nature credits to ACCU projects, and for leveraging sector know-how to develop nature repair projects.

This chapter explores the integration of Nature Positive principles, nature protection and repair, and carbon markets, firstly introducing the Nature Positive framework, and secondly describing the immediate opportunity to lay foundations that integrate carbon and nature repair markets in Australia.

Nature repair: reshaping our economy towards Nature Positive

For the past four decades, efforts by policy makers and business to get to grips with the economic drivers of environmental degradation have been underpinned by concepts such as ecologically sustainable development (ESD). ESD frameworks notionally incorporate biophysical constraints to material progress, but they have usually been interpreted as validating explicit choices or trade-offs between economic, social and environmental goals. This interpretation of ESD—where the environment is regarded as something that can be traded off against the more obvious, commercial, dimensions of human progress—never made sense, and we are now being made aware of its costs. Past environmental degradation poses a serious threat to both present and future levels of material wellbeing.

So much has been lost, and with such serious consequences, that a consensus is emerging that we must now concentrate on nature repair. Conceptually, this view is represented in the global Nature Positive goal to ‘halt and reverse nature loss by 2030 on a 2020 baseline, and achieve full recovery by 2050’.²¹

Nature Positive argues that the traditional resource optimisation logic underpinning short term interpretations of material progress should be turned on its head. We must seek to restore natural capital, whilst ensuring an acceptable improvement in the standard of living of this generation, to safeguard the living standards of future generations.

This new approach requires reshaping human systems and processes to reduce extractive pressure on ecosystem services and natural capital, stopping degradation, and embarking on large-scale ecosystem repair. Humans have spent thousands of years extracting prosperity from nature. But our future prosperity and security must be found in nature.

What does this mean in practice, for policy makers and business broadly, and more specifically for those invested in carbon markets?

Put simply, Nature Positive is rapidly gaining widespread acceptance and uptake as the key framework for environmental policy and business decision making. It was highly influential in the setting of the 2022 Global Biodiversity Framework, which includes targets such as zero extinctions and restoring 30% of the planet by 2030. In turn, high ambition nations have picked up Nature Positive and run with it, including Australia. It has become the unifying principle for reform of Australia’s national environment

21 Ibid.

22 EY Net Zero Centre (2023) Creating a nature-positive advantage Assessing the outlook for Australia in a net zero world www.ey.com/en_au/sustainability/how-can-the-net-zero-transition-create-a-nature-positive-advantage

23 Ibid – noting modelling suggests a ‘sweet spot’ where the most efficient habitat gains are concentrated in a tier above the most heavily cleared regions.

laws, for its conservation target-setting, and its implementation of environmental accounts. Nature Positive also underpins Australia’s recently legislated Nature Repair Market, a development which seeks to establish Australia as a leading destination for investment in nature protection.

Integrating carbon markets and nature repair: policy and market foundations

Trends in ACCU projects, such as buyer prioritisation of co-benefits are allied to emergent interest in nature repair markets and provide new tools to facilitate investment in nature. This investment can contribute significantly to turning around generations of environmental degradation.

The transformation will not happen, however, without three foundational innovations:

- Firstly, prioritisation of carbon method development and projects that protect and restore ecosystems with high value environmental co-benefits.
- Secondly, creating the foundational infrastructure to support high integrity nature repair markets that can deliver verifiable biodiversity benefits to complement carbon projects.
- Thirdly, a public fund to kick-start nature markets.

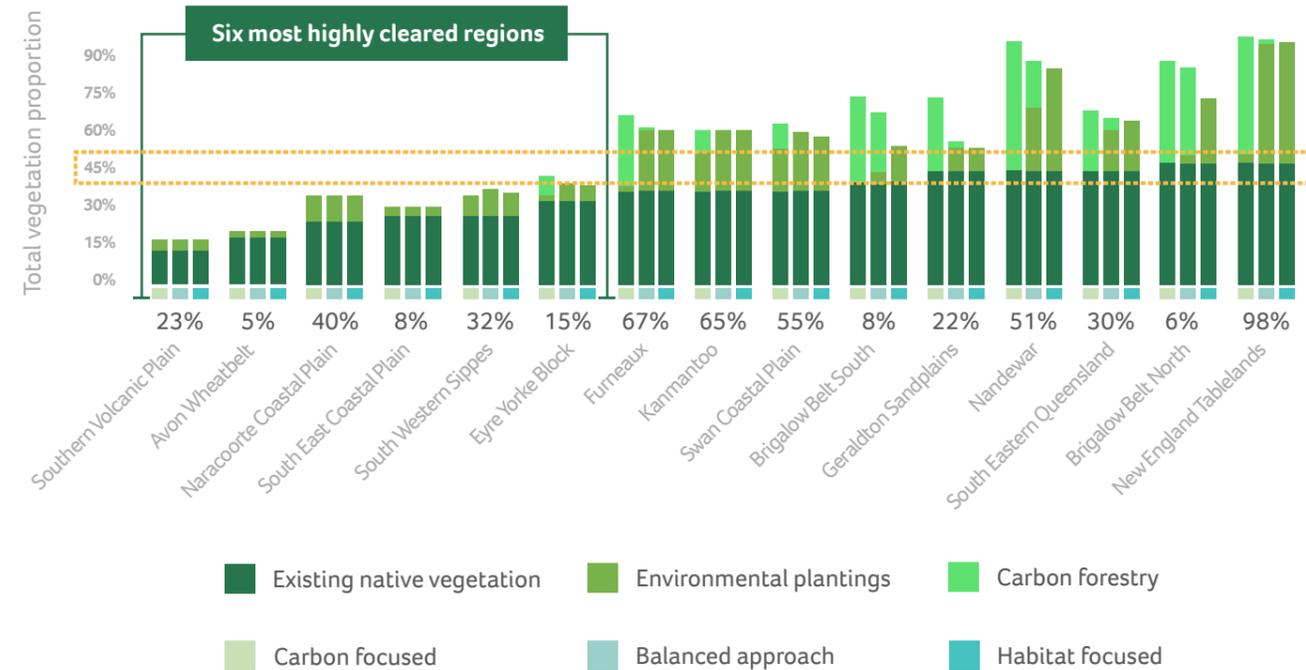
Prioritising new ACCU methods that protect and restore high value native vegetation leverages market infrastructure and demand to incentivise environmental asset protection, at the same time as meeting demand for high integrity abatement at scale.

Recent EY Net Zero Centre modelling (see Figure 1) suggests prioritising environmental restoration carbon methods in a ‘balanced’ approach can generate seven times as much native habitat by 2050 as a ‘carbon focused’ (monocultural plantings) approach. This approach would use an ACCU scheme levy to create a biodiversity top-up fund to incentivise many more habitat-focused ACCU projects (known as ‘environmental plantings’ projects in ACCU scheme terminology). Whilst this ‘balanced’ approach is estimated to result in a 20% reduction in carbon credit production from plantings by 2050, that is a modest price to pay for a large biodiversity benefit.²² Another approach to encouraging ACCU projects that support biodiversity are co-benefit focused funds, such as the Queensland Government’s Land Restoration Fund (LRF). The LRF aims to expand the state’s carbon farming industry with a focus on funding ACCU projects that also support environmental, socio-economic and First Nations co-benefits.

Most significantly, prioritising the development of new methods with nature repair and protection co-benefits would concentrate efforts on ecosystems that matter most. Modelling suggests greater biodiverse environmental plantings method uptake could deliver an almost 50% increase in habitat in some of Australia’s most heavily cleared bioregions, for example in North West NSW, Southern Queensland, and coastal WA, and reduce species extinction risks by 8%.²³ Similarly, developing new native forest protection and improved avoided regrowth clearing methods would focus projects in ecosystems that are home to large numbers of endangered fauna species, such as tall forests and areas of high value regrowth. The credit value of these methods could also be bolstered by innovations to verify and document co-benefits that have been recommended through the Chubb Review reforms.

Figure 1: A balanced approach to carbon and biodiversity can achieve significant increase in habitat in most highly cleared regions

Extent of current and projected native vegetation by policy approach, 2050



Source: CSIRO analysis commissioned by the EY Net Zero Centre.

Beyond leveraging ACCU markets, the next step is to create a functioning nature repair market, following the passage of the Nature Repair Act 2023. Nature markets involve trades in evidence-backed, certified statements of environmental improvements against baseline levels. This means information needs are complex, transparency is essential, and integrity and confidence are core to market function.

Satisfying these demands will require a set of critical market infrastructure to operationalise nature markets – strict standards and verification, science-based measurement methods backed by environmental accounting, robust verification, and transparency guarantees.

Australia is in the process of forming most of this infrastructure. This includes method development under the Nature Repair Act 2023, environmental accounting through both government entities (such as Environmental Information Australia) and non-government entities (such as Accounting for Nature), as well as the continued development of trading platforms. Ensuring these pieces meet foundational integrity and transparency requirements, are put together in a way that provides confidence and clarity for potential investors and participants, and are progressed on an urgent timeline to maintain Australia's status as a front runner in attracting investment, are all critical.

The third foundation required is a public fund to kickstart nature repair markets. While there is significant private sector interest – and this will grow as Taskforce for Nature-related Financial Disclosure (TNFD) uptake accelerates – this is an emerging

market with infrastructure under construction. Building confidence requires demonstrating the functioning of key market components, including methods, data, verification, and trading.

The creation of a dedicated Australian Government fund that can invest in nature repair certificates would provide a demand-side driver to stimulate initial market development, and would encourage innovation in nature repair by land managers and project developers. Government kickstart funding for new markets is a model that has been successfully applied in the carbon markets, where the Queensland LRF and former federal Emissions Reduction Fund support the growth of the ACCU Scheme. In the Nature Repair Market, funds could be deployed through different mechanisms to take on risk to generate certificates, building confidence and crowding in the private investment needed to scale the nature repair market. This would provide an important new tool to complement the broader set of policy, public investment and regulation needed to deliver a Nature Positive Australia.

From a public policy view, such a fund would realise the promise of nature markets in stimulating competition to deliver public environmental goods. The sale of certificates would generate returns that could be reinvested, creating a revolving fund directed to the most efficient means of delivering a Nature Positive Australia. The fund could also be aligned to help Australia meet its Global Biodiversity Framework commitments to zero extinctions and restoring 30% of the country's degraded ecosystems, both of which require a step-change increase in environmental investments.

Conclusion

Nature Positive presents a global opportunity to fundamentally reorientate the economic and policy bases for nature protection and repair. There are live and pressing opportunities for Australia to embed itself at the forefront of this transformation. Confirming our status as a high ambition nation in innovating and delivering positive outcomes for nature would make Australia a priority destination for investment.

The prospects of achieving this status will depend heavily on the participants in Australia's carbon market. A highly developed ACCU sector, prioritising high integrity markets and projects with co-benefits, would provide a demonstrable model and starting point to stimulate investments in nature repair. Moreover, the sector's

interests and technical capacity can be harnessed to ensure the foundations of high integrity nature repair markets are rapidly established. We encourage the sector to seize these opportunities, as another major contribution to the protection and restoration of Australia's natural capital.

The Australian Climate and Biodiversity Foundation is focused on the protection and restoration of Australia's native forest and woodlands, to safeguard both biodiversity values and carbon stocks, and to facilitating new approaches to protect and restore nature.

A highly developed ACCU sector, prioritising high integrity markets and projects with co-benefits, would provide a demonstrable model and starting point to stimulate investments in nature repair.

**Dr Ken Henry and Warrick Jordan
The Australian Climate and Biodiversity Foundation**

KEY POINTS

Global carbon markets approached a record value of US\$950 billion in 2023, helping to make possible the clean energy transition, and playing a key support role in efforts to decarbonise in many economies.

Financial derivatives, such as futures contracts, have helped businesses to manage uncertainty and risk in various commodities since the 1800s.

The ASX offers a range of derivative contracts that enable price discovery and hedging in the electricity, gas and agricultural sectors.

To support Australia and New Zealand's decarbonisation efforts, the ASX will be launching a new suite of Environmental Futures contracts serving the markets for Australian Carbon Credit Units, Large-scale Generation Certificates (LGCs), and New Zealand Units (NZUs).

These futures contracts will help to scale-up carbon and renewable energy trading markets, which in turn will help speed the transition, and lower costs.

Derivatives and decarbonisation: how financial markets are supporting the energy transition

MONIQUE BELL
ASX

As the climate crisis escalates, the world is looking for scalable solutions to accelerate the roll-out of renewable energy technologies and broader decarbonisation plans. While financial derivatives might not immediately spring to mind as having a useful role to play, they can make the transition cheaper and faster, by helping those involved to manage economic uncertainty and risk and incentivise scaled investment.

The international renewable energy transition has long been supported by the development of liquid carbon trading markets, with the majority of volume transacted via derivatives.

According to the London Stock Exchange, global carbon markets approached a record value of USD 950 billion in 2023, with European Union Allowances (EUAs)—the unit traded in the world's most mature cap and trade system—making up the majority of this. Of the USD 840 billion EUAs transacted in 2023, approximately 90% was via the derivatives market.

This derivatives-based international experience provides a powerful blueprint for growing the carbon markets in Australia and New Zealand. Derivatives have a unique ability to scale the size of the markets they represent by alleviating uncertainty.

Unpredictability is a major factor limiting the pace and scale of business efforts to decarbonise. This is driven by a range of factors, from evolving government policy to changing investor and consumer expectations. Addressing unpredictability and improving certainty is key to growing investment in the carbon market and maximising abatement potential.

In this article, we discuss how derivatives can support decarbonisation by reducing the risks associated with uncertainty, and we describe how the ASX plans to scale carbon markets in Australia and New Zealand.

Transparent price signals help to mitigate risk

Two announcements in 2022 – both intended to support broader policy goals – highlight the impact of uncertainty on spot prices for Australian Carbon Credit Units (ACCUs).

In March of that year, the former Federal Government unexpectedly announced that carbon project developers with binding contractual arrangements to sell ACCUs to the government at a fixed price would have the option to exit these for a fee, and instead sell their ACCUs on the secondary market.

Uncertainty about the extent to which projects would exit their government contracts, and the impact this might have, saw the spot price drop, as seen in Figure 1.

Then, in July 2022, the current Federal Government launched an Independent Review of the scheme, the Chubb Review, which was followed by a dip in ACCU prices that lasted for the duration of the review. As a result, the generic ACCU price fell as low as \$26 in August from a high of \$57 at the start of the year. The impact

24 Subject to final internal and regulatory approval

of these two events on ACCU prices shows how uncertainty can contribute to market volatility. To mature and scale, carbon markets need access to risk management tools that can help businesses hedge exposure to this kind of uncertainty. Derivatives can be part of the solution.

The ASX already offers a number of commodity derivative contracts that enable price discovery and hedging across the electricity, gas and agricultural sectors, some of which help businesses to manage the renewable energy transition.

To further support Australia and New Zealand's decarbonisation efforts, ASX plans to launch a suite of Environmental Futures contracts²⁴ covering ACCU, LGC (Large Generation Certificates) and NZU (New Zealand Unit) markets. Contracts will initially be listed on an annual basis out to five years, providing a transparent forward curve for the market to price and hedge exposure.

These contracts can help the market manage the uncertainty of the energy transition.

KEY TERMS

Derivatives are a type of arrangement/financial contract where value is derived from an underlying asset or benchmark. The most common types of derivatives are futures, options and forwards. Derivatives can be transacted on an 'exchange' or in the 'Over the Counter' (OTC) market.

An **exchange** is a centralised marketplace where securities, commodities and other financial instruments are traded. In exchange traded markets, buyers and sellers transact with the exchange itself (also known as the Clearing House) as opposed to individual buyers and sellers. A forward derivative traded on exchange is called a 'future'.

An **Over the Counter (OTC)** market is a decentralised marketplace where securities, commodities and other financial instruments are traded. In the Over the Counter market, buyers and sellers transact with each other via an intermediary such as a broker.

Futures are derivative contracts traded on an exchange with standardised terms and conditions that allow buyers and sellers to transact in a specific commodity, asset or security, at a future date for a predetermined price.

Figure 1: Generic ACCU spot price 2021–2024



Source: RepuTex EnergyIQ Platform (as of 12/03/2024)

Liquid forward pricing opens up access to capital

Currently, a lack of transparency in the spot and forward carbon and renewable energy markets is a major challenge to securing financing for carbon abatement and clean energy projects, both of which require significant time and capital.

Data limitations and inconsistencies make it difficult to know where the price of carbon or renewable energy is trading and how much volume is available in the secondary market. Without a robust daily price signal, growth in supplier financing is limited.

Liquid derivative markets provide clarity on projected short and long-term price trends, while also providing a mechanism to mitigate risk. These considerations, so important from an investor perspective, may improve the investment profile and attractiveness of decarbonisation projects, resulting in more capital flowing to initiatives that support the energy transition. Futures contracts, in particular, are a tool that can support market confidence and transparency. In the case of ACCU Futures, this potentially means more money flowing into a range of carbon abatement projects that can make a real difference to Australia's decarbonisation efforts.

Market standardisation and credit intermediation leads to growth

A key differentiating factor between futures and OTC derivatives is standardisation. In futures markets, terms and conditions are the same for all participants. In OTC markets, transactions can be tailored to meet individual requirements. This is clear in the ACCU OTC market where there is an established level of price stratification among various ACCU methods and co-benefits (see Figure 2). ASX ACCU Futures will be designed to be generic in nature, with one ACCU representing one tonne of CO₂-e stored or avoided by a project.

While the OTC market provides increased flexibility for those seeking specific terms or co-benefits, the futures market can support more liquidity and participation due to the standardised nature of trading, and the reduced credit risk.

In futures markets, the Clearing House acts as the intermediary for all buy and sell transactions, effectively guaranteeing each side of a trade. Centralising credit exposure with the Clearing House opens up access to a diverse range of market participants and liquidity that is not available in the OTC market.

A standardised ACCU Futures market hosted by ASX will complement, rather than replace, the existing OTC market. The futures market will provide a generic price point around which liquidity can concentrate, and ACCU stratification and co-benefits can then be priced in the OTC market as a differential or basis to the futures.

Figure 2: ACCU spot price – Generic, Generic (no-AD), HIR – 1 year



Source: RepuTex EnergyIQ Platform (as of 12/03/2024)

Support for compliance buyers

Until recently, non-Commonwealth participation in the ACCU market was driven by companies looking to reduce their net emissions to support voluntary commitments, and by speculative investors hoping to benefit from price trends. However, the ACCU market is currently in a state of transition, with the reformed Safeguard Mechanism expected to drive demand for ACCUs going forward.

An increase in the number of compliance buyers under the reformed Safeguard Mechanism may change demand for various ACCU methods. The changing dynamic presents an opportunity for the futures and OTC market to work in parallel to meet the needs of compliance and voluntary buyers in the secondary market.

ASX's ACCU Futures will be physically delivered at the maturity of the contract. Customers holding a position at maturity will be required to either transfer or receive physical ACCUs via the ANREU registry. As a standardised futures contract, all ACCU methods eligible for surrender with the government will be accepted by ASX for delivery.

For buyers, there will be two ways to trade physically delivered futures:

- buy the futures and hold a position to maturity, receiving physical ACCUs acceptable for surrender via the ANREU registry; or
- use the futures to hedge forward price exposure out to five years and then close the position out (by trading the opposite side in the contract) before it reaches maturity. This effectively nets the futures position to zero, allowing the buyer to avoid ASX delivery.

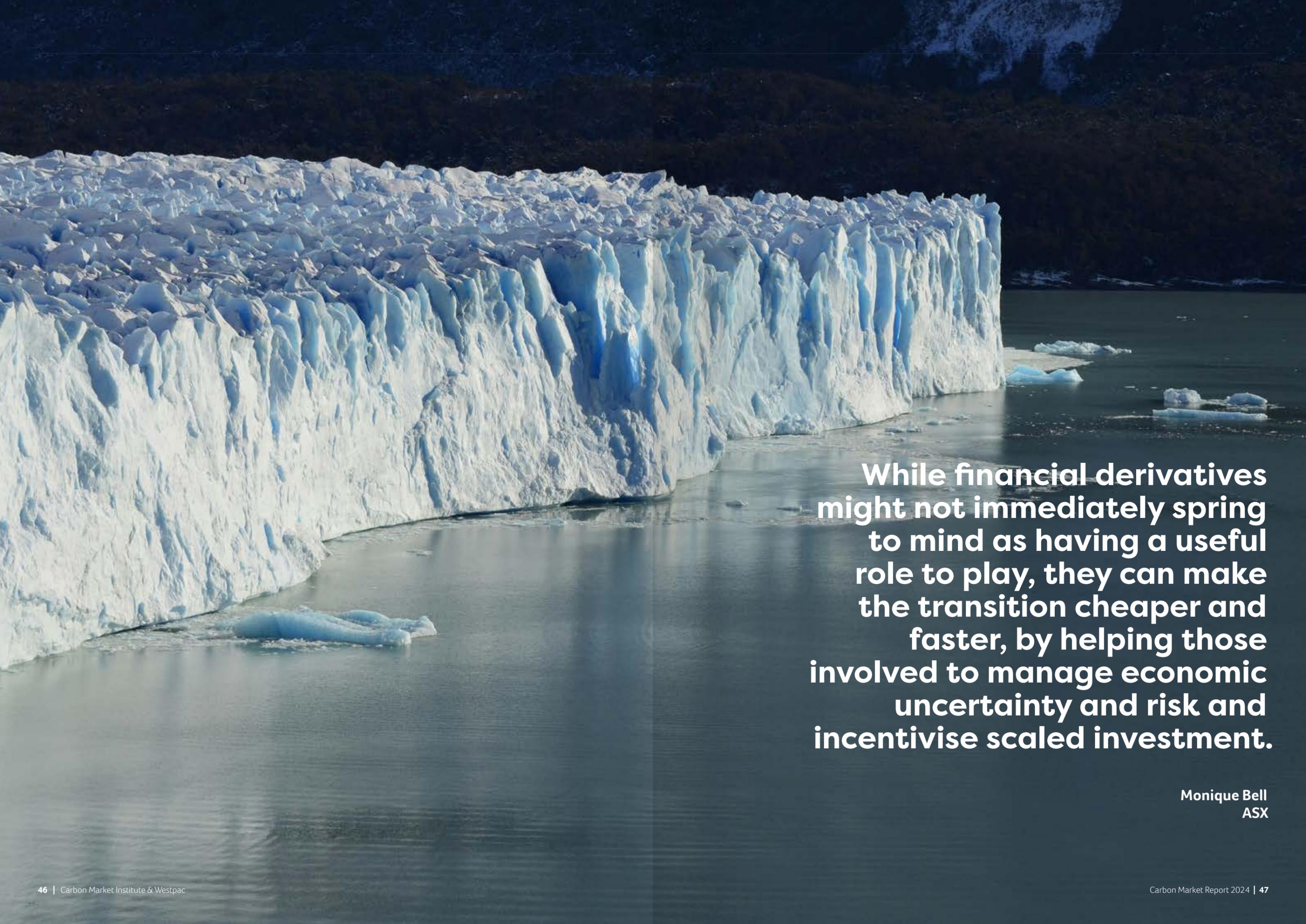
Where a buyer prefers specific ACCU methods or co-benefits for surrender, the futures offer a way to hedge forward price risk without having to go to physical delivery. Buyers can close out their futures position before maturity and then use the OTC market to source preferred ACCU methods prior to surrender.

With a history of successful futures contracts and access to sophisticated risk management tools, ASX believes it can play a crucial role in scaling Australia and New Zealand's carbon markets. If capital investment is the most efficient way to achieve emission reduction targets, then a liquid, robust and transparent carbon derivatives market can play a significant role in facilitating Australia and New Zealand's decarbonisation efforts.

The ASX operates at the heart of Australia's financial markets, providing customers with access to a wide range of asset classes including equities, fixed income, commodities and energy.

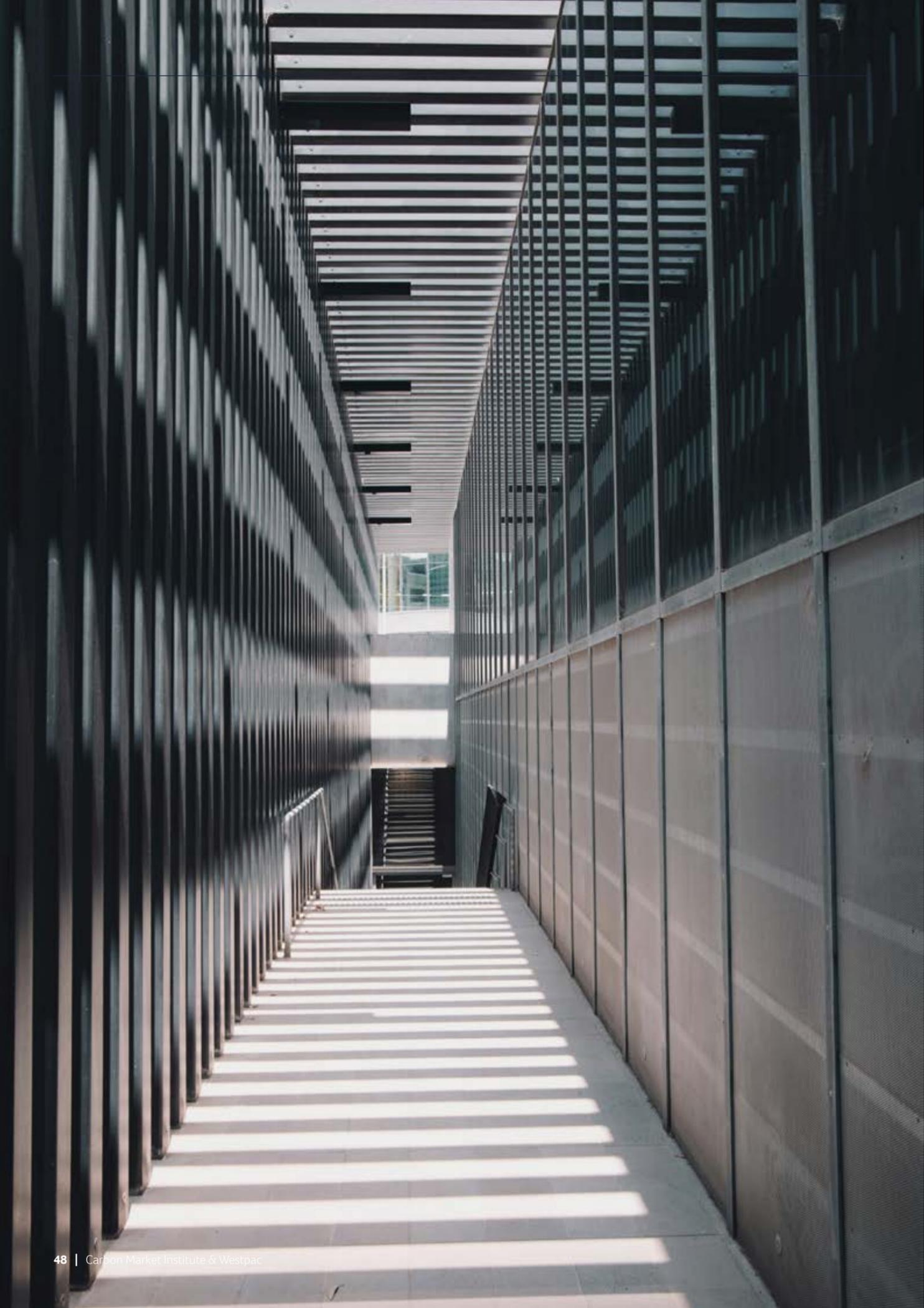
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While financial derivatives might not immediately spring to mind as having a useful role to play, they can make the transition cheaper and faster, by helping those involved to manage economic uncertainty and risk and incentivise scaled investment.

**Monique Bell
ASX**



The role of technology in scaling carbon markets

JON DEANE & PAUL KELLEY
TROVIO

For carbon markets to play a complementary role in the economy-wide decarbonisation effort, it is critical that they are underpinned by transparency, accessibility, efficiency, and perhaps most importantly trust. These characteristics are also important for traditional asset markets. However, as non-tangible assets, carbon credits, and other environmental assets, present unique challenges.

Non-tangible asset markets require a higher level of trust to operate efficiently. When someone buys a carbon credit, the data, and the details that the data represents, is the source of value and truth. The technology infrastructure used to store this information is therefore critical.

In 2021, the Taskforce for Scaling Voluntary Carbon Markets (TSVCM), which sought to provide a roadmap and recommendations for scaling voluntary carbon markets, highlighted the importance of technology for scaling. The TSVCM's final report included four recommendations that focused on technology infrastructure in the trade, post-trade, finance, and data phases.²⁵

The Australian government also recognises the importance of technology in underpinning carbon markets and a net zero economy. To support this, the Clean Energy Regulator (CER) is upgrading technology infrastructures to help carbon markets scale. The CER is developing a new Unit & Certificate Register with Trovio's CorTenX customised, user friendly, and interoperable digital registry technology.

Over time, the new registry will progressively incorporate the current units and certificates that the CER administers, as well as having the flexibility to incorporate new units and certificates as they are developed.

The new registry will also be interoperable with the proposed Australian Carbon Exchange, and will have the potential to be interoperable with other trusted carbon trading platforms as well.

In this article we will discuss how technology can help scale carbon markets in three main areas:

- improving trust, by ensuring transparency and auditability,
- increasing efficiency, through infrastructure interoperability, and
- growing market participation, through increased tracking of the carbon footprint goods.

²⁵ TSVCM 2021, 'Taskforce for Scaling Voluntary Carbon Markets Final Report', www.iif.com/Portals/1/Files/TSVCM_Report.pdf

KEY POINTS

Transparent, auditable data capture can build trust in non-tangible assets such as carbon credits.

Tamper-proof digital ledger technologies will provide a transparent, immutable, and fully auditable framework for the entire lifecycle of carbon credits.

Ensuring seamless interoperability between registries, exchanges, and risk infrastructure will greatly diminish operational risks and cost of capital within carbon markets.

The introduction of a connected, real-time digital ecosystem will facilitate enhanced data analytics by independent organisations to facilitate clearer understanding of what constitutes a 'high quality' carbon credit.

Digital technologies will play an increasingly important role as the value of goods and commodities becomes linked to carbon intensity, and as cross-border carbon tariff regimes emerge.

Improved trust via transparency and auditability

Transparency and auditability are foundational pillars of trust for carbon markets, helping to avoid fraud and misrepresentation, double-counting, and operational risks associated with managing critical market infrastructure. The introduction of new digital ledger registry technology as record-keeping for carbon credits plays an important role in mitigating risks for these non-tangible assets.

Tamper-proof digital ledger technologies can provide fully auditable frameworks for the entire lifecycle of carbon credits. As an example, Trovio's CorTenX ledger technology provides benefits, such as immutability, traceability, and irrefutability, without the computational demands associated with public decentralised blockchains.

CorTenX and similar ledger technologies record easy-to-access immutable and verifiable data packs for uniquely serialised carbon credits. These data packs can contain a carbon credit's full history, including attributes and co-benefits, from creation through to retirement. Every attribute, transfer, action, and additional detail in the lifecycle of a credit is irrevocable and immutably documented. This enhanced audit trail capability facilitates the searching and filtering of attributes, allows the examination of details at the project level, and allows the exploration of the ownership history of credits, all of which enhances trust in the underlying asset.

While improved transparency also creates significant amounts of data, the process can be automated via a software intermediary (API), so the registry remains scalable. The API connections can also incorporate upstream project measuring, reporting and verification (MRV) data and can integrate downstream with marketplaces and market participants.

API integrations also facilitate other functions, such as real-time reconciliations, project-level data queries, and direct retirement of credits. This connectivity provides an additional layer of efficiency and security, which is essential to scaling a trustworthy ecosystem.

Increased efficiency through infrastructure interoperability

Carbon and environmental markets require significant integration between registries, exchanges, and risk infrastructure to further support growth. Connectivity between these market pillars will help to:

- reduce the operational risk associated with manual processes,
- reduce reputational risks for market participants, and
- reduce the cost of capital for intermediaries servicing the market.

Reduction in operational risk associated with manual processes

Ensuring seamless interoperability between registries, exchanges, and risk infrastructure will minimise operational risks within carbon markets. Despite strong governance arrangements, the current system involves disjointed infrastructures and manual processes that increase the risk of errors and delays, including settlement and credit risks. Using API connections to integrate these components will ensure data flows smoothly and securely, with less risk of manual miscommunications and data inconsistencies.

Reduction in Reputational Risks for Market Participants

Reputational risks are a major consideration for any market participant. Additional layers of transparency and auditability in carbon markets can help reduce these risks and boost participation. As an example, Trovio has partnered with Accounting for Nature (AfN), one of the world's leading standards for measuring the state of nature, to link Accounting for Nature® Certified Environmental Accounts with carbon credits. The outcome is carbon credits which are linked to transparent and credible claims regarding their additional benefits for nature.

Cohesive and integrated technology systems also support transparency by providing increased data access. For businesses and investors, this means greater confidence in the validity of carbon credits. Interoperable systems will streamline the process of verifying credits, confirming attributes, conducting transactions, retiring credits, and so on.

The introduction of a connected real-time data rich ecosystem will also enhance the ability of ratings agencies and similar organisations to conduct enhanced data analytics and facilitate clearer understanding of what constitutes a 'high quality' carbon credit.

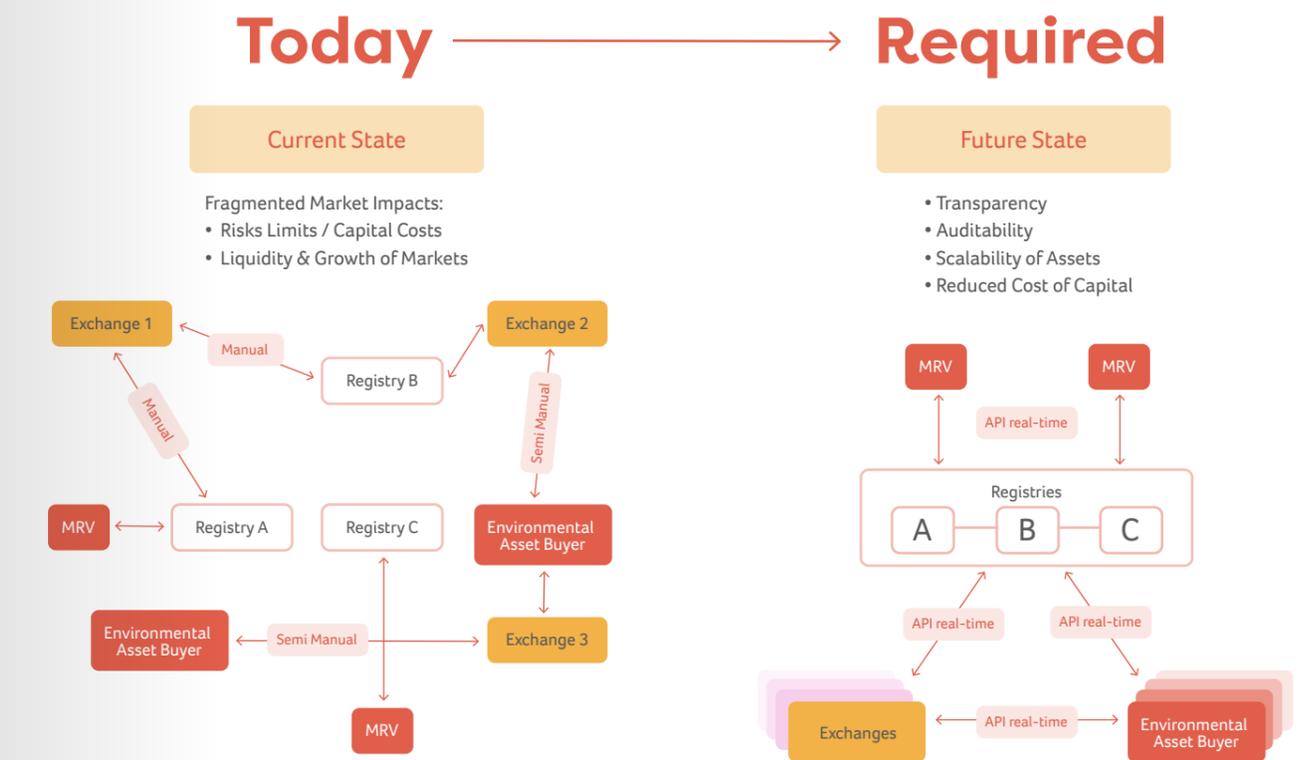
Reduction in the Cost of Capital for intermediaries servicing the market

Financial intermediaries also play an important role in the carbon market. They provide credit to market participants to hedge future carbon exposures, offer margin services to carbon traders, and additional bespoke products to other market participants that help them to manage market risks. Corporates that have existing relationships with financial intermediaries to manage FX and other market risk exposures can also achieve efficiency gains if these same intermediaries are involved in their participation in carbon markets.

However, the fragmented nature of the current systems requires significant investments in integration, reconciliation, and compliance, resulting in higher capital costs for intermediaries, which can limit their participation.

Creating an efficient interoperable ecosystem will translate into cost savings for intermediaries by streamlining processes and ensuring compatibility among registries, exchanges, and risk infrastructure. This reduction in operational expenses will reduce the cost of capital for intermediaries encouraging their participation and further growing the asset class. Lower cost also allows these intermediaries to direct more resources towards innovation and the expansion of their service offerings.

Figure 1: Current Fragmented Market vs. Future Interoperable Market



Source: Trovio

Beyond the carbon market: Technology as a tool to track the carbon footprint of goods

As the global economy decarbonises and carbon markets grow, low and zero carbon goods and commodities will increasingly trade at a premium. This means a new carbon-focused dimension of value will be added to an increasing number of markets.

For example, legislatively-driven initiatives, like the EU's Carbon Border Adjustment Mechanism (CBAM), will need to use sophisticated registry technology to help accelerate the capture and retention of data on imported commodities including their provenance and their associated carbon footprints. A CBAM is also under consideration in Australia as one option for protecting heavy industry from carbon leakage in the context of the reformed Safeguard Mechanism,²⁶ and the UK has committed to introducing a CBAM regime.

These sorts of regimes require imported commodities, such as iron, steel, aluminium, fertiliser, hydrogen, to name a few initial targets, to include accurate carbon footprinting details, and carbon credit offsets will need to be purchased for commodities that arrive from countries lacking a carbon price or equivalent measures. Consequently, connectivity to carbon markets will also be required,

as the carbon intensity of physical commodities starts to be valued in the same way that the other tangible aspects of the physical commodity are already valued.

Similarly, other important assets for the energy transition, like green hydrogen, require technology solutions to support data enhancement and trust. The retention of the renewable energy data associated with the production of green hydrogen will need to be immutably bonded with the commodity to provide an irrevocable and auditable history of the asset's creation.

Looking ahead, it will become increasingly important to use registry technologies to accurately monitor and record the relevant provenance and emissions intensity of a range of commodities to ensure accurate pricing and benchmarking to meet consumer expectations and legislative requirements.

The convergence of technology and carbon markets presents a transformative path towards a more sustainable economy. As highlighted, immutability, transparency and auditability are foundational to building trust, given the inherently non-tangible nature of environmental assets.

²⁶ Department of Climate Change, Energy, the Environment and Water 2023, 'Carbon Leakage Review Consultation Paper', storage.googleapis.com/files-au-climate/climate-au/prj2a056033effb0b89f5fe/public_assets/Carbon%20Leakage%20Review%20consultation%20paper%20-%20November%202023.pdf.

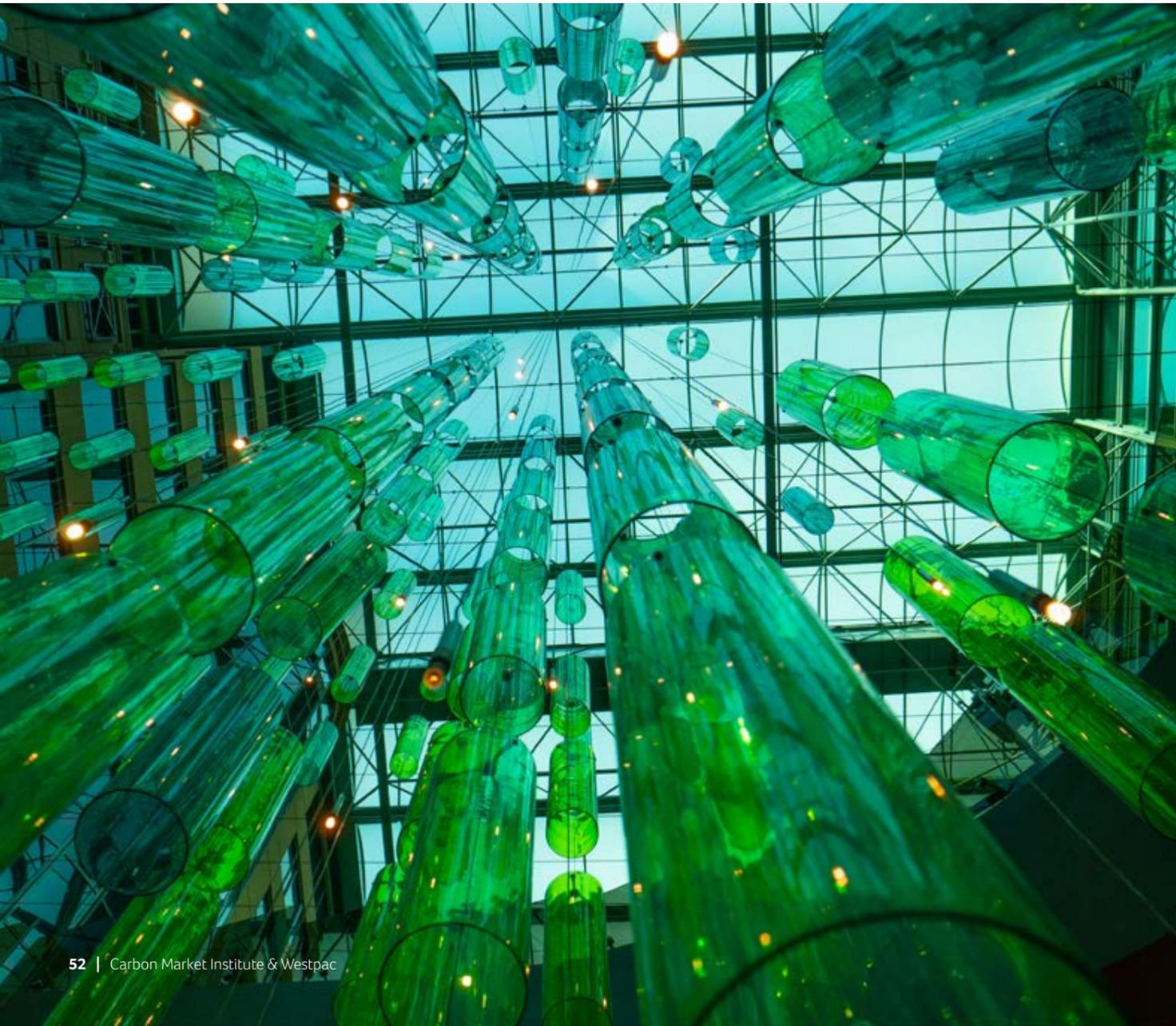
The use of digital ledger registries can help mitigate risks associated with fraud and misrepresentation, and establish a transparent and auditable source of truth for carbon credits.

Interoperability will be a key driver for scaling carbon markets by reducing operational and reputational risks, while simultaneously lowering the cost of capital for intermediaries.

Similarly the seamless integration of registries, risk infrastructure, marketplaces, and exchanges will streamline processes, ensuring accurate and real-time data representation. Having an interconnected international digital ecosystem will also set the stage for trading in a range of provenance-tracked, carbon-footprinted goods and commodities.

The role of technology in scaling carbon markets therefore extends beyond mere facilitation. It is a catalyst for trust, efficiency, and expansion. As we navigate the intricate landscape of environmental stewardship, embracing technological advancements on a national and international scale is crucial to growing robust and efficient carbon markets that underpin our shift to a net-zero economy.

Trovio provides auditable, transparent, and secure technology solutions for uniquely identifiable environmental assets and data rich commodities. Incubated out of an Australian Government Research Centre, Trovio has offices in Sydney, Singapore and Amsterdam, and is committed to accelerating a sustainable future by delivering critical technology infrastructure.



Carbon credits and good practice disclosure

ILONA MILLAR & EMILY MORISON
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Introduction

Over the past few years, buyers of voluntary carbon credits have faced intensifying pressure from public and investor stakeholders to ensure that their uses of credits are credible, and that the role of credits in their emissions reduction strategies is transparently disclosed.

This pressure dovetails with two broader trends that have affected the trajectory of voluntary carbon markets: scrutiny of credit integrity; and concerns about ‘greenwashing’.²⁷

Calls for transparent disclosure about credit use are reflected in new international reporting frameworks from the International Sustainability Standards Board (ISSB) and others, which specifically require disclosures about credits. These standards will underpin regional, national and sub-national mandatory reporting frameworks – including in Australia and across the Asia Pacific.

This chapter explores the evolving expectations that businesses across the world face to disclose their use of credits, and how companies can respond to these changes.

International voluntary standards paving the way for good practice disclosure

The ISSB is an independent standard-setting body formed as part of the International Financial Reporting Standards (IFRS) Foundation in 2021, in response to demand from investors for companies to provide high-quality, globally comparable information on sustainability-related risks and opportunities.²⁸

In June 2023, the ISSB launched its first set of sustainability reporting standards, which relevantly included ‘IFRS S2’ on climate-related disclosures. IFRS S2, which serves as the successor to the 2017 Task Force on Climate-Related Financial Disclosures (TCFD) recommendations,²⁹ requires reporting entities to disclose information about their planned use of credits as part of any net emission reduction target, in particular:³⁰

- the extent to which, and how, achieving the target relies on the use of credits;
- which third-party schemes will verify or certify those credits;
- the type of credit (i.e. whether nature-based or based on technological carbon removals, and whether the credit is from an emissions reduction or removal activity); and

²⁷ See: United Nations’ High Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, Integrity Matters: Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions (Report, 8 November 2022).

²⁸ www.ifrs.org/groups/international-sustainability-standards-board/

²⁹ The TCFD had simply noted in supplementary guidance that disclosures about climate targets be supported by underlying data and assumptions about use of offsets, and that transition plans address the relative contribution of offsets toward targets. Task Force on Climate-related Financial Disclosures, Guidance on Metrics, Targets, and Transition Plans (Report, July 2021).

³⁰ International Financial Reporting Standards, IFRS S2 Climate-related Disclosures (Standard, 2023) www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s2-climate-related-disclosures/

KEY POINTS

Buyers of carbon credits are under intensifying pressure to demonstrate that they are using them for credible purposes.

The voluntary ISSB international disclosure standard requires reporting entities to disclose a range of information about how they plan to use credits to help meet their emissions targets.

Other international guidance (VCMI and the TPT) also specify good practice disclosure requirements on the use of carbon credits.

The EU and California have mandated the disclosure of detailed information about the use of credits, and other parts of the world are gradually moving toward mandatory disclosure on carbon credit use.

In Australia, the combination of imminent disclosure legislation and an imminent new sustainability reporting accounting standard will make it important for companies to develop credible, detailed, public strategies on their use of carbon credits.

Companies could be exposed to litigation risks if they are not transparent about the role of credits, and the types of credits used, when making claims about emissions reductions or carbon neutrality. Strategic litigants in Australia have launched proceedings against three companies over statements relating to their use of credits.

Companies should arm themselves with a detailed understanding of the characteristics of the credits they use and develop business processes and systems to support more sophisticated due diligence and data disclosure.

- d. any other factors necessary for users of general purpose financial reports³¹ to understand the credibility and integrity of the credits that the entity plans to use (e.g. assumptions regarding permanence).

IFRS S2 only requires reporting on planned – not actual – use of credits, as it is concerned with the role of credits in strategic decision-making about climate targets. However, ISSB guidance notes that as part of this disclosure, an entity might also include information about credits it has already purchased, which the entity is planning to use to meet its net greenhouse gas emissions target, if the information would enable users of general purpose financial reports to understand the entity’s greenhouse gas emissions target.³²

A complimentary approach has been taken by the Voluntary Carbon Markets Integrity Initiative (VCMI), an international non-profit organisation announced by COP26 President-Designate Alok Sharma in 2021 to enable high-integrity voluntary carbon markets that align with the goals of the Paris Agreement.³³ Last year, the VCMI launched a ‘Claims Code of Practice’ to encourage corporate engagement with voluntary carbon markets by helping them to make credible claims about use of carbon credits as part of a net zero strategy. Companies making claims under the Code must disclose information about the credits they have retired, including the relevant certification standard, project, and vintage, and whether a corresponding adjustment has been applied under Article 6 of the Paris Agreement.³⁴ In this way, unlike IFRS S2, the

Code is most concerned with actual rather than planned credit use, in the context of making backward-facing claims.

Bringing planned and actual use of credits within a single disclosure framework is the UK Government-led Transition Plan Taskforce (TPT); an initiative announced at COP26 in 2021 with a two-year mandate to establish best practice for organisation-level transition plans and develop guidance on disclosures and metrics, drawing on other frameworks including IFRS S2.³⁵ The TPT released final recommendations for good practice disclosures about credible transition plans in October last year. The recommendations address both the planned and actual use of credits, thereby combining elements of IFRS S2 and the VCMI Code.³⁶

Interestingly, the TPT also recommends disclosure of whether and how an entity identifies and manages the impacts and dependencies of credits on its stakeholders, society, the economy, and the natural environment throughout its value chain, which may give rise to sustainability-related risks and opportunities (for example, through human rights impact assessments of credit projects).³⁷

While the TPT’s recommendations are principally designed to inform UK regulatory processes (the UK Financial Conduct Authority is consulting on regulations that draw on the TPT framework this year³⁸), they are also intended to provide a leading example for the development of other jurisdictions’ national standards.³⁹

Table 1 Required carbon credit disclosures under key voluntary standards

	IFRS52	VCMI	TPT
Planned use		 However, companies must disclose science-aligned near term emission reduction targets and commit to net zero by 2050	
Actual Use	 However, companies can report on actual use for purposes of meeting its target		

Source: Gilbert + Tobin

31 IFRS S2 defines these users as ‘existing and potential investors, lenders and other creditors’.
 32 International Financial Reporting Standards Sustainability, IFRS S2 Climate-related Disclosures (Application Guidance, June 2023) 42, [B71] accessed at www.ifrs.org/content/dam/ifrs/publications/pdf-standards-issb/english/2023/issued/part-a/issb-2023-a-ifrs-s2-climate-related-disclosures.pdf?by=pass-on
 33 vcmintegrity.org/about
 34 Voluntary Carbon Markets Integrity Initiative, Claims Code of Practice (Code, November 2023) 30 accessed at vcmintegrity.org/vcmi-claims-code-of-practice
 35 See TPT Terms of Reference (January 2024) at transitiontaskforce.net/about
 36 The Glasgow Financial Alliance for Net zero (GFANZ) recommendations and guidance for transition planning by financial institutions (released in November 2022) similarly recommends disclosure of planned and actual use: <https://www.gfanzero.com/our-work/financial-institution-net-zero-transition-plans/>
 37 Transition Plan Taskforce, Disclosure Framework (Report, October 2023) 31 accessed at transitiontaskforce.net/disclosure-framework
 38 <https://www.fca.org.uk/news/news-stories/fca-welcomes-launch-transition-plan-taskforce-disclosure-framework>
 39 See TPT Terms of Reference (January 2024) at: transitiontaskforce.net/about

Evolution of mandatory disclosure regimes

In the months following launch of the ISSB’s standards, several jurisdictions, including Australia, Singapore, Hong Kong, the Philippines, Malaysia and the UK, launched consultations on mandatory sustainability disclosure regimes based on IFRS S2.⁴⁰ For credit purchasers, these developments are important. They signal the intention of jurisdictions across the globe – including the Asia Pacific – to mandate disclosures on planned use of credits in corporate climate targets.

Few jurisdictions, however, have gone so far as to legislate credit disclosure requirements at this point.

A leading exception is the EU, which requires entities covered by the EU Corporate Sustainability Reporting Directive (CSRD) (being, broadly, all large companies operating in the EU) to report under new ‘European Sustainability Reporting Standards’ (ESRS) adopted last year. Importantly, the application of the CSRD and ESRS is not limited to EU companies, but also extends to Australian and other Asia Pacific organisations which operate in the EU.

‘ESRS E1-7’⁴¹ requires a reporting company to disclose a range of information about GHG emission reductions or removals from climate mitigation projects outside its value chain that it has financed – or intends to finance – through the purchase of credits.⁴² An interesting feature of ESRS E1-7 is that it requires additional disclosures where a company has made public claims of GHG neutrality that involve using credits, including information to show that this use of credits does not impede its climate ambition. The highly prescriptive nature of the ESRS go beyond the requirements of international voluntary standards, and can be expected to necessitate a significant uplift in processes for data gathering and reporting on carbon credit use – including by Australian and Asia Pacific carbon credit purchasers captured by the regime.

Another notable exception is California’s new AB 1305 Voluntary Carbon Market Disclosure Act passed in October last year, which requires entities that operate in California and use voluntary credits within the state to publish certain information on their websites if they make ‘claims regarding the achievement of net zero emissions, claims that the entity, related entity, or a product is “carbon neutral,” or makes other claims implying the entity, related entity, or a product does not add net carbon dioxide or greenhouse gases to the climate or has made significant reductions to its carbon dioxide or greenhouse gas emissions’.⁴³ Information required to be disclosed includes (among other things) the name of the credit seller, the certification program, the credit type and whether there has been third-party verification of data and claims.

Looking to the broader US, in March this year the US Securities and Exchange Commission (SEC) finalised its rule on climate-related disclosures, after releasing an initial draft in 2022.⁴⁴ The SEC Rule

requires that if carbon credits constitute a ‘material’⁴⁵ component of a registrant’s plan to achieve climate-related targets or goals, it must disclose the amount of carbon avoidance, reduction or removal represented by the credits; the nature and source of those credits; a description and location of the underlying projects; any registries ‘or other authentication’ of the credits; and their cost.⁴⁶ The ‘materiality’ threshold in the rule was not contained in the initial draft, but was inserted to address concerns that the rule would require disclosure detailed carbon credit information that would be of little benefit for investors.⁴⁷

Both the EU and Californian laws show a particular focus on regulating credit disclosure in the context of ‘carbon neutrality’ and ‘net zero’ claims, reflecting the focus of legislators (and stakeholders more broadly) on combatting greenwashing in this space. Meanwhile, the SEC’s approach leaves reporting companies to make their own determinations about the materiality of carbon credits to their overall transition plan and disclose accordingly.⁴⁸ Notably, both the Californian law and SEC rule have been subject to legal challenge, highlighting the polarised nature of climate-related reporting in the US.⁴⁹

The Australian disclosure landscape

IFRS S2-aligned reporting on the horizon

Australia has until recently lacked a prescriptive legal framework for what constitutes appropriate disclosure about credit use, but this is changing. Since 2022, the federal government has worked to develop legislative reforms which would require certain entities covered by Chapter 2M of the Corporations Act 2001 (Cth)—that is, all public companies and large proprietary companies—to make annual climate-related risk disclosures closely aligned with IFRS S2.⁵⁰

The content of the disclosures themselves will be set out in ‘Australian Sustainability Reporting Standards’ (ASRS) that are under development by the Australian Accounting Standards Board, and are expected to require the same disclosures around planned use of credits in net emissions reduction targets as IFRS S2.⁵¹

These IFRS S2-aligned disclosures will likely bring forward the need for companies to develop a credible carbon credits strategy. For example, many companies with net emission reduction targets may not have considered the precise types of credits that they will rely on to achieve their targets, or the ‘factors necessary for users of general purpose financial reports to understand the credibility and integrity’ of these credits.

40 For a list of jurisdictional sustainability reporting consultations, see the IFRS website at: www.ifrs.org/ifrs-sustainability-disclosure-standards-around-the-world/jurisdiction-consultations-on-sustainability-related-disclosures/
 41 Titled ‘GHG removals and GHG mitigation projects financed through carbon credits’.
 42 Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards [2023] OJ L 2772, art 56(b).
 43 Assembly Bill No. 1305 (Voluntary carbon market disclosures) to add Part 10 (commencing with Section 44475) to Division 26 of the Health and Safety Code, relating to carbon offsets.
 44 Final Rule: The Enhancement and Standardization of Climate-Related Disclosures for Investors available at: www.sec.gov/files/rules/final/2024/33-11275.pdf
 45 Where ‘materiality’ refers to the importance of information to investment and voting decision about a particular company.
 46 § 229.1504 (Item 1504) Targets and goals. The same disclosure requirements also apply to Renewable Energy Certificates (RECs).
 47 Page 219 of the Final Rule, available at: www.sec.gov/files/rules/final/2024/33-11275.pdf
 48 Page 219 of the Final Rule, available at: www.sec.gov/files/rules/final/2024/33-11275.pdf
 49 See Clark Mindock, ‘Republican-led states sue US SEC over climate risk disclosure rules’ (Reuters, 7 March 2024) available at: www.reuters.com/sustainability/climate-energy/republican-led-states-sue-they-will-sue-us-securities-regulator-over-climate-2024-03-06/
 50 In January 2023, the government consulted on an exposure draft ‘Treasury Laws Amendment Bill 2024: Climate-related financial disclosure’ which would require climate-related disclosures by certain entities covered by Chapter 2M of the Corporations Act 2001 (Cth), with obligations for ‘group 1’ entities commencing for reporting periods beginning 1 July this year. At time of writing (March 2024), this Bill had not been introduced to Parliament.
 51 [Draft] ASRS 2 Climate-related Financial Disclosures at paragraph 36. Consultations on exposure draft ASRS closed on 1 March 2024.

Carbon credit claims and litigation risk

In the absence of an established legal disclosure framework, private litigants have sought to test corporate carbon credit disclosure practices through the courts.

One catalyst for private litigation in this space was a legal opinion authored by Noel Hutley SC and Sebastian Hartford Davis in 2021, which considered directors' duties under the Corporations Act in the context of formulating net zero strategies. The authors observed that 'depending on the price, availability and characteristics of [carbon] offsets, as well as the company's circumstances, it may therefore be imprudent to rely on offsets as the key pillar of a company's net zero strategy'.⁵²

Shortly after that opinion was published, the Australasian Centre for Corporate Responsibility (ACCR) commenced proceedings in the Federal Court alleging that Santos Ltd breached prohibitions on misleading or deceptive conduct in the Corporations Act 2001 (Cth) and Australian Consumer Law by engaging in misleading or deceptive conduct relating to its 'clean energy' claims and net zero plan in its 2020 Annual Report.⁵³ ACCR alleges (among other things) that Santos failed to disclose in its annual report the extent to which its net zero strategy depends on carbon credit procurement.⁵⁴

While the Santos proceeding is ongoing, 2023 saw strategic litigants launch two further proceedings alleging misleading or deceptive conduct with respect to reliance on credits:

- a. In August, Australian Parents for Climate Action (AP4CA) launched proceedings against EnergyAustralia alleging that statements about its 'Go Neutral' products amounts to misleading or deceptive conduct in breach of section 18 of the Australian Consumer Law.⁵⁵ A critical element of AP4CA's claim is that the carbon neutrality of the Go Neutral products relies on the use of 'avoidance' carbon credits, which do not involve removing carbon from the atmosphere.⁵⁶
- b. In December, Greenpeace Australia, represented by the Environmental Defenders Office, commenced proceedings against Woodside Energy. One aspect of the claim impugns Woodside's representation that it reduced its oil and gas extraction-related emissions by 11% in 2022. Greenpeace alleges that this claim is misleading, given that the reduction is solely attributable to the use of credits and Woodside's actual emissions increased by 3%.⁵⁷

These proceedings highlight the interest of strategic litigants in holding corporates accountable for their use of credits. They also highlight the litigation risks that companies face if they are not transparent about both the role of credits in organisation-level or product-level emission reduction or carbon neutrality claims, and the types of credits that their claims rely on. The outcomes of these cases will hopefully provide companies with pragmatic guidance about the levels of disclosure expected on both fronts.

Of course, these cases all precede the introduction of the federal government's mandatory climate disclosure framework: It will be interesting to see whether or how the Federal Court decisions consider either the ASRS, or broader global reporting frameworks like IFRS S2, the TPT recommendations and the EU ESRS.

Looking ahead

Catalysed by the ISSB and with jurisdictions such as the EU and California leading the way, the world is moving toward mandatory disclosure on both planned and actual carbon credit use. This has important implications for corporates who rely on credits as part of their voluntary net emission reduction strategies, or to make organisation-level or product-level net zero claims.

For Australian carbon credit purchasers, the finalisation of the ASRS, as well as the outcomes in ACCR v Santos, AP4CA v EnergyAustralia, and Greenpeace v Woodside, can be expected to provide much needed legal clarity around the level of disclosure expected from regulators and the courts.

Importantly, these developments should prompt businesses that engage with carbon markets to interrogate the role of credits in their net zero strategies and business practices. Increasingly, businesses will need to develop a more sophisticated view of carbon credit characteristics that may impact their credibility and integrity, particularly in the eyes of investors. This will require greater maturity in businesses' carbon market strategies and associated due diligence processes beyond simply naming the relevant crediting standards and projects. As mandatory reporting frameworks continue to take shape, standards developed by voluntary carbon market initiatives such as the VCMi also have an important role to play in defining good disclosure practice and giving corporates the tools and understanding they need to uplift those practices. Corporates should move swiftly to ensure that their data gathering processes and contractual arrangements enable them to gather and disclose broader types of information in line with evolving requirements.

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As mandatory reporting frameworks continue to take shape, standards developed by voluntary carbon market initiatives such as the VCMi also have an important role to play in defining good disclosure practice.

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⁵² Noel Hutley and Sebastian Davis, Further Supplementary Memorandum of Opinion (Memorandum, 23 April 2021) 15, [45].

⁵³ Australasian Centre for Corporate Responsibility v Santos (Federal Court of Australia, NSD858/2021). ACCR argues contravention of section 18 (as well as section 1041H of the Corporations Act), and section 33 in relation to its natural gas and blue hydrogen products. See: 'ACCR v Santos Media Background - Amended Case', ACCR (Web Page) www.accr.org.au/downloads/accr-v-santos-media-background-amended-case.docx.pdf

⁵⁴ See also Danick Trouwloon, Charlotte Streck, Thiago Chagas and Glenperd Martinus, 'Understanding the Use of Carbon Credits by Companies: A Review of the Defining Elements of Corporate Climate Claims' (2023) 7(4) Global Challenges 4.

⁵⁵ Australian Parents for Climate Action (AP4CA) v EnergyAustralia (Federal Court of Australia, NSD833/2023); 'Australian Parents for Climate Action v EnergyAustralia', Climate Case Chart (Web Page) climatecasechart.com/non-us-case/australian-parents-for-climate-action-v-energyaustralia

⁵⁶ 'Australian Parents for Climate Action v EnergyAustralia', Equity Generation Lawyers (Web Page) equitygenerationlawyers.com/cases/ap4ca-v-ee

⁵⁷ Greenpeace v Woodside (Federal Court of Australia), 'Greenpeace Australia Pacific takes Woodside to court alleging misleading climate claims', Greenpeace (Web Page, 14 December 2023) www.greenpeace.org.au/news/greenpeace-australia-pacific-takes-woodside-to-court-alleging-misleading-climate-claims



New integrity frameworks set to shape carbon markets

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In response to continuing debate about carbon market integrity, 2023 saw the finalisation of a number of global frameworks and standards providing guidance to participants across the carbon market. These frameworks build on the objectives set out in Article 6 of the Paris Agreement, which enables countries to work cooperatively in meeting their emissions reduction targets, including through trading carbon credits internationally.

Increasingly, alignment with these frameworks is viewed as a threshold benchmark for quality across multiple facets of corporate decarbonisation strategies, including the development of net zero transition pathways, decarbonisation claims, the design and operation of carbon projects, and the use of carbon credits. The integrity standards and frameworks outlined in this article point to a trend of continuous improvement in the industry.

In this article, we delve into the evolving landscape of carbon market integrity and explore strategies for integrating new checks and frameworks into carbon markets in a practical and effective manner.

Common carbon project integrity principles

From Oceania to the Middle East, numerous carbon market schemes adhere to common integrity principles, including project transparency and the principle of no-net-harm. The integration of these principles into carbon markets is becoming increasingly essential for attracting investment in high-impact carbon projects. One notable example is the adoption of the Australian Offsets Integrity Standards, which are detailed in Table 1 below.

KEY POINTS

A range of carbon market integrity frameworks and standards were developed throughout 2023 and finalised in 2024 to help bolster integrity and trust in the market.

Eligibility under the international aviation industry's CORSIA emissions reduction and offsetting scheme is increasingly being used as a default indicator of credit integrity.

Many jurisdictions globally are introducing legal and regulatory guidance on ensuring integrity in corporate climate claims.

These integrity frameworks and regulations will become increasingly interwoven with various carbon market schemes to continuously improve the impact of emissions mitigation activities.

Existing carbon projects that do not explicitly align with these frameworks will remain available: these will play an important role in the market for years to come.

It is crucial for policymakers and business leaders to understand this emerging carbon market integrity web, to ensure both integrity and scalability of the market.



Table 1: Foundational integrity principles

Australian Offsets Integrity Standards

PRINCIPLE	EXPLANATION
Additionality	The project is additional to what would otherwise occur in the ordinary course of events
Measurable and verifiable	The emissions abatement can be measured and independently verified
Eligible carbon abatement	The project's emissions abatement is eligible to be counted towards meeting Australia's international mitigation obligations
Evidence-based	The method should be supported by clear evidence
Project emissions	Material greenhouse gas emissions emitted as a direct result of the project should be deducted
Conservative	Where a method involves an estimate, projection, or assumption, it should be conservative

Source: Carbon Credits (Carbon Farming Initiative) Act 2011

Australia's Offsets Integrity Standards are legislated criteria underpinning the Australian Carbon Credit Unit (ACCU) Scheme. All ACCU Scheme project methods must meet these criteria, with the aim of ensuring that environmental integrity is achieved for all projects under the scheme.

The integrity principles that form the basis of Australia's Offsets Integrity Standards are also the foundation of the emissions unit eligibility criteria in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (see Table 2). This scheme is intended to ensure net emissions from international aviation — which are not covered in a country's national greenhouse accounts under the Paris Agreement accounting rules — do not exceed 2019 levels, requiring airlines to purchase and surrender eligible carbon credits that meet its criteria to offset emissions above their 2019 levels (with this baseline declining over time).

Table 2: CORSIA Emissions Unit Eligibility Criteria

Program level	
	<ol style="list-style-type: none"> 1. Project methodologies and protocols, and method development process 2. Definitions of the scope of carbon projects and programs 3. Procedures for credit issuance and retirement, and treatment of crediting discounts and crediting periods. 4. Procedures for unit tracking, security in the scheme registry 5. Definition of the legal nature and transfer of credits 6. Project validation and verification standards and procedures 7. Program governance 8. Public participation provisions 9. Environmental and social safeguards 10. Criteria for sustainable development contributions, and MRV of this 11. How the program addresses the avoidance of double counting, issuance and claiming
Credit level	
	<ol style="list-style-type: none"> 1. Additionality 2. Realistic and credible baselines 3. Quantification, monitoring, reporting and verification 4. Clear and transparent chain of custody 5. Permanence 6. Emissions 'leakage' 7. No double counting 8. No net harm

Source: CORSIA

At a more macro level, the Integrity Council for the Voluntary Carbon Market (IC-VCM) — an independent governance body for the voluntary carbon market — aims to create an internationally standardised approach to integrity on the supply side of the carbon market. The IC-VCM released its Core Carbon Principles (CCPs) last year, which provide benchmark threshold criteria for carbon credit quality and integrity across international markets. The 10 CCPs build on universal integrity principles that are listed in table 3.

Table 3: The IC-VCM 10 Core Carbon Principles

Governance	
1	Effective governance
2	Tracking
3	Transparency
4	Robust independent third-party validation and verification
Emissions impact	
5	Additionality
6	Permanence
7	Robust quantification of emission reductions and removals
8	No double counting
Sustainable development	
9	Sustainable development benefits and safeguards
10	Contribution to net zero transition

Source: IC-VCM

These common principles set the foundation for integrity at the starting point of the carbon market value chain: the supply side.

Ensuring integrity in decarbonisation claims

On the demand side of the market, integrity initiatives have also been developed to create cohesion and standardisation from key industry bodies to guide best practice in how to use those credits.

The Carbon Integrity Claims Code of Practice, introduced by the VCM, points to both CORSIA and the IC-VCM's Core Carbon Principles. Companies aiming to have their decarbonisation claims approved by the VCM must demonstrate their progress towards meeting short- and long-term emissions targets, aligned with the best available science. They can achieve Silver, Gold, or Platinum Carbon Integrity claims status, depending on the proportion of their remaining emissions they offset (detailed in table 4 below).

Table 4: VCM Claims Code 'Carbon Integrity' levels

Carbon Integrity Silver	offsetting between 10-50% of the remaining emissions
Carbon Integrity Gold	offsetting above 50% and less than 100% of the remaining emissions
Carbon Integrity Platinum	offsetting equal to or greater than 100% of the remaining emissions (once they have demonstrated progress towards its near-term emission reduction targets.)

Source: VCM

58 Scheduled date, subject to revision.

59 sciencebasedtargets.org/beyond-value-chain-mitigation

To meet the VCM Claims Code requirements and be issued the Carbon Integrity logo and brand mark to display, a company must meet foundational criteria including demonstrating emission reductions in comparison to their base year. Notably, the credits a company must retire must be:

- aligned with CORSIA (when there are no CCP-approved credits available yet in the market for that specific activity type), or
- aligned with the CCPs, or
- CCP-approved credits, starting from 2026.⁵⁸

While this provides businesses with a ready-to-use pathway for making consistent and credible high integrity claims, whether this translates into widespread adoption by companies and consumer trust and understanding of what the logo means remains to be seen. Bain & Company is the first company to have formally made a VCM Carbon Integrity Claim at the Platinum level and a suite of other companies are engaging with VCM's Early Adopter Program.

International cooperation for a cohesive approach to the role of carbon credits in corporate decarbonisation

Building on these frameworks, a major step forward in advancing standards for integrity occurred at the 2023 UNFCCC (United Nations Framework Convention on Climate Change) Conference of the Parties (COP28) in Dubai, when a number of these high-profile decarbonisation standards and initiatives came together seeking to harmonise some of the existing high-level guidance on corporate decarbonisation and the use of high-integrity carbon credits. The following organisations were involved:

- The Voluntary Carbon Markets Integrity Initiative (VCMII)
- The Integrity Council for Voluntary Carbon Markets (IC-VCM)
- The We Mean Business Coalition (WMB)
- The Climate Disclosure Project (CDP)
- The Science Based Targets initiative (SBTi)
- The Greenhouse Gas Protocol (GHG Protocol).

Importantly, the coming together of these initiatives indicated consensus on the critical role that high integrity carbon credits play in decarbonisation plans.

More recently, the Science Based Targets initiative (SBTi) has released guidance on best practice for companies wanting to act on climate change beyond their value chain.⁵⁹ 'Beyond value chain mitigation' (BVCM) aims to ensure that investment in climate mitigation activities (such as through carbon credits) does not delay decarbonisation at-source. The SBTi's latest guidance is particularly influential, with the SBTi followed by over 7600 companies worldwide, and some 4855 having set science-based targets in line with the industry body's Corporate Net Zero Standard.

This new guidance recognises that the transition towards net zero-aligned business models is a long-term transition, and that companies can play a critical role in scaling climate finance and emerging technologies to combat runaway climate change and biodiversity loss. The SBTi states that funding climate action beyond a company's own scope of emissions — including through investing in carbon projects — "is needed to scale existing climate solutions and to innovate new solutions for net-zero".



The integration of [integrity] principles into carbon markets is becoming increasingly essential for attracting investment in high-impact carbon projects.

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The Oxford Offsetting Principles have also recently been revised in February 2024, highlighting the need for carbon markets to scale up carbon removals and investment in nature-based solutions (which can be facilitated by carbon markets) alongside direct decarbonisation.⁶⁰ The Oxford Principles reinforce many of the high-level integrity principles outlined earlier, and call for regulation to be reflective of these (currently voluntary) integrity standards.

The interplay of integrity benchmarks with various schemes

As these best practice guidance and standards mature and evolve, there is an opportunity to incorporate them into existing carbon market policies and regulation. Yet this emerging carbon market integrity web can be difficult for businesses to navigate (see summary in Table 5 below).

Table 5: The Carbon Market Integrity web: Summary of interacting schemes, benchmarks, and frameworks

<p>Compliance schemes</p> <ul style="list-style-type: none"> Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) Singapore carbon pricing scheme Australian Safeguard Mechanism New Zealand Emissions Trading Scheme 	<p>Voluntary quality frameworks</p> <ul style="list-style-type: none"> IC-VCM CCP VCMi
<p>Decarbonisation certification schemes</p> <ul style="list-style-type: none"> Climate Active (Australian Government) Toitū (New Zealand Government) SBTi 	<p>Principles-based frameworks</p> <ul style="list-style-type: none"> Australian Offsets Integrity Standard The Oxford Principles for Net Zero-Aligned Carbon Offsetting (revised 2024) United Nations High Level Expert Group (UNHLEG) San José Principles

Recently, the CORSIA credit eligibility requirements (shown below in Table 6) have been adopted as a minimum benchmark across both compliance schemes and voluntary integrity standards. For example, Singapore's Carbon Pricing (Amendment) Act 2022 allows companies to offset up to five per cent of their taxable emissions. The Singaporean Government has published a credit

For example, while some legacy carbon projects and the credits they generate may not meet all the technical requirements set out by CORSIA or the CCPs, this does not automatically mean that they lack environmental and social impact or integrity. And while some commentators may raise questions about the validity of pre-integrity framework projects and credits, other market participants with sophisticated due diligence processes remain confident in the defensibility and integrity of their credit procurement strategies that pre-date these integrity frameworks.

Policymakers integrating these emerging integrity frameworks into existing policy and regulation should do so in a pragmatic way. For example, policymakers should give consideration to potential credit liquidity constraints that may arise before overlaying new credit eligibility requirements in an existing scheme.

'Eligibility List', which builds upon the CORSIA credit integrity framework, and the crediting schemes currently approved under Singapore's regulations are a subset of the schemes eligible under CORSIA's 2021 to 2023 Pilot Phase – VCS (Verified Carbon Standard), Gold Standard, Global Carbon Council and American Carbon Registry.⁶¹

Table 6: Summary of credits approved as CORSIA-eligible

Standard/programme	Pilot phase eligibility (2021–2023)			First phase eligibility (2024–2026)		
	STATUS	METH EXCLUSIONS	VINTAGE	STATUS*	METH EXCLUSIONS	VINTAGE
American Carbon Registry (ACR)	Approved	Yes	2016–2023	Approved	No	2021–2026
Architecture for REDD+ Transactions' TREES standard (ART TREES)	Approved	No	2016–2023	Approved	No	2021–2026
China GHG Voluntary Emission Reduction Program	Approved	Yes	2016–2020	Didn't apply		
CDM	Approved	Yes	2016–2020	Didn't apply	n/a	n/a
Climate Action Reserve (CAR)	Approved	Yes	2016–2020	Conditionally approved		
Global Carbon Council (GCC)	Approved	Yes	2016–2020	Conditionally approved		
Gold Standard	Approved	Yes	2016–2020	Conditionally approved		
Verified Carbon Standard (VCS)	Approved	Yes	2016–2020	Conditionally approved		
FCPF Carbon Fund Methodological Framework	Approved	Yes	2016–2020	Conditionally approved		
BioCarbon Fund ISFL	Approved	Yes	n/a	Conditionally approved		
Joint Crediting Mechanism (JCM) Mongolia	Conditionally approved	Not defined	n/a	Didn't apply		
SocialCarbon	Approved	Yes	n/a	Applied late, to be assessed later		
BioCarbon Registry	Rejected, invited to re-apply	Not defined	n/a	Rejected, invited to re-apply		
International Carbon Registry	Rejected, invited to re-apply	Not defined	n/a	Rejected, unable to assess the standard		
J-Credit scheme	Rejected, invited to re-apply	Not defined	n/a	Rejected, invited to re-apply		
Cercarbono	Rejected, unable to assess the standard	n/a	n/a	Conditionally approved		
Redd.plus	Rejected	n/a	n/a	Didn't apply		
Carbonpath	Didn't apply	n/a	n/a	Rejected, unable to assess the standard		
KCCI Carbon Standard	Didn't apply	n/a	n/a	Rejected, unable to assess the standard		
Premium Thailand Voluntary Emission Reduction Program (T-VER)	Didn't apply	n/a	n/a	Conditionally approved		
Riverse	Didn't apply	n/a	n/a	Rejected, unable to assess the standard		

* Conditionally approved means that ICAO has requested the standard to apply some changes for it to be able to make it to the EEU's list. Final decisions will be released by March 2024.

Source: Sylvera

⁶⁰ www.smithschool.ox.ac.uk/sites/default/files/2024-02/Oxford-Principles-for-Net-Zero-Aligned-Carbon-Offsetting-revised-2024.pdf
⁶¹ www.nea.gov.sg/docs/default-source/default-document-library/010224-icc-guidance-document---surrendering-of-icc-for-payment-of-carbon-tax-under-cpa.pdf

With compliance schemes, such as Singapore's carbon tax, leveraging the CORSIA credit eligibility list, commentators expect this to place upward pressure on demand for CORSIA-eligible units, and liquidity for eligible units is expected to be limited for the next few years. A key factor influencing this is the requirement for host country governments to approve a unit to be used under CORSIA and to apply a 'corresponding adjustment' to their national emissions accounts, to ensure there is no double counting of the unit. It is understood that currently (as at March 2024) Guyana is the only country to have formally committed to doing so.

Numerous governments are actively engaged in establishing the necessary market infrastructure, governance arrangements, legislation, regulations, and teams to facilitate the implementation of corresponding adjustments. However, some jurisdictions have yet to formulate a definitive policy stance regarding the utilisation of units from projects within their borders to fulfill corporate voluntary or compliance targets. This uncertainty poses a significant challenge for many decarbonising businesses, making it difficult to navigate the evolving landscape of carbon markets.

Looking ahead: Balancing integrity with pragmatism

Despite promising progress and interlinking of initiatives, this complexity is expected to continue in the coming years as carbon market mechanisms and aspirational quality frameworks become increasingly interwoven. CORSIA's credit eligibility list has emerged as a guiding principle for many in the carbon market landscape. It's likely that decarbonisation certification schemes, such as Climate Active in Australia and Toitū in New Zealand, will draw upon these new benchmarks to some extent as they review and refine their own credit eligibility criteria in 2024.

With countries working to achieve their emissions reduction targets under the Paris Agreement, many are looking to do so through Article 6 market mechanisms, including by allowing for international units to be used towards domestic targets. As part of its 2026-7 review of the reformed Safeguard Mechanism, the Australian Government will decide its policy position on allowing international units to be used for compliance purposes. The New Zealand Government may also consider changes to its Emissions Trading Scheme to allow for the use of international units – a draft Bill was released earlier in 2024 proposing that corresponding regulations would prescribe the 'quality standard' for the units.

There is a strong likelihood that any Australian and New Zealand changes would reflect the recent trend of adopting existing international benchmarks, such as CORSIA's unit eligibility criteria, in their domestic schemes. Some major emitters are already exploring international markets in preparedness for this. As sophisticated corporates with voluntary emissions targets and/or coverage under compliance schemes position themselves to meet their 2030 and even 2050 emissions targets, there is merit in closely watching the emerging integrity frameworks working towards iteratively improving the integrity of carbon markets.

TEM (Tasman Environmental Markets) is a leading Asia-Pacific carbon offsetting solutions provider, across voluntary and compliance markets, and is the largest provider of voluntary Australian carbon credits. TEM partners with businesses of all sizes to help them achieve their decarbonisation goals and make a real difference to climate change, people, and the planet via the financing of high-quality carbon offsetting projects.





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