The business case for Carbon Farming: Improving your farm’s sustainability

A Summary guide to the Kondinin Workshop manual
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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>4</td>
</tr>
<tr>
<td>Glossary of terms</td>
<td>4</td>
</tr>
<tr>
<td>1. Background to the business case</td>
<td>5</td>
</tr>
<tr>
<td>2. How carbon is farmed under the ERF</td>
<td>6</td>
</tr>
<tr>
<td>3. The policy context and the price of ACCUs</td>
<td>7</td>
</tr>
<tr>
<td>4. Ensuring abatement is real</td>
<td>9</td>
</tr>
<tr>
<td>5. Learning from existing methods</td>
<td>10</td>
</tr>
<tr>
<td>6. The regulatory steps to participation</td>
<td>11</td>
</tr>
<tr>
<td>7. Options for participation</td>
<td>11</td>
</tr>
<tr>
<td>8. The Business Case: Project Revenue and Co-benefits</td>
<td>13</td>
</tr>
<tr>
<td>9. The Business Case: Costs of establishing and running a project</td>
<td>14</td>
</tr>
<tr>
<td>10. The Business Case: Risks and net benefits</td>
<td>15</td>
</tr>
<tr>
<td>11. Where to go for more information</td>
<td>16</td>
</tr>
<tr>
<td>Appendix A. Summaries of selected methods</td>
<td>16</td>
</tr>
<tr>
<td>Appendix B. Tax implications of Emissions Reduction Fund Projects</td>
<td>17</td>
</tr>
</tbody>
</table>
Foreword

In March to June 2015, a series of one-day Emissions Reduction Fund Business Awareness Workshops were held in key locations across Western Australia, South Australia, Victoria and New South Wales. The workshops were run by the Kondinin Group for farmers wanting to learn about the business opportunities presented by the Emissions Reduction Fund and how their farming enterprise could profit from the scheme. A workshop manual was developed by Kondinin Group to explain everything that needs to be known about the business case for carbon farming in a simple format. This was provided free to workshop attendees. An electronic version (4.8 Mb) can be downloaded from http://carbonfarminginitiative.farmingahead.com.au/p/resources.html or from the myCarbonFarming website.

This guide has been developed to provide an up-to-date summary of the original workshop manual. To allow for easy navigation and cross-referencing, chapter numbers and titles are consistent with those in the manual. Links to further resources are provided throughout.

Glossary of terms

Aggregation: The process of bringing multiple sources of carbon abatement together. It can be undertaken by individuals or organisations.

Australian Carbon Credit Unit (ACCU) is an emissions credit unit that is equivalent to at least 1 tonne of carbon dioxide equivalent (CO2e). ACCUs are issued by the Clean Energy Regulator (the CER) in return for activities completed under the CFI or the ERF. ACCUs are financial products and are personal property. They have no expiry date and can be kept or sold, in particular to the Government as part of the ERF.

Carbon (C): an element that is a key component of many (but not all) greenhouse gases. Carbon is often referred to when discussing sequestration.

Carbon abatement: Refers to both reducing carbon emissions released into the atmosphere, or reducing carbon already in the atmosphere through carbon sequestration.

Carbon abatement contract (contract): This is a contract between each participant successful at an Auction (the Seller) and the Clean Energy Regulator (the Buyer). It is made up of four separate documents – Code of Common Terms, Commercial Terms, Delivery Terms and Financial Terms.

Carbon dioxide (CO2): the major greenhouse gas usually referred to in most discussions but it is not the most important gas within the agricultural sector.

Carbon dioxide equivalence (CO2-e): Often, emissions and sequestration are referred to in both carbon (C) units and CO2 (or CO2-e) units. It is important to be able to convert between the two. Units of C can be converted to units of CO2 (or CO2-e) by multiplying by 44/12 (or 3.667). This is based on the atomic weights of the two substances: the atomic weight of C is 12, while the atomic weight of CO2 is 44 (12 + 2 x 16). Thus, 1 tonne of carbon is equivalent to 3.667 tonnes of CO2-e.

Co-benefits: Things that, while not bringing in direct cash to an enterprise, may have positive effects on production or the environment.

Compliance costs: The costs incurred in complying with the regulatory requirements of the ERF. They include, for example, the costs of record keeping, reporting, auditing etc.

Emissions avoidance: Refers to projects that generate abatement by reducing or avoiding emissions of methane and nitrous oxide, or convert methane into carbon dioxide which is a less potent greenhouse gas.

Emissions Reduction Fund (ERF): A scheme where the Government purchases the lowest cost abatement (in the form of ACCUs) from a wide range of sources, providing an incentive to businesses, households and landowners to proactively reduce their emissions. It replaces the Carbon Farming Initiative (CFI).

Financial costs: expenditure needed to establish and maintain an ERF project. This includes set-up costs, equipment purchases, capital investments and ongoing maintenance costs.

Global Warming Potential (GWP): A measure of how much a given mass of greenhouse gas is estimated to contribute to global warming. It is a relative scale that compares a gas with the same mass of CO2 and is calculated over a specific time interval.

Greenhouse gas (GHG): Under the National Greenhouse and Energy Reporting Act 2007 (NGER: section 7), means: carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, or a hydrofluorocarbon or perfluorocarbon of a kind specified in the NGER regulations.

Methods: Set out the detailed rules and processes for carrying out an Emissions Reduction Fund project and measure the resulting reductions in emissions.

Sequestration: Refers to abatement generated by removing CO2 from the atmosphere and storing it as carbon in plants as they grow, or in the soil.
1. **Background to the business case**

Carbon farming involves changing, or introducing, specific on-farm practices designed either to reduce greenhouse gas emissions, or to store carbon in the landscape (also known as carbon sequestration).

The reasons for undertaking carbon farming may range from seeking a new and profitable farm enterprise, to capturing the environmental and co-benefits of managing carbon on-farm.

If undertaken in accordance with an appropriate method and satisfying the regulatory requirements of the Emissions Reduction Fund, a carbon farming project may earn Australian Carbon Credit Units (ACCUs). These may be either sold to the Government through a carbon abatement contract, or sold on the secondary market.

Any income from the sale of ACCUs – along with the co-benefits from carbon farming – will not come free of charge. Setting up and maintaining a carbon farming project will involve costs and risks. Like any business decision, the choice to participate in the ERF involves understanding and a careful comparison of the benefits and costs. Note that the benefits and costs will be constrained (and in some cases mostly determined) by the regulatory and policy environment within which the carbon farming business will operate.

**Figure 1: Key Decision Steps to Participating in Carbon Farming**

- **STEP 1**: Do you have the right to undertake the project?
- **STEP 2**: Is there a suitable method?
- **STEP 3**: Does high level analysis suggest it is worth proceeding?
- **STEP 4**: Is there a business model suitable for you?
- **STEP 5**: Does detailed financial and risk analysis suggest a suitable project?

Elements to consider when developing a business case include: Revenue and Co-benefits (see Section 8), Costs and Opportunity cost of the land (see Section 9), Risks (see Section 10) and Taxation (Appendix B).

Further Reading: Workshop Manual Sections: 1.1 Overview, 1.2 Being clear about the reasons for participating, 1.3 Key steps in a decision process, 1.4 Working through the business case for carbon farming, 1.5 Factors determining project economics, 1.6 Elements of the business case, 1.7 Building an economic case, 1.8 Important features of the business case, 1.9 The plan of this manual.
2. How carbon is farmed under the ERF

The Emissions Reduction Fund (ERF) is an Australian Government scheme that replaces the Carbon Farming Initiative (CFI). It is designed to help Australia to meet its emissions reduction target of 5% below 2000 levels by 2020. Through the ERF, the government will purchase lowest-cost abatement (in the form of ACCUs) from a wide range of sources, providing an incentive to businesses, households and landowners to proactively reduce their emissions.

The Clean Energy Regulator administers schemes—such as the ERF—legislated by the Australian Government for measuring, managing, reducing or offsetting Australia’s carbon emissions.

There are six broad components to Australia’s agricultural emissions:

- Enteric fermentation: the emission of methane as a by-product of the digestive processes of cattle, sheep, pigs and other animals
- Manure management: the emission of methane or nitrous oxide from the decomposition of livestock dung or urine
- Rice cultivation: methane generated during rice growing from the decomposition of residues and organic carbon in the soil as a consequence of flooding the crop
- Agricultural soils: the emission of nitrous oxide from soils as a result of microbial and chemical transformations, due in part to the application of nitrogen fertilisers
- Field burning of agricultural residues: the emission of a range of greenhouse gases largely as a result of stubble burning (for crops such as wheat) or burning a sugarcane crop before harvest
- Savanna burning: methane and nitrous oxide released into the atmosphere. At the time of writing not every one has an approved avoidance method associated with it.

There are a number of opportunities for the land sector to participate in the ERF by either storing carbon or avoiding emissions from agricultural activities. Sequestration projects generate abatement by removing carbon dioxide from the atmosphere and storing it as carbon within in plants or the soil they occupy as they grow.

Current abatement methods for the land sector address livestock emissions, manure management, fertiliser usage and savanna burning. There are also vegetation sequestration methods for soil carbon, protecting existing vegetation, promoting regrowth, and undertaking revegetation.

Further detail on specific methods is provided in Section 5.

Permanence obligations for land-based projects
Carbon stored in vegetation and soils can be released back into the atmosphere by man-made or natural events, thereby reversing the environmental benefit of the sequestration project. Sequestration is regarded as permanent if carbon storage is maintained on a net basis for 100 years. A permanence obligation maintains carbon stores for which ACCUs have been issued.

The ERF requires sequestration projects to choose a permanence period of either 25 or 100 years. Once a permanence period has been nominated it cannot be varied.

If the 25 year option is chosen, there will be a 20% reduction in the number of ACCUs for that project. This is in addition to the 5% risk of reversal buffer (a total reduction of 25%).

Further Reading: Workshop Manual Sections: 2.1 The scope of carbon farming under the ERF, 2.2 Emissions avoidance activities, 2.3 Sequestration activities, 2.4 The negative list, 2.5 Carbon farming under the Emissions Reduction Fund, 2.6 Who’s who in the CFI and the ERF
A key source of collated scientific climate information is the sequence of Intergovernmental Panel on Climate Change (IPCC) assessment reports: www.ipcc.ch

According to the IPCC’s Summary for Policy Makers, the scientific evidence of natural and human-produced drivers of climate change suggests that continued greenhouse gas emissions will lead to changes in the climate that are adverse to humans and that will be costly. Stabilising atmospheric greenhouse gas concentrations and ultimately reducing emissions would mean that adverse climate changes could be avoided (although this may take some time). Reducing emissions is costly and usually involves government coordination.

Most governments have responded to the need to stabilise emissions through policies designed to reduce emissions today or in the future. Australia’s policy response to the climate change challenge includes instruments such as the Emissions Reduction Fund, the Carbon Neutral Offset Standard, and the Carbon Neutral Program.

National Carbon Offset Standard (NCOS)
This replaced the Greenhouse Friendly Initiative from 1 July 2010. It provides national consistency and consumer confidence in the voluntary carbon market. The standard:
- provides guidance on what is a genuine offset unit
- Sets minimum requirements for calculating, auditing and offsetting the carbon footprint of an organisation, product or event to voluntarily achieve carbon neutrality.

The current version of the Standard can be found here, which incorporate the outcomes from the 2014-15 Review of the National Carbon Offset Standard.

Carbon Neutral Program
This is a voluntary scheme which allows organisations, products and events to be certified as carbon neutral against the NCOS Standard. This means that net associated emissions are equal to zero. Consumers can have confidence that organisations, products and events bearing the NCOS trademark have achieved carbon neutrality in a way that achieves a genuine reduction in overall emissions. The program is administered by the Department of the Environment.

Current guidelines for the Carbon Neutral Program can be found here.

The price of ACCUs

Value of financial products such as ACCUs will ultimately be determined by supply and demand as well as the policy context, both locally and internationally, for carbon farming and greenhouse gas abatement. The price of ACCUs is uncertain, and will vary depending on the ERF auction and the bids presented. ACCUs have value when someone wants to pay for them, as a result of a regulatory obligations such as an emissions trading scheme or through a voluntary market. The Australian Governments through the Clean Energy Regulator (CER) are the sole purchasers of ACCUs through the Emissions Reduction Fund (CER).

To date, the first two auctions have not resulted in significantly different prices:

1st ERF auction result – average price per tonne of abatement $13.95.
2nd ERF auction result – average price per tonne of abatement $12.25.

It should be noted that the ERF allows for ACCUs to be generated by activities well beyond carbon farming. Their price may be determined by activities with lower cost structures (and risks) than carbon farming.
Therefore a business case should not rely on a single price but should examine the implications of a variety of prices. Some prices will result in a viable project; others will not. Finding the threshold price is crucial.

Further Reading: Workshop Manual Sections: 3.1 The policy context and the price of ACCUs, 3.2 A documented climate challenge..., 3.3 ...with numerous policy responses, 3.4 Australia’s 2020 emissions target, 3.5 Australian policy instruments, 3.6 International carbon markets, 3.7 What determines prices in carbon markets?, 3.8 Recent prices in compliance markets, 3.9 Recent prices in voluntary markets, 3.10 Price formation under the ERF, 3.11 What prices should you use in the business case?
4. **Ensuring abatement is real**

For a project to be eligible for registration with the Clean Energy Regulator under the Emissions Reduction Fund (unless the method covering the project specifies otherwise), it must:

- not have begun to be implemented before it has been registered with the Clean Energy Regulator (**the newness requirement**),
- not be required to be carried out by or under a Commonwealth, State or Territory law (**the regulatory additionality requirement**), and
- not be likely to be carried out under another Commonwealth, state or territory government programme in the absence of registration under the Emissions Reduction Fund (**the government program requirement**).

**Newness requirement**

An ERF project must not have started before it has been registered with the Clean Energy Regulator, unless the method covering the project specifies otherwise. Applicants are required to provide evidence which satisfies the Clean Energy Regulator that the project has not begun.

Examples of actions that would indicate that a project has started include:

- acquiring or leasing a tangible asset that is for use wholly or mainly for the purposes of the project
- commencing construction work for the purposes of the project
- installing an irrigation or drainage system for the project
- seeding, planting or fertilising plants that are for the purposes of the project

**Regulatory additionality requirement**

Activities to be carried out as part of Emissions Reduction Fund projects cannot be mandatory under a Commonwealth, state or territory law, unless the method covering the project specifies otherwise. In some cases, the project may involve doing more than is required by these laws or by industry regulations. Methods for these types of projects may provide rules for establishing a regulatory baseline.

**The government programme requirement**

ERF projects that cover activities also carried out under existing Commonwealth, state or territory government programmes or schemes may be excluded from participating in the Emissions Reduction Fund.

**Methods are at the heart of the ERF**

The Department for the Environment is responsible for developing new Emissions Reduction Fund methods jointly overseen with the Department of Agriculture and Water resources in consultation with Technical Working Groups and industry. These methods set out the rules for particular type of projects and are much like a technology of systematic farming practice required to undertake a carbon farming activity.

Emissions Reduction Fund methods will be developed in a priority order to ensure they offer the greatest opportunity for uptake and genuine abatement. The method prioritisation process is an annual process.

Interested businesses, community organisations and individuals are invited to make submissions on draft method determinations when they are first released. The Emissions Reduction Assurance Committee assesses whether methods meet the requirements of the Emissions Reduction Fund and provides advice to the Minister for the Environment, who makes the decision on method determinations.

**The need for strong integrity regulation**

Emissions must be genuinely reduced from what would have otherwise would have occurred. Therefore the integrity of ERF activities requires that standards around additionality, measurability, science, leakage variability, conservation and permanence are met. These standards for projects are grouped under the ERF under the generic title of **The Integrity Standard**. Further Reading: Workshop Manual Sections: 4.1 The need for strong integrity regulation, 4.2 The integrity standard, 4.3 Methodologies are at the heart of the ERF.
5. Learning from existing methods

Examining the existing methods reveals a number of important points from the perspective of farmers and landowners:

- The methods will require a level of data collection and monitoring that is beyond normal practice for the farming enterprise
- They may require sampling, measurement and statistical techniques that are very specialised. This implies that the farm enterprise will probably have to contract at least some of those services.
- Some methods may require the use of specific modelling tools. This also suggests some form of specialist involvement in the ERF project
- Methods also generally require auditing and reporting of project results, again requiring specialist services.

Figure 2. Current emissions avoidance methods

<table>
<thead>
<tr>
<th>Emission type</th>
<th>Applicable method for emissions avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteric fermentation (beef cattle, dairy cattle)</td>
<td>Feeding nitrates to beef cattle Beef Cattle Herd Management Feeding dietary additives to milking cows</td>
</tr>
<tr>
<td>Manure management (piggeries, dairies)</td>
<td>Destruction of methane generated from manure in piggeries Destruction of methane from piggeries using engineered biodigesters Destruction of methane generated from dairy manure in covered anaerobic ponds</td>
</tr>
<tr>
<td>Agricultural soils</td>
<td>Reducing greenhouse gas emissions from fertiliser in irrigated cotton</td>
</tr>
<tr>
<td>Savanna burning</td>
<td>Savanna fire management</td>
</tr>
</tbody>
</table>

Figure 3. Current sequestration methods

<table>
<thead>
<tr>
<th>Activity type</th>
<th>Applicable method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant seeds or seedlings on cleared land to establish a permanent forest</td>
<td>Reforestation and afforestation Reforestation by Environmental or Mallee Plantings - FullCAM Measurement based methods for new farm forestry plantations</td>
</tr>
<tr>
<td>Plant seeds or seedlings on cleared land to establish a forest plantation for harvesting</td>
<td>Measurement based methods for new farm forestry plantations</td>
</tr>
<tr>
<td>Let the cleared land revert to native forest</td>
<td>Native forest from managed regrowth Human-induced regeneration of a permanent even-aged native forest</td>
</tr>
<tr>
<td>Protect or maintain the existing native forest</td>
<td>Native forest protection (avoided deforestation) Avoided clearing of native regrowth</td>
</tr>
<tr>
<td>Increasing carbon in soil</td>
<td>Sequestering carbon in soils in grazing systems Estimating sequestration of carbon in soil using default values</td>
</tr>
</tbody>
</table>

Further Reading: Workshop Manual Sections: 5.1 Currently approved agricultural methodologies, 5.2 Examples of approved methodologies, 5.3 Implications for the business case.
6. The regulatory steps to participation

The Emissions Reduction Fund provides incentives for emissions reduction activities across the Australian economy. Essentially, once a project has been planned, there is a four step participation process. Click on each link below to read more on each step on the ERF website.

Figure 4. Four Steps to the Emissions Reduction Fund

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>APPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply to become an Emissions Reduction Fund participant.</td>
<td></td>
</tr>
<tr>
<td>Register your project to receive ACCUs under the ERF.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEP 2</th>
<th>CONTRACTS AND AUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERF participants with a registered project may bid for a contract to sell their ACCUs to the CER. The CER will run auctions to select bidders according to price.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEP 3</th>
<th>REPORTING AND AUDITING</th>
</tr>
</thead>
<tbody>
<tr>
<td>To receive ACCUs you will need to submit reports on your registered projects. You will also need to have your project audited on a regular schedule.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEP 4</th>
<th>DELIVERY AND PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants who have a contract with the CER will deliver ACCUs according to the schedule in their contract, and will then be paid at the price bid at auction and set out in the contract.</td>
<td></td>
</tr>
</tbody>
</table>

7. Options for participation

Legal rights to carry out a project

To establish who has the legal right to carry out a project you should consider all the stakeholders involved or impacted by the proposal. Owners, lessees and service providers all may have a legal interest in the land on which an ERF project is being undertaken and the nature of that interest.

If a project has multiple participants, the participants will need to have the legal right to carry out the project. The participants may collectively have this legal right or each participant may have the legal right to carry out the project.

For you to have the legal right to carry out an ERF project, you must:

- have the right to carry out the project activities on or for the sites or assets included in the project, and
- have a lawful and exclusive right to be issued all ACCUs that may be created as a result of the project activities.

Having an exclusive right to something means no other person can lawfully claim that right. Carbon sequestration rights can be held by a freehold land owners or the Minister, in the case of Crown Land.

Carbon rights can be signed over to a third party, so the Crown could (in theory) grant carbon sequestration rights to a lease of crown land. A freehold land holder could sell carbon sequestration rights to a third party.

Further Reading: Workshop Manual Sections: 6.1 The Clean Energy Regulator, 6.2 Steps for participating in the CFI, 6.3 Steps for participating in the ERF, 7.1 Legal rights to carry out a project and Appendix C.
Figure 5. The business structure for participation

<table>
<thead>
<tr>
<th>Responsibility under the model</th>
<th>Individual landowner</th>
<th>Cooperative groups of landholders</th>
<th>Individual landowner using agents or representatives</th>
<th>Individual landowner using services providers</th>
<th>Landowner working with aggregator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who is the project proponent?</td>
<td>The landowner becomes the project proponent, and incurs the cost of doing so</td>
<td>Each landowner becomes the project proponent for their aspect of the project</td>
<td>The individual landowner</td>
<td>The individual landowner</td>
<td>Usually the aggregator (the landowner signs over rights)</td>
</tr>
<tr>
<td>Who manages the project?</td>
<td>The landowner manages the whole project</td>
<td>The project is managed cooperatively among the landowners</td>
<td>The landowner or their agent</td>
<td>The services providers</td>
<td>The aggregator or the landowner</td>
</tr>
<tr>
<td>Who manages compliance?</td>
<td>The landowner is responsible for ensuring the compliance of the project throughout its life</td>
<td>Compliance is managed cooperatively among the landowners</td>
<td>The landowner or their agent</td>
<td>The services providers</td>
<td>The aggregator or the landowner</td>
</tr>
<tr>
<td>Who undertakes the project</td>
<td>The landowner undertakes the project</td>
<td>The project is undertaken cooperatively among the landowners</td>
<td>The landowner</td>
<td>The services providers</td>
<td>The aggregator or the landowner</td>
</tr>
<tr>
<td>Who receives the ACCUs?</td>
<td>The landowner receives the ACCUs</td>
<td>The individual landowners, according to reporting</td>
<td>The landowner</td>
<td>The landowner</td>
<td>The aggregator, who makes a payment to the landowner</td>
</tr>
</tbody>
</table>

Project Aggregation

Aggregation as part of the ERF can be done in a number of ways. Regardless of the method used, two broad categories of aggregation apply:

1. Project aggregation – where numerous activities that use the same method to bring about carbon abatement are grouped into a single registered project.
2. Contract aggregation – where several distinct projects are grouped of ‘bundled’ into a single bid made by the aggregator at an auction for a single Carbon Abatement Contract. An aggregated contract can include projects using different carbon abatement methods.

Under the ERF, the regulator may specify a minimum bid size for auctions, which will provide strong incentives for aggregated projects. At the auctions held to date, the minimum project size has been 2000 t CO₂-e (equal to 2000 ACCUs) per year on average over the term of the contract.

Eligible Interest Holders

If you are applying to register an area-based emissions avoidance project or a sequestration project under the Emissions Reduction Fund, you must seek the consent of any persons or organisations holding an eligible interest in the land on which your project will run. Both emission reduction and sequestration projects on pastoral land require consent from eligible interest holders.

You must submit to the Clean Energy Regulator an Eligible Interest Consent Form signed by each person or groups with an eligible interest in your project.

Examples of Eligible Interest Holders include: financial institutions that hold a mortgage over the land, registered Native Title Bodies Corporate, or in the case of Crown land, the relevant Minister.

Further Reading: Workshop Manual Sections: 7.1 Legal rights to carry out a project, 7.2 The business structure for participation, 7.3 Aggregation under the ERF, 7.4 Advantages and disadvantages of different arrangements.
8. The Business Case: Project Revenue and Co-benefits

The potential revenue from ERF activities depends on the number of ACCUs the project is able to generate, the price for which those ACCUs are subsequently sold, and the value of co-benefits from the project.

The period over which ACCUs can be earned under the ERF is 25 years for a sequestration and 7 years for an emissions avoidance project. An eligible offsets project cannot have more than one crediting period.

There are various tools available to assist with modelling and calculating carbon abatement or sequestration, and hence gain an understanding of the potential number of ACCUs which might be generated under different conditions.

For agricultural methods:

For vegetation methods:

For savanna burning methods:

The value of co-benefits

In addition to potential cash revenue from the sale of ACCUs, some ERF projects (particularly those involving sequestration) are likely to bring a number of co-benefits to the farm enterprise. While some co-benefits could potentially be monetised, many have tangible but nonetheless important value. Co-benefits that have been identified in a number of projects include:

- Enhancing water quality in catchments
- Providing protection for stock (through trees providing shade and windbreaks)
- Improving biodiversity, for example by providing habitat for birds and other wildlife
- Alleviating dryland salinity through water table effects
- Improving soils (including by increasing soil organic carbon stocks and so improving water-holding capacity)
- Providing a noise buffer for the farm
- Improving the broad amenity and aesthetics of the local environment

The relative importance of co-benefits in an ERF project depends very much on the price of ACCUs. At low ACCU prices, co-benefits are a significant proportion of total benefits.

Table 8.7 (page 75 of the Kondinin Workshop Manual ascribes values (in A$/hectare/year) to certain on-farm (private) and off-farm (public) benefits associated with generic plantation projects.

Further Reading: Workshop Manual Sections: 8.1 Project revenue, 8.2 Revenue examples from Western Australia, 8.3 Potential sequestration and revenue from environmental planting projects, 8.4 Potential sequestration and revenue from soil carbon projects, 8.5 Revenue and the business model, 8.6 The value of co-benefits, 8.7 Constructing the revenue and co-benefits modules
9. The Business Case: Costs of establishing and running a project

The extent to which the costs of a carbon farming project accrue directly to the farmer depends on the business model chosen for the project. For example, if the project is undertaken with an aggregator, the aggregator may absorb a number of costs in the initial stages.

These are all real costs, however, and must be borne by someone in the project chain. Even if the costs are initially borne by the aggregator, they may still be passed on to the farmer through reduced net earnings from the ACCUs generated.

Figure 6. Components of costs associated with carbon farming projects

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Components</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance costs: relate to complying with the rules that establish the ERF</td>
<td>Cost of application to become an ERF participant and to register the project</td>
<td>While applications to the CER do not involve fees, compliance costs for the various stages of the project will involve time (labour costs) and possibly some material costs for the landowner or their agent. Reporting requires an audit from an independent auditor in some cases; this will involve a fee.</td>
</tr>
<tr>
<td>Planning costs: relate to planning and preparing for the project</td>
<td>Researching appropriate methods Understanding calculations and tools associated with the method Checking for and receiving appropriate approvals Preparing business case</td>
<td>Appropriate planning for the project, while involving significant time commitments from the landowner, will help minimise costs for future phases of the project</td>
</tr>
<tr>
<td>Capital costs: relate to the purchase of infrastructure or land to undertake the project</td>
<td>Infrastructure Technology Land for the project site</td>
<td>These costs depend on the method, which in some cases may require particular equipment</td>
</tr>
<tr>
<td>Transaction costs: the various third-party costs and fees that may be incurred during the project, depending on the business structure chosen</td>
<td>Project management fees Broker costs Insurance costs Aggregator costs Legal fees Accounting fees</td>
<td>A range of transactions may be involved in establishing and running the project</td>
</tr>
<tr>
<td>Operational costs: relate to the day-to-day operations of the project</td>
<td>Materials and equipment Hired labour Management and coordination costs</td>
<td>The day-to-day costs will depend on the method</td>
</tr>
<tr>
<td>Post-closure costs: continue to be incurred even after the project has stopped generating ACCUs</td>
<td>Ongoing monitoring of sequestration sites</td>
<td>These costs mostly relate to the 25 or 100-year permanence rule for sequestration projects</td>
</tr>
<tr>
<td>Opportunity costs: relate to the opportunities forgone as a result of devoting resources to the ERF project</td>
<td>Land temporarily removed from other production Land permanently removed from other production Landowner’s time diverted from other activities</td>
<td>While not direct financial costs (they never appear in formal accounts), opportunity costs are nevertheless real costs that need to be carefully considered</td>
</tr>
</tbody>
</table>
10. The Business Case: Risks and net benefits

Net benefit may be calculated using the formula $(\text{net benefits}) = R + B - C$, where $R =$ revenues, $B =$ benefits and $C =$ costs. However, net benefit alone is not sufficient for a decision. The analysis of risk and uncertainty is one of the most important parts of developing a business case.

Risks in a carbon farming project fall into a number of broad categories.

**Policy Risk:** Carbon farming under the ERF depends on legislation, and there is potential for specific policies to change rapidly, which creates uncertainty. Policy risk will affect both the quantity of ACCUs that can be earned and the prices of those ACCUs.

**Market Risk:** Under the ERF, ACCU prices will be determined through auctions. Because different sellers with a wide range of supply costs can enter the auctions, this represents a risk from the carbon farming perspective.

**Technical Risk:** Technical risks are risks inherent in the technical measurement (or modelling) of many carbon farming projects. In many cases, the amount of abatement is unknown in advance and so represents a risk to the project.

**Project Risk:** Like any project, a carbon farming project is subject to the general risks of any new activity, particularly risks of cost overruns or time delays in implementation.

Risk and uncertainty can be analysed in quantitative terms, using a mixture of strategies depending on how much information is available. These can include a price break-even analysis for a soil carbon sequestration project, and a break-even project size (in hectares) for an environmental planting project.

One way to increase the sophistication of the modelling is to undertake systematic risk analysis using the underlying model framework. This involves systematically varying all of the input assumptions (ACCU price, costs and so on) a large number of times, and recording the results for each simulation. The output is a series of values for net benefits that provides an indication of the likelihood of a particular outcome. It can be used to judge, for example, the probability of a particular outcome, such as a positive net project value.

Figure 7 summarises the input assumptions for an illustrative risk analysis of this kind. The assumptions in the table illustrate scenarios that are typically constructed using systematic risk analysis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCU prices</td>
<td>Equal likelihood of prices between $5 and $30</td>
</tr>
<tr>
<td>Private co-benefits</td>
<td>80% chance of capturing private benefits</td>
</tr>
<tr>
<td>Public co-benefits</td>
<td>20% chance of capturing public benefits</td>
</tr>
<tr>
<td>Opportunity cost of the land</td>
<td>Equal likelihood of values between $0 and $1500 per hectare</td>
</tr>
<tr>
<td>Project establishment costs</td>
<td>Equal likelihood of costs between $800 and $3000 per hectare</td>
</tr>
<tr>
<td>Maintenance costs</td>
<td>Equal likelihood of costs between $5 and $67 per hectare</td>
</tr>
<tr>
<td>Fire, disease or other loss of carbon stock</td>
<td>1% chance of loss of carbon stock (requiring reestablishment) in each year from Year 25 to Year 50.</td>
</tr>
</tbody>
</table>

Further Reading: Workshop Manual Sections: 10.1 Bringing the revenue, co-benefit and cost modules together, 10.2 Overview of risks, 10.3 How to analyse risk in quantitative terms, 10.4 Systematic risk analysis: an illustration, 10.5 The relative importance of difference risk factors.
11. Where to go for more information

The Emissions Reduction Fund
The Clean Energy Regulator
Department of the Environment
Department of Agriculture and Water Resources
My Carbon Farming
www.mycarbonfarming.com.au

Carbon Markets

The Carbon Market Institute in Australia provides a range of information sources, including updates relevant to the ERF and other resources that were under the CFI. www.carbonmarketinstitute.org

Point Carbon and RepuTex both provide information and analytical services. Some articles are available free, although more detailed analyses require a subscription. www.pointcarbon.com www.reputex.com

Ecosystem Marketplace provides a variety of news services on carbon markets, including voluntary markets. www.ecosystemmarketplace.com

The World Bank provides regular updates on the state of the global carbon market, with stories and featured articles on carbon being found by using the search function under the news tab. www.worldbank.org/en/news

Information on the New Zealand emissions trading scheme is also available online www.comtrade.co.nz

General market data can be found at www.theice.com

Appendix A. Summaries of selected methods

Sequestration Decision Tree 2016:

Agricultural methods:

Savanna burning methods:

Vegetation methods:
Appendix B. Tax implications of Emissions Reduction Fund Projects
(Second Version – August 2015)

By Andrew Spalding & Adam Smith—Norton Rose Fulbright Australia

Summary

This section summarises the material in the second version of Appendix B (updated in August 2015), which is an independent summary of the taxation of projects that participate in the Emissions Reduction Fund (ERF).

The first issue that should be considered is whether an eligible offset project (ERF Project) carried on by a taxpayer constitutes a business. A taxpayer who carries on a business will be subject to income tax and will need to consider whether the receipts of the business are assessable income and the outgoings of the business are allowable deductions or capital expenditure.

It is likely that a taxpayer (i.e. a project proponent) who undertakes ERF Project will be carrying on a business, but this should be considered in each case.

The costs incurred by a taxpayer to establish and operate an ERF Project are subject to the normal deductibility rules under the *Income Tax Assessment Act 1997* (Cth) (ITAA 1997). Where an ERF Project is conducted for the purpose of generating ACCUs (which give rise to assessable income) or other financial benefits that constitute assessable income (which will be relevant for small businesses that participate in project aggregation), the costs incurred in respect of the project should be deductible (i.e. on revenue account) unless the costs are capital in nature.

Project proponents generate ACCUs through their project activities. The tax treatment of emissions units (including ACCUs) is dealt with under Division 420 of the ITAA 1997. A rolling balance method of accounting is used as the basis for imposing income tax in respect of ACCUs. The rolling balance method ultimately includes an amount in the taxpayer’s assessable income. The method is similar to that used in the trading stock provisions under Division 70 of the ITAA 1997.

The supply of ACCUs is GST-free. A project participant that is registered, or required to be registered, for GST should be able to claim input tax credits for GST paid on acquisitions associated with an ERF Project, provided that the acquisitions are for a ‘creditable purpose’.