Carbon Farming Industry Roadmap

Carbon Market Institute

FOREWORD

The Carbon Market Institute (CMI) is pleased to present a National Roadmap for the growth of the domestic carbon farming industry. The Roadmap, developed with support from the Queensland Government, identifies a clear path forward for both government and the private sector to work together, addressing opportunities and challenges for the industry's growth out to 2030.

Australia's carbon farming industry is well positioned to make a significant contribution to our national emissions reduction challenge. This nascent industry has the potential to deliver important environmental outcomes, help to increase agricultural productivity, and open up new markets – generating important new job and revenue opportunities for rural and regional Australia.

CMI is at the centre of climate change policy and business in Australia. We believe a market-based approach to emissions reductions provides an effective, efficient framework to meet domestic targets and challenges at lowest cost. We share knowledge and facilitate connections between the private sector, policy makers and thought leaders to drive the evolution of carbon markets towards a significant and positive impact on climate change.

I hope you will find the Carbon Farming Industry Roadmap a useful guide to the development of one of the industries that will be a vital contributor to Australia's transition to a zero-net emissions economy.

Peter Castellas

Chief Executive Officer
Carbon Market Institute

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1. EXECUTIVE SUMMARY

INDUSTRY VISION

The vision for the domestic Carbon Farming Industry is to be a vibrant sector in the Australian economy, providing a strong source of jobs and revenue for the range of market participants, whilst making a significant contribution to Australia's net-zero emissions trajectory by 2030.

Background to the Carbon Farming Industry Roadmap

Carbon farming broadly refers to land management activities that reduce greenhouse gas (GHG) emissions from agricultural practices or sequester carbon dioxide in the landscape. In Australia, carbon farming is an emerging industry that is making an important contribution to Australia's emission reduction task and is central to the Government's climate change policies. In addition to carbon sequestration, carbon farming also delivers other important economic, environmental and social benefits.

The carbon farming industry itself is at a critical point of potential growth. To outline and highlight the pathway to growing this industry, the Carbon Market Institute (CMI), in collaboration and with support from the Queensland Government Department of Environment and Heritage Protection (EHP) have developed a National Carbon Farming Industry Roadmap ("the Roadmap").

The Roadmap is national in scope, and outlines a strategic framework for the carbon farming industry to reach its full economic, environmental and social potential, highlighting the primary actions of key industry stakeholders out to 2030. CMI has undertaken extensive consultation across the carbon farming supply chain and has received input from over 200 stakeholders through: convening these stakeholders at the Queensland Carbon Farming Industry Summit (August 2017), a comprehensive industry-wide survey, and one-on-one consultations nationally.

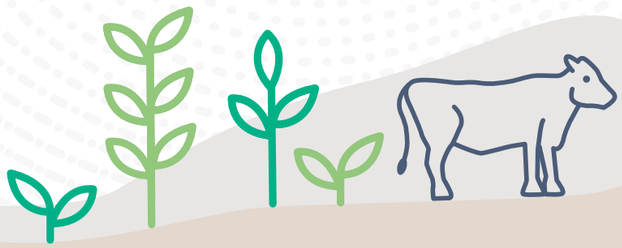
Carbon farming activities have a critical role in contributing to Australia's 2030 emissions reduction target of 26-28% on 2005 levels. Initially established with bipartisan support to provide Australian Carbon Credits Units (ACCUs) to support the Carbon Pricing Mechanism, projects under the Carbon Farming Initiative transitioned to be eligible to be funded under the Government's Emissions Reduction Fund (ERF). After the first five ERF auctions, the vast majority of contracts are land sector projects. Approximately153 million tonnes ($MtCO_2e$) of abatement (out of 189 MtCO2e) is under contract to land sector projects which equates to roughly $1.8 billion of investment.

Into the future, demand from international voluntary and compliance carbon and environmental markets for verifiable and premium carbon credits is also expected to grow. This demand is likely to provide new opportunities for Australian land managers and project developers to supply carbon credits, and this Roadmap is designed to provide support as they position themselves in readiness for these new markets.

THE 2°C SCENARIO

Through research, extensive consultation with industry, and analysis conducted for the development of this Roadmap, a series of scenarios for the future of the carbon farming industry were developed.

Under a 2°C scenario where Australia exceeds our current Paris Target, the land sector is expected to continue to grow to deliver significant volumes of abatement[1], generate new revenue for the regions, and create jobs and additional benefits for rural and remote communities in the process.



WHAT CARBON FARMING CAN ACHIEVE BY 2030

360-480 $MtCO_2e$
carbon abatement delivered

$10.8-$24 Billion
revenue from carbon projects

10,500-21,000
direct & indirect jobs

CARBON FARMING PROJECTS ARE DELIVERING 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, but which may not be automatically priced into the value of a carbon credit.

Environmental

- Improved Air Quality
- Improved Water Quality
- Improved Soil Quality
- Biodiversity Conservation
- Sustainable Pest & Weed Management
- Sustainable Land Use & Management

Social & Cultural

- Increased Social Capital
- Indigenous Community Empowerment
- Knowledge Sharing & Education
- Better Livelihoods and Community Cohesion
- Improved Physical & Mental Health
- Protection of Sacred Sites

Economic

- Economic Co-Benefits
- Increased Farm Productivity
- Diversified Revenue Streams for Farmers & Landholders
- New Skills & Career Development Opportunities
- Investment in Regions & Rural Communities
- Generating Jobs on the Land

[1]Independent analysis by Energetics 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

STAKEHOLDER ACTION PLAN

The Carbon Farming Industry needs clear and defined actions for the primary stakeholder groups across the carbon farming supply chain to catalyse the four pillars for industry development.

Government Federal, State, Local	Finance & Industry Financial Organisations and Investors, Heavy Emitting Organisations (including Aviation)	Land Sector Agricultural Industry, Farmers, Natural Resource Management (NRM) Groups, Indigenous Groups	Carbon Service Providers Project Developers and Aggregators, Auditors, Research and Academia
PILLAR 1 Optimising Policy Frameworks & Market Design			
• 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 export opportunities for ACCUs. • Align and integrate regulatory frameworks for competing environmental markets.	• Engage constructively with government on market design and evolution. • Participate in the development of a viable secondary market for offsets.	• Agricultural industry bodies provide evidence base for method development and prioritisation. • Indigenous groups are adequately engaged to assist project proponents overcome challenges in working within the Native Title framework to facilitate increased project development where mutually beneficial.	• Engage constructively with government on method development and market design to drive market activity. • Develop and administer a voluntary industry code of conduct.
PILLAR 2 Unlocking Finance & Investment			
• State Governments establish funding mechanisms to drive regional market developments and positive land-use change. • Work with project developers to develop scalable aggregation models. • Establish policy that helps stimulate a viable secondary market for offsets. • Map the strategic opportunities for investment in land sector, including for blue carbon projects.	• Heavy emitters increase participation in voluntary markets and 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.	• Agricultural industry & NRM groups articulate the value proposition for investment. • Farmers investigate the opportunity for diversifying revenue streams and investing in land productivity.	• Build market integrity through best practice project implementation. • Make the business case for investment to finance and investment stakeholders.
PILLAR 3 Quantifying Co-Benefits & Creating New Markets			
• Work with the sector to develop new methods and metrics for quantification of co- benefits. • Undertake a feasibility study for the creation of new potential environmental markets. • Progress blue carbon methods in partnership with research organisations and industry.	• 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).	• Agricultural industry to raise awareness around the value of co-benefits for land based activities/systems. • NRM groups and industry engage in the development of new environmental markets.	• Project developers articulate the value of co-benefits. • Develop best practice metrics and measuring, reporting & verification (MRV) for co-benefit quantification.
PILLAR 4 Communicating Benefits & Building Capacity			
• Develop and undertake targeted national outreach and education programs for land sector 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.	• 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 promote benefits of carbon farming. • Heavy emitters build expertise on carbon trading and hedging strategies.	• Agricultural industry to develop outreach and education programs for farmers. • Agricultural industry & NRM groups incorporate new tools and technology to better integrate and analyse environmental data. • Land sector groups develop new models for peer to peer knowledge sharing and project development. • Agricultural industry to promote benefits of carbon farming.	• Align market education of land sector stakeholders with government and agricultural industry initiatives.

CARBON FARMING INDUSTRY DEVELOPMENT TIMELINE

The timeline below highlights the key milestones for the domestic carbon farming industry that if achieved, will have the industry on track to achieve its vision.

2030

PHASE 4

- Australia is on track to meet its domestic emissions reduction targets, and is playing its part in limiting global warming to 1.5-2°C.
- Australia has bilateral and multilateral arrangements linking carbon markets.

- Carbon farming industry creates thousands of new direct and indirect jobs.
- There is long-term private sector demand with a sustainable investment pipeline.
- The international carbon price and demand for offsets is at a sustained level high enough to drive large-scale, economically viable carbon farming.

PHASE 3

- New methods linked by new aggregation models are attracting investment in land sector projects at scale.
- Land-sector methods are aligned with international best practice, and ACCUs are fungible into international markets.

- Indigenous groups and farmers significantly increase participation in carbon farming, with projects providing a genuine source of income and money flowing back into rural communities.
- There is strong voluntary market demand with premiums paid for projects generating co benefits.
- New tools and technology are helping farmers aggregate projects and improve productivity on their property.

2025

PHASE 2

- The ERF transitions from a publicly funded scheme and is underpinned by private sector demand and investment.
- State government net-zero emissions targets and funding commitments drive demand and investment in carbon farming projects.
- State / federal policy and legislation is aligned to support growth in the carbon farming industry.
- New metrics have been introduced to accurately quantify co-benefits.

- New methods are introduced, including whole farm methods to increase participation among the broader agricultural sector.
- Projects on agricultural land become economically viable due to improved methods, valuing co-benefits, and new tools to support participation.
- Projects are generating additional revenue and attracting new investment in integrated environmental markets.
- Long-term contracts are being struck between heavy emitters and carbon project developers.

PHASE 1

- Federal government allocates additional funding of the ERF until there is private sector demand under the National Energy Guarantee and Safeguard Mechanism.
- Governments are investing in research and development for new carbon farming methods, including for quantification of co-benefits.
- Government is engaged in international discussions around opportunities for export of ACCUs.
- Complexities in navigating carbon project development are addressed to increase meaningful participation among Indigenous landholders and communities.
- Governments directly fund or undertake carbon farming projects that lead to positive land-use change.

- Public and private sector are investing in R&D and developing new carbon farming methods.
- Banks and valuers have introduced new metrics to value agricultural enterprises with carbon covenants.
- Banks and investors understand the investment opportunity around land-sector projects.
- ERF auctions continue to provide demand for carbon farming projects.
- More organisations are actively involved in the voluntary market for offsets.

GOVERNMENT

2018

MARKET

2. CARBON FARMING

WHAT IS CARBON FARMING AND WHY IS IT IMPORTANT?

Carbon farming broadly refers to land management activities that reduce GHG emissions from agricultural practices or sequester carbon dioxide in the landscape. These activities involve managing: animal diets to reduce emissions from digestive processes, biological processes that absorb and retain carbon in plants and soils, and fire to prevent more potent greenhouse gas releases associated with hot fires. An emerging opportunity is 'blue carbon' which is the potential of aquatic ecosystems such as mangroves to capture and store carbon.

In the context of emission reductions, carbon farming methods from the land sector deliver abatement at varying costs. There is however significant opportunity for low-cost abatement, particularly when realising the opportunities for considerable savings and productivity benefits for agricultural enterprises[2].

Importantly, carbon farming can be operationalised in a way that creates environmental, productivity, and social co-benefits such as: rural and regional economic and income diversification, new or restored habitat for native species, 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

The Carbon Farming Initiative (CFI), which commenced operation in Australia on 8 December 2011, was a Federal Government carbon offset 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 ACCUs which were then tradable under the Carbon Pricing Mechanism. One ACCU is equivalent to one tonne of CO_2e.

In 2014, the CFI was transitioned into the Emissions Reduction Fund (ERF) via amendments to the CFI Act. The ERF has three components whereby the government credits, purchases and safeguards emissions reductions. Currently, the ERF is the primary source of demand for ACCUs for projects that reduce emissions or enhance carbon storage on the land.

As at October 2017, the Clean Energy Regulator has held five ERF auctions with the total contracted abatement approximately 189 million tonnes, with over 153 million tonnes (81%) awarded to projects under land sector methods[3]. The volume weighted average price of contracted abatement across the five auctions is $11.83 per tonne of CO_2e. There is approximately $300 million remaining in the ERF of an initial $2.55 billion[4]. Of the 34 methods available under the ERF, 19 are for land sector emissions reduction activities (agriculture, savanna burning and vegetation projects).

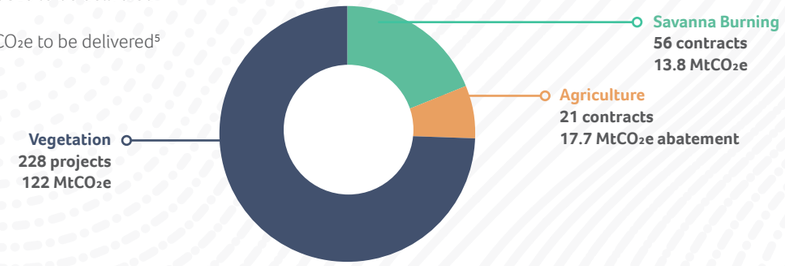
Carbon farming projects can also generate ACCUs for sale into secondary and voluntary Australian carbon markets. The price at which the carbon is traded is determined by supply and demand.

Figure 1: Examples of carbon farming methods approved under the ERF

Vegetation	Savanna Burning	Agriculture
• Regenerating native forest on previously cleared land. • Protecting native forests by reducing land clearing. • Planting trees to grow carbon stocks.	• Managing bushfires in Australia's savannas to avoid high-intensity, late-season fires.	• 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 2: Breakdown of land sector ERF contracted projects by methodology

Land Sector Total:
305 projects, 153 $MtCO_2e$ to be delivered
ERF Total:
387 projects, 189 $MtCO_2e$ to be delivered[5]



[2] ClimateWorks Australia, Technical Report, Queensland can achieve net zero emissions by 2050, How the sunshine state stands to benefit by taking action while managing the risks of transition, 2016
[3] Land sector methods refer to projects falling under Agriculture, Savanna Burning and Vegetation method types
[4] Clean Energy Regulator, http://www.cleanenergyregulator.gov.au/ERF/Auctions-results/april-2017, Accessed October 2017
[5] Clean Energy Regulator, Contract Register, http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/carbon-abatement-contract-register, Accessed October 2017

CARBON FARMING INDUSTRY DRIVERS

There are a number of important domestic and international market drivers for the growth of the carbon farming industry in Australia. A strong carbon farming industry can provide important benefits for the triple bottom line delivering valuable economic, environmental, social and cultural outcomes. In addition, there are a number of global policy and market drivers which are also important to understand.

Domestic Industry Drivers

Economic

New & Diversified Income Streams: Carbon farming delivers financial returns for 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.

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

Risk Management: Afforestation activities can allow for plantings that also provide shelter for livestock, wind breaks and targeted salinity reduction.

Social & Cultural

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 Remote Communities: Carbon farming methods can provide remote communities with job opportunities and a means to maintain their land management practices.

Environmental

Emissions Reductions: The land sector is critically important for achieving the emissions reductions needed to achieve our 2030 emissions reduction target under the Paris Agreement. Opportunities for large scale emissions reductions and carbon sequestration lie in unlocking the potential for savanna burning, soil carbon and reforestation, as well as creating new opportunities for the broader agricultural sector.

Biodiversity: Carbon farming can preserve and enhance biodiversity through a wide range of existing activities such as diverse environmental plantings and encouraging native regrowth. It can also be an important component of the national economy via ecosystem services and tourism.

Landscape Protection: Carbon farming methods can prevent land degradation, reduce run-off and reduce water pollution and salinity. E.g., soil carbon methods can improve soil functions, delivering greater retention of nutrients and microbes and reducing runoff of pollutants and soil into water systems. Savanna burning reduces fire risks and preserves ecosystems and habitats. Vegetation can reduce water salinity.

International Drivers

- The Paris Agreement was reached in December 2015, and is a global agreement which aims to limit global temperature increase to 1.5 - 2°C degrees Celsius. It is based on voluntary emission reduction commitments made by each country in the form of Nationally Determined Contributions (NDC's).
- Post-2020, it is expected that global climate policy developments in the form of market mechanisms under the Paris Agreement will drive increased international demand for carbon credits, particularly high-quality credits that demonstrate sustainable development outcomes.
- There is an opportunity for the Australian Government to engage with international market developments, to provide additional sources of demand and future export opportunities of ACCUs from domestic carbon farming projects.
- As the world transitions to a zero-net emissions economy, global emitters are looking to new and innovative ways to lower their emissions, as well as providing access to offsets for the remaining emissions. The Carbon Offsetting Scheme for International Aviation (CORSIA) is an example of how international developments in the aviation industry's response to climate change could create additional sources of international demand for Australian land sector credits. 80% of survey respondents believe the CORSIA could open a new market for ACCUs from carbon farming activities.
- If domestic policy evolves to allow the export of ACCUs, Australia is well placed to supply this market given its mature, well-designed regulatory approach to carbon credit creation and verification, low sovereign risk, defined land tenure and ownership arrangements and processes, scientific expertise, and biophysical capacity.
- It is expected that there will be increased voluntary demand from multinational corporations for premium, verifiable credits with co-benefits for social licence purposes.

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 and 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 farmers, risk management and improved climate resilience for traditional agricultural activities. Environmental co-benefits such as improved water quality where restoring riparian vegetation is involved, as well as greater biodiversity and ecosystem services.
- **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.
- **Savanna Burning Projects:** Savanna burning can assist to 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.

Co-benefits are currently a key policy driver for state and territory governments who see the potential for well-designed carbon farming projects as being able to incentivise and increase uptake of sustainable land and agricultural practices. Land sector projects are seen to be able to deliver on several initiatives that might otherwise require multiple investments in addition to the emission reductions.

There is an opportunity to create new environmental products, that place a value and allow for trading of different co-benefits. One way to do this is to 'stack together' different co-benefits with carbon offsets, generating a more premium product that delivers multiple environmental returns on investment. Co-benefits are increasingly important on a number of levels and in different ways for different stakeholders. In voluntary markets, international research and survey data indicates that many corporate offset purchasers look for credits that go 'beyond climate', that is carbon offsets with co-benefits – environmental, economic, social and cultural.

While the CFI Act contains provisions to ensure projects do not adversely impact on the environment or the associated communities, co-benefits are not explicitly defined in the legislation nor are co-benefits able to be valued into the pricing of project bids into ERF auctions. The CFI Act does allow for non-financial recognition of co-benefits. It does so by allowing project proponents to include information in the ERF Register of Offsets Projects, about the environmental or community benefits of a project subject to requirements outlined in the Act's regulations.

However, a key barrier is the lack of a framework for co-benefits valuation that is robust in scientific, regulatory and commercial terms.

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 Standard[6] and Verified Carbon Standard[7]). 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. This would enable suppliers to charge a premium price on the voluntary market. Currently, demand for carbon offsets with verifiable co-benefits is primarily from the voluntary market.

[6]https://www.goldstandard.org/
[7]http://www.v-c-s.org/

PHOTO: Cattle mustering in the Kimberley, Western Australia

PHOTO: Late season fire burning on Wik country for the Southern Aurukun Project, Queensland [Aboriginal Carbon Fund]

CASE STUDY: INDIGENOUS CARBON FARMING

Under its Carbon Plus Fund, the Queensland Government is supporting the Aboriginal Carbon Fund to build capacity in Indigenous communities, to increase participation in carbon markets and carbon farming projects. The Aboriginal Carbon Fund is also developing a method for valuing the social and cultural benefits. Called the 'Core Benefits Method', the approach is based on a 'south-to-south' verification process which will see other Aboriginal communities sign off on the social and cultural benefits delivered through undertaking the carbon project.

Project Name: 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 Wik and Kugu country.

Project Location

The Southern Aurukun project is on Wik and Kugu country to the south of Aurukun township in Queensland.

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.

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?

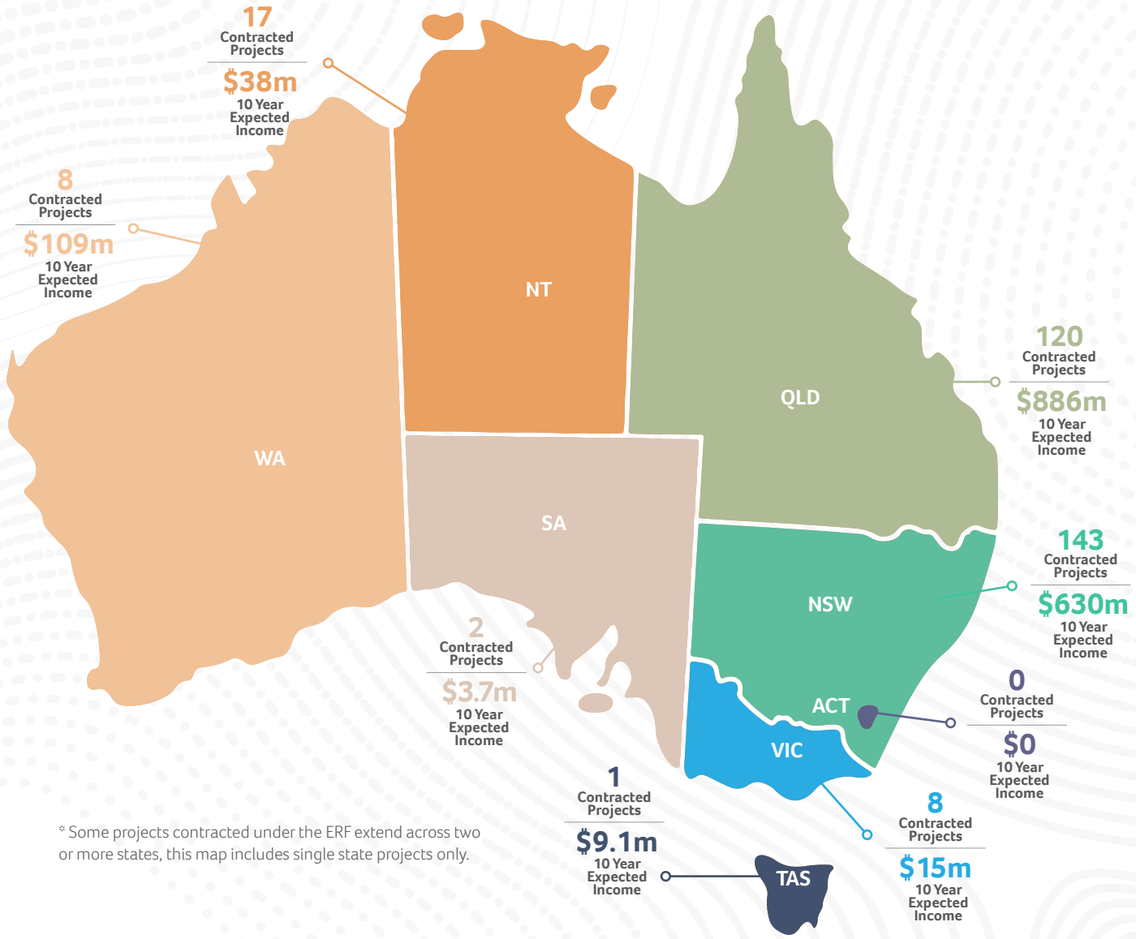
Traditional Owners always say managing country is more important than the carbon credits. In addition to the carbon abatement the project is delivering 'core benefits' to country:

- 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 new trainee rangers who are Traditional Owners
- Rejuvenating the outstation maintenance program
- Supporting a school camp for Year 6 students of Aurukun School to connect kids to country.

Overall, the project helps fulfil the Wik and Kugu vision of sustaining their values and culture through healthy country and resilient, engaged communities.

PHOTOS: Rangers working in the Aurukun township on Wik and Kugu country, Queensland [Aboriginal Carbon Fund]

Figure 3: Land sector projects contracted under the ERF, state breakdown



* Some projects contracted under the ERF extend across two or more states, this map includes single state projects only.

Land sector projects: State breakdown

Using data from the CER's ERF Contract Register, the map above shows the state-by-state breakdown for contracted land sector projects. The map shows the number of contracted projects in each state, as well as the predicted carbon revenue after ten years. Carbon revenue is determined by multiplying the total contracted abatement (tonnes CO_2e) by the average weighted auction price after five ERF auctions ($11.83). Across Australia there is approximately $1.8 billion of contracted abatement under land sector projects[8].

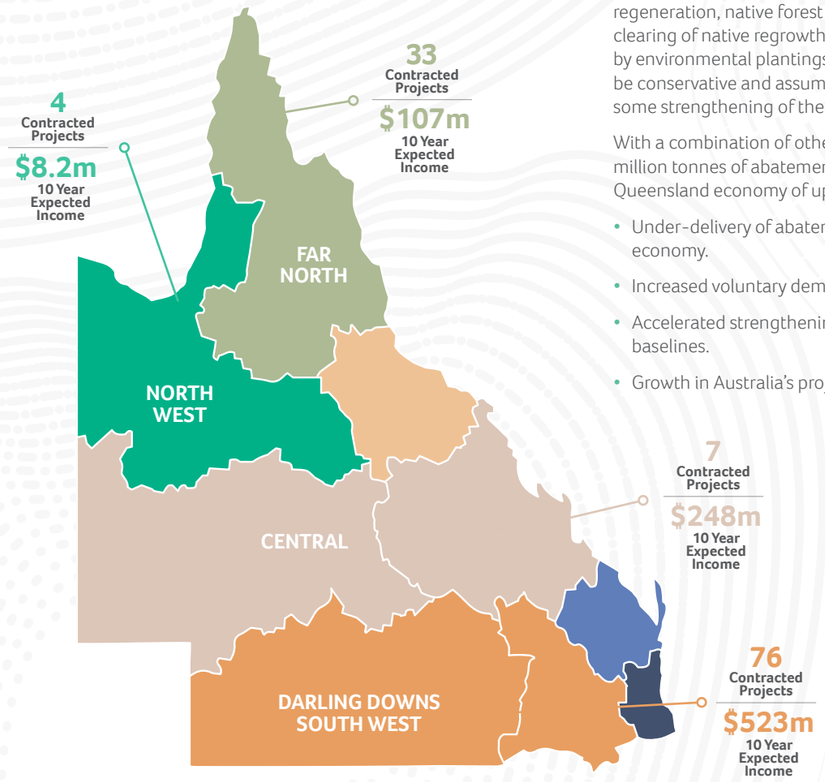
[8] Clean Energy Regulator, Contract Register, http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/carbon-abatement-contract-register, Accessed October 2017

SPOTLIGHT ON 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 is 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 Queensland Climate Transition Strategy is the need to facilitate and transition to the zero-emissions industries of the future. As such, a key action under the Strategy is to expand carbon farming as a key industry development goal.

In 2016, the Queensland Government announced the Carbon Plus Fund - an $8.4 million program to support greater Indigenous participation in the growing carbon farming industry and carbon market to derive economic, social and cultural, and environmental benefits. This investment is also to progress a method for valuing the important socio-economic benefits that can flow from carbon farming projects. The Carbon Plus Fund will facilitate participation of Indigenous people into the industry, and pay for ACCUs with verifiable co-benefits to offset the Queensland Government vehicle fleet's emissions for two years.

Figure 4: The map below outlines the Regional breakdown of land sector projects in Queensland



* Projects have been arranged by geographical region, based on information obtained from the Clean Energy Regulator's ERF contract register.

The Queensland Government has also entered two memoranda of understanding called the Conservation Catchment Alliance, with a range of carbon farming aggregators (Green Collar Group and CO_2 Australia) and NRM groups to ensure Queensland landholders are well positioned to take advantage of the financial benefits available under the ERF.

Further work is currently being undertaken by consulting firm EY, to analyse the risks and opportunities for Queensland as it transitions to a net-zero emissions economy. Agriculture is one of the five key industries being assessed in the analysis. The work will assist the Queensland Government to develop and implement policies that pave the way for innovative and economically viable technologies and solutions for the land sector[9].

Queensland projects on the land – ERF state of play

Reflective of its significant biophysical potential, Queensland has secured a large portion of contracted abatement from the land sector under the ERF with projects committing to deliver approximately 75 $MtCO_2e$ of abatement, or roughly $885 million under current contracts[10].

Independent analysis by Energetics 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[11]. This abatement could be achieved through five existing methods: human induced regeneration, native forest from managed regrowth, avoided clearing of native regrowth, savanna burning, and reforestation by environmental plantings. The assessment was designed to be conservative and assumed low demand in the short term and some strengthening of the Safeguard Mechanism over time.

With a combination of other factors, a further 270 to 502 million tonnes of abatement is possible at a value to the Queensland economy of up to $8 billion. These factors include:

- Under-delivery of abatement by other sectors in the economy.
- Increased voluntary demand for offsets.
- Accelerated strengthening of Safeguard Mechanism baselines.
- Growth in Australia's projected business as usual emissions.

[9] Queensland Government, Department of Environment and Heritage Protection, 2017
[10] Clean Energy Regulator, Contract Register, http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/carbon-abatement-contract-register, Accessed October 2017
[11] Energetics, Unlocking value for the Queensland economy with land and agriculture offsets, Department of Environment and Heritage Protection, Queensland Government, 2017

PHOTO: Mist rising off the waters of the Wet Tropics Region, Queensland [GreenCollar]

CASE STUDY: REEF CREDITS

The establishment of Reef Credits offer a new way to drive improvement in water quality in the Great Barrier Reef (GBR) catchments. It allows farmers and other land managers to earn income through activities that improve water quality. This in turns helps reduce the environmental impact on a Reef that is experiencing significant pressure.

Farmers and land managers can earn Reef Credits by reducing flows of sediment, nutrients or pest pesticides into waterways.

Project Name: Johnstone River Catchment

This project is about improving water quality, so it no longer has a detrimental impact on the Great Barier Reef . 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.

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 stabilisation, 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 aimed at 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 achieve this while maintaining agricultural production, healthy communities and prosperous economies.

PHOTO: Picturesque rapids in the Wet Tropics Region, Queensland [GreenCollar]

3. INDUSTRY VIEWS

Industry stakeholders operating across the carbon farming supply chain were given a number of opportunities to have input into the Carbon Farming Roadmap. Industry representatives put forward their views at the Carbon Farming Industry Summit, in response to the Post-Summit Survey and through face to face consultations. The consultation process was important for understanding industry's position on where the primary opportunities and challenges are, for growing the market for carbon farming projects. This section outlines the views put forward by key stakeholders, consolidating industry's position by:

- Identifying the primary opportunities and challenges for growing the domestic carbon farming sector;
- Providing a brief snapshot of some key survey findings; and
- Looking at three distinct scenarios for policy and markets development, with figures validated by industry stakeholders.

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. The opportunities and challenges identified during the consultation process are outlined below.

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, which will be important for driving demand for land sector credits.
- Policy and market mechanisms are already in place that, if adjusted, could be the framework for a market mechanism necessary to drive domestic demand for carbon farming activities.
- A highly skilled carbon services sector exists with deep knowledge and understanding of how to engage with new and innovative markets.
- Australia has a mature and modern agriculture industry with large land masses available to support a significant scaling up of investment in carbon farming projects.
- There is support from highly credentialed and motivated research organisations, looking to assist industry by providing new information and tools to increase participation.

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.
- Most agricultural ERF methods are not economically viable, as they don't take into account the practical realities of farming systems.
- 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 as 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.

PHOTO: Grain farming in the Mid North Region, South Australia

CARBON FARMING INDUSTRY SURVEY

Following the Industry Summit held in Brisbane, attendees were given the opportunity to respond to the Carbon Farming Industry Survey. The Survey was sent out to approximately 130 people, and had more than 50 people respond. The survey provides valuable industry insight into the challenges and opportunities for carbon farming in Australia. Some of the key findings from the Survey are included below, with further survey findings distributed throughout the document. Respondents provided comments where appropriate; responses were anonymous, with no responses attributable to any individual/organisation.

Key Findings

Policy & Regulatory Frameworks

- The overwhelming majority of respondents (93%) believe substantial growth in domestic land sector abatement is required for Australia to meet its 2030 emissions reduction targets.
- A large majority of respondents (88%) agree/strongly agree the Safeguard Mechanism baselines on large emitters should be set to decline over time to create a demand for ACCUs.
- The majority of respondents (80%) agree/strongly agree that ongoing uncertainty around climate change policies at the federal level is restricting participation in carbon farming.
- Respondents believe state governments have a key role in collaborating, promoting and facilitating uptake of carbon farming, with 89% saying they either agree/strongly agree.
- The large majority of respondents (91%) believe the Australian Government should ensure that rules set under the Paris Agreement allow for the linkage of markets to enable future export of ACCUs.

Increasing participation in the agricultural industry

- 80% of survey respondents agree/strongly agree more carbon farming methods need to be developed that take into account the practical realities of a farming system.
- 68% of respondents indicated they either agree/strongly agree that farmers and landholders across Australia are unaware of the benefits of carbon farming and have inadequate information to evaluate participating.
- 69% of respondents agree/strongly agree that carbon farming has the potential to invigorate the agricultural industry in Australia, bringing new jobs and economic activity into rural communities.
- There is uncertainty for landholders around the legal and commercial impact of 'locking up' of the land, as 83% of respondents either agree/strongly agree.

Co-benefits and the voluntary market

- 84% of survey respondents agree/strongly agree that there is a lack of information and understanding about the value of co-benefits from carbon farming projects.
- The majority of respondents (86%) agree/strongly agree carbon farming projects are going to provide important new job and revenue opportunities for rural and regional Australia, including in remote Indigenous communities.
- 82% of survey respondents agree/strongly agree that organisations looking to voluntarily offset their emissions or to be certified carbon neutral are an important source of increasing demand for ACCUs.

PHOTO: Pig Farming in the Loddon Region, Victoria

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

SCENARIOS 2020 – 2030:

The Australian Government (and non-Government stakeholders) have carried out a range of studies to project the impact of different policies and regulatory frameworks on Australia's carbon farming potential. The scenario projections below do not seek to duplicate any existing research but rather provide an 'industry perspective' on key projections, through surveys and consultations. Consultations were conducted with informed stakeholders that are currently active across the carbon farming supply chain (land owners/project developers/financiers/expert groups), in response to three scenarios put forward by the Government. Stakeholders indicated that the land sector could contribute 30-40% of Australia's 2020-2030 abatement challenge, generating new revenue, jobs and benefits for rural communities. Three distinct scenarios for the future of the carbon farming industry are outlined below, with key indicators for land sector abatement, income and jobs.

Figure 5: Overview of carbon farming scenarios

Scenario	Overview
Scenario 1 Australia fails to meet NDC under existing policy settings	The 'No Further Action' Scenario projects that Australia delivers 675 $MtCO_2e$ of abatement by 2030, achieving a 2% reduction below 2005 levels by 2030. It assumes that existing policy settings are continued from 2020 to 2030 - the level of ambition of these policies are not raised and no new policies are introduced.
Scenario 2 Australia meets its NDC, with scope to ratchet up ambition	The 'Central' Scenario projects that Australia delivers 900$MtCO_2e$ of abatement and achieves its current NDC target of a 26-28% reduction below 2005 levels by 2030. It assumes that Australia uses existing policies with raised ambition to achieve this[12].
Scenario 3 Australia on track to achieve a 2°C reduction target	The '2°C' Scenario projects Australia increases the ambition of its existing climate policies, and reduces emissions by 45% below 2005 levels by 2030 achieving emissions that are consistent with a net-zero emissions trajectory. It projects Australia delivers 1200 $MtCO_2e$ of abatement and assumes this is achieved by raising the ambition of existing policies and introducing new policies and access to international markets

[12] Grattan Institute, Climate Phoenix, A sustainable Australian Climate Policy 2016.

4. CARBON FARMING SCENARIOS 2020-2030: AN INDUSTRY PERSPECTIVE

The following table shows the potential for the domestic carbon farming industry to deliver abatement, income and Jobs under three distinct scenarios

SCENARIO 1	SCENARIO 2	SCENARIO 3
Australia fails to meet its NDC (No Further Action)	**Australia meets its NDC (Central)**	**Australia over-achieves its NDC (2°C Scenario)**
2020-2030 abatement achieved is **650 $MtCO_2e$**	2020-2030 abatement achieved is **900 $MtCO_2e$**	2020-2030 abatement achieved is **1200 $MtCO_2e$**
KEY MARKET INDICATORS		
LAND SECTOR ABATEMENT		
195 - 260 $MtCO_2e$ Stakeholders assumptions: land sector contributes 30-40% to Australia's 2020-2030 abatement	**270 - 360 $MtCO_2e$** Stakeholders assumptions: land sector contributes 30-40% to Australia's 2020-2030 abatement	**360 - 480 $MtCO_2e$** Stakeholders assumptions: land sector contributes 30-40% to Australia's 2020-2030 abatement
CARBON INCOME (AUD)		
$1.4b - $3.6b Stakeholders assumptions: 195 - 260 $MtCO_2e$ abated and an average carbon price of A$7-$14/tonne	**$4.1b - $10.4b** Stakeholders assumptions: 270 - 360 $MtCO_2e$ abated and an average carbon price of A$15-$29/tonne	**$10.8b - $24b** Stakeholders assumptions: 360 - 480 $MtCO_2e$ abated and an average carbon price of A$30-$50/tonne
JOBS		
5,700 - 11,400 jobs Stakeholders assumptions: (median) 228 $MtCO_2e$ abated. Jobs growth of 25-50 jobs per $MtCO_2e$ abated	**7,875 - 15,750 jobs** Stakeholders assumptions: (median) 315 $MtCO_2e$ abated. Jobs growth of 25-50 jobs per $MtCO_2e$ abated	**10,500 - 21,000 jobs** Stakeholders assumptions: (median) 420 $MtCO_2e$ abated. Jobs growth of 25-50 jobs per $MtCO_2e$ abated

KEY MARKET INDICATORS

Under the 2°C Scenario, industry has indicated there will be considerable benefits in terms of land sector abatement, income and jobs. These quantifiable benefits also have implications for local communities and their residents, with flow-on effects from increasing and/or new economic activities.

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 $15 p/$tCO_2e$ tonne including methods which encourage better management of pastures and therefore higher emissions sequestration in soils, and advanced farming methods such as changing livestock feed. At a carbon price of $20 p/$tCO_2e$, stakeholders commented that native forest regrowth projects have the potential to deliver abatement at scale. These findings are consistent with modelling carried out by the Department of the Environment and Energy[14] .

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. As Queensland is expected to be the largest beneficiary of land sector abatement, it is expected to be the largest state beneficiary of new jobs.

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 rural and regional communities. 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.

[13] Australian Government Department of Environment & Energy, Modelling & Anaylsis of Australia's Abatement Opportunities, http://www.environment.gov.au/climate-change/publications/modelling-and-analysis-australias-abatement-opportunities

INDUSTRY VISION

The vision for the domestic Carbon Farming Industry is to be a vibrant sector in the Australian economy, providing a strong source of jobs and revenue for the range of market participants, whilst making a significant contribution to Australia's net-zero emissions trajectory by 2030.

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 during a national stakeholder consultations process.

FOUR PILLARS OF INDUSTRY DEVELOPMENT

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 reinvest 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;
- Carbon farming projects that are aligned with international best-practice standards, to become an important opportunity for export of units into global carbon markets, leading to international investment into Australia's land sector.

PHOTO: Warddeken Rangers undertaking fire suppression in the West Arnhem Land Fire Abatement (WALFA) Project, Northern Territory [ALFA (NT)]

PHOTO: Birds over the Aurukun wetlands, Wik and Kugu country, Queensland [Aboriginal Carbon Fund]

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?

1. **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. 91% of survey respondents believe that 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.
2. **Both public and private sectors are jointly developing new carbon farming methods.**
   Stakeholders advised that there are a limited number of methods that are cost effective for farmers to implement and that more industry input on method development would translate to new types of cost-effective carbon farming projects, more implementation and greater innovation. 73% of survey respondents believe there are high transaction and administrative costs to participate in carbon farming.
3. **State and local government policy, via legislated net-zero emissions and carbon neutral targets, is driving demand and investment for carbon farming projects.**
   74% of survey respondents agree that emissions reductions from carbon farming developments should be incorporated into zero-net emissions targets of state governments.
4. **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 the Federal and State Governments must work to streamline the policy and regulatory environment, addressing complications from competing food, fibre and environmental markets.
5. **Complexities in navigating carbon project development have been addressed, to increase meaningful participation among Indigenous landholders and communities.**
   Stakeholders advised that complexities with project development remain a barrier to entry for rural and remote communities. 82% of survey respondents believe ensuring Native Title issues are adequately addressed is critical for increasing participation in carbon farming among Indigenous communities.

How are we going to get there?

Primary Actions

Government

Federal

- Continue to fund carbon farming activities by allocating an additional $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.

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 organisations to actively participate in developing a viable secondary market for ACCUs from land sector projects.

Land Sector

- Agricultural industry to provide evidence base for method development, engaging with government, research and project development community to facilitate new methods as the market evolves, increasing participation within the sector.
- Indigenous groups are adequately engaged to assist project proponents overcome challenges in working within the Native Title framework to facilitate increased project development where mutually beneficial.

Carbon Service Providers

- Project developers to engage constructively with government on the method development process, sharing insights and innovative approaches to drive market activity.
- Implementation of an industry code of conduct, ensuring best practice for landsector projects, building and maintaining the integrity of the industry.
- Research and academia to provide scientific rigour and transparency around new and revised method development.

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

PHOTO: Preparing the land for mallee plantings, for the Carbon Conscious Carbon Capture Project 2, Western Australia [Alterra]

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?

1. **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.
2. **Insurance companies and agricultural enterprises have introduced new risk-management products to cover losses associated with participation in carbon farming.**
   Stakeholders commented 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.
3. **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.**
   Stakeholders consulted emphasised that investors need to incorporate how different environmental market metrics can be quantified and layered in a single project to generate additional financial returns.
4. **Revenue generated from carbon farming projects is flowing back into the agricultural sector and rural communities.**
   Stakeholders consulted indicated 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.
5. **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 need to be mapped and understood for each subnational jurisdiction, with 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 NRM groups, agriculture, and biodiversity programs.

State

- Map the strategic opportunities for state-wide carbon farming projects, including for blue carbon, prioritising areas for investment.
- Establish funding mechanisms to drive regional market developments and positive land-use change.
- Revise state-wide statutory valuation protocols for agricultural properties to consider and make informed decisions around the implications of 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 increase participation in voluntary markets, and invest in land sector projects with long-term supply contracts (that offset their emissions liabilities and create a future pipeline of carbon credits).
- 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 should incorporate the benefits of carbon projects into capital asset values.

Land Sector

- Agricultural industry and NRM groups to articulate the value proposition for investment in projects that simultaneously drive productivity and achieve positive environmental outcomes.
- Farmers to investigate the opportunity for diversifying revenue streams and investing in carbon projects that lead to greater farm 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.

PHOTO: Workers measuring carbon sequestion on CO2 Australia's Human Induced Regeneration Project, New South Wales [CO2 Australia]

PHOTO: Head Ranger conducts ground burning for the Wilinggin Fire Project, Western Australia [Kimberley Land Council]

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?

1. **New metrics have been introduced to accurately quantify co-benefits from land-sector projects, with benefits attributable to the carbon finance.**
   86% of respondents believe 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.
2. **Carbon farming projects are generating additional revenue and attracting new investment in integrated environmental markets.**
   84% of survey respondents either agree/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, in order to achieve additional financial returns on investment.
3. **Carbon farming projects in Australia are valuing co-benefits using metrics that are aligned with international standards and best practice.**
   Stakeholders advised that this would be important to enable future export of mitigation outcomes and/or co-benefit outcomes, into international markets.
4. **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 Sustainable Development Goals (SDG) framework.

State

- Develop co-benefit metrics, methods and MRV 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 the 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 in building the 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).

Land Sector

- Agricultural industry to raise awareness around the value of co-benefits, investing in research and development of co-benefits measurement frameworks for agricultural projects.
- NRM groups and the agricultural industry to engage in the development of new environmental markets.

Carbon Service Providers

- Project developers to develop best practice methods, including MRV standards for co-benefit quantification, building on international standards and best practice.
- Project developers to articulate the value of co-benefits on agricultural properties, highlighting the potential for them to co-exist alongside traditional farming operations.

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

PHOTO: 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 that there is better communication around the opportunities for participating in carbon farming, and building greater trust and alignment with traditional agricultural industries and Indigenous communities.

Where do we want the industry to be?

1. **Carbon project developers, carbon service providers, agricultural industry groups and NRM bodies to have clear and aligned messaging around the benefits of carbon farming.**
   70% of survey respondents agree that farmers and landholders are unsure who to trust with advice about projects on their land. Aligning the messaging from different sectors and organisations will help build trust within the sector.
2. **Farmers understand how carbon farming projects can deliver productivity benefits for agricultural enterprises.**
   Stakeholders consulted emphasised the importance of communicating the benefits of carbon farming projects through the lens of farm productivity. 84% of survey respondents believe more government-led research and development is needed to develop methods to increase farm productivity and generate carbon credits.
3. **New tools and technologies are helping farmers and landholders make informed decisions about whether to undertake a carbon project.**
   Stakeholders consulted highlighted the need for governments, research organisations and technology providers to prioritise new tools and technology to assist in mainstreaming data
   use, streamlining administrative processes, and reducing costs for project implementation.
4. **Governments have a strategic and targeted approach for funding programs that build capacity and create opportunities for employment in remote and regional communities.**
   Stakeholders highlighted a role for governments to provide discrete, targeted funding for capacity building initiatives that are not viable at project scale, leading to delivery of additional abatement.
5. **Governments are supporting robust standards for carbon and co-benefits, creating confidence in the sector and driving investment in new projects.**
   Stakeholders highlighted the importance for the carbon farming projects to be robust and transparent, with government support for standards ensuring 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 programs 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, mainstream the use of agricultural and environmental data, and increase participation among farmers and landholders.
- 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 in building capacity in areas that will provide large abatement benefits These include support of baselining costs for soil carbon, or developing programs for coordinated fire response (for savanna projects/coordinated ranger units on 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, ensure benefits are understood, and 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 appropriate 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 promote the benefits of carbon farming.
- Heavy emitting organisations to build capacity, expertise and understanding of carbon markets and hedging strategies, as well as accessing credits and trading to offset emissions.

Land Sector

- Agricultural industry and NRM groups to develop materials for national outreach and education programs for farmers.
- Agricultural industry and NRM groups to incorporate new tools, technology and accounting methods, to better integrate data to support environmental markets.
- Farmers, industry and Indigenous communities to implement peer-to-peer knowledge sharing and project development programs to communicate and build capacity in rural communities.
- Agricultural industry to promote the benefits of carbon farming.

Carbon Service Providers

- Project developers/aggregators must align messaging to key land-sector stakeholders with messaging from government, Indigenous organisations, NRM bodies and agricultural industry groups.

PHOTO: 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 outlined below each ensure the Roadmap is representative of the collective views of industry and policy makers operating in the carbon farming sector in Australia.

Figure 6: Project methodology

DESKTOP RESEARCH	• Identify key industry players. • Review previous research/analysis. • Understand the barriers and opportunities for carbon farming.
CARBON FARMING INDUSTRY SUMMIT (1ST AUGUST, 2017)	• Convene key stakeholders from government and private sector to discuss barriers and opportunities. • Consolidate findings/frame survey questions.
CARBON FARMING SURVEY	• Survey to provide opportunity for further industry feedback. • Identify any gaps in developing Roadmap. • Validate key findings and recommendations from industry summit.
SCENARIOS	• Frame the different scenarios by which the carbon farming industry might evolve. • Understand how different policies will affect participation in carbon farming.
INDUSTRY CONSULTATIONS INCEPTION	• Identify key action items for individual stakeholder groups. • Validate key findings.

About the Carbon Market Institute

The Carbon Market Institute is at the centre of climate change policy and business in Australia. We're dedicated to helping business seize opportunities in rapidly evolving carbon markets. Independent and objective we're the peak industry body for climate change policy, markets and business. We believe that market-based solutions are the most efficient policy mechanism to address the challenge of climate change.

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 low carbon economy.

Carbon Market Institute

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