

SECOND EDITION

Carbon Farming Industry Roadmap



FOREWORD



The Carbon Market Institute (CMI) has been pleased to partner with the Queensland Government in developing and implementing a National Roadmap for the growth of the domestic carbon farming industry. First published in 2017, the Roadmap identifies a clear path forward for governments and the private sector working together, addressing opportunities and challenges for the industry's growth out to 2030.

While the market is maturing rapidly, the Roadmap remains highly relevant and this edition tracks key milestone developments and updates data and analysis.

Australia's carbon farming industry is well positioned to make further and more significant contributions to our national and global emissions reduction challenge. This rapidly evolving industry is also delivering important environmental and social outcomes whilst helping to increase agricultural productivity and climate resilience. It is opening new markets and ensuring continued access to old ones. It is driving technological improvement and, not least, generating important new job and revenue opportunities for rural and regional Australia.

CMI is the industry association for business leading the transition to net-zero emissions. In addition to broader industrial decarbonisation imperatives, CMI is focused on building a negative-emissions, carbon avoidance and sequestration industry that can assist that transition to around 50% reductions by 2030 and net-zero emissions before 2050. We believe market-based approaches to emissions reduction provide efficient and effective frameworks to drive the opportunities and investment required.

It is critical that the evolution and expansion of Australia's carbon market is built on a foundation of integrity, transparency and accountability – ensuring that there is ongoing trust in both the quality of the abatement delivered by industry, and

in the behaviour carbon market participants. Since the first edition of this Roadmap CMI has developed the world's first Carbon Industry Code of Conduct. This became fully operational on 1 July 2021 and is already being mandated by some governments as a vital supplement to a world leading system of integrity and assurance.

I commend to you this Roadmap as a useful guide to the development of this carbon farming industry and to working with you to achieve its full potential in the great and urgent economic transition to net-zero emissions already underway.

John Connor



Chief Executive Officer
Carbon Market Institute

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1. EXECUTIVE SUMMARY

2030 INDUSTRY VISION

A vibrant domestic carbon farming industry that contributes significantly to Australia's economy, community and climate repair. By 2030 the sector will:

- create jobs and revenue for communities and regions;
- contribute significantly to Australia's net-zero emissions trajectory; and
- enable a range environmental, social and cultural benefits.

Background to the Carbon Farming Industry Roadmap

In 2015 the world came together to create the Paris Agreement, a global treaty that set a goal of limiting global temperature increases to 2°C above pre-industrial levels, towards 1.5°C by the second half of the century. In recent years, the world has seen a dramatic surge in political, community, consumer and investor pressure for governments and business to take more urgent action on the climate crisis, and reach net-zero emissions by 2050.

Strengthened by the long-term market signal sent by the 2015 Paris Agreement, Australia's carbon farming industry is entering a period of rapid growth. Carbon farming activities, also known internationally as 'nature-based solutions', are now seen by governments, businesses, and communities alike, as a critical source of negative emissions solutions that can be deployed at scale across Australia, whilst also generating a range of other environmental, social, economic and cultural benefits.

Initially launched in November 2017 with support from the Queensland Government, the Roadmap was developed as a national strategic framework that outlines how Australia's carbon farming industry can reach its full economic, environmental and social potential, highlighting the primary actions of key industry stakeholders out to 2030.

Developed initially via consultation with hundreds of stakeholders across the carbon farming supply chain; industry engagement at the 2017 Queensland Carbon Farming

Industry Summit; and a comprehensive industry-wide survey, the Roadmap is now a key foundation for both national and emerging national carbon farming sectors.

As it expands, the carbon farming industry is creating new opportunities to supply high quality abatement to both compliance and voluntary carbon markets, as well as stimulating innovation and investment in the much-needed technologies, services and financial products that will enable these solutions to become low-cost, scalable, and mainstream.

With regular updates and industry progress tracked by CMI, the Australian Carbon Farming Industry Roadmap remains a live and active tool that support cross-sectoral communication, engagement, collaboration and investment in the growth of this important industry of the future.

THE 2°C SCENARIO

Through research, deep consultation with industry, and analysis conducted for the development of this Roadmap, a series of future carbon farming industry scenarios consistent with a 2°C goal were developed.

Under the 'ambitious' scenario, Australia exceeds our current Nationally Determined Contribution (NDC) under the Paris Agreement and becomes more aligned with a 1.5°C trajectory. Under this scenario, the carbon farming sector is expected to continue to grow to deliver significant volumes of abatement, generate new revenue for the regions, and create jobs and additional co-benefits for regional communities in the process.

WHAT WE CAN ACHIEVE

360 - 480 MtCO₂-e carbon abatement delivered

\$10.8 - \$24 billion revenue from carbon projects

10,500 - 21,000 direct and indirect jobs



CARBON FARMING PROJECTS ARE DELIVERING CO-BENEFITS

Co-benefits are positive outcomes associated with carbon farming projects that are additional to the emissions avoided or carbon stored. These social, cultural, economic and environmental benefits occur as a direct result of a project, and where demonstrated, can be attached to, and increase the value of carbon credits generated from the project.



Independent analysis by Energetics¹ for the Queensland Government Department of Environment and Heritage Protection, also found that the amount of carbon abatement could be higher under certain conditions such as increased voluntary demand for offsets as well as stronger policy settings driving a domestic compliance market.

¹ Energetics, 15 September 2017, Unlocking value for the Queensland economy with Land and Agriculture offsets

STAKEHOLDER ACTION PLAN

The Roadmap outlines below a range of clear and defined actions for the carbon farming industry's primary stakeholder groups, which will help to catalyse four critical pillars of industry development.

<p>Government Federal, State and Local Government Policy Leaders, Departments, Agencies, and Statutory Bodies</p>	<p>Finance & Industry Financiers & Investors, Heavy Emitters, and Corporate Entities with carbon neutral products/services or targets.</p>	<p>Communities & Regions Farmers, Landholders, Indigenous Groups, Regional Communities, Agricultural Industry, NRM Groups</p>	<p>Carbon Service Providers Project Proponents, Aggregators, Agents, Auditors, Research and Academia</p>
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PILLAR 1 Optimising Policy Frameworks & Market Design

<ul style="list-style-type: none"> Ensure the ERF is adequately funded until there is a sustainable source of private sector demand. Implement a national market-based approach to emissions reduction covering the electricity sector and heavy emitters to drive private sector demand. Provide more funding for research and development for new methods. Open up ACCU export opportunities. Ensure carbon regulatory frameworks align with pest, fire and natural resource management regimes. 	<ul style="list-style-type: none"> Engage constructively with government on market design and evolution. Participate in the development of a viable secondary market for offsets. 	<ul style="list-style-type: none"> Agricultural industry bodies provide evidence base for method development and prioritisation. Indigenous groups are specifically included in policy and market design, to ensure changes do not adversely impact communities, livelihoods, access to land, or culture. Communities and regional stakeholders contribute to policy and market design activities, including on integration of natural resource, pest and fire management responsibilities, and alignment with local land use plans and conservation strategies. 	<ul style="list-style-type: none"> Engage constructively with government on method development and market design to drive market activity, including support for R&D and pilot projects. Develop and administer a voluntary industry code of conduct. Engage with Indigenous communities in an early and meaningful way to ensure Native Title Holder consent can be appropriately sought, and if granted, maintained over the life of the project. Engage with other Eligible Interest Holders early and in meaningful ways.
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PILLAR 2 Unlocking Finance & Investment

<ul style="list-style-type: none"> Work with project developers to develop scalable aggregation models. Establish policy that helps stimulate a viable secondary market for offsets. Engage with Agricultural, NRM and Indigenous groups to develop investment pathways, including through grants and private capital. Developing verifiable methods for valuing co-benefits associated with offsets and market participation. 	<ul style="list-style-type: none"> Heavy emitters offset emissions liabilities by establishing long term supply contracts for land sector credits. Banks and insurers to introduce new financial products to de-risk carbon farming investment and incentivise positive land management practices. Land valuations to incorporate benefits from carbon farming projects into capital asset values. 	<ul style="list-style-type: none"> Agricultural industry, NRM groups and Indigenous groups articulate the value proposition for investment, and map carbon pathways for producers. Communities and landholders investigate diversification of revenue streams and invest in land productivity. 	<ul style="list-style-type: none"> Project developers to build market integrity and confidence through best practice project implementation. Introduce business models with greater flexibility to assist in getting projects to scale and increasing opportunities for participation from farmers. Make the business case for investment in land sector projects to finance and investment stakeholders.
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PILLAR 3 Quantifying Co-Benefits & Creating New Markets

<ul style="list-style-type: none"> Work with the sector to develop metrics for quantification of co-benefits. Undertake a feasibility study for the creation of new potential environmental markets. Progress development of new methods such as blue carbon, in partnership with research organisations and industry. 	<ul style="list-style-type: none"> Investors fund pilot projects for quantifying co-benefits. Finance and industry stakeholders support the development of new metrics to quantify co-benefits. Industry to partner with government and carbon service providers to develop standards and branding for premium carbon offsets (carbon plus co-benefits). 	<ul style="list-style-type: none"> Agricultural industry, Indigenous groups, farmers and landholders to map opportunities and raise awareness around the value of co-benefits for land based activities/systems. NRM groups, NGOs, industry and communities engage in the development of new environmental markets, and alignment of regional indicators with federal policy. 	<ul style="list-style-type: none"> Project developers contribute to the development of co-benefit measurement, reporting and verification standards and technology. Project developers build and articulate the value of co-benefits. Develop best practice, taxonomy, metrics and MRV frameworks for co-benefit quantification, and improving access to publicly-available related information.
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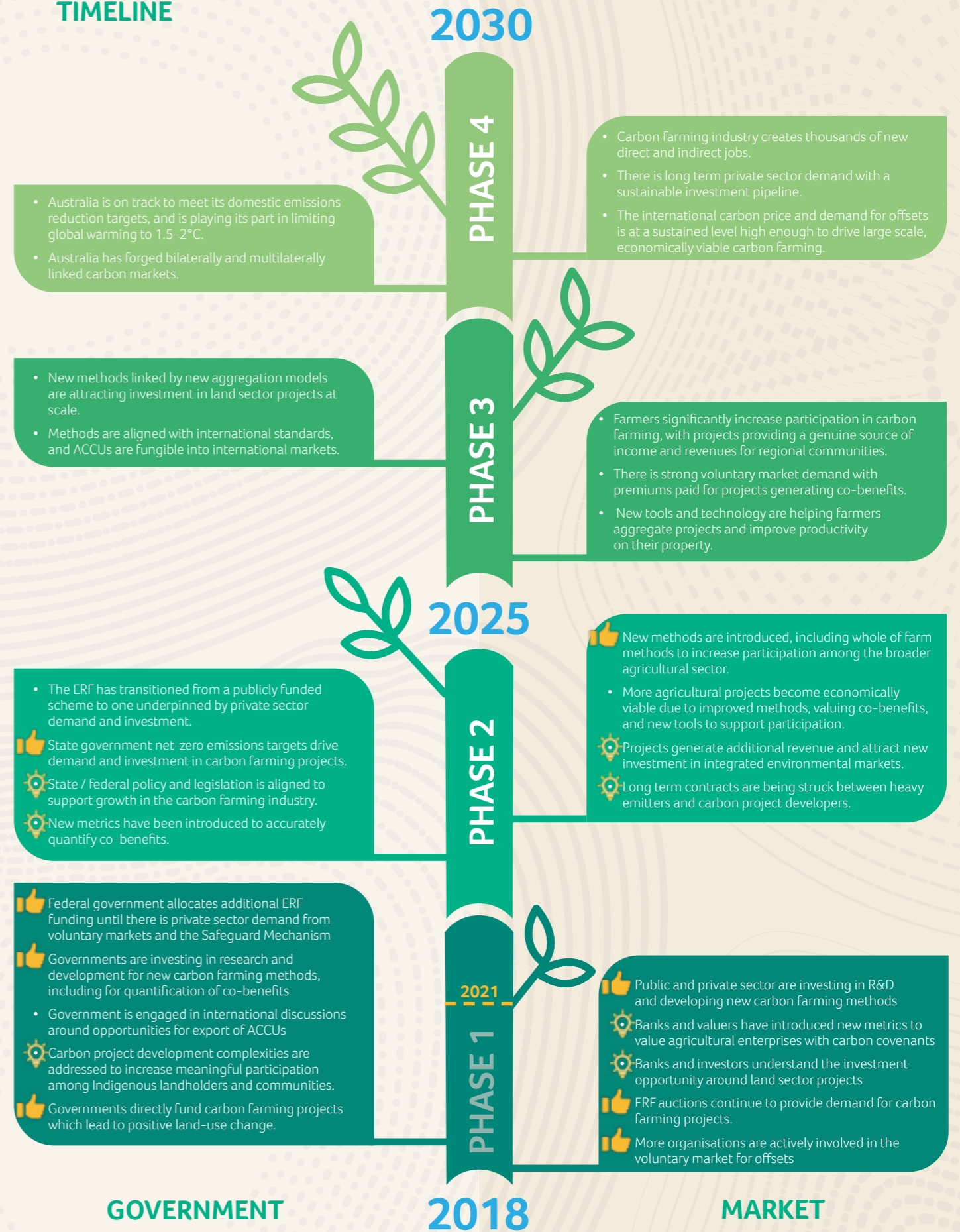
PILLAR 4 Communicating Benefits & Building Capacity

<ul style="list-style-type: none"> Develop and undertake targeted national outreach and education program for land based stakeholders to participate in the ERF. Allocate funding for the continued development of tools and technology that will mainstream environmental and agricultural data, increasing participation through reduced transaction costs. Identify skills needs and develop training programs to support market participation 	<ul style="list-style-type: none"> Enhance capacity within financial organisations and corporates to understand key stakeholders and the carbon farming investment opportunity. Investors to implement new tools and decision-making frameworks to support informed decisions about the risks and opportunities of carbon farming projects. Industry to invest in marketing of products. Heavy emitters build expertise on carbon trading and hedging strategies. 	<ul style="list-style-type: none"> Agricultural industry, NRM groups to develop outreach and education programs for farmers. Agricultural industry, pest, fire & NRM groups incorporate new tools and technology to better integrate and analyse environmental data. Communities and groups develop models for peer to peer knowledge sharing and project development. Agricultural industry to invest in marketing of products. Indigenous groups to leverage other stakeholder networks to educate on right-way engagement. 	<ul style="list-style-type: none"> Align market education of land sector stakeholders with government and agricultural industry initiatives. Create a clear understanding for other stakeholders about the different roles and responsibilities of carbon service providers and clients in project activities, contracts, and transactions. Engage pro-actively with local, Indigenous and other stakeholder groups including pest, fire and NRM agencies. Support and demonstrate local community health, equity and sporting initiatives.
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CARBON FARMING INDUSTRY DEVELOPMENT TIMELINE

The timeline below highlights the key milestones, and progress against them, for the domestic carbon farming industry to meet in order to achieve its vision.

✓ milestones achieved ➔ milestones in progress





Cattle mustering in the Kimberley, Western Australia

SPOTLIGHT: WHAT ARE CO-BENEFITS?

Co-benefits are direct positive outcomes associated with carbon farming projects that are additional to the emissions avoided or carbon stored. They are the social & cultural, economic and environmental benefits that occur as a result of a project. Examples of important co-benefits that can flow from various land sector projects include:

- **Vegetation Projects:** Diverse environmental plantings and human induced natural regrowth provides co-benefits such as restoring damaged or degraded ecosystems, diversified revenue streams for landholders, risk management and improved climate resilience for traditional agricultural activities. Environmental co-benefits include improved water quality where restoring riparian vegetation is involved, as well as greater biodiversity and ecosystem services.
- **Savanna burning Projects:** Savanna burning support remote Indigenous communities by providing a steady source of income for local employees through 'on country' jobs, as well as boosting further local economic activity. Socially and culturally there are benefits too, as savanna burning builds on traditional and customary practice and helps to preserve knowledge.
- **Agriculture Projects:** Soil carbon projects also result in improved soil health which can lead to improved agricultural productivity. Methane capture projects can provide a means for generating renewable energy and improving the efficiency of intensive farm operations like piggeries and dairies.

Co-benefits are a key policy driver for some state and territory governments where land sector projects, or indeed coastal (blue carbon) are seen as able to deliver on multiple non-climate benefits that might otherwise require alternate investment. The Federal government is also trialling a 'carbon + biodiversity' co-benefit scheme, and will create new co-benefit opportunities.

There is increasing recognition in Australia, and globally, of the potential to leverage carbon markets to produce high-quality credits that facilitate climate, land, ecosystem and cultural repair.

Australia is at a critical juncture in its positioning around co-benefits. The global carbon market is yet to achieve a level of consistency and credibility around the measurement, reporting and verification of co-benefits, although there are frameworks to build upon.

At the highest level, there are effective and respected international standards and guidelines that can provide a valuable platform for integrating co-benefits in the Australian domestic market (for example Gold Standard⁷ and Verified Carbon Standard⁸). Additional work by state and territory governments in partnership with research and industry organisations could develop defensible, credible and transferable frameworks to attach certified co-benefits to land sector carbon credits.

As a leader in carbon farming projects that deliver high-integrity carbon credits (ACCUs) under a robust, government-backed scheme, Australia has an opportunity to replicate this market integrity and deliver a co-ordinated approach with regards to co-benefit integration.

Whilst there is no consensus on the best entry point for integration of co-benefits under current market arrangements, there are many considerable opportunities to seize in enhancing the visibility of co-benefits under current market conditions and reframing the carbon farming narrative around co-benefits.

As the voluntary carbon market expands, carbon offsets with verifiable co-benefits will continue to attract a premium price from buyers that wish to align their carbon procurement with consumer values, deliver on strategic goals, and enhance their social licence to operate.

Australia's carbon farming industry can facilitate strong co-benefit market development, by:

- building robust co-benefit taxonomy, transparency, assurance and standards frameworks that can be integrated with existing carbon market structures;
- providing market participants with clear, consistent, easily accessible information, including price, volume, and origination data; and
- developing a 'meta-standard' that provides Australian market participants with a set of integrity principles and guidance on how co-benefits should be consistently measured reported and verified across the country.

By integrating co-benefits, Australia's carbon farming industry can drive investment into repairing degraded landscapes, improving health of agricultural soils, protecting areas of high conservation value, delivering jobs in rural and regional communities, providing new income streams, and protecting Australia's cultural heritage and traditional land management practices.

⁷<https://www.goldstandard.org/>
⁸<http://www.v-c-s.org/>

2. CARBON FARMING

WHAT IS CARBON FARMING AND WHY IS IT IMPORTANT?

Carbon farming is a small, but established national industry, that has been making a significant contribution to Australia's climate crisis response for over a decade, whilst also increasingly delivering other important environmental, economic, social and cultural benefits to communities and regions across the country.

Carbon farming refers to practices across the landscape that actively manage vegetation, fire, soil or livestock to increase storage of carbon in our landscapes, or to avoid release of damaging greenhouse gases, particularly methane and nitrous oxide.

Importantly, carbon farming can be implemented to create environmental, productivity, and social co-benefits such as: rural and regional economic and income diversification; new or restored native species habitat; retention and transference of cultural knowledge; greater agricultural productivity; and improved water quality. The potential market for carbon credits with verifiable co-benefits means multiple benefits for the land sector can be achieved for a fraction of the cost of pursuing those objectives individually through separate government programs.

State of Play in Australia

Carbon farming makes a strong contribution to Australia's 2030 emissions reduction target of 26-28% on 2005 levels. Our national industry was born with the establishment of the

Carbon Farming Initiative (CFI), which commenced operation in Australia on 8 December 2011. A Federal Government carbon offsetting scheme established by the Carbon Credits (Carbon Farming Initiative) Act 2011 (the CFI Act), the CFI enabled emissions avoidance or carbon sequestration projects for the purpose of generating Australian Carbon Credit Units (ACCUs) with each unit being equivalent to one tonne of CO₂e.

Operated by the Clean Energy Regulator (CER), the ERF is a national framework used to measure, report and verify emissions reductions against a range of project methods, and then issue ACCUs that can be sold back to the Government, or increasingly, to voluntary buyers in the private sector. As of January 2022, the Clean Energy Regulator (CER) has:

- registered more than 1300 emissions reduction projects under the Emissions Reduction Fund, and nearly 80% of these represent land-based vegetation, savanna burning or agriculture projects. These projects combined have generated 66% of the Australian Carbon Credit Units (ACCUs) issued by the CER to date.
- been the primary source of ACCU demand, committing \$2.6 billion of public ERF funding to projects through a 'reverse auction' process, that will then generate and sell ACCUs back to the government. Following its 13th auction (October 2021²), the CER has contracted over 209 million tonnes of abatement at an average price across 13 auctions of \$13.72 to be delivered to government over 16 years (2015 - 2031).

Outlined below are examples of carbon farming activities, including a national breakdown of ERF-funded activities, and a state and territory picture of where these activities are happening across the country.

Whilst the ERF remains the primary buyer of ACCUs, expanding voluntary market signals are driving the rapid evolution of this industry (see Chapter 3: Market Dynamics).

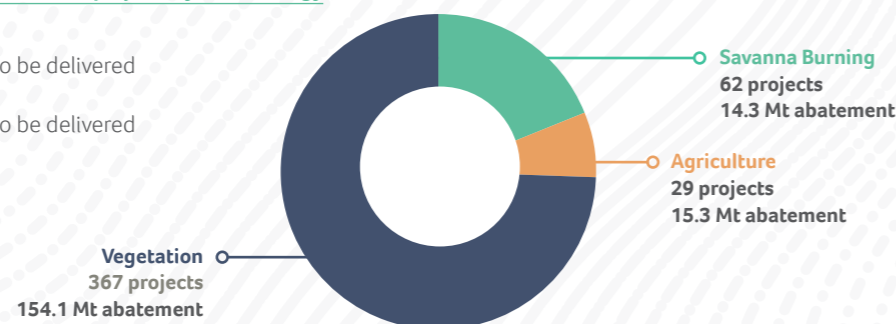
Figure 2: Examples of carbon farming methods approved under the ERF

Vegetation	Savanna Burning	Agriculture
<ul style="list-style-type: none"> • Regenerating native forest on previously cleared land. • Protecting native forests by reducing land clearing. • Planting trees to grow carbon stocks. • Restoration of coastal wetlands (blue carbon). 	<ul style="list-style-type: none"> • Managing bushfires in Australia's savannas to avoid high intensity late season fires. 	<ul style="list-style-type: none"> • Building soil carbon through changed farming practices such as crop stubble retention. • Reducing emissions from beef cattle and milking cows through dietary supplements or efficient herd management. • Capturing and destroying the methane from effluent waste at piggeries.

Figure 3: Breakdown of land sector ERF contracted projects by methodology³

Land Sector Total:
458 projects, 183.7 Mt of abatement to be delivered

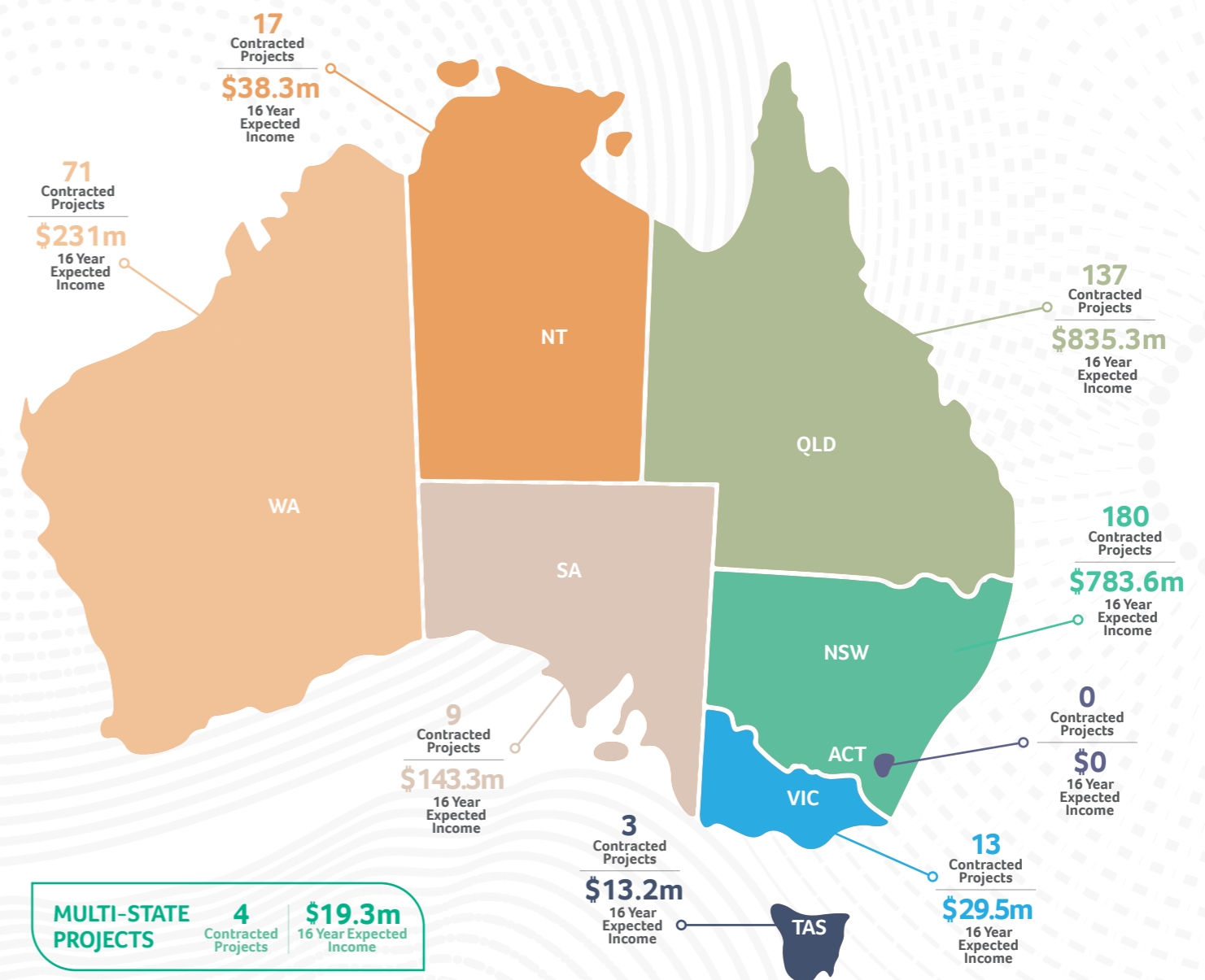
ERF Total:
563 projects, 229.1 Mt of abatement to be delivered



² Clean Energy Regulator, <http://www.cleanenergyregulator.gov.au/ERF/Auctions-results/october-2021>, Accessed February 2022

³ Clean Energy Regulator, Contract Register, <http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/carbon-abatement-contract-register>, Accessed February 2022

Figure 4: Land sector projects contracted under the ERF, state breakdown



State & Territory Participation

Using data from the CER's ERF Project Register, and Carbon Abatement Contract Register, the map above shows the state and territory breakdown for federal government- contracted land sector projects. The map shows the number of contracted projects in each state, as well as the predicted carbon revenue over the full life of the scheme, with crediting activities occurring from 2015, through until 2031.

Carbon revenue has been determined by multiplying the total contracted abatement (tonnes CO₂e) by the average weighted auction price after thirteen ERF auctions (\$12.28). Across Australia there is approximately \$2.094 billion worth of contracted abatement to be delivered by land sector projects⁴.

Emerging Subnational Markets

Sub-national governments are developing investment programs that support localised carbon farming opportunities. The first of these is the **Queensland Government's Land Restoration Fund (LRF)**⁵, a \$500 million program supporting state-based land-sector carbon projects that deliver additional environmental, socio-economic, and First Nations co-benefits.

Similarly Western Australia's recent \$15 million **Carbon Farming and Land Restoration Program**⁶ aims to realise agriculture's potential to sequester carbon in the landscape, deliver co-benefits and contribute to the growth of the WA carbon farming industry. Keep an eye out for other state programs coming soon!

⁴ Clean Energy Regulator, Contract Register, <http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/carbon-abatement-contract-register>, Accessed February 2022.

⁵ Queensland Land Restoration Fund, <https://www.qld.gov.au/environment/climate/climate-change/land-restoration-fund>, Accessed September 2021.

⁶ Western Australia Carbon Farming and Land Restoration Program, <https://www.agric.wa.gov.au/carbon-farming/western-australian-carbon-farming-and-land-restoration-program>, Accessed September 2021.

SPOTLIGHT: THE OPPORTUNITY FOR QUEENSLAND

The Queensland Government is committed to playing its part in the global effort to address the impacts of climate change and ensure the long-term viability of the state's economy, communities and industries. The Queensland Climate Change Response includes the Queensland Climate Transition Strategy which outlines the first steps in transitioning to a zero-net emissions economy by 2050 that supports jobs, industries, communities and the environment. A key theme of the Strategy is the need to facilitate and transition to the zero emissions industries of the future, which includes expansion of carbon farming as a critical industry development goal.

Reflective of its significant biophysical potential, Queensland has secured a large portion of contracted abatement from the land sector under the ERF. Across the state, 114 carbon farming projects have to deliver approximately 74.7 MtCO_{2e} of abatement under ERF contracts, worth approximately \$794.9 million⁷ over a 16 year period (2015 - 2031).

Independent analysis by Energetics in 2017 indicates that Queensland has an opportunity to generate between \$1.4 and \$4.7 billion from land and agriculture offsets cumulatively by 2030, abating between 32 and 104 million tonnes across the

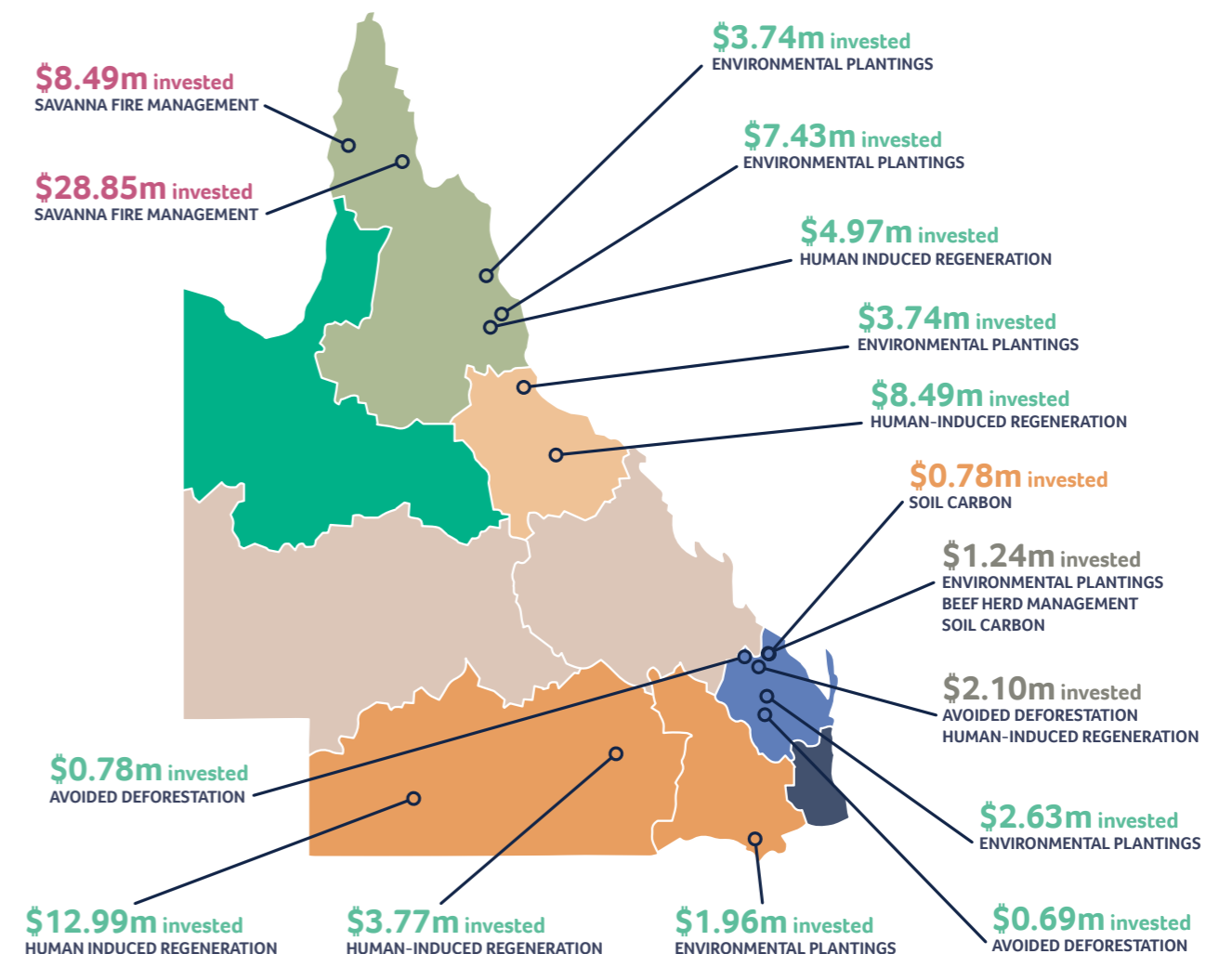
decade. A further 270 - 502 million tonnes of abatement worth up to \$8 billion to the Queensland economy could be achieved if the market saw under-delivery of abatement by other sectors in the economy; increased voluntary demand for offsets; accelerated strengthening of Safeguard Mechanism baselines; and growth in Australia's projected business as usual emissions.

The Land Restoration Fund

The Queensland Government's Land Restoration Fund (LRF) is a \$500 million investment fund that aims to expand carbon farming in the state by supporting land-sector carbon projects that deliver additional environmental, socio-economic and First Nations co-benefits. The LRF supports landholders, farmers and First Nations peoples to generate new, regular income streams through carbon farming projects whilst providing valuable co-benefits such as healthier waterways, increased habitat for threatened species, and more resilient landscapes.

Undertaken in 2020, The LRF's Investment Round 1, committed \$53.96 million to a portfolio of 16 projects across the state. Beyond creating carbon emissions reduction, these projects will have outcomes that include protecting koalas and their habitats; reforestation of native forests; improving water quality to the Great Barrier Reef; supporting First Nations livelihoods and land restoration; and future works that drive job creation.

Figure 5: Project Portfolio Map - LRF Investment Round 1



⁷ Clean Energy Regulator, Contract Register, <http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/carbon-abatement-contract-register>, Accessed September 2021.
⁸ Energetics, Unlocking value for the Queensland economy with land and agriculture offsets, Department of Environment and Heritage Protection, Queensland Government, 2017.

3. 2030 SCENARIOS & INDICATORS

MAPPING OUT 2030 SCENARIOS

A range of Government and non-Government studies undertaken in recent years project Australia's emissions reduction potential under various policy and ambition scenarios. Projections below do not seek to duplicate existing research but rather provide an 'industry perspective', obtained through surveys and consultations.

Consultations were conducted with informed stakeholders across the carbon farming supply chain in response to 3 scenarios put forward.

Stakeholders indicated that if Australia over-achieved its 2030 Nationally Determined Contribution (NDC), that the land sector could contribute 30-40% of Australia's 2020-2030 abatement challenge, generating new revenue, jobs and benefits for rural communities.

The three distinct scenarios for the future of the carbon farming industry are outlined below, along with key economic indicators.

SCENARIO 1	SCENARIO 2	SCENARIO 3
<p>Australia fails to meet its NDC</p> <p>Australia fails to meet its current NDC target of a 26-28% reduction below 2005 levels by 2030. Australia uses its existing policy settings, without increasing ambition, strengthening policy settings, or introducing new policies. Australia only achieves a 2% reduction below 2005 levels by 2030.</p>	<p>Australia meets its NDC</p> <p>Australia achieves its current NDC target of a 26-28% reduction below 2005 levels by 2030. Australia uses existing policies with raised ambition to achieve this, including the application of stronger policy settings that actively drive emissions reductions, rather than merely preventing increases.</p>	<p>Australia over-achieves its NDC (2°C Scenario)</p> <p>Australia reduces emissions by 45% below 2005 levels by 2030, a pathway consistent with a net-zero 2050 trajectory. Australia increases the ambition of its existing suite of climate policies, including strengthening current policies, introducing new policies and allowing international market access.</p>
Australia delivers 675 MtCO_{2e} of abatement between 2020-2030.	Australia delivers 900 MtCO_{2e} of abatement between 2020-2030.	Australia delivers 1200 MtCO_{2e} of abatement between 2020-2030.

KEY ECONOMIC INDICATORS

LAND SECTOR ABATEMENT		
<p>195 - 260 MtCO_{2e}</p> <p>Stakeholder assumptions: carbon farming sector contributes 30-40% to Australia's 2020-2030 abatement</p>	<p>270 - 360 MtCO_{2e}</p> <p>Stakeholder assumptions: carbon farming sector contributes 30-40% to Australia's 2020-2030 abatement</p>	<p>360 - 480 MtCO_{2e}</p> <p>Stakeholder assumptions: carbon farming sector contributes 30-40% to Australia's 2020-2030 abatement</p>
CARBON INCOME (AUD)		
<p>\$1.4b - \$3.6b</p> <p>Stakeholders assumptions: 195 - 260 MtCO_{2e} abated and an average carbon price of A\$7-\$14/tonne</p>	<p>\$4.1b - \$10.4b</p> <p>Stakeholders assumptions: 270 - 360 MtCO_{2e} abated and an average carbon price of A\$15-\$29/tonne</p>	<p>\$10.8b - \$24b</p> <p>Stakeholders assumptions: 360 - 480 MtCO_{2e} abated and an average carbon price of A\$30-\$50/tonne</p>
JOBS		
<p>5,700 - 11,400 jobs</p> <p>Stakeholders assumptions: (median) 228 MtCO_{2e} abated. Jobs growth of 25-50 jobs per MtCO_{2e} abated</p>	<p>7,875 - 15,750 jobs</p> <p>Stakeholders assumptions: (median) 315 MtCO_{2e} abated. Jobs growth of 25-50 jobs per MtCO_{2e} abated</p>	<p>10,500 - 21,000 jobs</p> <p>Stakeholders assumptions: (median) 420 MtCO_{2e} abated. Jobs growth of 25-50 jobs per MtCO_{2e} abated</p>

KEY ECONOMIC INDICATORS

Under the 2°C scenario, industry has indicated there will be considerable abatement, income and jobs benefits. These quantifiable benefits also have implications for local communities, businesses and the economy.



Land Sector Abatement

Large volumes of land sector abatement could be achieved as carbon prices rise. Stakeholders indicated that a number of agriculture methods have the potential to be viable at carbon prices above \$15/tonne including methods which encourage better management of pastures and therefore higher emissions sequestration in soils, and vegetation. At a carbon price of \$25MtCO_{2e}, stakeholders commented that native forest regrowth projects have the potential to deliver abatement at scale.



Jobs

Stakeholders commented that carbon farming can increase the number of people in work and that, in a 2°C Scenario, could create nearly 10,000 direct jobs and potentially more than 20,000 indirect jobs. Stakeholders also noted that carbon farming can foster more diversified employment and skills and provide new opportunities for small and medium-sized businesses.



Carbon Income

Stakeholders commented that carbon farming could generate \$10.8 - \$24 billion between 2020 and 2030 in an ambitious scenario that would allow access to revenue streams from domestic and international carbon trading and revenue streams from realising co-benefits. It is assumed that as the carbon price increases, there is additional market activity and participation in carbon farming, leading to increased income from land sector projects.



Community Impact

There is a direct relationship between the scale of the carbon farming industry and benefits for communities and regions. This is because more abatement generates new revenue and income but also because a higher carbon price scenario incentivises more projects that deliver sustainable development co-benefits. Rural and regional communities would be the largest beneficiary of these benefits which include: landscape protection, biodiversity, water quality improvements, economic opportunities for indigenous communities and productivity improvements for agriculture.

Team preparing to plant seedlings by hand in Carbon Neutral's Yarra Yarra Biodiversity Corridor Project, Western Australia





Late season fire burning on Wik country for the Southern Aurukun Project, Queensland

CASE STUDY: INDIGENOUS CARBON FARMING

The Indigenous carbon industry began with its first successful West Arnhem Land Fire Abatement (WALFA) project in 2006, and has grown to include over 30 Indigenous-owned savanna fire projects across the Top End of the Northern Territory, the Kimberley and Far North Queensland.

The Indigenous carbon industry is an important vehicle that enables Indigenous people to work on their traditional lands; provide jobs and training that maintain connections to family, community and country; and generates revenue for Indigenous ranger groups and land owners across northern Australia.

The industry is now represented by the Indigenous Carbon Industry Network (ICIN), who also provides *guidance on seeking free, prior and informed consent from Indigenous communities on carbon projects*⁹.

What is Savanna Burning?

Greenhouse gases emitted from savanna fires make up 3% of Australia's total emissions.

Savanna burning projects undertaken by Traditional Owners and Aboriginal rangers reduce GHG emissions by undertaking cool, lower intensity fires in the early dry season when the vegetation still contains some moisture from the wet season.

This reduces the GHG emitted from high intensity, unmanaged fire in the late dry season when the country is

dry.

The Southern Aurukun Savanna Burning Project

The Southern Aurukun Savanna Burning Project combines traditional knowledge — how to read country and knowing when to burn — with modern hardware like helicopters, fireballs and leaf blowers to ensure traditional patchwork burning is restored in the right way and greenhouse gas emissions are reduced on country. The project undertaken on Wik and Kugu country to the south of Aurukun township in Queensland.

Who Develops the Project?

The project is carried out by the Rangers at Aak Puul Ngantam Cape York (APN Cape York). 'Aak Puul Ngantam' means "our father's father's country" and refers directly to ancestral homelands. APN Cape York is a not-for-profit, and registered charity organisation. All funds from the carbon project are reinvested back into operations, capacity building and infrastructure development.

What are the Benefits?

Traditional Owners always say managing country is more important than the carbon credits. In addition to the carbon abatement the project is delivering 'core benefits' to country:

- Managing country the right way
- Revitalising connection to country
- Improving corridors to take pressure off wildlife
- Building new fire skills and experience for APN Rangers
- Employing Traditional Owners as new trainee rangers
- Rejuvenating the outstation maintenance program
- Supporting a school camp for Year 6 students of Aurukun School to connect kids to country.



Rangers working in the Aurukun township on Wik and Kugu country, Queensland



⁹ Indigenous Carbon Industry Network Guidance on seeking free, prior and informed consent from Indigenous communities on carbon projects, https://www.icin.org.au/resource_files, Accessed September 2021.

4. MARKET DYNAMICS

INDUSTRY DRIVERS

The 2015 Paris Agreement aims to limit global temperature increase to 1.5 - 2°C degrees Celsius, by the second half of this century. As a global treaty without an end date, the Paris Agreement provides a clear market signal that global emissions are now on an ongoing downward trajectory, towards a

What is driving our industry?

International Drivers

The Paris Agreement & Article 6: Adoption of the Paris Agreement in 2015 set a clear signal to the global economy that the ongoing trajectory of global emissions must be down. Critically, Article 6 of the treaty sets out how market and non-market approaches can be used towards these Paris goals, and so there is clarity that the use of carbon credits will be an important tool for governments and voluntary actors in the coming years.

Increased Climate Ambition: As the science becomes more clear, and the urgency of mitigating and adapting to the impacts of climate change becomes more immediate, governments are coalescing around the needs for net-zero emissions by 2050, and increasing the push for stronger 2030 and 2040 interim targets. With ambitious targets being set by more and more countries, climate repair solutions like carbon farming, are now a foundation of future global trade and economic development.

International Trade Implications: With many of the world's largest economies setting net-zero targets, including Australia's top 10 two-way trading partners, there is pressure on the Australian government to increase its climate ambition and set (at least) a net-zero by 2050 target, with interim targets and policies that outline how to get there. Increasingly countries are investigating and implementing carbon border adjustment mechanisms (CBAMs) to protect local decarbonising industries from emissions-intensive products from global laggards like Australia. Such mechanisms are due for implementation by the European Union, and are under investigation by Japan, Canada and the United States of America.

Global Sectoral Leadership: Mature global industries that transcend national borders, are driving sectoral action to ensure viability in a carbon constrained future. The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is aiming for carbon neutral growth of civil aviation from 2020; and the International Maritime Organisation is developing a strategy to reduce emissions from the global shipping industry by at least 40% by 2030, and 50% by 2050.

Domestic Drivers

Corporate & Investor Leadership: Investors, emissions intensive industries and other corporate entities are demanding clear policy signals that enable stable, long-term investment in decarbonisation activities and assets. These entities are also being driven by the above international pressures, and so are looking to take a leadership position amongst their competitors. In doing so, the private sector is moving rapidly ahead of domestic policy settings, and investing in not only carbon farming activities, but the other technology, finance and other ancillary industries that will be needed to deploy these solutions at scale.

New & Diversified Income Streams: Carbon farming delivers financial returns for landholders and agricultural enterprises - particularly for unproductive/degraded land. Carbon income is an important additional revenue stream for farmers, providing added opportunities to re-invest back into agricultural enterprises.

carbon-constrained future. With the world moving further into a post-Paris Agreement world, demand for land-sector carbon is increasing, and from a range of new and emerging sources, including from compliance and voluntary carbon markets.

Scaling Australia's young and rapidly evolving carbon farming industry, requires an understanding of these demand drivers - both the international and domestic policy and market factors that will shape the pathway ahead.

Investor Pressure: New climate risk measurement, disclosure and management frameworks, such as the recommendations of the Taskforce on Climate-Related Financial Disclosure (TCFD), are being embraced by investors globally. With climate change now identified as a critical risk to trillions of dollars-worth of long-term assets and returns, alignment of investment portfolios with the goals of the Paris Agreement is now a priority. This includes setting ambitious net zero and interim emissions targets; demanding climate action be taken by businesses they are major shareholders of; divesting from carbon-intensive and fossil fuel assets from their portfolios; and prosecuting these issues to global business and government leaders.

Corporate Net-Zero Action: Corporates are moving quickly to become climate leaders, setting net-zero targets that reduce climate and governance risks, and enhance their social licence to operate. Implementing net-zero strategies increasingly include offsetting plans and components, with a focus on high quality domestic carbon farming activities with co-benefits.

Future Compliance Risk: Companies already covered by Australian and international carbon compliance mechanisms, those aware of potential future emissions liabilities, are increasingly engaging in longer-term offtake agreements with carbon project developers. These activities enable companies to directly invest in carbon farming activities and secure abatement at an agreed price, for development and future delivery.

Demand for Carbon Neutral Products & Services: Consumers are increasingly demanding carbon neutral products and services as a way of taking individual action, and the scrutiny of any claims made by businesses carry a range of reputation and other risks. Corporates are therefore increasingly investing in carbon farming-based offsets that have high environmental integrity; align with consumer and company values; and enhance their social licence to operate. This includes Australian ACCU-generating projects, and those with clear environmental, economic, social and cultural cobenefits.

Increased Farm Productivity: Carbon Farming methods that improve soil health and change livestock feed can also improve agricultural productivity.

Resilience & Risk Management: Afforestation activities that include active land management can allow for plantings that also provide shelter for livestock, wind breaks, targeted salinity reduction, and greater resilience to drought, flooding, and fire.

Protection of Indigenous Land: Methods such as savanna burning can protect sacred sites through appropriate fire management practices and can leverage the traditional ecological knowledge of Indigenous people.

Support Communities & Regions: Carbon farming can provide regional and remote communities with jobs and a way to maintain land management practices and local businesses.

OPPORTUNITIES & CHALLENGES

Australia is well positioned to scale up the domestic carbon farming industry, with a number of opportunities that can work in favour of increasing participation and scaling up investment. In addition, there are also a number of important challenges that will need to be addressed for the industry to move forward. Challenges are addressed here at a high level, but the specific actions to be taken are outlined in the Stakeholder Action Plan (page 5).

Opportunities

- Australia has a well-designed and well governed carbon offset market, with the legal and regulatory frameworks already in place necessary to scale up market activity.
- Australia's emissions reduction target of 26-28% below 2005 levels by 2030, will require significant investment in domestic abatement from the land sector.
- State governments are implementing net zero emissions targets, investment programs, and market development operations, which will be important for driving demand for land sector credits.
- Policy and market mechanisms such as the Safeguard Mechanism are already in place, and if adjusted, could be the framework for a market mechanism necessary to drive domestic demand for carbon farming activities.
- Contractual obligations under the ERF are now more flexible, allowing sellers of ACCUs to contract part of their supply to the Commonwealth whilst keeping the remaining stock for either private contract, or for sale on the secondary or spot markets.
- A highly skilled carbon services sector exists with deep knowledge and understanding of how to engage with new and innovative markets. Furthermore Australia's mature and modern agriculture industry with large land masses could support a significant scaling up of carbon farming projects.
- Development of new methods, revisions to existing methods will engage new project participants, unlocking new sources of supply. Innovation and science (R&D) will drive potential new methods, practices/efficiencies and there are numerous opportunities for the private sector to directly invest in, or co-finance, R&D and support development of new carbon farming methods and activities.
- If domestic policy evolves to allow the export of ACCUs and expertise, Australia is well-placed to engage given its high-integrity approach to carbon credit creation and verification, low sovereign risk, defined land tenure and ownership processes, scientific expertise, and biophysical capacity.
- Carbon neutral certification, particularly with premium carbon offset units, provides high-profile branding and marketing opportunities for companies as well as increased customer and employee engagement.



Challenges

- Policy uncertainty at the federal level is preventing the large-scale investment necessary for Australia to meet its 2030 emissions reduction target.
- There are complexities with state policy and regulation, with competing initiatives among environmental and agricultural markets creating barriers to investment.
- The benefits of carbon farming are poorly understood among banks, insurers and other financial institutions, with an absence of financial products to incentivise investment.
- Many carbon farming projects are too small to attract large scale finance and investment, with new metrics for quantifying benefits and new models for aggregation needed.
- Many single-activity agricultural ERF methods are not economically viable, as they don't take into account the practical realities of farming systems. A whole-of-farm method should be developed to enable increased uptake by landholders, and increased abatement generated.
- Farmers and landholders are unaware of the benefits of carbon farming, and how projects align with their traditional agricultural practices. There is also a perception that contracts 'lock up' land for long periods and that carbon farming is an exclusive use of land rather than something that can work alongside a traditional agricultural enterprise.
- Complex methods and a lack of digestible information remain a barrier to increasing participation for farmers and land managers.
- There is uncertainty among farmers and indigenous communities around who to trust, as well uncertainty with respect to the legal and commercial risks associated with carbon farming projects.
- Complexities in navigating carbon project development must be addressed to increase meaningful participation among Indigenous landholders and communities.
- Carbon markets are relatively opaque, which for early-stage or new market participants makes it difficult to find information on price, supply, demand. Transparency and accountability around the roles and responsibilities of buyers, sellers and intermediaries is needed to ensure markets for carbon farming credits are effective, efficient and liquid.

MARKET INTEGRITY

It is critical that the evolution and expansion of Australia's carbon market is built on a foundation of integrity, transparency and accountability - ensuring that there is ongoing trust in both the quality of the abatement delivered by industry, and in the behaviour of carbon market participants.

Environmental Integrity Considerations

The historic Paris Agreement recognises the possibility of voluntary cooperation among Parties (nations) to allow for higher ambition and sets out key principles to ensure that emissions reductions are real and contribute to the overall goals of the treaty. In addition to transparency and robust accounting, environmental integrity is of paramount concern, particularly in the use of market-based approaches such as carbon credits. In broad terms, this means that any action, (e.g. carbon farming), must result in real and absolute emissions reductions benefits, rather than meet any other artificial intensity or percentage reduction targets.

Environmental integrity is the foundation of the Australian carbon market, underpinned by Australia's offsets integrity standards - the legislated criteria that all ERF methods must meet¹⁹ in order to be used to generate ACCUs. Carbon farming activities using ERF methods are therefore subject to these same criteria, which are outlined below. Applying these principles ensure that the emissions reductions claimed are additional, can be measured and independently verified, and contribute to emissions reduction activities as required by Australia's obligations under the Paris Agreement.

These principles are also important for buyers of carbon credits, who can reduce their exposure to a range of material reputation, legal and financial risks by ensuring that what they purchase is of high quality, and can stand up to the increasing scrutiny of corporate actors that make carbon neutral or emissions reduction claims.

Offsets Integrity Standards

- **Additionality:** activities should result in carbon abatement that is unlikely to occur under 'business as usual' operations.
- **Measurable and verifiable:** the sequestration, reduction or avoidance of greenhouse gases should be measurable and capable of being independently verified.
- **Eligible carbon abatement:** activities should provide abatement that is able to be used to meet Australia's international mitigation obligations.
- **Evidence-based:** any emissions reduction claims should be supported by clear and convincing evidence.
- **Project emissions:** Material greenhouse gas emissions emitted as a direct result of the project should be deducted.
- **Conservative:** where an activity involves an estimate, projection or assumption, it should be conservative to account for any margins of error.



Behavioural (Participant) Integrity Considerations

Emissions reductions activities are inherently complex and technical, and require a level of knowledge and expertise of not only project implementation, but a broad range of scientific, legislative, regulatory, financial and other market and stakeholder engagement considerations. As this sector expands and evolves, risks emerge due to:

- **asymmetry of information** - that those with more information may seek to use this knowledge to take advantage of those with less information; and
- **absence of information** - that new market entrants with low knowledge levels may undertake activities poorly, and in doing so negatively impact other market participants.

In both cases, these behaviours may undermine the credibility of, and trust in the carbon farming industry, potentially leading to increased regulation and litigation, and a decreased investment in the sector.

Managing the behavioural integrity of the carbon farming industry, requires increased transparency and accountability. In Australia this is supported by a range of complementary regulatory and legislative structures, including: oversight of the ERF crediting mechanism by the Clean Energy Regulator; financial market regulations under the Australian Securities and Investments Commission (as ACCUs are regulated financial products under Australian law); and the industry-led Australian Carbon Industry Code of Conduct that monitors the behaviour of carbon service providers with their clients.

THE AUSTRALIAN CARBON INDUSTRY CODE OF CONDUCT

The Australian Carbon Industry Code of Conduct (the Code) is a world-leading domestic consumer protection code for Australia's carbon industry.

It is the first voluntary consumer protection code of its kind globally, focused on improving integrity, transparency and accountability of a national (domestic) carbon industry.

The Australian Carbon Industry Code of Conduct is administered by the Carbon Market Institute. The Code is supported as a third party assurance system by both the Queensland and New South Wales Governments, as formal Government Partners.

Carbon service providers who satisfy the rigorous requirements of the Code, can use the Signatory brandmark to confirm they support best practice integrity, transparency and accountability.

Look for the Code of Conduct's signatory brand mark whenever you procure carbon services.



Australian
Carbon Industry
Code of Conduct
SIGNATORY

About the Code

Administering the Code

Launched in July 2018, this voluntary and industry-led Code aims to promote market integrity, consumer protection and appropriate interaction with carbon project stakeholders, including Native Title Holders, representative bodies, land managers and project owners.

Signatories to the Code are carbon service providers committed to developing and conducting their business in line with industry best practice and interacting with their clients and other stakeholders in a professional and ethical manner.

The Code Administrator monitors signatory behaviour, provides education and training, and where necessary enforces sanctions and penalties.

Protecting Consumers

Consumers (clients) have rights when choosing or working with carbon service providers. Signatories to the Code of Conduct are held to a higher standard of client engagement, ensuring that consumers are provided with enough information to make informed decisions, are contacted early and appropriately, and are engaged in a meaningful and transparent way. Consumers and clients may be on the supply-side of the market (dealing with projects on the ground), on the demand-side of the market (purchasing carbon credits), or may engage with providers across both sides of the market.

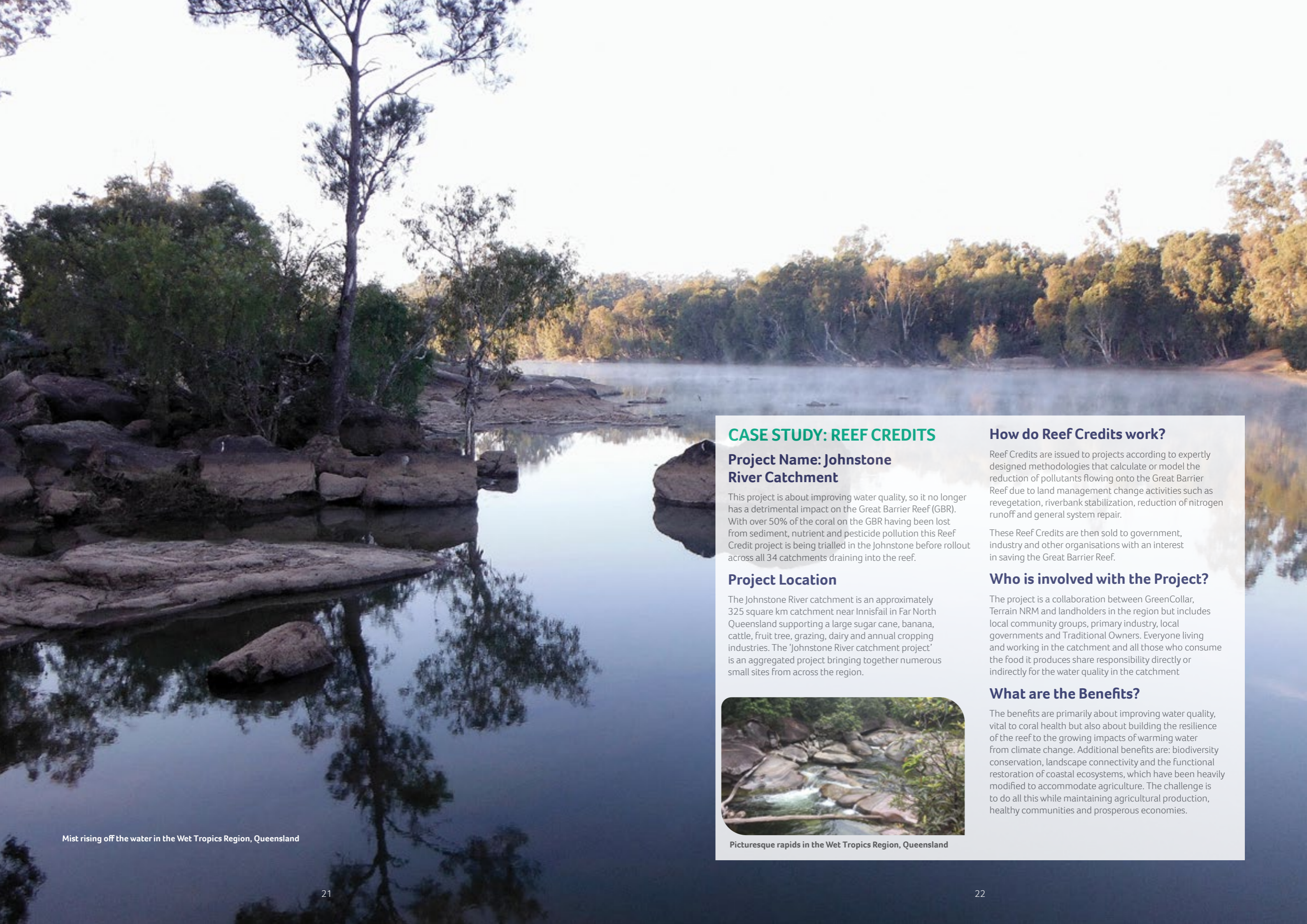
The Code Administrator actively protects consumers through the handling and investigation of consumer complaints made against signatories, and educating the consumers on the rights, roles and responsibilities of different actors in the carbon industry.



visit carbonmarketinstitute/code to learn more.



¹⁹ Emissions Reduction Fund Offsets Integrity Standards, <http://www.cleanenergyregulator.gov.au/ERF/method-development/emissions-reduction-assurance-committee>, Accessed September 2021



Mist rising off the water in the Wet Tropics Region, Queensland

CASE STUDY: REEF CREDITS

Project Name: Johnstone River Catchment

This project is about improving water quality, so it no longer has a detrimental impact on the Great Barrier Reef (GBR). With over 50% of the coral on the GBR having been lost from sediment, nutrient and pesticide pollution this Reef Credit project is being trialled in the Johnstone before rollout across all 34 catchments draining into the reef.

Project Location

The Johnstone River catchment is an approximately 325 square km catchment near Innisfail in Far North Queensland supporting a large sugar cane, banana, cattle, fruit tree, grazing, dairy and annual cropping industries. The 'Johnstone River catchment project' is an aggregated project bringing together numerous small sites from across the region.



Picturesque rapids in the Wet Tropics Region, Queensland

How do Reef Credits work?

Reef Credits are issued to projects according to expertly designed methodologies that calculate or model the reduction of pollutants flowing onto the Great Barrier Reef due to land management change activities such as revegetation, riverbank stabilization, reduction of nitrogen runoff and general system repair.

These Reef Credits are then sold to government, industry and other organisations with an interest in saving the Great Barrier Reef.

Who is involved with the Project?

The project is a collaboration between GreenCollar, Terrain NRM and landholders in the region but includes local community groups, primary industry, local governments and Traditional Owners. Everyone living and working in the catchment and all those who consume the food it produces share responsibility directly or indirectly for the water quality in the catchment.

What are the Benefits?

The benefits are primarily about improving water quality, vital to coral health but also about building the resilience of the reef to the growing impacts of warming water from climate change. Additional benefits are: biodiversity conservation, landscape connectivity and the functional restoration of coastal ecosystems, which have been heavily modified to accommodate agriculture. The challenge is to do all this while maintaining agricultural production, healthy communities and prosperous economies.

INDUSTRY VISION

The vision for the domestic Carbon Farming Industry is to be a vibrant domestic carbon farming industry that contributes significantly to Australia's economy, community and climate repair. By 2030 the sector will:

- create jobs and revenue for communities and regions;
- contribute significantly to Australia's net-zero emissions trajectory; and
- enable a range environmental, social and cultural benefits.

5. THE WAY FORWARD: FOUR PILLARS FOR INDUSTRY DEVELOPMENT

Through the Roadmap development process, stakeholders identified four key pillars that should drive the growth of the national carbon farming industry.

The Roadmap highlights how each pillar will contribute to scaling up the carbon farming industry and identifies the key stakeholder actions required.

Stakeholder actions have been identified from industry input at the Carbon Farming Industry Summit and Post Summit Survey, and then validated annually through ongoing national stakeholder consultation.

THE FOUR PILLARS

- 1 Optimising Policy & Regulatory Frameworks
- 2 Unlocking Finance & Investment
- 3 Quantifying Co-Benefits & Creating New Markets
- 4 Communicating Benefits & Building Capacity

A growing carbon farming industry underpinned by strong private sector demand for carbon credits, and investment into projects on the land will help drive and deliver a number of key outcomes:

- Large volumes of carbon revenue flowing into the agricultural industry, providing important diversification of income to re-invest back into traditional agricultural enterprises;
- Opportunities for the development and integration of new and existing environmental markets, with new methods for quantifying co-benefits from land sector projects;
- Rural and regional economic development, as income from carbon farming creates thousands of new direct and indirect jobs in remote communities, including Indigenous communities leading to many economic, social and cultural benefits; and
- Carbon farming projects that are aligned with international best practice standards, to become an important opportunity for export of units and expertise into global carbon markets, leading to international investment into Australia's land sector.



Warddeken Rangers undertaking fire suppression in the West Arnhem Land Fire Abatement (WALFA) Project, Northern Territory



Birds in flight over the Aurukun wetlands, Wik and Kugu country, Queensland

PILLAR 1: OPTIMISING POLICY FRAMEWORKS & MARKET DESIGN

Federal, state, territory and local governments have a critical role to play in optimising the policy frameworks and market design to scale up investment in the land sector. Investors require policy conditions and market frameworks that are stable, long-term, and allow for financial returns at scale.

Where do we want the industry to be?

- The ERF has successfully transitioned from a publicly funded scheme, to one that's underpinned by private sector demand and investment.**
The carbon farming industry requires a long-term, clear market signal to drive private sector investment in projects. A Federal Government policy that defines an explicit carbon price, through a market mechanism that covers large emitters, is necessary to provide an economic signal to stimulate investment in land sector abatement at scale. Emerging voluntary market drivers are increasing private sector investment, however a clear federal compliance policy signal is needed to enable the structural shift required to remain aligned with the Paris Agreement trajectory.
- Both public and private sectors are jointly developing new carbon farming methods.**
Industry's general exclusion from the ERF method development and prioritisation process has limited the number of methods that are cost effective for landholders to implement. Following the acceptance of the King Review recommendations in 2020, the Government has engaged industry in a meaningful way - including on method development and prioritisation, data management, and improvement to the administrative and transactional processes required to implement projects, and drive increased uptake across the country.

- State and local government policy, via legislated net-zero emissions and carbon neutral targets, is driving demand and investment for carbon farming projects.**
Industry participants agree that carbon farming emissions reductions should be incorporated into State Government net-zero emissions targets. As interest in carbon farming grows nationally, a range of State-based carbon farming programs have emerged to either directly invest in projects within the state, or to improve industry architecture and infrastructure to enhance opportunities for the local market.
- Governments have addressed issues of policy and legislative fragmentation, reconciling any competing objectives for environmental outcomes and high value, sustainable agricultural outcomes.**
Stakeholders consulted said that Federal and State Governments must work to streamline the policy and regulatory environment, addressing complications from competing food, fibre and environmental markets. This also includes competition between state and federal consent requirements, land-clearing laws, and other prohibitive taxation, pastoral or mining legislative structures.
- Native title issues have been adequately resolved to increase participation in carbon farming among indigenous land holders and communities.**
Industry believes strongly that ensuring native title issues are adequately addressed is critical for increasing participation in carbon farming among indigenous communities. Much work still needs to be done for national and sub-national consent frameworks to appropriately protect, and support engagement by Indigenous landholders and communities.

How are we going to get there?

Primary Actions

Government

Federal

- Fund carbon farming activities by continuing to allocate at least \$200 million a year until the introduction of a market mechanism to secure sustainable private sector demand for ACCUs.
- Implement a national market based approach to emissions reduction, covering the electricity sector and heavy emitters to drive private sector demand. Policy must create a clear signal for industry, providing confidence and certainty for investment in land sector projects.
- Build on existing method development work, allocate more R&D funding for land sector methods. Implement a stakeholder engagement plan to seek input from the private sector on how the method development process can be modified, prioritising methods that will lead to increased participation and the highest volumes of abatement.
- Leverage participation in the Paris Agreement - Article 6 negotiations and participate in international market developments to advocate for Australian methods and ensure they are aligned with international best practice, opening up opportunities for the export of ACCUs, and expertise.

State

- Incorporate emissions reductions from carbon farming into state-based zero net emissions targets.
- Work with federal government to provide funding for method R&D, to prioritise local projects within each jurisdiction.
- Establish a state government working group to address policy fragmentation, aligning and integrating regulatory frameworks for competing environmental markets.
- Create additional sources of demand for projects. E.g. require major infrastructure and/or resource projects to offset their emissions to create long term offtake agreements for emission reductions.
- Develop a state planning policy for local governments, advising them on how to treat carbon farming in their local government planning schemes.

Finance & Industry

- Industry and financial organisations to engage with government and contribute to market design, ensuring policy frameworks are robust and transparent for investment.
- Heavy emitting and other large corporate organisations to actively participate in developing a viable secondary market for ACCUs from land sector projects.

Communities & Regions

- Agricultural industry bodies provide evidence base for method development and prioritisation.
- Indigenous groups are specifically included in policy and market design, to ensure changes do not adversely impact communities, livelihoods, access to land, or culture.
- Communities and regional stakeholders contribute to policy and market design activities, including on integration of natural resource, pest and fire management responsibilities, and alignment with local land use plans and conservation strategies.

Carbon Service Providers

- Engage constructively with government on method development and market design to drive market activity, including support for R&D and pilot projects.
- Develop and administer a voluntary industry code of conduct.
- Engage with Indigenous communities in an early and meaningful way to ensure Native Title Holder consent can be appropriately sought, and if granted, maintained over the life of the project.
- Engage with other Eligible Interest Holders early and in meaningful ways.



Planting eucalyptus for CO2 Australia's Creating a Better Climate Project, New South Wales



Preparing the land for mallee plantings, for Alterra's Carbon Capture Project 2, Western Australia

PILLAR 2: UNLOCKING FINANCE & INVESTMENT

Australia's land sector needs to become a stable and investible environment, in order to unlock large volumes of private sector finance and investment. Financial organisations and heavy-emitting industries need to have confidence in the sector, with strong capabilities and understanding of what the investment opportunities are.

Where do we want the industry to be?

Banks and land valuers have introduced new metrics to value agricultural land, incorporating financial benefits from carbon farming projects.

There must be alignment between environmental outcomes and capital asset values, incentivising farmers to undertake positive land management. This includes improving the capacity of financial institutions and valuers to understand carbon farming activities, carbon abatement contracts, and the types of information required to de-risk their investment in these projects.

Insurance companies and agricultural enterprises have introduced new risk-management products to cover losses associated with participation in carbon farming.

Industry stakeholders believe that this would increase the confidence of farmers, land managers and investors to implement carbon farming activities at scale and help to incentivise greater participation.

Banks and investors understand that sequestered carbon has a value, as do the co-benefits that can be generated, and recognise the broader investment opportunity in the land sector.

Industry stakeholders agree that investors need to incorporate how different environmental market metrics can be quantified and layered in a single project to generate additional financial returns.

Revenue generated from carbon farming projects is flowing back into the agricultural sector and rural communities.

Industry stakeholders agree that there is an opportunity to incentivise farmers by ensuring more revenue, and other quantifiable social and economic benefits from carbon farming projects reach farmers and people living in rural and remote communities.

State governments are directly funding carbon farming projects leading to positive land use change.

There is a role for state governments to directly fund positive land use change through carbon farming projects, and the purchase of various environmental credits. Strategic opportunities for investment needs to be mapped and understood for each sub-national jurisdiction, that include innovative approaches to unlocking investment.

How are we going to get there?

Primary Actions

Government

Federal

- Work with project developers to ensure methods are suited to new scalable aggregation models, increasing opportunities for participation from smaller farming systems.
- Establish policy to provide the necessary conditions for secondary market transactions, ensuring buyers and sellers of credits are easily connected, with incentives for heavy emitting industry to invest in land sector projects.
- Federal and state governments to clarify opportunities and provide access for carbon projects on crown land.
- Governments work together to ensure linkages across natural resource management (NRM), agriculture, and biodiversity programs.

State

- Map the strategic opportunities for state-wide carbon farming projects, including for blue carbon, prioritising areas for investment.
- Directly fund positive land-use change by investing in projects that generate positive environmental outcomes.
- Revise state wide statutory valuation protocols for agricultural properties to consider and make informed decisions around the implications from carbon projects.
- Provide incentives (lease agreements, tax concessions) for land holders who achieve positive land management outcomes as a result of implementing carbon projects.

Local

- Directly fund positive land-use change and local carbon farming projects to offset emissions to meet carbon neutral targets.

Finance & Industry

- Heavy-emitting organisations to invest in land sector projects with long term supply contracts. Offsetting their emissions liabilities and creating a future pipeline of carbon credits, supporting other environmental markets and/or co-benefits to meet Corporate Social Responsibility (CSR) goals.
- Banks and insurers to create new financial products for risk assessment in agricultural enterprises, accounting for the benefits of carbon projects in de-risking the industry, incentivising good land management practices.
- Banks and investors to understand the investment opportunity and introduce new products to align financial metrics with integrated environmental outcomes
- Valuations of agricultural enterprises to should incorporate the benefits of carbon projects into capital asset values.

Communities & Regions

- Agricultural industry, NRM groups and Indigenous groups articulate the value proposition for investment, and map carbon pathways for producers.
- Communities and landholders investigate diversification of revenue streams and invest in land productivity.

Carbon Service Providers

- Project developers to build market integrity and confidence through best practice project implementation.
- Introduce business models with greater flexibility to assist in getting projects to scale and increasing opportunities for participation from farmers.
- Make the business case for investment in land sector projects to finance and investment stakeholders.



Workers measuring carbon sequestration levels on CO2 Australia's Human Induced Regeneration Project, New South Wales



Grain farming in the Mid North Region, South Australia

PILLAR 3: QUANTIFYING CO-BENEFITS & CREATING NEW MARKETS

Carbon farming projects in the land sector hold specific strategic importance due to the co-benefits that can be delivered from a single project. Having robust and transparent quantifiable metrics for co-benefits, is important for attracting new investment into the sector, as well as incentivising participation due to wider understanding and access to co-benefits from carbon farming projects.

Where do we want the industry to be?

New metrics have been introduced to accurately quantify co-benefits from land sector projects, with benefits attributable to the carbon finance.

The broader carbon industry believes new metrics are needed to more accurately quantify co-benefits of carbon farming projects - such as biodiversity, water quality, conservation and community benefits. Stakeholders indicated this could be a role for State governments and could open up opportunities for investment in projects that deliver multiple outcomes for local communities and agricultural enterprises. The Federal Government could play a role in supporting an overarching approach to the key principals and integrity criteria that should be used in any co-benefit standard development, to ensure activities undertaken in Australia are of a high and consistent quality across the country, and across all types of co-benefits being measured.

Carbon farming projects are generating additional revenue and attracting new investment in integrated environmental markets.

Industry participants strongly agree that innovation in environmental markets and valuing of co-benefits will drive increased carbon farming activity. Projects that demonstrate multiple environmental outcomes can layer other environmental credits on top of carbon credits, and achieve additional financial returns on investment.

Carbon farming projects in Australia are valuing co-benefits using metrics that are aligned with international standards and best practice.

Industry stakeholders believe that this will be important to enable future export of mitigation outcomes and/or co-benefit outcomes, into international markets, as well as ensuring that the activities undertaken in Australia are best in class, enabling the Australian narrative to become world-leading in this space.

There is a healthy voluntary carbon market that places a premium on carbon farming activities that deliver co-benefits.

Organisations looking to voluntarily offset their emissions are increasingly looking for projects that deliver mitigation outcomes as well as co-benefits. Methods that quantify and help report on co-benefits, will provide greater confidence for organisations voluntarily offsetting their emissions.

How are we going to get there?

Primary Actions

Government

Federal

- Undertake a national feasibility study for the creation and integration of future environmental markets that deliver emission reductions and co-benefits, building on international standards and best practice.
- Recognise and support the standards that will give confidence for investment and drive demand domestically as well as internationally for land sector projects delivering co-benefits.
- Develop a domestic framework to link the benefits generated from carbon farming projects to the UN's Sustainable Development Goals (SDG) framework.

State

- Develop co-benefit metrics, methods and measurement, reporting and verification frameworks to quantify and accurately monitor benefits from projects in each state, building on international standards and best practice.
- Drive investment in establishing pilot projects to validate methods and co-benefit quantification to provide confidence for investment community.
- Offset emissions from state government operations by investing in projects that deliver co-benefits.
- Develop investment portfolios to focus on state government priorities to maximise carbon abatement and other environmental outcomes.

Finance & Industry

- Investors to fund pilot projects for co-benefit recognition to assist evidence base and provide confidence in environmental metrics.
- Support the development of new methods to quantify co benefits, creating additional returns on investment for integrated environmental markets, building on international standards and best practice.
- Financial organisations and heavy emitting industry to partner with government and carbon service providers to develop standards and branding for premium carbon offsets (carbon plus co-benefits).

Communities & Regions

- Agricultural industry, Indigenous groups, farmers and landholders to map opportunities and raise awareness around the value of co-benefits for land based activities/ systems.
- NRM groups, NGOs, industry and communities engage in the development of new environmental markets, and alignment of regional indicators with federal policy.

Carbon Service Providers

- Project developers contribute to the development of co-benefit measurement, reporting and verification standards and technology.
- Project developers build and articulate the value of co-benefits.
- Develop best practice, taxonomy, metrics and MRV frameworks for co-benefit quantification, and improving access to publicly-available related information.



A Blue Fairy Wren rests in Carbon Neutral's Yarra Yarra Biodiversity Corridor Project, Western Australia



Mimal and Jawoyn rangers undertaking pre-season fire planning for the West Arnhem Land Fire Abatement (WALFA) Project, Northern Territory

PILLAR 4: COMMUNICATING BENEFITS AND BUILDING CAPACITY

Building capacity to participate in carbon farming projects among the agricultural sector, financial services, Indigenous and regional communities is critical for the growth of the industry. It is important there is better communication around the opportunities for participating in carbon farming, building greater trust and alignment with traditional agricultural industries and Indigenous communities.

Where do we want the industry to be?

Carbon project developers, carbon service providers, agricultural industry groups, NRM bodies and regional communities to have clear and aligned messaging around the benefits of carbon farming.

Farmers, landholders and traditional owners are unsure who they should trust to provide advice about projects on their land. Aligning the messaging from different sectors and organisations, translating into easily digestible language, and sharing knowledge in the context of other landholder priorities will help build trust within the sector.

Farmers and landholders understand how carbon farming projects can deliver productivity benefits for agricultural enterprises.

Industry stakeholders have emphasised the importance of communicating the benefits of carbon farming projects through the lens of farm productivity. Participants believe more R&D is needed from government to develop methods that increase farm productivity and generate carbon credits, and that industry should provide more clarity on the business case for carbon farming.

New tools and technologies are helping farmers and landholders make informed decisions about whether to undertake a carbon project.

Industry stakeholders have highlighted the need for governments, research organisations and technology providers to prioritise new tools and technology that will assist in mainstreaming data use, streamlining administrative processes, and reducing costs for project implementation.

Governments have a strategic and targeted approach for funding programs that build capacity and create opportunities for employment in communities and regions.

There is a role for State and Federal governments to provide discrete, targeted funding for capacity building initiatives that are not viable at project scale, leading to delivery of additional abatement.

Governments are supporting robust standards for carbon and co-benefits, creating confidence in the sector, driving investment in new projects.

Industry stakeholders have highlighted the importance for the carbon farming projects to be robust and transparent, with government support for either global, national or industry-led standards to ensure there is legitimacy and confidence in the market.

How are we going to get there?

Primary Actions

Government

Federal

- Develop and undertake targeted national outreach and education program to inform and engage with land based stakeholders.
- Prioritise investment in research, tools and technology that supports project developers to reduce project complexities and transaction costs, mainstreaming the use of agricultural and environmental data and increasing participation among farmers and land holders.
- Governments to work together to identify skills needs and develop training programs to support market participation.

State

- Allocate discrete/targeted funding to support project developers build capacity in areas that will provide large abatement benefits; such as supporting baselining costs for soil carbon; or develop programs for coordinated fire response for savanna projects/coordinated ranger units for human-induced regeneration projects.
- Collaborate with the federal government to fund a targeted extension and outreach program, building rural and regional understanding and capacity for local opportunities in each state.
- All levels of government to engage with agricultural industry groups to articulate the value proposition for land sector projects and ensure benefits are understood to drive market activity.
- Implement a whole of government strategy for carbon farming, connecting with key stakeholders across government to help understand the benefits and introduce policies.

Finance & Industry

- Build capacity within financial organisations to understand key stakeholders and the investment opportunity to support land sector projects.
- Banks and investors to implement new tools and decision-making frameworks to support informed decisions about the risks and opportunities for investment in carbon farming projects.
- Financial sector and heavy emitting industry to invest in marketing of carbon farming products.
- Heavy emitting organisations to build capacity, expertise and understanding of carbon markets and hedging strategies, accessing credits and trading to offset emissions.

Communities & Regions

- Agricultural industry, NRM groups to develop outreach and education programs for farmers.
- Agricultural industry, pest, fire & NRM groups incorporate new tools and technology to better integrate and analyse environmental data.
- Communities and groups develop models for peer to peer knowledge sharing and project development.
- Agricultural industry to invest in marketing of products.
- Indigenous groups to leverage other stakeholder networks to educate on right-way engagement.

Carbon Service Providers

- Align market education of land sector stakeholders with government and agricultural industry initiatives.
- Create a clear understanding for other stakeholders about the different roles and responsibilities of carbon service providers and clients in project activities, contracts, and transactions.
- Engage pro-actively with local, Indigenous and other stakeholder groups including pest, fire and NRM agencies.
- Support and demonstrate local community health, equity and sporting initiatives.

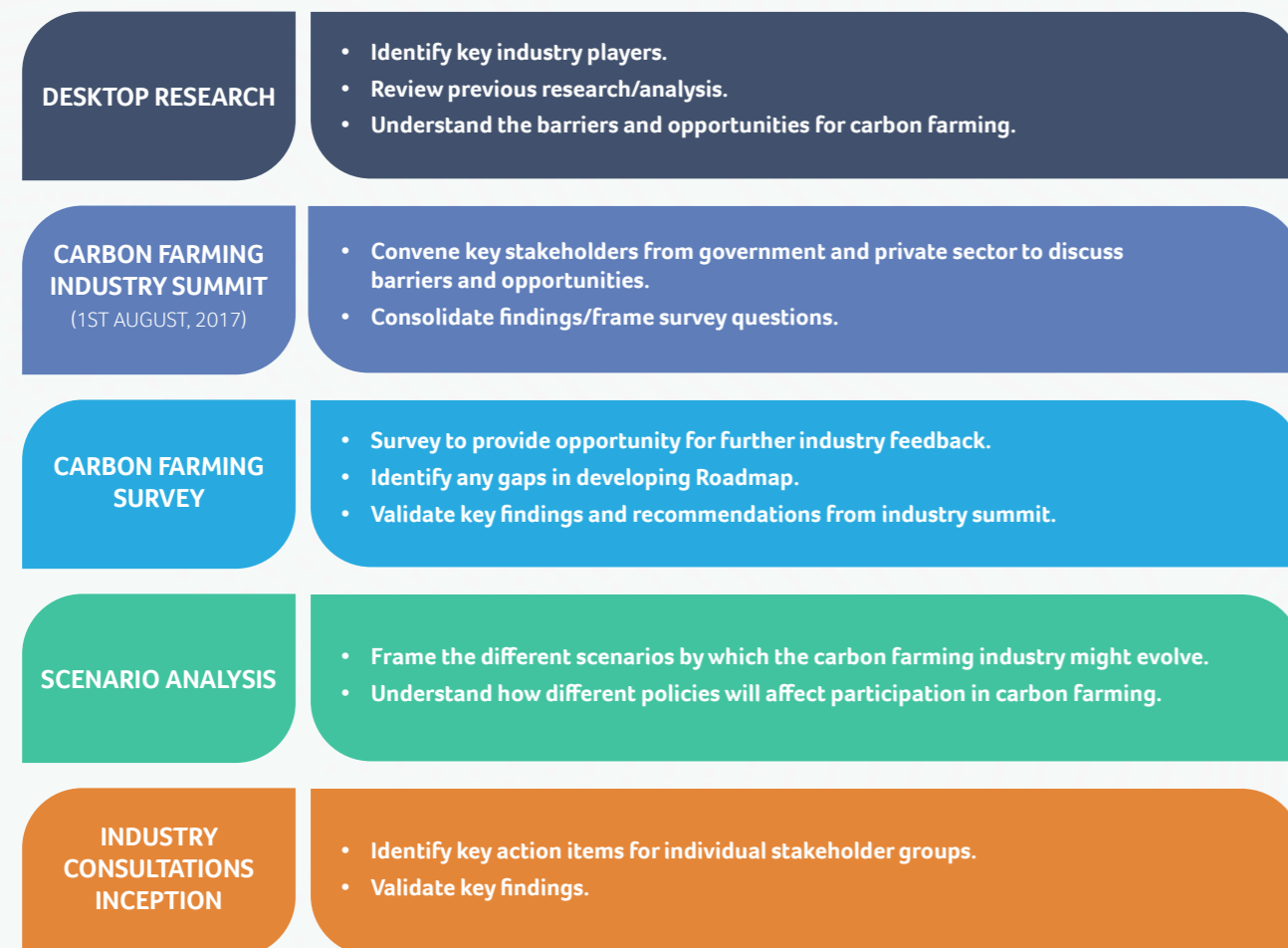


Dairy farming in the Hunter Region, New South Wales

6. METHODOLOGY

The Roadmap has involved extensive market research and a comprehensive industry consultation process. The various stages of development each ensure the Roadmap is representative of the collective views of industry and policy makers operating in the carbon farming sector in Australia. Initially undertaken in 2017, the carbon farming stakeholder engagement process below is undertaken annually, to ensure the roadmap remains current, relevant, and continues to guide Australia's evolving industry.

Figure 1: Project methodology



About the Carbon Market Institute

The Carbon Market Institute (CMI) is an independent industry association and centre of excellence with a 2050 vision of a prosperous, climate resilient, net-zero emissions world. CMI is at the centre of climate action and business in Australia, and is dedicated to helping business seize opportunities in rapidly evolving carbon markets - including that we:

- speak for business leading the transition to a net-zero emission economy, sharing knowledge, building capacity and catalysing opportunities;
- are the stewards of Australia's carbon market building integrity and related effective policies, while supporting their continued evolution and integration with regional and global markets; and
- champion the UNFCCC Paris Agreement and the emerging framework of climate and net-zero emission goals and mechanisms for increasing ambition, international cooperation and investment.

We share knowledge and facilitate connections between business, policy makers and thought leaders to drive the evolution of carbon markets towards a significant and positive impact on climate change. Engaging leaders, shaping policy and driving action, we're connecting insights and catalysing opportunities in the transition to a zero-carbon economy.

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|-----------------------------|----------------------------------|---|
| Aboriginal Carbon Fund | CSIRO | Natural Carbon |
| Agforce | Dairy Australia | Norton Rose Fulbright |
| Alterra | Energetics | South Pole Australia |
| Baker & Mckenzie | EY | Tasman Environmental Markets |
| Bush Heritage | Greencollar Group | The Gold Standard |
| Carbon Farmers of Australia | Greenfleet | Tropical Forest Tree |
| Carbon Neutral | Greening Australia | University of Melbourne,
Primary Industries Climate
Challenges Centre |
| Climate Friendly | Indigenous Land Corporation | University of Queensland,
Global Change Institute |
| ClimateWorks Australia | Investor Group on Climate Change | |
| CO2 Australia | Kimberley Land Council | |
| Corporate Carbon | Meat and Livestock Australia | |
| Country Carbon | National Farmers Federation | |



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