

Carbon Farming Resource Handbook



For land managers in Queensland

March 2022



QUEENSLAND FARMERS' FEDERATION



**Queensland
Government**

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Front Cover: Recovery after cool fire on Cape York, Qld

Page 3: From Luna Bluff, Whitsunday Island, Qld

Page 4: Australian Butterfly Sanctuary Kuranda, Qld

Page 5: Roadside near Roma, Qld

Page 6: Carnarvon Gorge National Park, Qld

Page 8: Great Barrier Reef from Cairns, Qld

Page 10: Lagoon, Cape York, Qld

Page 11: Fungi, Yungaburra, Qld

Page 12: Sunset, Mitchell Hwy, Charleville, Qld

Page 15: Dung Beetle, Wondecla, Qld

Page 21: Undara Volcanic National Park, Qld

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Page 38: Brolga, Burke Development Road, Qld

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1. Introduction

This handbook seeks to collate resources available for landholders, regional Natural Resource Management (NRM) staff and agricultural industry staff supporting people to enter the Carbon Market and participate in a meaningful way with positive NRM outcomes.

An electronic version with active hyperlinks is available on the NRM Regions Queensland website and on the Queensland Farmer's Federation website. This handbook explains and provides resources to help understand the need for carbon farming and the ways land managers can be a part of this.

The increase in concentration of greenhouse gasses (GHG) in our atmosphere is threatening both human and ecological systems. Reducing global emissions has been the topic of ongoing international debate, agreement and action. A number of gasses are responsible for global warming with water vapour (H₂O), carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) being the most prevalent. Each of these gasses occur naturally in our atmosphere but at elevated levels can cause extreme changes to the Earth's climate. *"The concentration of methane in the atmosphere has more than doubled since preindustrial times, reaching approximately 1,800 ppb in recent years. This increase is predominantly due to agriculture and fossil fuel use."*¹

In a bid to manage and potentially mitigate the worst of these expected outcomes, a number of global strategies (such as the Kyoto Protocol) have been proposed to reduce GHG output and in late 2015, 195 countries operating under the United Nations Framework Convention on Climate Change (UNFCCC), reached agreement on the international commitments to greenhouse gas emissions mitigation, adaptation and finance; and developed the Paris Agreement. Under the Kyoto protocol and the Paris Agreement, Australia has made commitments to progressively reduce GHG emissions.



¹ ² IPCC (Intergovernmental Panel on Climate Change). 2013. Climate change 2013: The physical science basis. Working Group I contribution to the IPCC Fifth Assessment Report. Cambridge, United Kingdom: Cambridge University Press. www.ipcc.ch/report/ar5/wg1.

2. Carbon Farming Markets

2.1 Carbon Farming in Queensland

Carbon Farming presents an opportunity for land managers to secure another income from their land as well as make improvements to their natural capital; their land.

There are two ways to farm carbon:

1. by avoiding (that is, eliminating or reducing) agricultural emissions that would otherwise have occurred by changing, or introducing, specific on-farm practices designed to reduce greenhouse gas emissions (GHG) for example: reduced methane emissions from livestock, reduced fertiliser emissions, manure management, savanna fire management or,
2. by sequestering CO₂ from the atmosphere and storing it in the landscape for example: reforestation and managed regrowth (collectively referred to as carbon forestry), avoided deforestation, soil carbon (reducing carbon loss or increasing sequestration).

Land use, land use change and the forestry sector, including agricultural land use, play an important role in storing carbon. Queensland is responsible for 90 per cent of Australia's total land sector emissions. In all other jurisdictions except Western Australia and the Northern Territory, this sector acts as a 'carbon sink', meaning that activity in the sector actually removes more carbon from the atmosphere than it releases. Reducing the amount of land-clearing in Queensland is an integral step in reducing our overall carbon emissions. Avoiding further clearing, however, is only part of the equation: encouraging regrowth and afforestation is equally important.



2.2 The Australian Government Program for Carbon Farming

The Australian Government established the [Emissions Reduction Fund](#) (ERF) in 2014 as a means to achieve Australia's 2020 emission reduction target. The scheme is administered by the Clean Energy Regulator.

The Emissions Reduction Fund sets out ways that industry can be a part of reducing GHG. The Emissions Reduction Fund is voluntary and includes all sectors of the economy and aims to seek the lowest cost abatement. Carbon Farming is the means for the agricultural sector to participate in the program. The Carbon Farming Initiative was established in 2011. It has provided the opportunity to recognise the role agriculture can play in reducing Australia's emissions and allows land managers to be paid for their actions. Land managers can choose to develop a project which complies with the guidelines of carbon farming Methodologies set by the ERF. The Clean Energy Regulator certifies the Australian Carbon Credit Units (ACCUs) which the farmer may then sell on the open market.



The Climate Solutions Fund has three parts:

Contracting: the Australian Government contracts for the supply of [Australian Carbon Credit Units](#) (ACCUs) via a voluntary reverse auction process that seeks to purchase lowest cost abatement in the form of ACCUs from land managers, carbon service providers, and industrial efficiency activities.

Crediting: The Clean Energy Regulator is responsible for crediting and verifying ACCUs generated through registered projects. These projects may have a contract with the Australian Government or be generating ACCUs for the supply to voluntary or other secondary markets such as under the Safeguard Mechanism.

Safeguarding: The Safeguard Mechanism seeks to ensure that the savings secured through the contracting process are not overtaken by carbon pollution from high emitting industrial sources.

As of 4 March 2022, there are 300 Queensland projects registered with the Clean Energy Regulator.

[An interactive map](#) is available on the CER Website showing what has been contracted by the Emissions Reduction Fund on the Clean Energy Regulator's website.

2.3 Australian Carbon Credit Units (ACCUs) and Agriculture

Setting up and maintaining a carbon farming project involves costs and risks. Any income from the sale of ACCUs, along with the co-benefits from carbon farming, will have costs attached to it. There is the cost of undertaking the actual activity or implementing the change and then there is the separate cost of generating the Carbon Credit - the extra business administrative, auditing and accounting costs.

Subject to satisfying the monitoring, auditing, reporting and other requirements under the Climate Solutions Fund, an eligible Climate Solutions Fund project can apply for ACCUs. Each ACCU represents one tonne of carbon dioxide equivalent (CO₂-e) net abatement (through either emissions reduction or carbon sequestration) achieved by eligible activities – that accord with an approved Methodology.

An ACCU is a ‘financial product’ under the Corporations Act 2001 and the Australian Securities and Investments Commission Act 2001. Also, of note: income from ACCUs is dealt with in a different manner to Primary Production by the Australian Taxation Office. When selling an ACCU the proceeds are counted as an earning separate to that of Primary Production. More information can be found on the [Tax Treatment of ACCUs](#) on the Clean Energy Regulator website. The Australian Taxation Office has information about [Claiming Deductions for Carbon Sink Forest Expenses](#).

2.4 Sequestration

In farming carbon, the land holder can either avoid emissions or ‘sequester’ carbon. Sequestration is the general term used to describe the natural processes that remove CO₂ from the atmosphere and store it in vegetation or soil. Sequestration in vegetation occurs via the process of photosynthesis—as plants use the energy of sunlight to convert CO₂ to carbohydrates for their growth and maintenance. The plant’s growth reflects the amount of CO₂ it has taken from the atmosphere. The plant is generally using more CO₂ in the initial years of growth, slowing over time as plants grow to their full capacity as a carbon store. The amount of carbon that can be sequestered in vegetation varies with species, soil quality, climatic conditions and land management practices.

Carbon accumulates in soil as vegetation dies. Some is incorporated into the soil while a portion is released back into the atmosphere as carbon dioxide. Vegetation assists the retention of soil carbon. Appropriate management of agricultural soils by landholders can reduce the amount of organic carbon loss. Soils with high organic carbon content are healthier and more productive and have higher water-holding capacity.

Sequestration activities are subject to [permanence](#) obligations. This means if an ACCU is produced through sequestration, the increase in carbon must be maintained for the nominated permanence period (either 25 or 100 years). Permanence should be considered as part of the risk management strategy, considering impacts and likelihood of fire, drought and the need to sell that parcel of land.

2.5 The Land Restoration Fund

The Queensland Government's Land Restoration Fund (LRF) is expanding carbon farming in the state by supporting land-sector projects that deliver environmental, socio-economic and First Nations co-benefits.

The priority areas for investment are outlined in the LRF Priority Investment Plan (the PIP). These are:

1. Land restoration to improve the health of wetlands and coastal ecosystems, including the Great Barrier Reef.
2. Land restoration for threatened species and ecosystems.
3. Land restoration for social and economic sustainability.

The Land Restoration Fund supports projects that:

- sequester carbon in land and soil to reduce Queensland's carbon emissions,
- boost revenue sources for farmers and other landholders in regional and rural Queensland,
- deliver social and community benefits,
- deliver cultural and community benefits for Traditional Owners,
- improve Great Barrier Reef water quality,
- enhance wetlands for fisheries and hatcheries improving commercial fishing opportunities,
- strengthen critical habitat protection,
- restore ecosystems and degraded land.



The Land Restoration Fund supports landowners and land managers, farmers, and First Nations peoples to generate new, regular income streams through carbon farming. The Fund enters into long-term (usually 5-15 year) contracts to purchase ACCUs from land managers, at a price that puts a premium on the delivery of the targeted co-benefits, in addition to the carbon abatement outcomes.

Co-benefits:

Co-benefits are the additional positive environmental, socio-economic and First Nations outcomes delivered by carbon farming projects. LRF projects can claim co-benefits from one or more of the following co-benefit categories:

1. Environmental – biodiversity, habitat for threatened species, and healthier soils, wetlands, and water systems.
2. Socio-economic – improving the resilience and strength of regional communities by supporting direct and indirect jobs, and more money flowing into Queensland's regions.
3. First Nations – projects that take place on Indigenous land or provide benefits to the First Nations people of the land.

The LRF Co-benefits Standard, available on the LRF website, describes how land holders can identify, measure, report and verify co-benefits for projects contracted through the LRF. There are two pathways for verification: proponent or third-party assurance.

Projects supported by the Land Restoration Fund may seek to claim co-benefit from one, two, or all of the main co-benefit categories.

	Land Restoration Fund	Emissions Reduction Fund
Pays for ACCUs	YES	YES
Pays for benefits in addition to carbon	YES	NO
Projects must register with the CSF	YES	YES
Projects must follow a CSF approved carbon method	YES	YES
Purchasing method	Contract for ACCUs and co-benefits	Contract for lowest-cost ACCUs through reverse auction
Assurance method	See LRF Co-Benefits Standard and CSF Method Requirements	See CSF Method Requirements

Further information is available at: www.qld.gov.au/environment/climate/climate-change/land-restoration-fund

3. Key Considerations

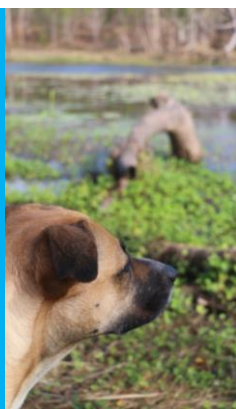
3.1 Your plan and the reasons for participating in a carbon market

Taking up carbon farming is like any other agricultural production decision within an enterprise. Like changing crops, breeding a new line of cattle, or shifting production systems it is a complex decision with many factors to consider. These vary from property to property and it is important to be clear on why a carbon project may suit your enterprise.

Undertaking a carbon project is a business decision with costs and benefits. However not all decisions are purely financial and considerations such as increased sustainability through diversification, opportunities for succession, alternative land uses for less traditionally productive areas, lifestyle decisions, project co-benefits and personal interest in the products or outcomes being developed, all play a part. Having a clear understanding of the drivers behind participation in carbon farming will help determine the type of project being developed and its value to the enterprise.

Get advice from an approved advisor.

The Land Restoration Fund approves professional advisers who can assist land holders with carbon farming and LRF advice. Find a list of current advisers on the Queensland Rural and Industry Development Authority website by searching 'QRIDA CFAR'



Participation and the type of project that may be implemented is also significantly impacted by the regulatory requirements of the Emissions Reduction Fund. This will dictate what activities are actually eligible on your property and will also be a significant driver of whether a particular activity is profitable.

There are many activities that may benefit the landholder and reduce greenhouse gas emissions but are either not recognized by the Emissions Reduction Fund or are not economically viable.

Landholders may want to consider the benefits of joining together with other landholders through aggregation. Because administrative and compliance costs of even a smaller carbon project may be considerable, the cost to produce an ACCU will often decrease with higher numbers of ACCUs to be sold. Joining with projects with the same Methodology across a catchment or river system for example, can reduce some of the environmental risks like fire, drought or storm events. The Clean Energy Regulator website provides information about [Aggregation under the Emissions Reduction Fund](#).

Like any new business venture, the choice to participate in the ERF should include a careful consideration of the costs and benefits involved, alongside the risks of the activity being considered. Before deciding to proceed, this should be compared to other activity that could be undertaken within the enterprise. Equally, if the decision is made to not participate, the reasons should be clear, so that if criteria change in the future then the opportunity to capitalise is recognised.

You will need to consider if your carbon project will generate enough income to be beneficial. Defining your objectives in undertaking a carbon farming project will guide whether it is worthwhile or not. If your primary objective is to generate income and make a profit from a carbon farming project then you should look at it from an economic perspective, including not only the set-up costs of your project but it's ongoing auditing, legal and monitoring costs, as well as the potential loss of opportunity to utilise the land in another way. In general, you should consider other benefits of a carbon project and these may be the difference of whether it is worth undertaking a carbon farming project or not. When looking at a carbon farming project the project should contribute to better herd management, better vegetation and biodiversity management and or better soil management. By improving practices in these ways, you are also likely to improve water quality and or filtration.

3.2 Benefits and Co-Benefits

In addition to generating revenue in carbon markets, a carbon farming project may also generate a range of co-benefits for your enterprise. Those benefits will clearly depend on the nature of the farming enterprise and on the type of carbon farming.

Co-benefits include:

- Improving water use efficiency,
- providing protection for stock (through trees providing shade and windbreaks),
- improving livestock production efficiency,
- creating financial diversification,
- improving environmental benefits such as increasing habitat area for a threatened species,
- improving soil quality,
- improving fertiliser use efficiency,
- improving the amenity and aesthetics of the local environment.



Co-benefits may be private (accruing within the farm enterprise) or public (accruing to the wider environment outside the farm boundary).

Many farmers have already adopted new technologies, new practices and skills; improving their resource efficiency on farm. Many of these improvements have resulted in an overall reduction of their emissions. Further research and development will continue to identify additional options into the future.

When thinking about how to manage carbon and emissions on farms, it is useful to think of a farm as having the following key action areas:

- Vegetation: for farm health
- Soils: turning more carbon and nitrogen into food and fibre
- Nitrogen fertilisers: improving efficiency and saving money
- Livestock: improving performance and reducing energy loss
- Energy: increasing efficiency, renewable energy, saving money

(2006, NRM North Tasmania, Making Cents of Carbon and Emissions on-farm)

3.3 Risk Considerations

Depending on which Method is undertaken, due consideration should be paid to:

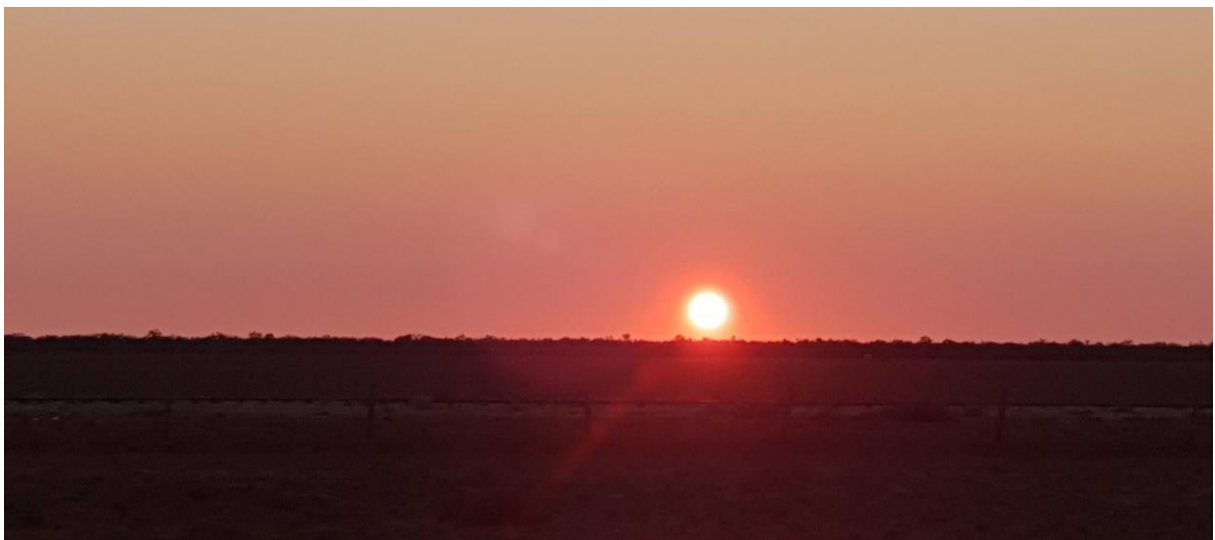
- Risks around permanence with fire, drought or storm events
- Risks of increasing financial possibilities to the detriment of NRM or overall environmental gains
- The risk of creating an environment where numbers of pest plants or animals may increase or thrive, eg thickening brigalow or improved habitat for pigs.

This is where it is crucial to talk to other land managers involved in carbon farming. By discussing potential issues with others, including local NRM staff, you have more potential to design a project which will better suit your country and benefit your enterprise long term.

The carbon industry is working to address a number of barriers preventing greater participating by farmers in the carbon market.

Some of these are:

- difficulty understanding the legal and financial risks to participating in the carbon market;
- concerns about the real farm gate return and risks from project participation;
- the need for carbon farming policies to be more easily applicable to mixed enterprise farms;
- the need for long-term certainty in policy settings to encourage farmers to participate.



4. Methodologies

All carbon farming projects must follow an approved Emissions Reduction Fund (ERF) method to generate Australian Carbon Credit Units (ACCUs). The methods explain how to carry out a carbon farming project and measure the resulting reductions in emissions. The below agricultural methods may be suitable for Queensland farmers. Information on all land-sector methods is available on the ERF website.

4.1 Beef cattle herd management

Project Activities

A project activity is an agricultural practice that was not carried out during the set historical period preceding the project. Data from this period is used to estimate emissions intensity and calculate baseline emissions.

Examples of project activities include supplement feeding, installing new fences, planting improved pastures, improving herd genetics, and increasing density of water points.

Participants can conduct other activities to reduce emissions intensity, but they must meet the requirements of the method. In your application to register your project you will need to demonstrate how your proposed activity will result in reduced emissions intensity.

Project baseline

The project baseline is an estimate of the emissions that would have occurred had a project activity not been implemented.

Baseline emissions are calculated for the herd each year and are essential for calculating the projects abatement.

Record-keeping requirements

Scheme participants must keep records for seven years according to the general record-keeping requirements of the Act and Rules, including:

- separate and self-contained records for each herd, for example:
- records of yearly liveweight gain
- movements of cattle in and out of the herd with liveweights at entry into and exit from herd, and
- records showing the business structure, location and management changes in the emission intensity reference period.

The method also states that records must be kept for purchased feed if the project activity involved a change to the herd's diet and some or all of the feed was purchased.

4.2 Reducing greenhouse gas emissions by feeding nitrates to beef cattle

Project Activities

A project involves fully or partially replacing urea supplements with nitrate supplements in pasture-fed beef cattle. This reduces the amount of methane emissions that the cattle produce.

The nitrate is supplied to the herd as a lick block with a specified sulfur-to-nitrate ratio (sulfur is included to reduce the risk of toxicity). Lick blocks are made available to the herd over a specified time called a feeding period or nitrate supplementation period. A feeding period must occur over consecutive days, but a project has no restrictions on the number or frequency of feeding periods.

Note that a project is only suitable if the proposed land has sufficient pasture to meet the herds' required daily mass intake. You also need to take into account the levels of protein available from the pasture, because supplements will only reduce emissions and benefit livestock health when the protein levels of the pasture are too low. If your herd's protein requirements are already being met by your pasture, supplementing with nitrates will not provide any further production benefit.

You can use a tool called the Beef Nitrates Calculator to check whether a project is feasible for your situation. The calculator also helps you work out many of the factors you need to know to run a project, including:

- diet information for your region
- safe nitrate feeding levels, and
- the correct nitrogen-to-sulfur ratio for your herd.
- Feedlot beef cattle are excluded from these projects.

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Section 5.11 of the method requires that offset reports must contain:

- the start date and end date of the reporting period
- inputs and outputs of the Beef Nitrates Calculator, and
- carbon dioxide equivalent net abatement amount.

Monitoring Requirements

In addition to the general monitoring requirements of the Act, Division 5.2 of the method sets out specific monitoring requirements. You must monitor the:

- number of animals in each livestock class
- average liveweight of each livestock class
- nitrate lick block consumption, and
- consumption of non-protein nitrogen that is not nitrate.

Specialist skills

It is important to feed nitrates and urea at safe levels, because overfeeding can cause toxicity and even death. It is recommended you seek independent advice for your situation.



4.3 Soil Methods

Answer the below questions to find a soil carbon method suitable for your business.

Is the estimation of soil organic carbon sequestration using measurement and models method suitable for your business?

Are you looking to store carbon in soil in a grazing or cropping system, including perennial woody horticulture?

Are you willing to undertake one or more new land management activities to increase soil carbon?

Are you willing to measure the increase in soil carbon?

Are you willing to maintain stored carbon for at least 25 years after the first Australian carbon credits units are issued?

If you have answered yes to these questions, the estimation of soil organic carbon sequestration using measurement and models method **may** be suitable for you.

Is the estimating sequestration of carbon in soil using default values method (model-based soil carbon) suitable for your business?

Will your project be located on an operating farm?

Are you able to implement one or more new management actions on the land where the project will occur?

Are you qualified, or are able to fund a qualified person, to prepare a strategy for each management action?

If you have answered yes to these questions, the estimating sequestration of carbon in soil using default values method (model-based soil carbon) method **may** be suitable for your business.

4.4 Estimating soil organic sequestration using measurement and models method

Project activities and eligibility requirements

The estimation of soil organic carbon sequestration using measurement and models method credits increases in soil carbon as a result of one or more new or materially different management activities in grazing, bare fallow or cropping land (including perennial woody horticulture) (for the previous 5 years) that store carbon in that land. Soil carbon stocks must be estimated using specified soil sampling methods or using the specified hybrid approach that combines soil carbon model estimates with soil sampling. Samples must be measured for soil carbon content using specified laboratory techniques or calibrated in-field sensors.

To be eligible under this method, projects must introduce one or more of the following activities:

- apply nutrients to the land
- apply lime to remediate acid soils
- apply gypsum to remediate sodic or magnesian soils
- undertake new irrigation
- re-establish or rejuvenate a pasture by seeding establishing or pasture cropping
- establishing, and permanently maintaining, a pasture where there was previously no or limited pasture, such as on cropland or bare fallow
- alter the stocking rate, duration or intensity of grazing
- retain stubble after a crop is harvested
- convert from intensive tillage practices to reduced or no tillage practices
- modify landscape or landform features to remediate land
- use mechanical methods to add or redistribute soil
- use legume species in cropping or pasture system, or
- use a cover crop to promote soil vegetation cover or improve soil health or both.

Record keeping and monitoring

In addition to the general requirements for all Emissions Reduction Fund projects, proponents participating under this method must:

- notify the Clean Energy Regulator of events that change the management activities, sampling locations or land management strategy prior to each sampling round
- keep records relating to land management activities, the independent person involved in a sampling, and the project's land management strategy and other compliance requirements, and
- monitor livestock details in the project, tillage, harvested product, removed crop residues as well as inputs of fertiliser, biochar, lime, electricity and fuel.

4.5 Sequestration of carbon in soil using default values

Project Activities

A project involves removing carbon from the atmosphere and storing it in the soil. This is done by setting up project management activities that change agricultural soil conditions to improve crop and pasture growth.

You must undertake at least one of the following types of project management activities:

- sustainable intensification
- stubble retention, or
- conversion to pasture.

Each of the three project management activities is made up of specific management actions, as described below.

In sustainable intensification projects, new ways of productive land management are started with the aim to increase soil carbon content. This can include:

- managing nutrients
- managing acidity (pH)
- introducing new irrigation, or
- renovating pasture.

Before you apply to run a project, you need to identify your project area using the [Sequestration Value Maps](#) found under method tools, and then divide the project area into a combination of carbon estimation areas and exclusion areas. Only one project management activity can be carried out in each carbon estimation area.

More information about [project activities, carbon estimation areas and exclusion areas](#).

The amount of carbon stored in soil as a result of your management activities is modelled using the [Sequestration Value Maps](#) located under method tools. The calculations are based on default values, instead of measured values. This is because it is sometimes not practical or easy to measure the amount of carbon stored in every project area. The default values have already been modelled by [FullCAM](#) for different types of soils, climate and management activities.

Click for more detail on [calculating abatement, emissions and soil carbon levels](#).

Monitoring Requirements

In addition to the general monitoring requirements of the Act, projects must meet specific monitoring requirements in the method. These include monitoring:

- livestock numbers (according to species, state or region, and livestock class) in each carbon estimation area
- the number of days each year (according to season) that the animals are in the carbon estimation area, and
- the parameters listed in the table in Section 101 of the method.

4.6 Irrigated cotton

Project Activities

An irrigated cotton project can help to reduce the amount of greenhouse gas entering the atmosphere by reducing synthetic fertiliser use while maintaining or increasing yield, or by increasing yield without a proportional increase in fertiliser use.

The emissions avoided by the project are calculated by subtracting the emissions generated during the project from those generated in a defined period before the project began. The difference in emissions before and after the project is the net abatement, which is used to apply for Australian carbon credit units (ACCUs).

Due to the exponential nature of emissions produced above a certain level of nitrogen fertiliser applied, cotton growers who currently use large amounts of fertiliser can achieve good levels of abatement by making only moderate reductions in fertiliser use.

This method supports a broad range of management actions, including changes in the rate, timing, method and type of nitrogen fertiliser application. At least one new management action to improve nitrogen fertiliser use efficiency must be undertaken in the project area, and participants have the flexibility to select management actions that suit their individual circumstances.

Dryland production of cotton is excluded from these projects. Fertilisers such as poultry litter, beef feedlot manure and composted ginning trash are also excluded.

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Section 22 of the method sets out that offset reports must contain:

- a digital GIS map of the fields making up your cotton area
- descriptions of new management actions undertaken, and
- the inputs and outputs of the Irrigated Cotton Calculator.

Monitoring Requirements

In addition to the [general monitoring requirements](#) of the Act, Sections 24–28 of the method set out specific monitoring requirements. You must monitor the:

- cotton area, seed planting density and irrigation status in each field in the cotton area
- lint yield for each field in the cotton area
- amount and nitrogen content of synthetic nitrogen fertiliser used in the cotton area, and
- area and planting density of green manure crops planted prior to the cotton crop.

4.7 Destruction of methane dairy manure with covered ponds

Project Activities

A project using this method involves the capture and combustion of biogas generated by the decomposition of dairy manure in effluent ponds and must consist of the following activities:

- using covered ponds to prevent the release of biogas (containing methane)
- collecting the biogas from the covered pond, and
- combusting the methane component in the biogas to convert it to carbon dioxide.

Ponds used in the project must comply with the standards for construction, operation and maintenance of ponds set out in the [Effluent and Manure Management Database standards](#).

Ponds must have a minimum loading rate of 50g of volatile solids per cubic metre of active pond volume per day.

The method allows for the use of flaring, an electricity generation system, and a gas boiler.

Use of flaring

Any flaring system used in the project must:

- use a frequently sparking flare to ensure the continuous destruction of method, or
- include a control system that prevents gas flow through the flare when the flare is not operational.

Use of an electricity generation system

You may use an internal combustion engine for electricity generation fed by the methane generated by the project activity.

If you use an electricity generation system you must determine the destruction efficiency of the internal combustion engine in accordance with the method (section 3.10), and calculate the volume of methane combusted.

You must determine the electricity efficiency factor for the internal combustion engine in accordance with the manufacturer's specifications, with calibration at least every five years. The manufacturer or an accredited third party must conduct the calibration.

Use of a gas boiler

If you use a gas boiler, you must operate the system in accordance with the manufacturer's specifications, with calibration at least every five years. The manufacturer or an accredited third party must conduct the calibration.

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, the method also sets out the following method-specific requirements that must be included in each report. These include:

- net greenhouse gas abatement number,
- quantity of methane generated under baseline conditions,
- total volume of methane sent to combustion devices,
- destruction efficiencies of combustion devices (if default values not used),
- total amount of fuel used by the project, and
- electrical efficiency of the internal combustion engine generator.

4.8 Reducing emissions by feeding dietary additives to milking cows

Eligibility requirements

In addition to [general eligibility requirements](#) in the Act, the method requires that you:

- conduct your project in Australia. Dairy farms in external territories have been excluded, and
- use milking cows that are pasture fed for at least nine months of the year. The nine months do not need to be consecutive.

Project Activities

A project involves feeding eligible additives to milking cows. An eligible additive is one of the following:

- canola meal
- cold-pressed canola meal
- brewers grain
- hominy meal, or
- dried distillers grain.

The concentration of fat in the diet of the milking herd must not exceed 70 grams of fat per kilogram of dry matter intake in any season.

Reporting requirements

In addition to the reporting requirements of the Act, the method also sets out the following method-specific reporting requirements that must be included in each report:

- The start and end dates of each project year to which the report applies.
- All inputs and outputs from the Dietary Fats Calculator for each project year in the reporting period.
- The carbon dioxide equivalent net abatement amount measured in tonnes of carbon dioxide equivalent calculated using the Dietary Fats Calculator.

Monitoring requirements

In addition to the general monitoring requirements of the Act, projects must meet specific monitoring requirements in the method.

These include monitoring and recording the number of milking cows in the milking herd via an animal identification tag or other unique identifier.

Milking cows in the milking herd must be counted at least once per month in the baseline and each project year.

The method outlines quality assurance and quality control requirements for all measuring or monitoring instruments.

4.9 Vegetation Methods

Vegetation projects generate abatement by removing carbon dioxide from the atmosphere and storing it as carbon in plants as they grow. Examples of vegetation activities could include:

- reforestation
- revegetation, or
- protecting native forest or vegetation that is at imminent risk of clearing.

The Vegetation page on the ERF website has resources, including a decision tree to help farmers determine which vegetation method is most appropriate for their enterprise.

How is abatement calculated in Vegetation Methods?

In general terms, abatement is calculated by measuring the change in the amount of carbon stored in a project area through the growth of trees, natural decay, and disturbance events (fire, pest, disease, and storm) minus the emissions resulting from fire and fuel used to establish and maintain the project.



4.10 Vegetation Methods Questionnaire

Answer the below questions to find a vegetation method suitable for your business. More information on each method is available from 4.11

Is the human-induced regeneration of a permanent even-aged native forest method suitable for your business?

Do you conduct activities on your land that suppress native forest growth?

Has native forest growth been suppressed for at least 10 years?

If you answered yes to these questions, the human-induced regeneration method may be suitable for your business.

Is the avoided clearing method suitable for your business?

Does your land have native forest cover?

Do you have a valid unrestricted clearing consent?

Has your land been cleared at least twice in the past?

If you have answered yes to these questions, the avoided clearing method may be suitable for your business.

Is the native forest from managed regrowth method suitable for your business?

Are you able to provide evidence of a decision to introduce a change in land management practice that leads to the regrowth of native forest?

Has the land where the change in land management practice will occur been cleared of forest cover and regrowth has started, but forest cover has not been reached?

Would the land normally be cleared to maintain pastoral use?

If you answered yes to these questions, the native forest from managed regrowth method may be suitable for your business.

Is the measurement based methods for new farm forestry plantations method suitable for your business?

Are you able to plant and grow trees as either a permanent planting (no harvest) or new farm forestry plantations (commercial harvesting is permitted)?

Did the area where planting will occur include for at least five years before a project starts, land used for grazing or cropping, or land that was fallow between grazing or cropping?

Do you have or are you able to access, forestry expertise?

If you answered yes to one of these questions, the plantation forestry method may be suitable for your business.

Is the measurement-based methods for new farm forestry plantations method suitable for your business?

Are you able to plant and grow trees as either a permanent planting (no harvest) or new farm forestry plantations (commercial harvesting is permitted)?

Did the area where planting will occur include for at least five years before a project starts, land used for grazing or cropping, or land that was fallow between grazing or cropping?

Do you have or are you able to access, forestry expertise?

If you have answered yes to these questions, the measurement-based methods for new farm forestry plantations method may be suitable for your business.

Is the avoided deforestation method suitable for your business?

Do you have land in Australia that covers an area of at least 0.2 hectares, and is dominated by trees that are at least two metres tall and provide crown cover of at least 20 per cent of the land area?

Do you have a valid clearing consent issued before 1 July 2010?

Does the clearing consent state that clearing is permitted for the purposes of permanently converting the forest to cropland or grassland, not to plantation or settlements?

If you have answered yes to these questions, the avoided deforestation method may be suitable for your business.

Is the method for reforestation and afforestation suitable for your business?

Do you want to plant seeds or seedlings on cleared land to establish a permanent forest?

Has the land been used for grazing, cropping or been fallow for the last five years?

Are you prepared to undertake field measurements of your planted trees?

If you have answered yes to all of these questions, the [Carbon Credits \(Carbon Farming Initiative—Reforestation and Afforestation 2.0\) Methodology Determination 2015](#) (the method) may be suitable for your business.

Is the reforestation by environmental or mallee plantings method suitable for your business?

Are you able to establish and maintain plantings of either mixed native trees or mallee eucalypt?

Has the land been clear of forest cover for at least five years?

If you have answered yes to these questions, the reforestation by environmental or mallee plantings method may be suitable for your business.

Is the plantation forestry method suitable for your business?

Are you considering establishing a new plantation forest?

Do you manage an existing short rotation plantation forest?

Would participating in the ERF incentivise you to continue plantation activities or transition to a permanent forest, under circumstances where you would have otherwise converted that land to non-forested land in the absence of the ERF?

If you answered yes to one of these questions, the plantation forestry method may be suitable for your business.



4.11 Human-induced regeneration of a permanent even-aged native forest

Project activities

This method applies to projects that store carbon by regenerating native forest using one or more eligible activities. Project activities must occur on eligible land where regrowth of native forest has been suppressed for at least 10 years.

Human-induced regeneration activities include:

- excluding livestock and taking reasonable steps to keep livestock excluded
- managing the timing and extent of grazing
- managing feral animals in a humane manner
- managing plants that are not native to the project area, and
- implementing a decision to permanently cease mechanical or chemical destruction, or suppression, of native regrowth.

Other considerations when running your project:

Biomass cannot be removed from carbon estimation areas; except in accordance with the method. These exceptions are:

- If removal is required by law.
- Plants that are not native to a particular carbon estimation area may be removed, but only if the removal is likely to improve the growth rate or health of the remaining native vegetation.

Dead biomass may be removed from a carbon estimation area if it did not result from mechanical or chemical destruction, it is to be used as firewood and the carbon stock in that carbon estimation area would not be materially less than if the biomass were not removed. Native vegetation must not be mechanically or chemically damaged or destroyed within a carbon estimation area unless required by law or it is selectively carried out to improve the growth rate or health of the remaining native vegetation and, the resulting biomass remains in the carbon estimation area.

If the activity involves excluding livestock and taking reasonable steps to keep livestock excluded, the livestock must be prevented from grazing in the carbon estimation area until the regenerated vegetation meets the definition of '[forest cover](#)'. Once forest cover is achieved through regeneration, the participant may conduct the human-induced regeneration activity of managing the time and extent of grazing and then allow livestock in the carbon estimation.

If the activity includes the management of the timing and extent of grazing in a carbon estimation area, grazing may be permitted only to the extent that it does not impact the accumulation of carbon in the carbon estimation area.

Using lime or fertiliser in the carbon estimation area is not allowed.

Reporting requirements

All scheme participants must submit project reports to the Clean Energy Regulator throughout the crediting period of their project. A reporting period can be between six months and five years.

4.12 Avoided clearing of native regrowth

Project activities

A project involves retaining areas of native forest that would otherwise be cleared in the normal course of events. Native forest is land dominated by trees that:

- are located within their natural range
- have reached a height of at least two metres, and
- have attained a crown cover of at least 20 per cent of the area of land.

You also need to divide, or stratify, the project area into carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued.

The boundaries of each carbon estimation area must be defined in accordance with the [Carbon Farming Initiative Mapping Guidelines](#) using field surveys, aerial photography, satellite imagery or maps.

Once approved, a project's activities are minimal, apart from ongoing management of the native forest. For example, you must actively reduce the risk of damage from fire, weeds and feral animals. You may collect up to 10 per cent of wood from the forest for personal uses, such as fencing or household firewood. You may also thin trees for ecological purposes, subject to the rules in the method.

Click for further information about [project activities](#).

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, Section 56 of the method sets out method-specific requirements for offset reports. This includes providing information related to:

- FullCAM data for baseline and project scenarios
- results of all calculations
- thinning events
- fires, and
- non-fire natural disturbances.

Monitoring requirements

In addition to the general monitoring requirements of the Act, Section 60 of the method sets out specific monitoring requirements. These include monitoring:

- fires, and
- other natural disturbances.

4.13 Native forest from managed regrowth

Project activities

A project involves allowing native vegetation to grow and become forest. This is done by stopping activities that suppress or destroy regeneration of native vegetation. These activities must be replaced with new management practices that allow native trees to regenerate and become forest. The regeneration must arise from existing natural seed beds, rootstocks or lignotubers in the project area.

You must provide a geospatial map of the project area that meets the requirements of the [CFI Mapping Guidelines](#). The area is then divided, or stratified, into a combination of two different zones:

- Carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued.
- Exclusion zones, which are areas where project activities will not be conducted, such as a road, building or dam.

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, Division 5.4 of the Method also sets out method-specific requirements for offset reports. The information you are required to provide when reporting to the Clean Energy Regulator includes:

- net abatement amount and related baseline and carbon stock data
- data on emissions from biomass burning and fuel use
- project area, forest management and forest cover information, and
- FullCAM files and output data.

Record-keeping requirements

In addition to the record-keeping requirements of the Act and the Rule, Division 5.3 of the Method describes specific record-keeping requirements. These include keeping records related to:

- the decision to run a project,
- clearing and regrowth,
- plant species being regenerated,
- stratification into carbon estimation areas,
- project baseline,
- fires,
- fuel use,
- FullCAM modelling,
- forest management, and
- the project area.

4.14 Measurement based methods for new farm forestry plantations method

Project activities and eligibility requirements

Three activities can be conducted under the plantation forestry method, including to:

- establish a new plantation forest on land that has had no plantation forest for seven years
- convert a short-rotation plantation to a long-rotation plantation, where the conversion might occur either part-way through the short-rotation plantation cycle, or following harvest of a short-rotation plantation, or
- maintain a pre-existing plantation forest that meets the eligibility requirements of the plantation forestry method, but was established under another method.

Eligibility is restricted to plantations established in regions defined under the national plantation inventory within which, there are some plantation types that are not eligible under this method. Plantations managed as part of a forestry managed investment scheme are also ineligible.

Before the Clean Energy Regulator can register a plantation project, participants must notify the Department of Agriculture and Water Resources of their proposal and the Minister for Agriculture must assess whether the project may lead to an undesirable impact on agricultural production in the region in which the project is to be located. If an adverse finding is made by the Minister, a project will be ineligible to participate in the Emissions Reduction Fund under the plantation forestry method.

Abatement calculation and permanence period

The plantation forestry method requires accounting for carbon stock changes in trees, debris, and harvested forest products, taking into account forest growth, disturbances and harvesting. It also accounts for carbon stock changes and emissions due to management activities such as thinning, pruning, fertilising and controlled burning, and emissions from fossil fuel use.

Project participants must use [FulICAM](#) to calculate their project's carbon stock. In general, abatement is calculated by subtracting the long-term average baseline carbon stock (where applicable) and any project emissions from the project carbon stock, with a cap on maximum abatement represented by the long-term average project carbon stock.

4.15 Measurement based methods for new farm forestry plantations

Project Activities

A project involves establishing and maintaining trees as either permanent plantings or in harvest plantations. Trees can be planted as seedlings or seeds in belt or block plantings, at a density that will allow them to achieve 'forest cover'. This means that trees must have the potential to grow to at least two metres tall, and reach a crown cover of at least 20 per cent of the area.

Before you begin a project, you need to identify the area in which it will occur and divide it into one or more smaller areas known as strata (or carbon estimation areas), following the [Carbon Farming Initiative \(CFI\) mapping guidelines](#) and the requirements for delineating boundaries in Part 3 of the method. You then establish a network of sampling plots in each stratum and develop a sampling plan, which includes information such as plot location, size and shape. The sampling plots are used to estimate the amount of carbon stored by your 'project' trees.

For permanent plantings, once the planting is established, it must be maintained in such a way that the trees can reach and maintain crown cover. For harvest projects, you must propose a specific management regime, which may include:

- planting,
- weed control,
- harvesting,
- debris removal, and rotation length (i.e. the length of time between planting and harvesting).

In general, project trees must not be removed once established, with the main exception being for harvest if you choose to run a harvest project. Removal of project trees is only permitted in those circumstances listed in Sections 4.4 and 4.7 of the method, including:

- taking samples to calculate the amount of carbon stored, or
- managing natural disturbances, such as flood, fire, drought or disease.

In certain circumstances, a permanent planting project may be changed to a harvest project, but harvest projects cannot be changed to permanent planting projects.

The [Technical Reference Guide for the Measurement Based methods for New Farm Forestry Plantations Methodology Determination 2014](#) provides all the detailed instructions for the techniques used in running a project.

Click for more information about [project activities and setting up the project area](#).

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Division 7.4 of the method also sets out the following requirements for offset reports.

All reports must contain information relating to:

- project type and management regime,
- strata locations and descriptions,
- sampling plans,
- emissions, carbon stocks and abatement calculations,
- FullCAM modelling and allometric functions,
- growth disturbances,
- fuel use, and
- quality assurance and control measures.

In addition, your first report must contain information relating to:

- the history of land use and forest cover, and
- descriptions of the project area and strata.

4.16 Native Forest Protection (Avoided deforestation)

Project Activities

A project protects native forest in areas that would otherwise be cleared for crops or grassland. The forest must be managed to achieve a mix, in terms of composition and structure, of trees, shrubs and understorey plants that occur naturally in the area of the project.

You may thin trees in the forest for the purposes of promoting biodiversity or vegetation growth, as long as at least 95 per cent of the thinned wood remains in the area it was thinned. You may collect up to 5 per cent of wood from the forest for personal uses, such as fencing or household firewood.

You need to divide, or stratify, the project area into:

- carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued
- exclusion zones where activities are not conducted, such as a road, building or dam, and
- clearing buffers, which are parts of your forest that must not be cleared (only if specified by your pre-existing clearing consent). As an example, if a clearing consent states that 20 per cent of the area covered by a clearing consent must be maintained, then under the method, the proponent must map out a clearing buffer equal in hectares to that 20 per cent mentioned in the clearing consent.

The boundaries of each carbon estimation area must be defined in accordance with the [Carbon Farming Initiative Mapping Guidelines](#) using field surveys, aerial photography, satellite imagery or maps.

Click for further information about [project activities](#).

Reporting Requirements

In addition to the reporting requirements of the Act and the Rule, Sections 67–68 of the method set out method-specific requirements for the first and subsequent offset reports. This includes providing information related to the:

- baseline deforestation plan
- evidence of the mix of species, and
- map of the project area.

4.17 Reforestation and afforestation

Project Activities

Before you start the project, you need to prepare the land for planting new forest trees. If there are trees already on the land they must not be disturbed or removed from the project area, unless done in accordance with section 12 of the method.

Once you have identified your project area you need to define the strata and strata boundaries, ensuring that strata do not overlap.

Stratification is the process of outlining smaller base land units, called strata, within an eligible area of land. Strata show uniform growing characteristics for all trees within them. By defining strata, the change in carbon stocks can be averaged across all growing plots within a stratum to more easily calculate carbon abatement.

A full list of site characteristics that affect tree growth is given in section 17 of the method. These include:

- tree species
- time of planting
- soil type
- climate, and
- disturbance history (e.g. fires or disease outbreaks).

You are allowed to carry out one preparation burn in each stratum before planting. You are also allowed to apply fertiliser to each stratum, but no more than once in every 25-year period.

You also need to plan the number of trees to plant per hectare, so that your planting has the potential to achieve forest cover. Recommendations for planting densities for trees that reach different sizes at maturity can be found in Table 1 of the explanatory statement. Trees can be planted in either belt or block figurations, or a combination of the two, as long as they have the potential to achieve forest cover.

Forest cover is defined as having 20 per cent crown cover at a tree height of at least two metres across an area of at least 0.2 hectares.

Reporting requirements

In addition to the record keeping requirements of the Act and the Rule, the method also sets out a specific requirement for offsets reports. This covers reporting when it is not possible to use factors or parameters as at the end of a reporting period.

Applications for ACCUs can be made at the same time as you submit your project reports through the Client Portal using the electronic ERF Project Reporting and Crediting Application form.

4.18 Reforestation by environmental or mallee plantings FullCAM

Project Activities

A project involves establishing and maintaining vegetation such as trees or shrubs on land that has been clear of forest for at least the last five years. This can be either a:

- mallee eucalypt planting, or
- mixture of native species, termed a mixed-species environmental planting.

Trees can be planted as either seeds or tubestock, in rows or randomly, and in areas that are either linear belts or blocks. They must be planted at a density that will allow them to achieve forest cover, which means they must have the potential to reach a height of at least two metres and provide crown cover over at least 20 per cent of the land.

You must identify the area in which your project will occur using the Long Term Average Rainfall Map Layer and the [CFI Mapping Guidelines](#). The area is then divided, or stratified, into a combination of two different zones:

- carbon estimation areas, which are the areas of your project where carbon will be stored and for which ACCUs may be issued, and
- exclusion zones, which are areas where project activities will not be conducted, such as a road, building or dam.

Click for further information about [project activities](#).

Reporting requirements

In addition to the reporting requirements of the Act and the Rule, Division 5.4 of the method also sets out method-specific requirements for the first and subsequent reports. The information you are required to provide includes:

- net abatement amount and related carbon stock data
- data on emissions from biomass burning and fuel use
- project area, forest management and forest cover information, and
- FullCAM files and output data.

Monitoring requirements

In addition to the general monitoring requirements of the Act, Section 5.3 of the method describes specific monitoring requirements. These include using on-ground observation and/or remote-sensing imagery to:

- monitor management and disturbance events,
- ensure compliance with Part 3 of the method and the [Long Term Average Rainfall Map Layer](#), and
- demonstrate that the requirements for any specific calibrations have been met.

4.19 Environmental Plantings Pilot

Project Activities

The environmental plantings pilot removes the cost of project audits, simplifies project registration and crediting processes, and introduces an easier way to sell Australian carbon credit units (ACCUs) to the Australian Government.

Environmental plantings projects involve planting a mixture of native and local tree, shrubs and understorey species to establish new and permanent forest cover. These projects earn one ACCU for each tonne of carbon dioxide equivalent (tCO₂-e) stored in the project trees as they grow.

To participate in the environmental plantings pilot, the following eligibility criteria applies:

- the project is registered under the environmental plantings method,
- the project proponent is the owner, leaseholder or native title holder of the land,
- the total anticipated or reported carbon estimation area (CEA) is no more than 200 Ha,
- the planting areas are modelled as mixed species block plantings using the generic calibration in FullCAM,
- the project area is subject to geospatial tool monitoring and assurance by the Clean Energy Regulator (removing the cost of scheduled audits).

Core Pilot Components

- Streamlined process of registration and crediting
- Alternative assurance – no scheduled audits, geospatial tools used for monitoring
- Fixed price option – can sell ACCUs at a fixed price to the Australian Government rather than in the auction.

How to Participate in the Pilot

Step 1. Review guidelines - Review the ERF scheme and pilot eligibility criteria and requirements in the [Environmental Plantings Pilot – Information Pack](#).

Step 2. Register - Apply to register your pilot project via the new, streamlined Client Portal.

Step 3. Establish plantings - Establish planting area/s (via direct seeding and/or planting tubestock) and maintain plantings as they grow.

Step 4. Geospatial monitoring - Instead of the farmer or landholder incurring the cost of audits, the Clean Energy Regulator will use geospatial tools to confirm the planting activity has happened, verify that abatement is being achieved, and monitor for disturbances.

Step 5. Simplified reporting and crediting - Pilot participants can earn one ACCU for each tCO₂-e stored by project trees. The Clean Energy Regulator will assist with project mapping and modelling annually to make it easier to report on carbon abatement and earn ACCUs.

Step 6. Sell ACCUs - ACCUs can be sold to generate income, either to the Australian Government or to private buyers in the secondary market.

Step 7. Maintain forest cover - Forest cover must be maintained to preserve the carbon stored in your project trees for the duration of the permanence period (25 or 100-years).

4.20 Plantation Forestry Method

Project Activities

Plantation forestry projects involve establishing a new plantation or changing from short rotation to long rotation plantations, increasing the amount of carbon captured in trees as they grow. Carbon can continue to be stored in timber products from harvested plantations.

You can run a plantations project by undertaking a range of new activities, such as:

- establishing a new plantation.
- converting a short rotation plantation to a long rotation plantation. This activity involves thinning or pruning a plantation after the start date for the long rotation, and ensuring the long rotation is at least 10 years longer than the original short rotation.
- continuing planting forestry in circumstances where it would have otherwise been converted to non-forested land.
- transitioning to a permanent planting in circumstances where it would have otherwise been converted to non-forested land.

Eligibility

To be eligible you must:

- Identify eligible land – eligibility requirements will vary depending on project activity. For example, you cannot establish a new plantation on land that has hosted a plantation within the previous seven years.
- Establish legal right (the right to run your project and claim carbon credits) – for example, holding a lease or other land title, or having a signed agreement with other landholders to run a project on their land.
- Obtain regulatory approvals and consent from everyone with an eligible interest in the land. Consent holders will vary. They may include banks, state governments (if the land is leased) or relevant native title bodies corporate.
- Make sure your project is new – you cannot have started your project activities until your project is registered, although certain project activities are permitted after a complete application has been submitted.

Running and Reporting on your project

If you are establishing a new plantation, you will need to submit a [plantation forestry notification](#) for assessment by the Department of Agriculture, Water and the Environment. There are operating, monitoring, reporting and audit obligations in running a plantation forestry project. You will need to report on your project at least once every five years. You will receive ACCUs each time you report modelled increases in carbon stored by your plantation over a period of 25 years.

Your project must store carbon for 25 or 100 years to deliver a long-term benefit to the atmosphere (known as ‘permanence’).

4.21 Tidal Restoration of blue carbon ecosystems method

Project Activities

The activity covered by the blue carbon method is the removal or modification of a tidal restriction mechanism to allow the introduction of tidal flow and the establishment of coastal wetland ecosystems in the project area. As part of the project activities, blue carbon projects may also be required to use existing infrastructure or drainage infrastructure, or modify, install or construct new infrastructure or drainage infrastructure to manage the extent of tidal inundation that occurs as a result of modifying or removing the tidal restriction mechanism.

A registered blue carbon project must maintain tidal flow to the project area throughout the project permanence period to ensure that the carbon sequestered in the vegetation and soils is maintained. This method also has prohibited and restricted activities.

Eligibility

Some of the requirements include that:

- Proponents work with a qualified person to prepare a hydrological assessment that projects the extent of tidal inundation that will occur as a result of the project activities.
- Proponents work with a qualified engineer to prepare a project operations and maintenance plan that provides an overview of intended project activities, and any ongoing maintenance required to ensure that any infrastructure used in the project continues to operate as intended.
- Proponents prepare a project extent map that identifies key features of the land that will be impacted by tidal inundation as a result of project activities.
- Where required by Commonwealth, State or Territory laws, project proponents prepare an acid sulfate soils management plan and mosquito management plan.

Resources

Many resources are available on the Clean Energy Regulator website at the address below.

- It is recommended that the Government resources are used to assess the proposed tidal inundation extent taking into consideration sea level rise:
<https://www.msq.qld.gov.au/Tides/Open-data>
- Where an acid sulfate soils management plan is required, it must take into consideration any applicable Commonwealth, State and Territory and Local Government guidance:
<https://www.qld.gov.au/environment/land/management/soil/acid-sulfate/explained>
- When preparing project extent maps, it is recommended that project proponents consult the following resources regarding recognised Aboriginal Heritage sites as applicable:
<https://culturalheritage.datsip.qld.gov.au/achris/public/home>

Reporting on your project

You will need to complete an offsets report (plus supporting information) to provide to the agency to claim carbon credits. It should detail a project's progress, including the net abatement amount. You can nominate the intervals of your reporting periods from six months to a maximum of five years. You can submit an offsets report and claim carbon credits through the Clean Energy Regulator Client Portal.

4.22 Savanna fire management - emissions avoidance

Project Activities

The savanna fire management—emissions avoidance method credits activities that reduce the emission of greenhouse gases from fire in savannas in northern Australia, through a reduction in the frequency and extent of late dry season fires. Annual planned burning is a required fire management activity under the method. As avoided emissions are considered permanent, there are no additional [permanence obligations](#) under this method.

The method replaces the [Carbon Credits \(Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management\) Methodology Determination 2015](#).

Eligibility

For projects to be eligible under this method, they must undertake:

- savanna fire management activities with the objective of avoiding emissions that result from the late dry season, unplanned burning of savannas, and
- annual planned burning in each project area.

Project areas must:

- be in the [high or low rainfall zone](#) (or both)
- include [vegetation fuel types](#) (Part 3 section 14 of the determination), and
- not include relevant weed species (Part 3 section 14 of the determination)

There are a number of other requirements for projects under this method, including that:

- [annual project management plans](#) (Part 3 section 17 of the determination) are prepared before commencing burning each calendar year. These plans can be modified during the fire season to reflect actual conditions.
- relevant eligible interest holder consents are obtained before credits can be issued, and
- [vegetation fuel type](#) maps are created, validated, and revised as required. More information on vegetation fuel type maps can be found in the [savanna technical guidance document](#).

Monitoring and excluding weeds

This method includes a [requirement for projects](#) (Part 3 section 14) to monitor and remove relevant weed species from project areas. Currently, the only weed that must be monitored and excluded is gamba grass (*Andropogon gayanus*). Projects are not able to claim Australian carbon credit units (ACCU) for project areas that contain gamba grass.

If gamba grass is identified in a project area, it must be excluded by either:

Removing the gamba grass from the project area before the end of the reporting period in which it is first identified. A map and evidence of weed clearing must be provided with the relevant offsets report.

Removing the project area that contains the gamba grass by subdividing the project and removing the area that contains gamba grass from the project (in accordance with section 15 of the method). An area removed from the project is removed permanently.

Calculation of net abatement

Under this method, participants can either complete their net abatement calculations manually, or use the [Savanna Burning Abatement Tool](#) (SavBAT 3).

Net abatement from emissions avoidance is calculated by determining, for each project area, the difference between methane and nitrous oxide emissions in the baseline period and each project year. The difference between mean baseline and annual project emissions reflects the change in emissions resulting from a change in fire management practices as a consequence of the project.

The baseline period for project areas under this method is ten years for project areas in the high rainfall zone, and 15 years for project areas in the low rainfall zone.

4.23 Savanna fire management 2018 (sequestration and emissions avoidance)

Project Activities

The savanna fire management—emissions avoidance method credits activities that reduce the emission of greenhouse gases from fire in savannas in northern Australia, through a reduction in the frequency and extent of late dry season fires. Annual planned burning is a required fire management activity under the method. As avoided emissions are considered permanent, there are no [permanence obligations](#) under this method.

The method replaces the [Carbon Credits \(Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management\) Methodology Determination 2015](#).

Eligibility

For projects to be eligible under this method, they must involve: savanna fire management with the objective of avoiding emissions from the unplanned, late dry season burning of savannas and sequestering carbon in dead organic matter, and annual planned burning in each project area.

Project areas must:

- be in the [high or low rainfall zone](#) (or both)
- include [vegetation fuel types](#) (Part 3 section 14 of the determination), and
- not include [relevant weed species](#) (Part 3 section 14 of the determination).

There are a number of other requirements for projects under this method, including:

- annual [project management plans](#) (Part 3 section 17 of the determination) must be prepared prior to commencing burning each calendar year. These can be modified during the fire season to reflect actual conditions.
- relevant eligible interest holder consents are obtained either before project registration for transferring projects, or before credits can be issued for new projects, and
- vegetation fuel type maps are created, validated, and revised as required. More information on vegetation fuel type maps can be found in the [savanna technical guidance](#) document.

Participants that apply under the [savanna sequestration and emissions avoidance method](#) are required to provide information at the registration and reporting stages of participation that is additional to the requirements under [savanna emissions avoidance methods](#).

Permanence obligations

Carbon stored in vegetation and soil can be released back into the atmosphere by human-induced or natural events, reversing the avoidance of greenhouse gas emissions and the environmental benefit of the carbon that has been sequestered. For this reason, all sequestration projects are subject to permanence obligations to maintain any carbon stores for which Australian carbon credit units (ACCUs) have been issued.

The Emissions Reduction Fund requires participants of sequestration projects to choose either a 25-year or 100-year permanence period in their project application. Once nominated, the permanence period cannot be varied.

[Permanence obligations](#) require participants to maintain sequestered carbon in the project area for the duration of the permanence period. This means that projects under this method must maintain carbon stores in dead organic matter by undertaking fire management activities for at least the chosen permanence period—either 25 or 100 years. This includes maintaining carbon stores for the period after the crediting period has finished, until the end of the permanence period.

If sequestered carbon is not maintained, or if the project is revoked, proponents may need to relinquish ACCUs that have been issued, or pay penalty charges, and may be subject to a carbon maintenance obligation if credits are not relinquished.

For more information, see the [permanence obligations](#) page.

Sequestration buffer

Projects under this method are subject to a sequestration buffer, which combines the [risk of reversal buffer](#) and the [permanence period discount](#) usually applied to other sequestration methods. The buffer applies only to sequestration abatement, and is applied in the net abatement calculations in the method.

For:

- 25 year permanence period projects, the sequestration buffer is 25%.
- 100 year permanence period projects, the sequestration buffer is 5%.

Monitoring and excluding weeds

This method includes a [requirement for projects](#) (Part 3 section 14) to monitor and remove relevant weed species from project areas. Currently, the only weed that must be monitored and excluded is gamba grass (*Andropogon gayanus*). Projects are not able to claim Australian carbon credit units (ACCUs) for project areas that contain gamba grass.

If gamba grass is identified in a project area, it must be excluded by either:

1. Removing the gamba grass from the project area before the end of the reporting period in which it is first identified. A map and evidence of weed clearing must be provided with the relevant offsets report.
2. Removing the project area that contains the gamba grass by subdividing the project and removing the area that contains gamba grass from the project (in accordance with section 15 of the method). An area removed from the project is removed permanently.

5. Take some action

5.1 How to become involved in carbon farming

The Carbon Farming Initiative and the ERF/Climate Solutions Fund were designed so that individual landholders could register projects and undertake projects individually, however it is a complex system and a very new area of competence and activity for many people. Landowners can get involved themselves or can do so with the support of a service provider. Similar to the consultants and assistance available for other agricultural industries, the Carbon Farming industry has service providers that assist land managers to participate. The most common entry path is for people to partner with a carbon project developer. Project developers may assist at all steps of the process up to the sale of the ACCU's or they may provide support for particular phases of the project development or implementation. Importantly some project developers share the risk of project failure, while others do not.

Before signing with a particular project developer:

- **Read the Australian Carbon Industry Code of Conduct**
- **Do your research, speak to people who already have Carbon Projects,**
- **Speak to multiple project developers – look for Carbon Project Developers who will share the risk as well as the rewards,**
- **Check online at [Queensland Rural Industry and Development Authority](#), your industry body and groups such as the Rural Financial Counselling Service for any assistance that is available.**
- **Always seek independent legal and financial advice prior to signing an agreement.**

People who provide financial services in relation to ACCUs and related financial products and services in Australia may require an Australian Financial Services (AFS) licence, which authorises them to provide those services. You should obtain your own professional advice about the trading of ACCUs, having regard to your own situation.

5.2 Do your homework first

Steps include:

- Do you have the legal right to undertake the project?
- Is there a suitable method?
- Does your high-level analysis suggest that it is worth undertaking further investigation?
- Is there a suitable vehicle for participation? This may involve a partnership.
- Undertake detailed financial and risk analysis and obtain professional advice about the viability of your project.
- Develop the implementation plan and seek a contract to support proceeding with the project.



5.3 Carbon Industry Code of Conduct

Carbon Project Developers and other Carbon Industry providers like agents, aggregators and advisors, can voluntarily sign up to be part of the Australian Carbon Industry Code Of Conduct. The code of conduct has been developed to promote best practice within Australia's carbon reduction & sequestration industry. 'Signatories to the Code agree to meet the minimum requirements for operating in the carbon industry, as set out in the Code, including during pre-project activities, ongoing project management, documentation and general business practices. Administered by the Carbon Market Institute (CMI), the Code aims to address issues that impact on the reputation of the carbon industry and promote international leadership on carbon project development.



Signatories to the Code are committed to developing and conducting their business in line with industry best practice and interacting with their clients and other stakeholders in a professional and ethical manner.' (<https://carbonmarketinstitute.org/code/the-code/>)

5.4 Use your local resources and contacts

In Queensland the regional Natural Resource Management (NRM) bodies can assist you, having access to relevant people to discuss your ideas of a carbon project. Each of the NRM Bodies have a plan to improve their regions and the management of their sources. A link is provided for each region.

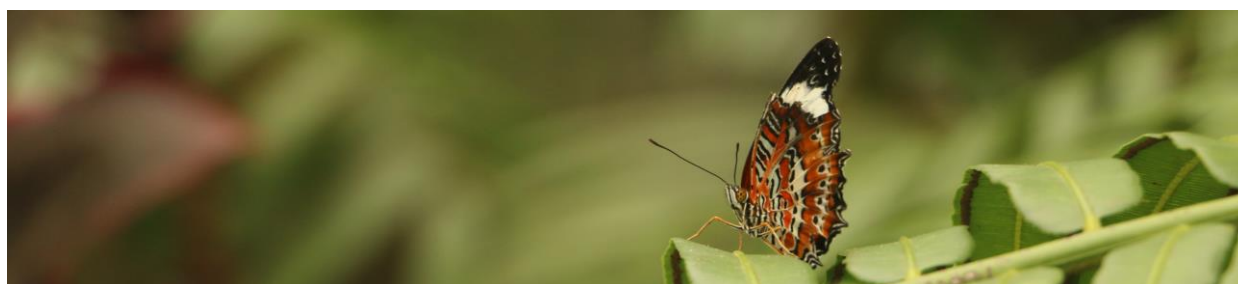
NRM Regional Body website	Corporate Plan Link	Phone Contact
NRM Regions Queensland	Living Landscapes Local Livelihoods	0419 790 943
Burnett Mary Regional Group	NRM Plan	07 4181 2999
Cape York NRM	NRM Plan	1300 132 262
Desert Channels Group	NRM Plan	07 4658 0600
Fitzroy Basin Association	Strategic Plan	07 4999 2800
Healthy Land and Water	Strategic Plan	07 3177 9100
Gulf Savannah NRM	NRM Plan	07 4092 1088
NQ Dry Tropics	Strategic Plan	07 4799 3500
Reef Catchments	NRM Plan	07 4968 4200
Southern Queensland Landscapes	Strategic Plan	07 4620 0111
Southern Gulf NRM	NRM Plan	1800 676 242
Terrain NRM	NRM Plan	07 4043 8000
Torres Strait Regional Authority	Development Plan	1800 079 093

If you require further information about policies, announcements or State Government initiatives contact Department of Environment and Science: <https://environment.des.qld.gov.au> or phone 07 45291402 to be directed appropriately.

5.5 Carbon Project Developers

At the time of producing this Carbon Handbook the following Carbon Project Developers had signed the Australian Carbon Industry Code Of Conduct. Their websites are listed below.

http://aboriginalcarbonfund.com.au/	https://www.climatefriendly.com/
https://carbonfarmersofaustralia.com.au/	https://aicarbon.com/
https://www.corporatecarbon.com.au/	https://www.co2australia.com.au/
https://greencollar.com.au/	http://agriprove.io/
http://marketadvisory.com.au/	http://www.selectcarbon.com/
https://www.terra-wise.com.au/	http://www.carbonlink.com.au
http://www.naturalcarbon.com.au/	https://carbonfarming.org.au/
https://www.carboncount.com/	https://carbonneutral.com.au/
https://regenco.earth/	https://www.carbonsync.com.au/
https://www.southpole.com/	https://www.tasmanenvironmental.com.au/
https://evolveenvironmental.com.au/	https://www.linkedin.com/company/ternes-scientific
Killin Management - https://www.facebook.com/nativeconifercarbonsink/	



5.6 Web links for applying to become involved

Work out what type of project:

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type>

Contact your NRM Body. A list with links is found on the NRM Regions Qld site:

<https://www.nrmq.org.au/>

Contact Queensland Farmers' Federation for key industry contacts to offer support:

www.qff.org.au/our-members/

4 Steps to participate:

<http://www.cleanenergyregulator.gov.au/ERF/Want-to-participate-in-the-Emissions-Reduction-Fund>

Participating in the Qld Program the Land Restoration Fund:

<https://www.qld.gov.au/environment/climate/climate-change/land-restoration-fund>

5.7 What have other people asked?

If we plant trees today under the Environmental Plantings methodology, how soon can we be paid for it?

Theoretically, you can be 'paid' at the end of the first year. Practically, you would be likely to wait until there has been enough carbon captured to make it worthwhile to submit an audit report. You can claim ACCUs only after a reporting period closes. You can choose the 'reporting period' from 12 months at the minimum or any time up to 5 Years after commencement of the project. Each subsequent reporting period begins immediately after the last reporting period.

(Carbon Farmers of Australia)

Can Livestock and Carbon Farming can be carried out on the same land?

How can Carbon farming work without impacting the income from my other farming business?

Carbon farming projects can complement and supplement farming business income. For example, carbon farming projects may provide an additional income stream from land that may be marginal or non-viable for other farming purposes.

(Land Restoration Fund)

Carbon Farming doesn't mean you have to destock. Under suitable grazing management regimes carbon projects and grazing operations will coexist.
(greencollar.com.au)

Does Carbon Farming mean locking up the land and being told what to do?

The way you manage your land will determine the carbon value of a Carbon Farming project. Decision-making, stewardship and implementation of management plans are still up to the landholder.

(greencollar.com.au)

6. Resources

<https://www.ato.gov.au/business/income-and-deductions-for-business/in-detail/carbon-sink-forests/>

<http://www.cleanenergyregulator.gov.au/>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods>

<http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers>

<http://www.cleanenergyregulator.gov.au/ERF/Want-to-participate-in-the-Emissions-Reduction-Fund/Step-4-Delivery-and-payment/Tax-treatment-of-ACCUs>

<https://www.legislation.gov.au/Series/C2011A00101>

[Australia's Carbon Marketplace | Start your net-zero journey today \(carbonmarketinstitute.org\)](#)

<https://www.nrmrq.org.au/>

<https://www.qld.gov.au/environment/climate/climate-change/land-restoration-fund>

<https://www.qld.gov.au/environment/climate/climate-change/carbon-farming>

7. Resource Links

Chapter 2 Links to Carbon Farming Market websites

- To view information about the various land sector methods and to help you identify which one may be more suited to you, go to the Federal Government, Clean Energy Regulator website and choose either Agricultural Methods, Savanna Burning or Vegetation Methods. Each of those choices will take you to a page which gives you a further choice of what specific method under these streams you may have interest in.
<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector>
- To view case studies for each of the soil, vegetation and agricultural methods go to the resources section of the Federal Government, Clean Energy Regulator website. Under Emissions Reduction Fund Methods you can select the method you are interested in and it will take you to a page that has the necessary up to date information about the method and any changes that have been made.
<https://www.environment.gov.au/climate-change/government/emissions-reduction-fund/publications>
- For more background on the markets for businesses going Carbon Neutral and Offsetting their businesses the Carbon Market institute explains the entry process. The website focuses on businesses who may be looking to buy ACCUs. Understanding the buying market can give further insights into the selling market.
<http://marketplace.carbonmarketinstitute.org/>
- A 2019 report looking at the way Carbon Projects are grouped as well as the supply and demand for Carbon Credits in Australia found at:
<https://research.csiro.au/digiscape/evolving-australian-carbon-markets/>
- Future-beef has resources, fact sheets and current information on soil carbon, savanna burning, herd improvement, business analysis and grazing land management. The link below is directly to the list of case studies for cattle management across northern Australia, including Qld examples.
<https://futurebeef.com.au/knowledge-centre/climate-clever-beef-publications/#ccbcasestudies>
- The Land Restoration Fund has produced three YouTube videos where Chief Scientist Don Butler explains some of the key concepts of the LRF.
 1. [An introduction to carbon farming](#)
 2. [An introduction to the Land Restoration Fund](#)
 3. [An introduction to carbon farming co-benefits](#)
- There are two Introduction to Carbon Farming fact sheets available, one specific to northern Qld and one focused on southern Qld. Produced by NRM Regions Queensland, Queensland Farmers' Federation and Remarkable NRM.
[Home - Queensland Farmers' Federation \(qff.org.au\)](http://qff.org.au)

Chapter 2 You-Tube explanations of Carbon Farming and Carbon Markets

- **Carbon Farming – An Industry of the Future** (Carbon Market Institute, 2018) – Qld example of a carbon project improving cattle production, land, water and biodiversity as well as financial security.
- **Carbon Neutral – Who are we and what we do** (Carbon Neutral, 2013) – Explains why we need carbon offsets
- **What is a Carbon Footprint?** (thecleanagency, 2011) – Explains what is in a carbon footprint
- **Celebration of a world first for soil carbon in Australia** (AgriProve, 2019) – Carbon Project Developer shows soil carbon project results.
- **Emissions Reduction Fund: opportunities to participate** (DeptEnvironment, 2016) – WA example of tree planting project, partnering to manage carbon farming project.
- **Demystifying Carbon** (WA State NRM funded, Oct 2020) Rangelands NRM hosts a webinar introducing Human Induced Regrowth, Savanna Burning, Soil Carbon and Beef Herd Methodologies.

Chapter 4 Methodologies

www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector
www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/estimating-soil-organic-carbon-sequestration-using-measurement-and-models-method

www.cleanenergyregulator.gov.au/ERF/Pages/Choosing%20a%20project%20type/Opportunities%20for%20the%20land%20sector/Vegetation%20and%20sequestration%20methods/Estimating-sequestration-of-carbon-in-soil-using-default-values-model-based-soil-carbon.aspx

www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/reducing-greenhouse-gas-emissions-from-fertiliser-in-irrigated-cotton#Reporting%20requirements

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Agricultural-methods/Reducing-Greenhouse-Gas-Emissions-by-Feeding-Dietary-Additives-to-Milking-Cows>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Human-Induced%20regeneration%20of%20a%20permanent%20even-aged%20native%20forest>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Avoided-clearing-of-native-regrowth>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Native-forest-from-managed-regrowth>

<http://www.cleanenergyregulator.gov.au/ERF/Pages/Choosing%20a%20project%20type/Opportunities%20for%20the%20land%20sector/Vegetation%20and%20sequestration%20methods/Plantation-forestry-method.aspx>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Measurement-based-methods-for-new-farm-forestry-plantations>

[www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Native-forest-protection-\(avoided-deforestation\)](http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Native-forest-protection-(avoided-deforestation))

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Reforestation-and-Afforestation>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Reforestation-by-Environmental-or-Mallee-Plantings-FullCAM>

www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Reforestation-by-Environmental-or-Mallee-Plantings-FullCAM/environmental-plantings-pilot#Core-pilot-components

www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/plantation-forestry-method

www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/tidal-restoration-of-blue-carbon-ecosystems-method

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Savanna-burning-methods>

<http://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Savanna-burning-methods>

Chapter 5 Use your local resources and contacts

NRM Regional Body website	Corporate Plan
https://www.nrmr.org.au/	Living Landscapes Local Livelihoods
http://www.bmrg.org.au/index.php	NRM Plan
http://www.capeyorknrm.com.au/	NRM Plan
http://www.dcq.org.au/	NRM Plan
http://www.fba.org.au/	Strategic Plan
http://www.hlw.org.au/	Strategic Plan
https://gulfsavannahnrm.org/	NRM Plan
http://www.nqdrytropics.com.au/	Strategic Plan
http://www.reefcatchments.com.au/	NRM Plan
https://www.sqlandscapes.org.au/	Strategic Plan
http://www.southerngulf.com.au/	NRM Plan
http://www.terrain.org.au/	NRM Plan
http://www.tsra.gov.au/	Development Plan

