



**GIPPSLAND
FORESTRY HUB**
Promoting the Forestry Industry



Carbon Farming Guide 2022

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ACCU	Australian Carbon Credit Unit
ACCUs	Australian Carbon Credit Units
ANREU	Australian National Registry of Emissions Units
CEA	Carbon Estimation Area
CER	Clean Energy Regulator
CFI	Carbon Farming Initiative
CMO	Carbon Maintenance Obligation
ERF	Emissions Reduction Fund
FullCAM	Full Carbon Accounting Model
RFP	Registered Forestry Professional

Why increase carbon on your property?

Tree plantations have significant potential to sequester carbon, which is important in mitigating climate change, creating options to sell or retain carbon for your own use. There is also increasing interest in 'net zero' farms with the potential to enter new markets for products that come from such farms. Parts of Gippsland have great potential for growing trees due to good rainfall and soils. These trees can also provide income from timber and, in the right configuration, other farm benefits (such as shelter for livestock and biodiversity).

The Plantation Methodology

The purpose of this guide is to describe the plantation options available using the Plantation Methodology¹ and explain the process of running carbon projects in Gippsland. The Plantation Methodology has advantages over other Emission Reduction Fund (ERF) methodologies because it:

- Focuses on 'for harvest' tree production which means both timber and carbon incomes can be generated from the project
- avoids the need for, and cost of, direct measurement of trees
- gives credit for changes in management of plantations (e.g. switching from short to long rotations)
- estimates carbon yields based on a long history of commercial forestry operational yields
- does not restrict the area that can be planted on a parcel of land
- recognises the carbon in wood products when the trees are harvested.

What other carbon methodologies are there?

There are other agricultural and vegetation carbon methodologies that may be appropriate for landowners in Gippsland. Although these are not the focus of this guide, they are listed here for awareness. Further information about these methods can be found on the Clean Energy Regulator website (see the *Finding more information* section of this guide).

Agricultural

- Animal effluent management method
- Beef cattle herd management
- Estimation of soil organic carbon sequestration using measurement and models method
- Estimating sequestration of carbon in soil using default values (model-based soil carbon)
- Reducing greenhouse gas emissions by feeding dietary additives to milking cows
- Reducing greenhouse gas emissions by feeding nitrates to beef cattle

¹ The Plantation Methodology is the Carbon Credits (Carbon Farming Initiative – Plantation Forestry) Methodology Determination 2022.

Vegetation

- Avoided clearing of native regrowth
- Avoided deforestation V1.1
- Human-Induced regeneration of a permanent even-aged native forest V1.1
- Measurement based methods for new farm forestry plantations
- Native forest from managed regrowth
- Reforestation and afforestation V2.0
- Reforestation by Environmental or Mallee Plantings – FullCAM

Understanding your farm objectives

Firstly, it is important to think about what you are hoping to achieve from your land and how a plantation can help get you there. When it comes to the carbon sequestration of the plantation, do you want to realise the cash from selling Australian Carbon Credit Units (ACCUs), or are you looking to achieve a net zero outcome from all of your farming operations? Either way, the requirements to recognise the amount of carbon sequestered are the same.

Opportunities to sell carbon credits

Carbon credits are held in a central register that is maintained by the Australian Government. You can sell carbon credits to other purchasers including businesses and state governments through a fixed commercial agreement or on the spot market at the current market price.

The return on your investment is highly influenced by the benefits you will get from your trees, such as income from timber, shade and shelter for livestock or water quality improvements, the market benefits of producing a 'carbon neutral' product, and the returns to you from selling carbon credits.

Do it yourself, or get some help?

There is a lot to learn when it comes to growing a successful tree plantation, as well as accounting for, and selling, sequestered carbon. It may be worth talking with experts or other landowners who have been through the process. There are companies that specialise in providing carbon advice, and some can also provide plantation advice. The costs involved in seeking expert advice may be worth the expense if it ensures that your plantation investment achieves its potential.

Can I establish plantations in Gippsland?

Gippsland is a recognised timber growing region given the richness of its soils, good rainfall and favourable climate for growing trees. Gippsland's local governments generally support plantation development in their planning schemes.



Timber production is authorised in areas designated as farming zones. In these areas, timber production within plantations larger than 5 hectares must meet the requirements of the *Victorian Code of Practice for Timber Production 2014* (Code of Practice). An overview of the various planning requirements is shown in Figure 1.

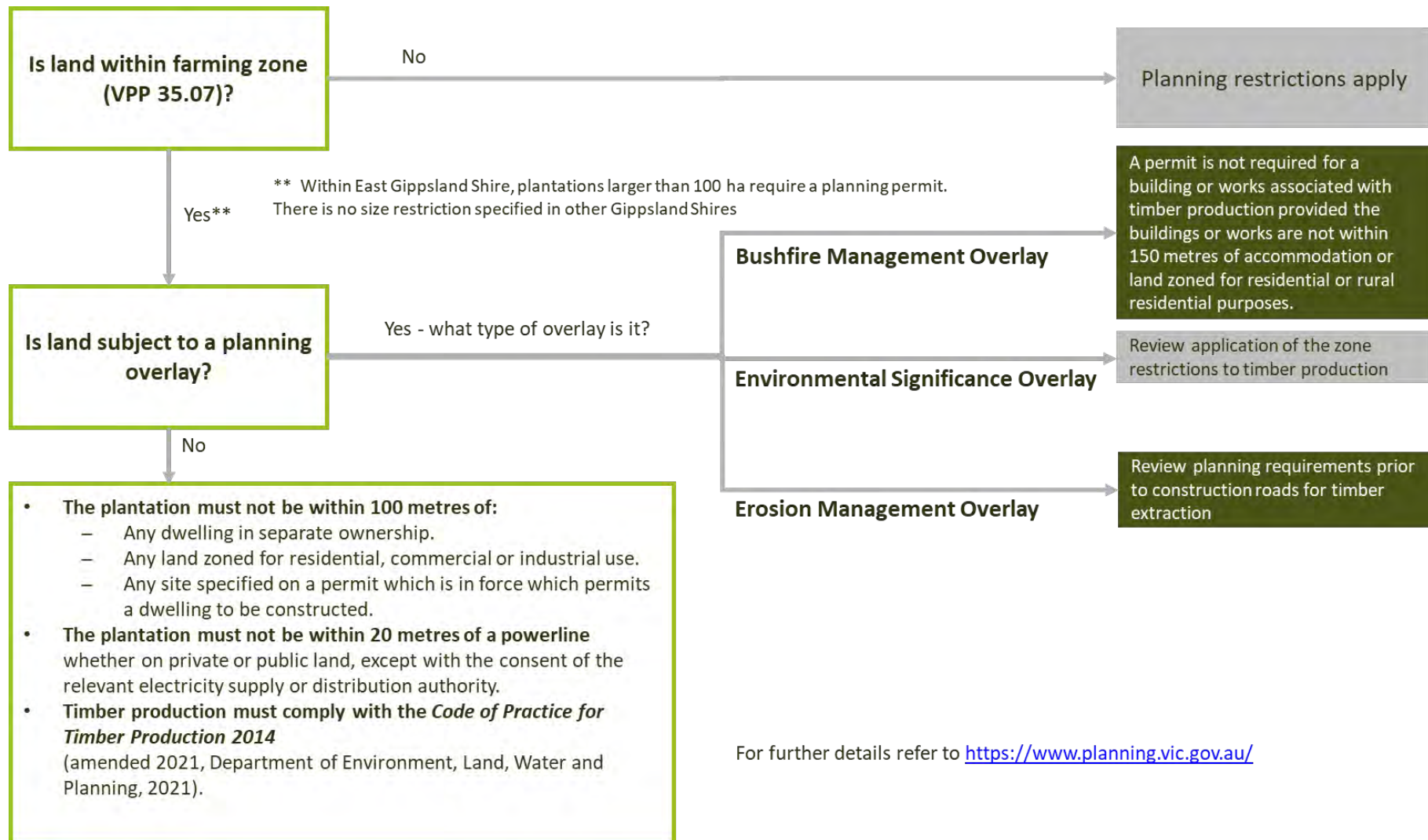


Figure 1: Planning requirements for timber plantations greater than 5 hectares in size

A planning permit is not required unless the area exceeds any area specified in a schedule to the farming zone. East Gippsland Shire has stipulated that plantations larger than 100 hectares require their formal planning consent via a planning permit. There is no limit specified by other Gippsland shires.

Under all planning schemes, a plantation must not be planted within 100 metres of:

- any dwelling in separate ownership.
- any land zoned for residential, commercial, or industrial use.
- any site specified on a permit which is in force which permits a dwelling to be constructed.

Additionally, plantations must not be planted within 20 metres of a powerline whether on private or public land, except with the consent of the relevant electricity supply or distribution authority.

There are other constraints that may affect plantation management in various Gippsland planning schemes. These are specified in various planning overlays and are most likely to apply to works associated with plantation activities like road and dam construction.

Under the Code of Practice, a Plantation Development Notice must be lodged with the responsible municipality not less than 28 days prior to starting operations. This confirms a landowner's intention to undertake timber production in their plantation and ensures a future right to harvest.

In addition to these requirements pursuant to the *Planning and Environment Act 1987*, there are other State laws that should be considered during the establishment and management phases of timber plantations. The relevant laws are listed at the end of this guide (see *Finding more information*).

The Plantation Methodology

This guide focuses on carbon in tree plantations established and maintained for harvest as a commercial timber crop under the Plantation Methodology. This methodology enables the generation of ACCUs from tree plantations for sale in the Australian carbon market. Figure 2 shows how the Plantation Methodology can be used to access carbon markets. Other methodologies that involve planting for carbon sequestration, such as the Environmental Planting methodology, don't include the ability to generate value from harvesting. We discuss how to generate value later in this guide.



Figure 2: Plantation Methodology and access to carbon markets

Four plantation management options are recognised in the Plantation Methodology.

Schedule 1 – New plantation – hardwoods or softwoods

Schedule 1 applies to new plantations on land that has not had tree cover for the last 7 years prior to registration. The project developer can generate Australian Carbon Credit Units (ACCUs) up to the long-term average level of carbon sequestered over multiple rotations (a 'rotation' is one cycle of a plantation - from planting through to final harvest).

Schedule 2 – Converting from short to long rotations

Converting an existing, short-rotation plantation to a long-rotation plantation increases average carbon stock. The additional carbon sequestered over multiple rotations can be recognised and used to generate ACCUs under Schedule 2.

Schedule 3 – Avoided conversion to agriculture

Sometimes, a landowner with an existing plantation will determine that it is not worth replanting another rotation when these trees are harvested. Instead, they plan to convert the land back to agriculture. Returns from including carbon may mean a second tree plantation is financially more attractive. The financial rationale for this option must be supported by an independent financial assessment. If the landowner retains the trees, (or harvests and replants a new rotation), they can generate ACCUs for the carbon up to the long-term average over subsequent multiple rotations.

Schedule 4 – Avoided deforestation – convert to a permanent forest

Instead of harvesting a tree plantation, it could be converted to a permanent forest. The carbon sequestered in this forest minus the remaining carbon post (theoretical) harvest can be used to generate ACCUs.

Selecting the right schedule

Follow the decision tree diagram (Figure 3) to select the right schedule for your project.

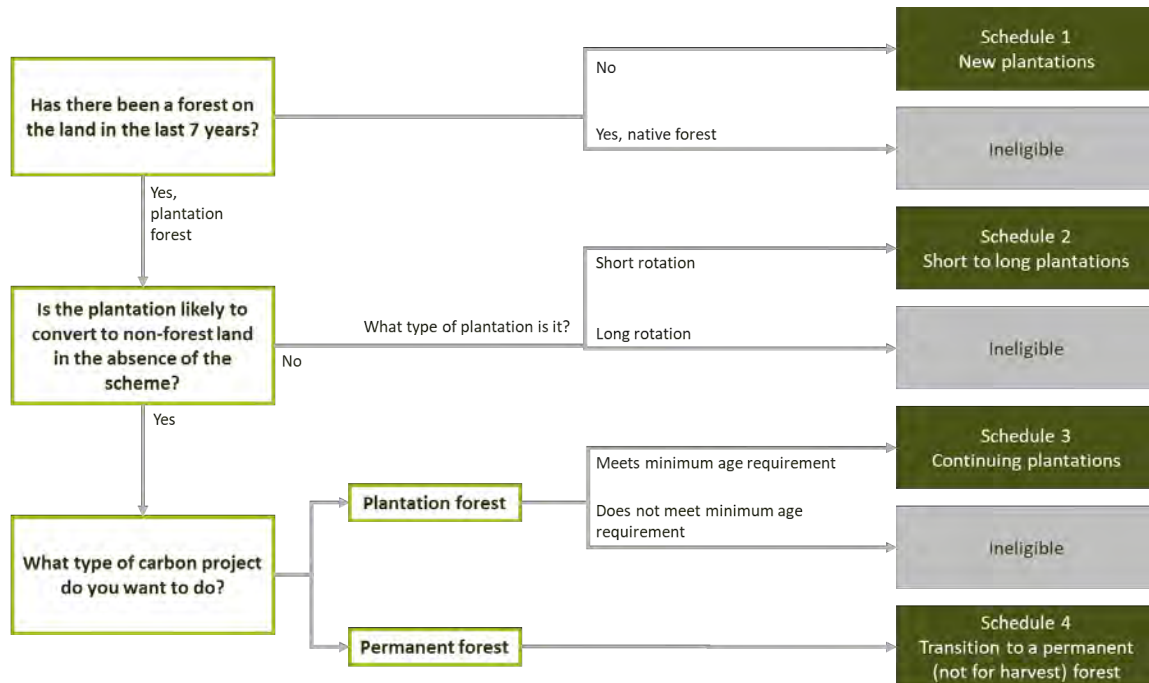
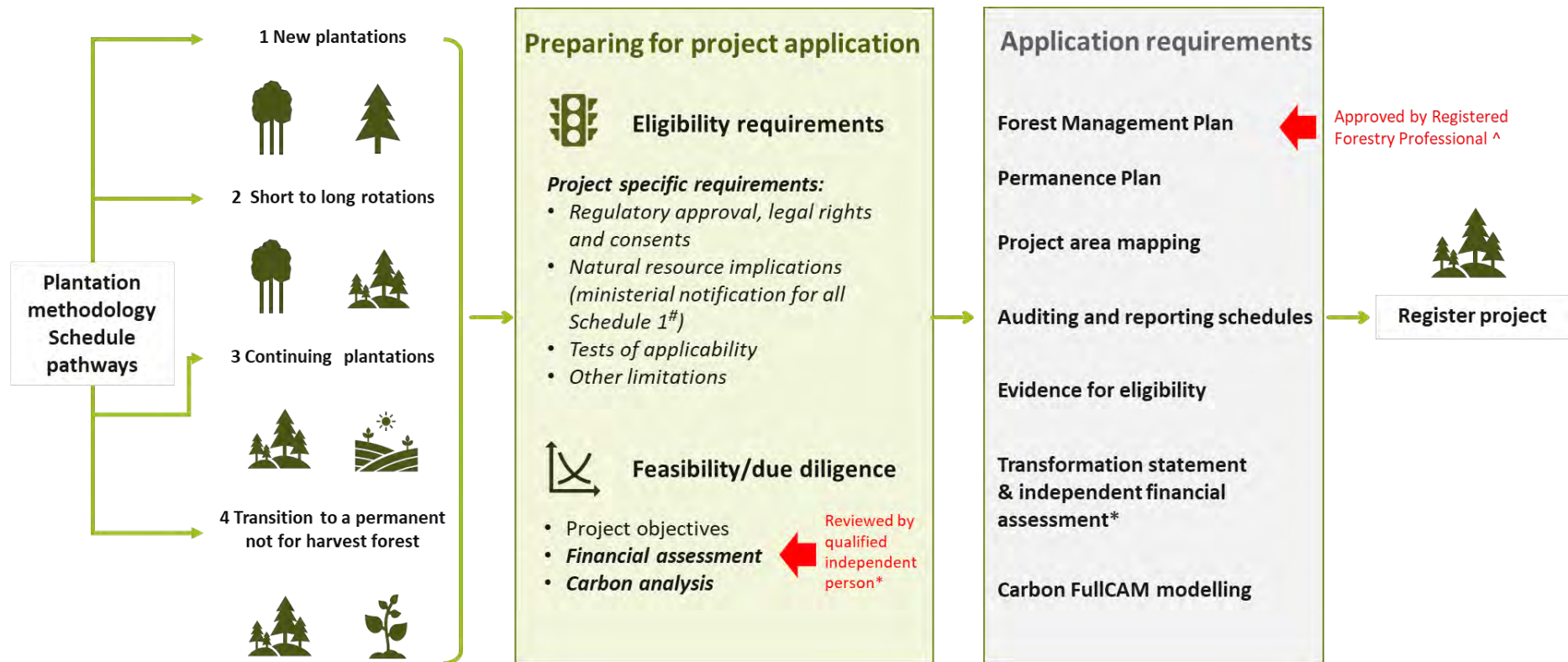


Figure 3: Decision tree diagram to determine the appropriate Schedule (adapted from Understanding your Plantation Forestry Project, Figure 1, Page 4, Simple method guide)



[#] Schedule 1 only

^{*} Schedules 3 and 4 only – See ‘Finding More Information’ – Independent Financial Assessment

[^] Schedules 2, 3 and 4 See ‘Finding More Information’ – Forest Management Plan Guidance

Figure 4: Key aspects that lead to the registration of a plantation project

How to farm carbon for sale

Registering a carbon farming project and claiming ACCUs requires a number of steps. Figure 5 breaks down the steps for each stage of the entire process (from pre-registration to selling ACCUs). An Australian National Registry of Emissions Units (ANREU) account is used to receive and transfer carbon credits.

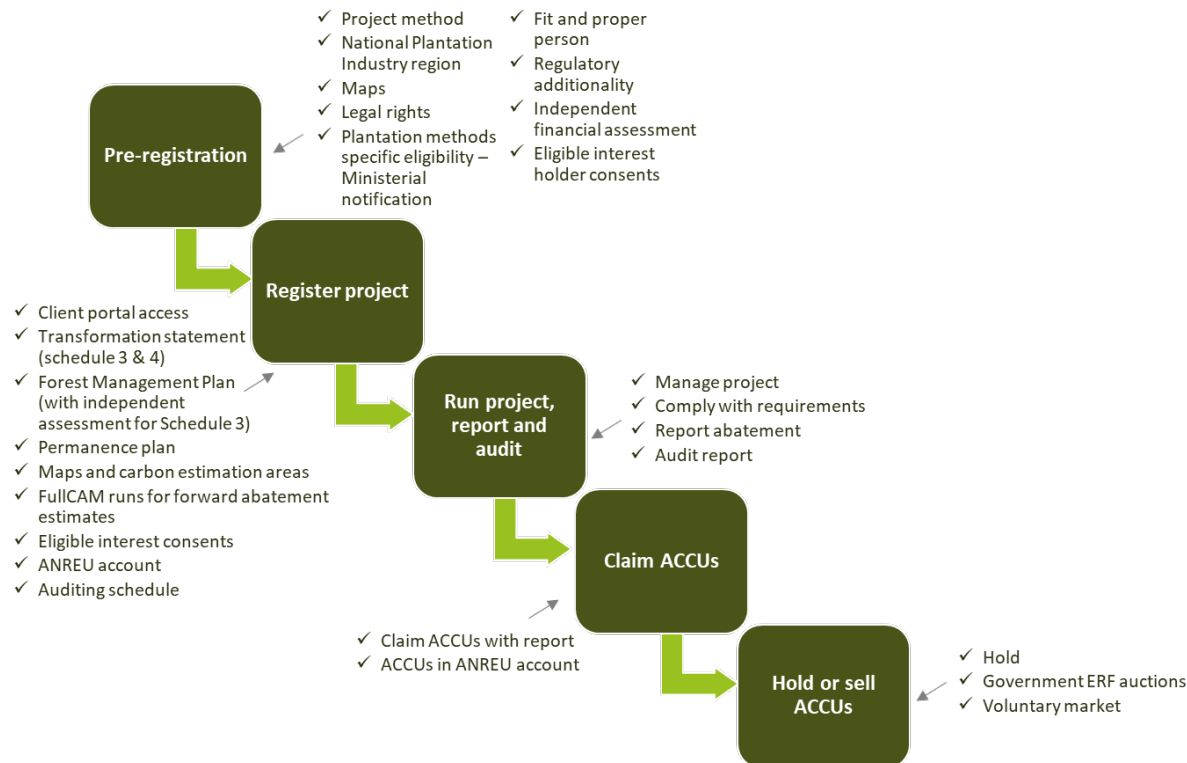


Figure 5: Steps in registering a carbon project and claiming ACCUs

Project proponents

A project proponent is the person who is responsible for carrying out the project and has the legal right to do so. They:

- control the project and will be issued with ACCUs generated by the project
- are legally responsible for meeting all the obligations for the life of the project
- can be a single person, multiple people, or an organisation.

Project proponents must have the legal right to carry out the project. They must also consider:

- any native title holder interests
- needs of other rights or stakeholders involved or impacted by the project. This includes stakeholders such as owners, lessees, and service providers who have the legal right or are assigned the legal right
- creditors, banks, or other financial institution's interest in the land.

All parties with legal rights or interests in the land must provide their written consent (via an approved form, see 'Finding more information') for the project to be approved.

Before a project is registered, the proponent must:

- be assessed to determine they are of good character to run the project and will comply with the requirements. This is known as the 'Fit and Proper Person test' and includes completing and submitting an Australian Federal Police National Police Check form as well as meeting the expectations of the Clean Energy Regulator.
- open an ANREU (Australian National Register of Emissions Units) account to receive and transfer carbon credits.

The project proponent can engage another party to be an agent for the project. Regardless of who is appointed as an agent, the project proponent remains legally accountable, not the agent.

Ministerial notification

Any new plantation (Schedule 1) project is assessed on its impact on agricultural land by the Federal Government Minister for Agriculture, Fisheries and Forestry. This approval is required to be able to register the project. Ministerial notification and approval are not required for Schedules 2, 3 or 4 of the Plantation Methodology.

Following the amendment of the Carbon Farming Initiative Rule on 16 August 2017, any new project or expansion of an existing plantation project must be assessed by the Minister for Agriculture, Fisheries and Forestry for its potential to have an adverse impact on agricultural production. This assessment is done through a plantation notification lodged with the Department of Agriculture, Fisheries and Forestry.

- Project proponents specify the land area(s) covered by the application (the Carbon Estimation Area, CEA) and the management regime (see above). The proponent must also submit time-stamped and geo-referenced remotely sensed imagery for the project area for 7 years before the proposed project commencement date for the project. (i.e. aerial photography that shows the project area and changes in land use over the last 7 years). There are freely available platforms to enable the export of geo-referenced satellite images

Demonstrating that you have the right to register the project

The applicant must provide information that demonstrates they are a fit and proper person, have legal title to ACCUs generated and they have obtained the consent of other people and parties connected to the land such as mortgage holders, partners, joint landholders and native title rights holders. Anyone with an eligible interest must sign a form which is lodged with the application to show that they have given their consent to the project.

The applicant must also demonstrate their legal right in clear terms (such as providing land title records) and complete forms and provide documents to support their legal right claims (see *Finding more information*).

What species can I plant?

The Plantation Methodology does not limit the species that you can plant but there are consequences in estimated carbon yields depending on your choices.

Some species such as blue gum (*Eucalyptus globulus*), shining gum (*E. nitens*), mountain ash (*E. regnans*), radiata pine (*Pinus radiata*) or maritime pine (*P. pinaster*) have been routinely grown in plantations across Gippsland, as they have good growth rates and wood properties that are desired by the market. This means that growth data exists across a broad range of regions for the common species and that the carbon estimates are based on reliable, long-term data.

The following tables list common plantation species and their deemed rotation length under the Plantation Methodology relevant to Gippsland. This does not restrict the selection of other species.

Short rotation species

Region	Species	Maximum clearfell age (yrs)	Default clearfell age (yrs)
East Gippsland – Bombala	<i>Eucalyptus nitens</i>	21	12
East Gippsland – Bombala	<i>Eucalyptus globulus</i>	21	12
Central Gippsland	<i>Eucalyptus regnans</i>	21	12
Central Gippsland	<i>Eucalyptus nitens</i>	21	12
Central Gippsland	<i>Eucalyptus globulus</i>	21	12

Long rotation species

Region	Species	Maximum clearfell age	Default clearfell age
East Gippsland – Bombala	<i>Pinus radiata</i>	na	30
East Gippsland – Bombala	<i>Pinus pinaster</i>	na	30
Central Gippsland	<i>Pinus radiata</i>	na	30
Central Gippsland	<i>Pinus pinaster</i>	na	30

Common plantation species usually generate more carbon under Full Carbon Accounting Model (FullCAM) estimates so check yields in FullCAM before you plant.

Other species, such as red gum (*Eucalyptus camaldulensis*) or Douglas fir (also known as oregon) (*Pseudotsuga menziesii*) have not been grown in Gippsland on a commercial scale. FullCAM estimates are more reliable for the common plantation species and the model discounts the amount of carbon credited for the other species which are often slower growing. So, understanding the potential carbon yields using FullCAM for different species is an important aspect of your planning.

What work can I do prior to registering the project?

Carbon projects must meet an 'additionality' test. This means the project would otherwise not have occurred or that there has been a net increase in carbon stocks as a result of the project. The CER is careful to check that the project hasn't already begun prior to it being registered.

Figure 6 shows what activities are permitted under each stage of the project, but each case is unique, and you should contact the CER if in doubt.



Figure 6: Permitted activities at each stage of the project

ERF Approval

New plantation projects (Schedule 1) have a 2-step approval process:

1. Ministerial Notification to the Minister for Agriculture, Fisheries and Forestry – where the project is assessed whether it has a detrimental impact on agricultural production, which usually takes up to 3 weeks, but it can take longer to obtain an assessment. If any information is incomplete or incorrect, the Notification process starts again.
2. Registration. Once you lodge an application, the CER has 90 days to register a project under the Carbon Credits (Carbon Farming Initiative) Act 2011 but is often less, depending on the number of project applications.

Schedules 2, 3 and 4 projects only need to register the project (step 2 above).

*For new plantations, the project cannot commence prior to its registration with the CER.
If projects have commenced prior to lodgement, it will likely render the project ineligible.*

Claiming carbon credits

Receiving carbon credits (ACCUs) involves estimating the carbon sequestration rate based on the management regime and reporting to the CER.

Estimating carbon sequestration (abatement)

Carbon estimates are based on project areas submitted at the time of your application to register a project (see Figure 5). They exclude areas of native vegetation (including paddock trees), roads, houses, and other areas where the plantation trees are not intended to be established or where the area does not meet other eligibility requirements such as being on land that was forest less than 7 years ago.

Each project is made up of one or more Carbon Estimation Areas (CEA). A CEA is defined for each area that has an identifiably separate management regime and where areas are not in close proximity to each other. A management schedule that outlines the major 'events' such as date of planting, intended dates of thinning or harvesting must be developed and maintained for each CEA.

The management schedules set out the:

- **current management regime** including which species are grown in the current and subsequent rotations, timing and a description of the management actions already undertaken and planned to be applied
- **default management regime** which is the 'current management regime' used as the basis for modelling future rotations and only changes if a disturbance (e.g. fire or storm) has occurred.
- **management records** for each management action and disturbance or natural interruption event since the plantation start date.

The management regime within an identified CEA must be the same throughout the area. If a part of the CEA has a different management action (e.g. an area is replanted because the trees were impacted by browsing) or disturbance event (e.g. wildfire impacts only a portion), then the CEAs have to be divided into two or more CEAs and separate records maintained for each of the newly created CEA's.

All carbon estimates must be calculated using the Full Carbon Accounting Model (FullCAM). Carbon stock change over time for each CEA is estimated separately using the model.

FullCAM is used to calculate Australia's greenhouse gas emissions for the land sector.

Results from FullCAM modelling are used to produce annual totals for the Australian National Inventory reports that fulfil Australia's inventory reporting requirements under the United Nations Framework Convention on Climate Change (UNFCCC) and its commitments to the Kyoto Protocol.

FullCAM estimates the carbon stock change in many different types of vegetation, including plantations. Carbon estimates using the Plantation Methodology are generated for the following carbon pools:

- Carbon in above and below ground biomass.
- Standing carbon and decomposing debris (not soil carbon).
- Carbon stored in wood products from the harvested trees.
- Emitted carbon from fires and harvesting operations.

FullCAM runs are used to establish the 100-year average carbon stocks for the project, taking into account the length of rotations and the species. ACCUs are only issued **up to** the 100-year average carbon stocks. For example, a new plantation (Schedule 1) will generate carbon through each rotation, but the average over 100 years accounts for harvesting and regrowth as indicated by the broken lines in Figure 7.

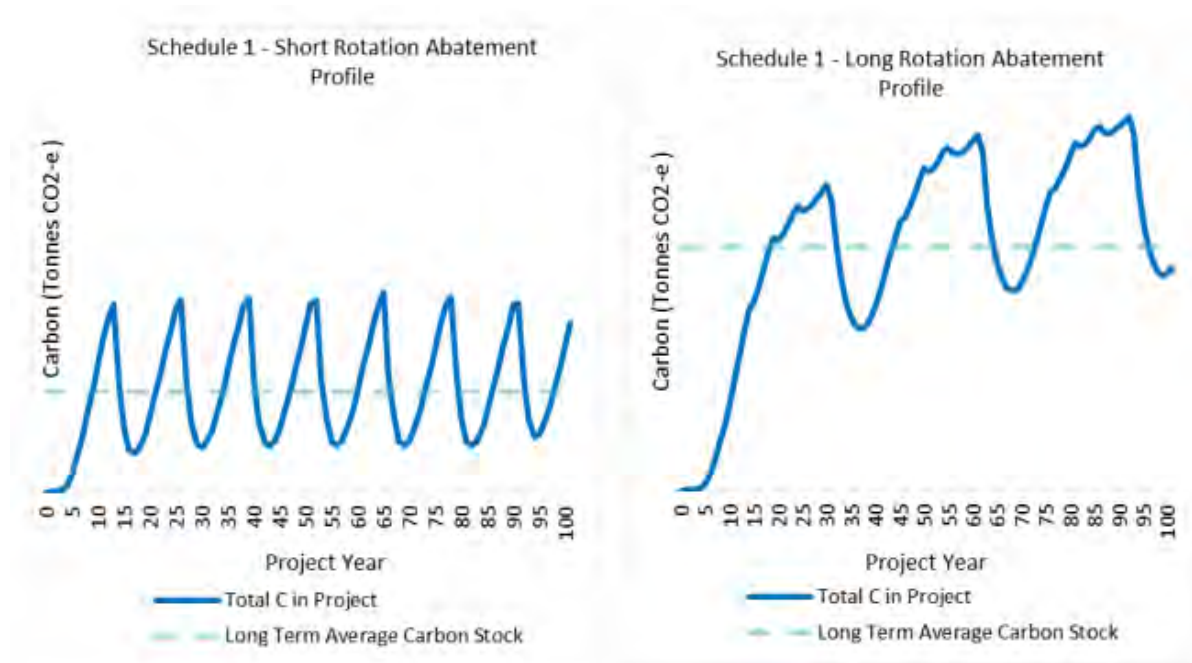


Figure 7 - Schedule 1 abatement profiles – short and long rotations (adapted from ERF Plantation Simple Method Guide)

Reporting

The crediting and reporting periods for a long-rotation plantation are shown in Figure 10. Other aspects of the diagram including permanence periods, reporting adverse events and proposed revisions to the methodology are explained in the sections below.

The **crediting period** is the period over which a project can claim ACCUs. It starts on the day the project is registered or on a start date nominated by the project proponent within 18 months of the commencement of project activities.

The **crediting period** is 25 years for all Schedules. The credit entitlement for Schedule 1 is a maximum of 25 years. Often the credit entitlement reaches the 100 year average before 25 years (Figure 8). Under Schedules 2, 3 and 4 the credit entitlement is split into equal apportionments over the first 15 years of the crediting period (Figure 9).

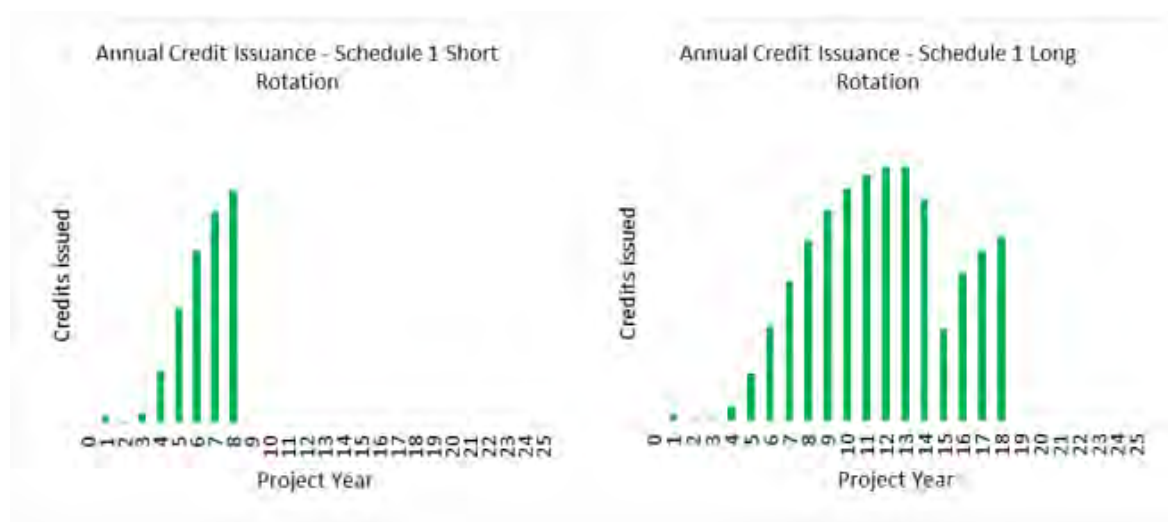


Figure 8 - Schedule 1 ACCUs issued profile – short and long rotations

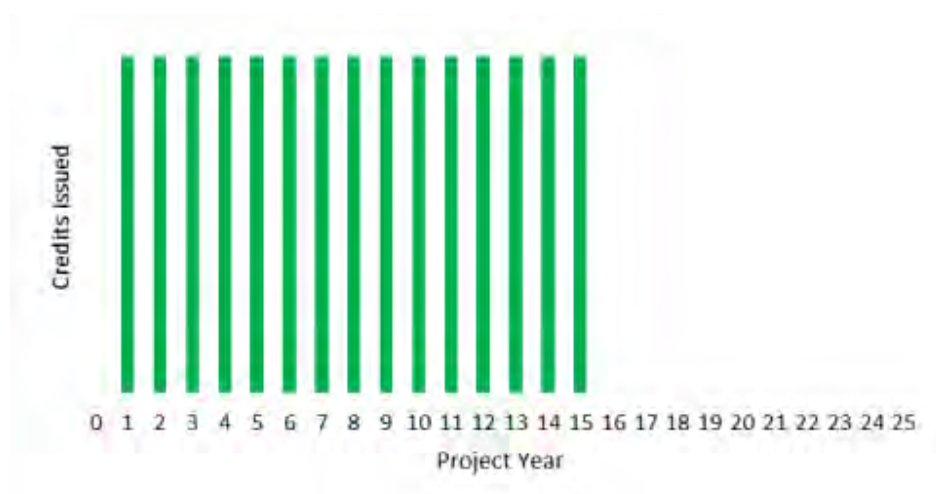


Figure 9 - Schedule 2, 3 and 4 - Total ACCUs apportioned over 15 years

The **reporting period** is the period within a crediting period when reports must be submitted to the CER. The reporting period is nominated by the project proponent on application. There are usually numerous

reporting periods within each crediting period and the first reporting period begins at the start of the crediting period. Reports must be prepared at least every 5 years and reports must be prepared within 6 months of the end of each reporting period.

Figure 10 is a graphic representation of the crediting period and the reporting period.

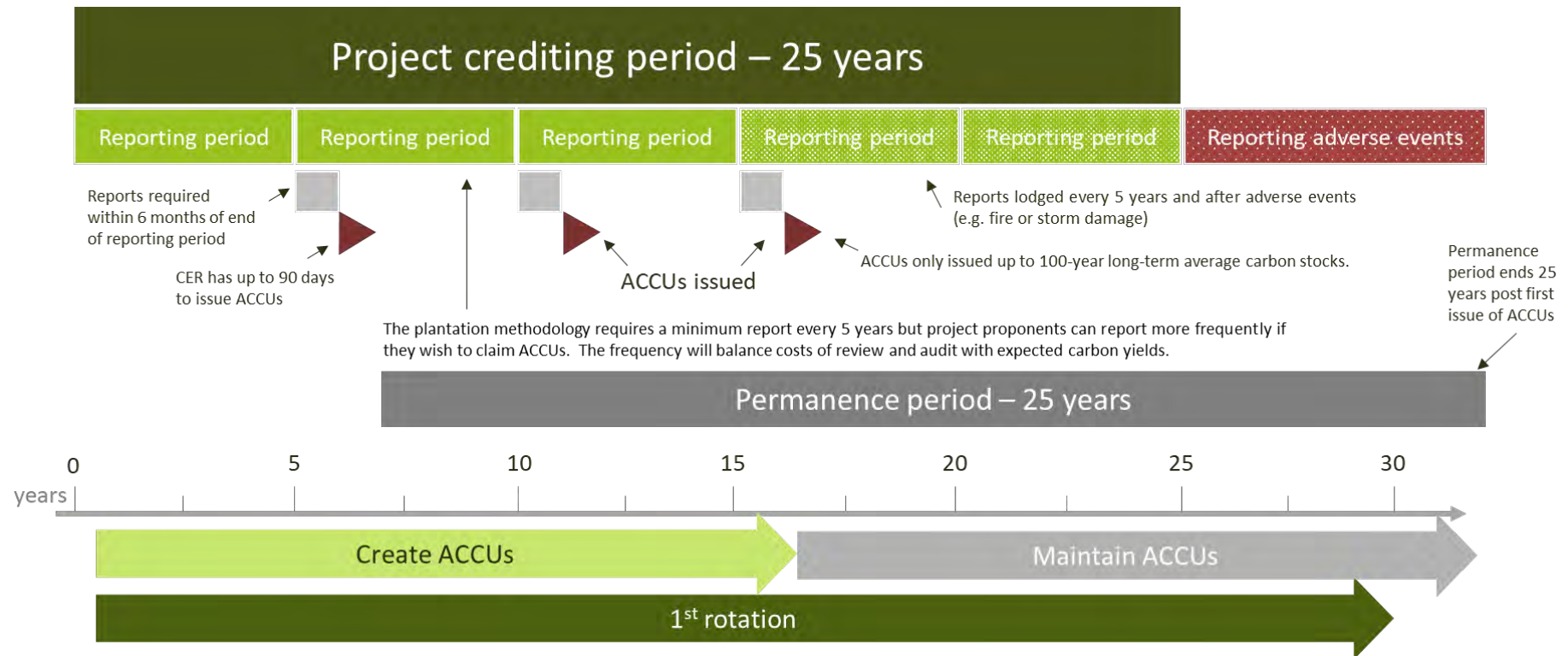


Figure 10: Crediting period and reporting periods for a long-rotation plantation

Permanence – maintaining stored carbon

Permanence obligations refer to the requirement to maintain sequestered carbon for which ACCUs have been issued.

All vegetation carbon projects are subject to permanence obligations and these obligations run with the land. The project originator decides whether they wish to maintain permanence obligations for either 100 or 25 years when they register the project. The regulator does not allow changes to permanence choices once the project has been registered. The longer permanence timeframe enables a greater amount of ACCUs to be claimed, but also commits the land to this land use for 100 years.

Permanence obligations run with the land and mean maintaining the carbon stores for 25 or 100 years.

Project proponents are required to provide an explanation of actions they have taken or will take to ensure the carbon sequestered and credited from the project for the permanence period is protected. A permanence plan is required:

- at project registration
- as part of the first offsets report following years 8 and 24 of the crediting period.

The end of the permanence period is the end of the carbon project. Following this, the landowner has no further obligation to maintain trees on their land.

Audits

Periodic audits (at least three over a 25-year period) are undertaken to ensure that the trees are where the proponent indicates and managed according to their plans. The audits are conducted by an independent party and can cost upwards of \$10,000.

Protecting your plantation

The proponent also needs to take actions to ensure the carbon in the plantation is maintained.

Risk management (pests, fire, maintenance)

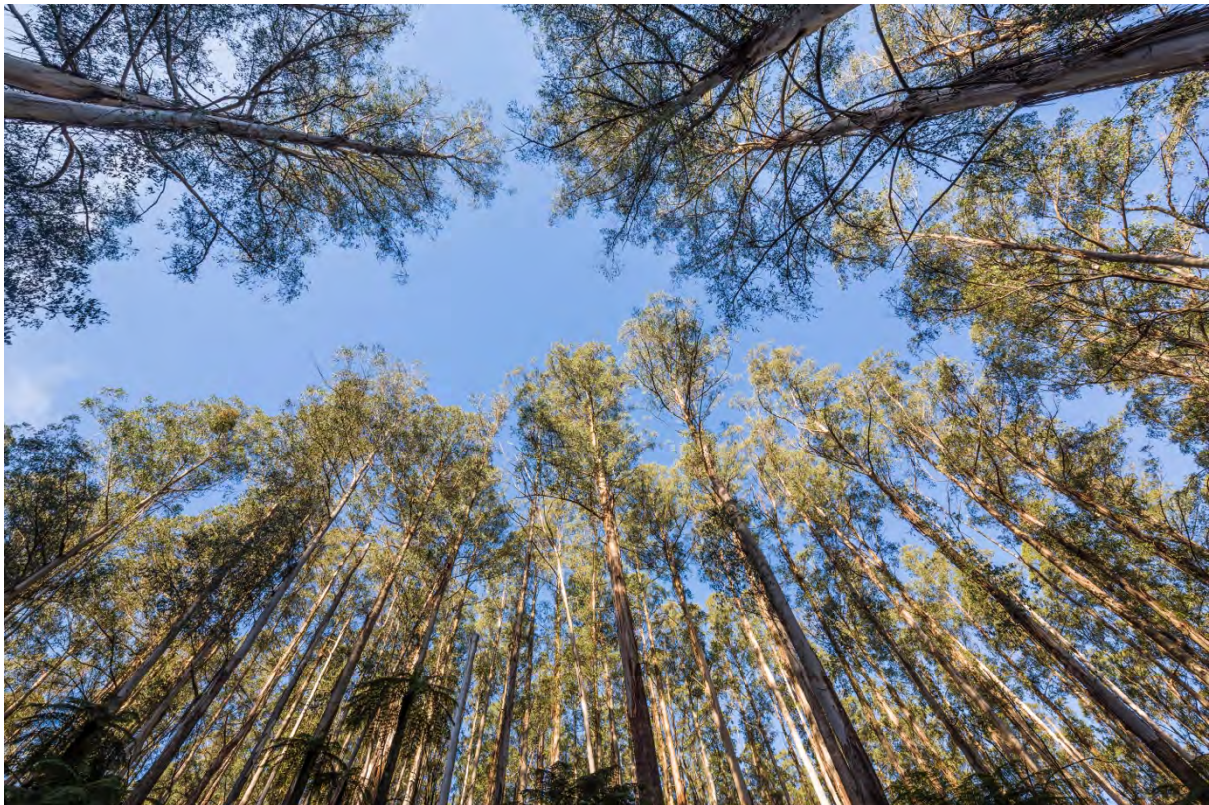
Disturbances such as fire, drought, disease or damage by pests may reduce carbon stocks. If these occur, the project manager is obliged to notify the CER and report on the area impacted (for each CEA) with estimates of carbon stock immediately following the event using FullCAM. If ACCUs have been issued, and the estimated carbon stock following the event is below that amount because of a disturbance event, no further ACCUs can be issued until the carbon stocks in the plantation reach the level prior to the disturbance.

The CER can place a Carbon Maintenance Obligation (CMO) on the project when a significant event decreases carbon stocks. In the event of long loss of carbon, for example the land is cleared and not replanted, the proponent should report the reduced carbon stocks to the CER and discuss plans to restore or replace them. There may also be a requirement to relinquish or purchase additional ACCUs.

Silviculture – growing trees well

Silviculture is the science and art of growing trees to meet the objectives of the landowner. Following selection of the most appropriate species, good silviculture involves ensuring the site is properly prepared, the seedlings are planted, and the forest managed to ensure the best possible survival and growth outcomes. Silviculture continues throughout the life of the plantation to maximise tree growth, generate the desired products, and to achieve other outcomes sought by the landowner (such as shelter for livestock).

The section on *Finding more information* provides some resources to learn more about plantation silviculture.



Getting value for your carbon

You have many options when it comes to deciding on the best path for creating your own tree plantation. This section outlines some of the things that should be considered.

Short-term cash flow

One of the biggest advantages of registering a carbon project is the potential to realise the cash value of the carbon sequestered early in the life of the plantation project. This makes a big difference to the long-term financial outcome of a plantation investment, as the two graphs (Figure 11 and Figure 12) demonstrate. Figure 11 shows the cash returns from the establishment and management of a 100-hectare, long rotation softwood plantation. Although there are returns from two thinning events, at ages 14 and 21, positive returns from the investment are only realised at final harvest at age 30. Figure 12 shows the same softwood plantation but includes the returns (and costs) from the sale of ACCUs early in the life of the plantation – positive cashflow is achieved at age 12.

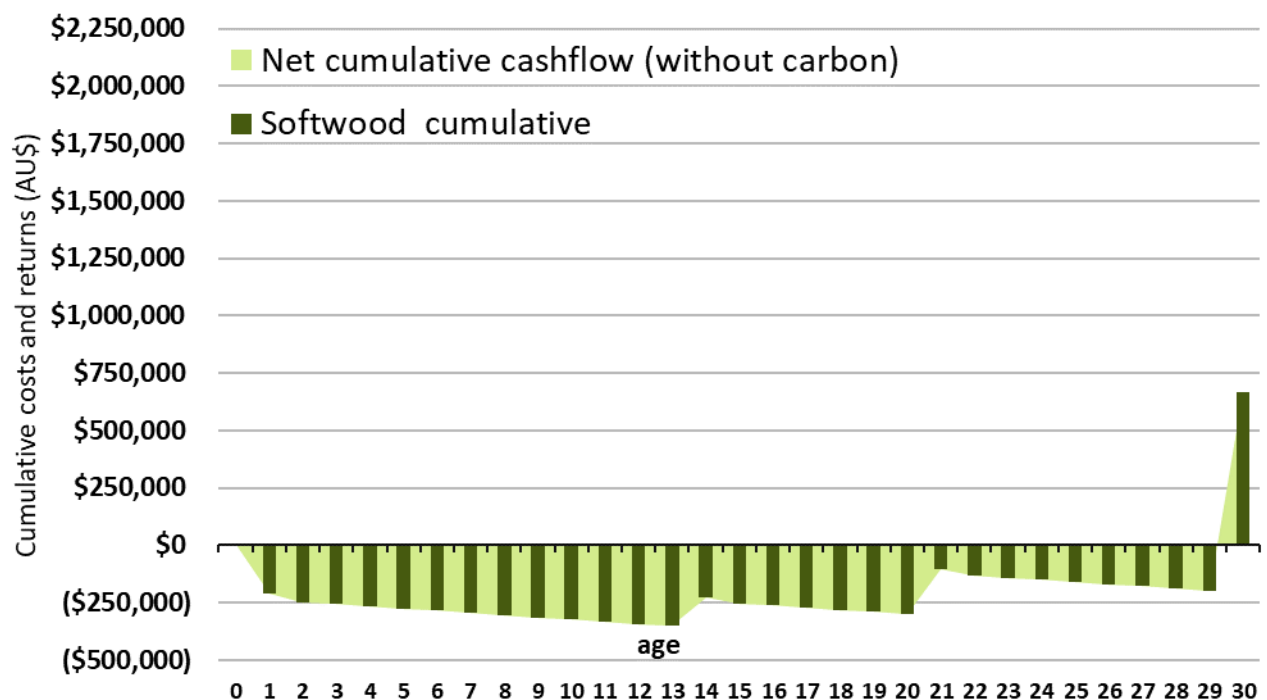


Figure 11: Cumulative cashflow without carbon)

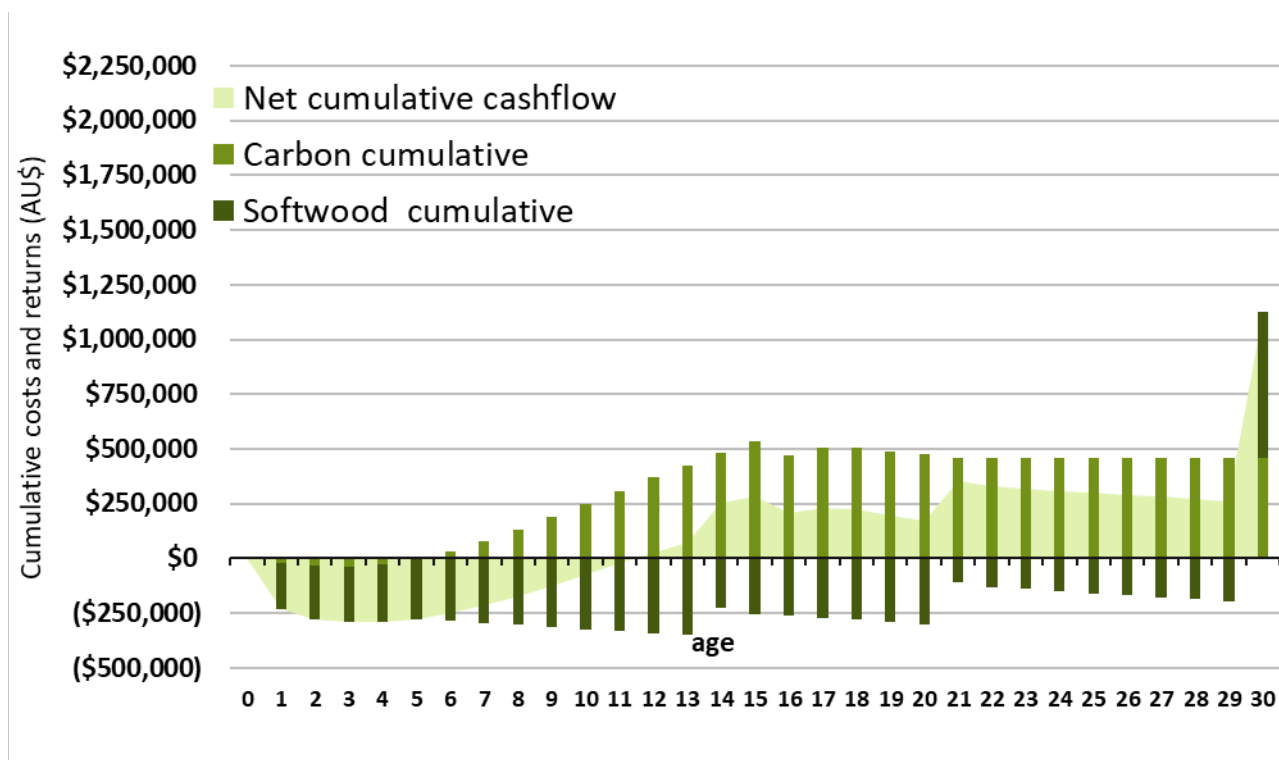


Figure 12: Cumulative cashflow with carbon

Net zero your farm/products

Rather than sell ACCUs, you may prefer to retain the carbon in planted trees to offset your farm's emissions. This option may enable you to sell products into markets where the ability to demonstrate net zero, or low emission production is important. The carbon accounting rules for a net zero farm or net zero products are still being developed and vary between markets and industries. Keeping good records and using the carbon accounting methods indicated above can give you a good base for meeting the requirements of different markets.

Who does what?

When deciding how you derive value from carbon and timber production you need to carefully consider your own situation. If you struggle to fill out forms and write reports, you may be better off getting someone else to help you but that will come with a cost, which could be in the form of cash or some of the ACCUs.

Do it yourself

You can choose to manage the whole plantation activity yourself, including registering the carbon project with the ERF and getting the trees in the ground. An advantage of this is that you own the whole project and can maintain control over all aspects. There is a lot to learn to be able to do this, and this guide is just the first step. You might consider engaging with some carbon and plantation specialists for advice.

Collaborating with others

There may be an opportunity to work with your neighbours to collectively establish a plantation area. Doing so may help to gain some efficiencies if the work is divided amongst yourselves and it may be cheaper if you can buy a bigger lot of seedlings, engage contractors for spraying to cover a larger area for planting. It would be important to have a clear agreement with all parties to make sure everyone is on the same page.

Leasing the land and others do everything else

Some companies offer to pay an annual rental fee and they cover the cost of plantation establishment and carbon project registration, but they own the carbon. This means that you can still gain the other benefits of having trees on your farm, but don't incur the costs. It is a good, low risk option, but you need to understand all of the details in the agreement to ensure you are going to achieve your objectives and get the value you want.

Joint venture

Another option may be to enter a joint venture arrangement with a timber or carbon company. Under such an arrangement, the two parties would determine who does what in regard to the plantation project and would agree on the distribution of returns from the carbon and timber.

Offtake agreements – others take all the carbon or timber

Offtake agreements are where a third party pays you for some or all the ACCUs or timber you produce, usually at a fixed price. They reduce the downside risk associated with changes in the market price because you know the price you will get, but depending on the arrangement, and the market at the time, the market may rise, and you miss out on the difference (and the contrary is true as well).

Can I work with my neighbours?

You can work collectively and collaboratively with neighbours by jointly registering your projects. Each landholder will have to lodge all the forms to show that they have legal ownership and that others with interests in the properties, such as mortgage holders have provided consent. Obtaining these forms across a broader group of people may take time but as noted above, you can obtain efficiencies on establishing, maintaining, and harvesting as well as reducing the costs of auditing and preparing reports to claim ACCUs.

It is important that other aspects such as the timing of claiming ACCUs, the basis of cost sharing (some may want to do all the work themselves, others hire contractors), and the allocation of ACCUs generated is understood and agreed under these arrangements. It may be easier for you to work with an 'aggregator' who joins your project to others to obtain these benefits, but they will charge a fee, which can be cash, a portion of ACCUs, or a combination of both.

Financial assistance programs

The Australian and Victorian Governments have announced programs to promote establishing plantations. A brief summary of these incentive programs are provided below.

It is worthwhile subscribing to the Gippsland Forestry Hub mailing list in order to keep abreast of funding opportunities as they develop.

Australian Government – Regional Investment Fund Plantation Loan

The Regional Investment Fund Plantation Loan program provides up to \$2.5m for farmers to purchase land, prepare plantation sites, re-establish black summer bushfire impacted plantations and pay for other infrastructure, insurance and other costs related to establishing the plantation.

Key aspects

Maximum amount	\$2.5m
Minimum area	30 hectares (single or multiple blocks)
Variable rate	2.62%
Term	20 years
Interest only term	Years 1 - 13
Principal and interest	Years 14 - 20
Extra payment fee	Nil
Application fee	Nil
Early settlement fee	Nil
Redraw	Not available
Percentage of total debt	> 50% with a commercial lender
Plantation for harvest	Trees must be planted for commercial wood production

Registering carbon project considerations

Due to the 'newness' requirements when registering plantation projects, it is advisable to **defer applying for the Regional Investment Fund Plantation Loan until the carbon plantation project has successfully been registered with the CER.**

Find out more at <https://www.ric.gov.au/plantation>

VicForests – Farm Forestry

VicForests is delivering the farm forestry parts of the Victorian Government's Farm Forestry Plan. VicForests are currently reviewing grant applications for pilot sites. A larger farm forestry program and new grant opportunities are expected soon.

Find out more at <https://www.vicforests.com.au/vicforest-forest-management/farm-forestry>

Australian Government - \$86m incentive

The current Australian Government has indicated that it intends to redirect \$86m in grant funding announced in the February 2022 budget towards plantations on farms. The details of the program have not yet been announced.



Case study overview

The following 3 case studies illustrate differences in management approach and species selection.

The case studies estimate ACCU volumes and cashflows based on indicative costs and revenues from timber production at the time of preparing this report. The carbon price for estimating carbon revenues is set at \$30/ACCU. We cannot forecast the future price of ACCUs and historical pricing does not predict future value.

The 3 case studies are:

- Case Study 1 – Long rotation hardwood
- Case Study 2 – Long rotation softwood
- Case Study 3 – Aggregation of 5 landholders

Each landholder needs to consider their own situation, and gain estimates of costs and obligations that apply to their situation. We recommend that you seek independent financial and legal advice prior to commencing any project.

Case Study 1 - Long rotation hardwood

Project description

Anne owns a 30-hectare property within 10 kilometres of Orbost, in the East Gippsland Shire. She doesn't live on the property but has owned it for many years and is now keen to plant as much of it as she can to native hardwood species, and she chooses 'spotted gum'. Anne has been building her knowledge and skills in the area of hardwood plantations and is now learning about carbon sequestration with the aim of managing the whole project herself. The nearest hardwood mill is 25 km from her property.

Key aspects

Project area	25 hectares (plantable area)
Approach	Species: <i>Corymbia maculata</i> 1st thinning – Age 15 2 nd thinning – Age 20 harvest at 34 years
Permanence period	25 years
Total ACCUs	2,415 units

Project structure

As Anne is intending to take on the whole project herself, the project structure is straightforward; Anne will engage local businesses to source what is needed (such as seedlings and fertiliser) and to provide machinery and labour when required.

Following the development of her plantation plan, Anne has made use of a local forestry professional to provide feedback on the plan. She lodges the Ministerial Notification and registers the project with the ERF after running FullCAM yields on the areas planned. She engages contractors to grow plants and prepare the ground once the project is registered.

Roles and responsibilities

Landholder	Project service provider
• Make land available • Develop plantation plans for (and with) each landholder. • Co-ordinate all sourcing of seedlings, planting, making sure trees grow well and harvesting • Provide funds and resources • Protect carbon for permanence period • Receive ACCUs • Receive returns from harvest	• Carbon modelling and reporting • Receive fees for services

Carbon credit yields

The total ACCU yields for this example are 2,415 units. Figure 13 presents the accumulation of ACCUs throughout the life of the project. In comparison with the case studies 2 and 3, the generation of ACCUs is much lower because of the species selection; there is not a specific model in FullCAM for this hardwood species, so it is grouped under a generic model and the carbon estimate provided is very conservative.

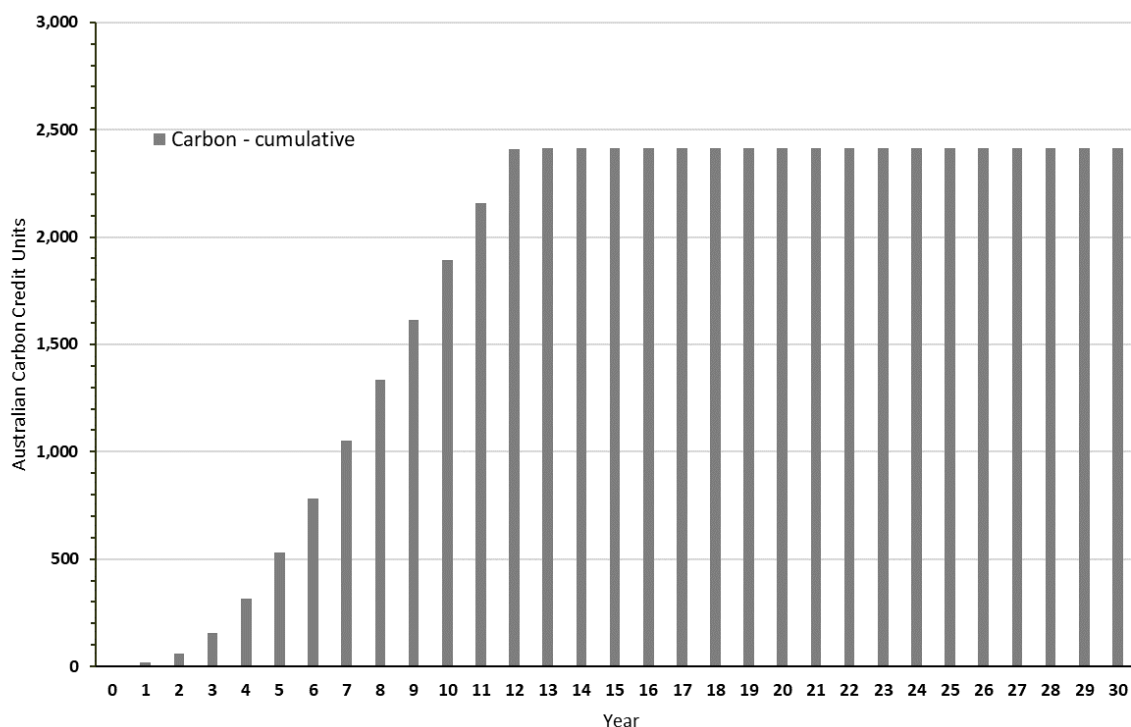


Figure 13: Cumulative yield of Australian Carbon Credit Units

Estimated revenue and costs

The following estimates do not include the cost of land as it is assumed in this case study that Anne owns the land outright.

Incorporating the returns from timber harvesting and the sale of all ACCUs generated (at \$30/ACCU), the total revenue from this example is \$1,386,725 with total costs coming to \$627,927 (Table 1). This leads to a return of \$831,262 at the end of the project.

The internal rate of return, based on a discount rate of 7.0%, is:

- 8.1% for timber and carbon combined
- 8.0% for timber alone.

In terms of cashflow, the project only becomes cash-positive in the final year. This is due to the low quantity of ACCUs generated and the costs of harvesting the first and second thinnings outweighing the returns. The final return, however, is significant. Annual cashflow is presented in Figure 14 and cumulative cashflow is presented in Figure 15. The total returns from carbon are minimal in this project; the returns are around \$10,000 greater than the total carbon costs.

Table 1: Revenue and costs

Operating inflows					Total (30 years)	
<u>Timber</u>					t	\$
Hardwood pulp and log					11,375	\$ 1,386,725
Total timber revenue						\$ 1,386,725
<u>ACCUs</u>					ACCUs	\$
Hardwood - long - spotted					2,415	\$ 72,464
Total carbon revenue					2,415	\$ 72,464
Total Revenue						\$ 1,459,189
Operating outflows					Total (30 years)	
<u>Timber</u>						\$
Establishment (preparation and planting)						\$ 50,000
Property maintenance						\$ 43,500
Silviculture						\$ 17,750
Forest management						\$ -
Roading, harvest and haulage						\$ 277,387
Property - other						\$ 177,000
Total Timber expenses						\$ 565,637
<u>Carbon</u>						
Carbon registration and reporting						\$62,290
Total operating outflows						\$627,927
NET total operating cashflows						\$ 831,262

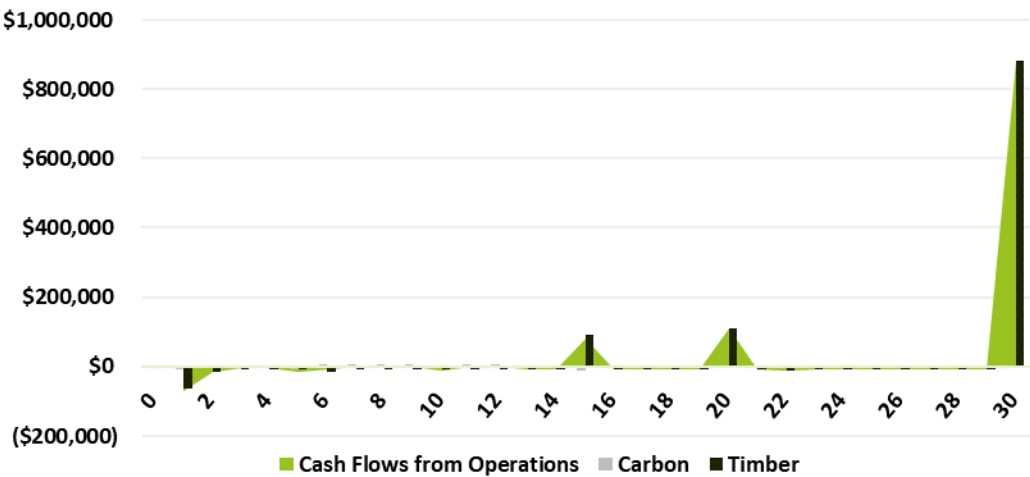


Figure 14: Annual cashflow

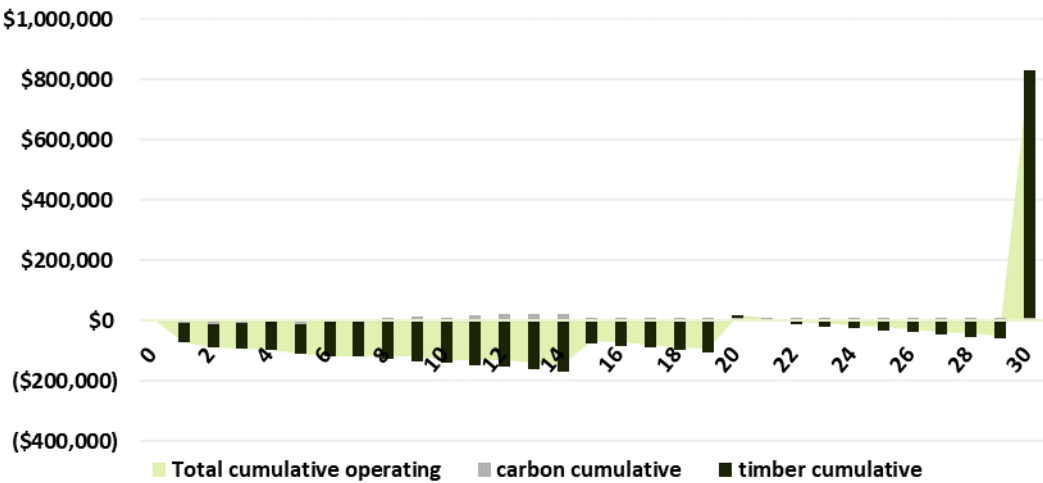


Figure 15: Cumulative cashflow

Case Study 2 - Long rotation softwood

Project description

Mary and Roy own a 50 hectare property in the South Gippsland Shire, located about 20 kilometres east of Leongatha. Their main farm activity is grazing cattle and they are interested in diversifying their on-farm income and reducing their emissions profile. Neither of them knows much about commercial plantations, so they have engaged Julie, an experienced carbon and plantations professional, to assist with planning, carbon modelling, establishing the plantation and registering the carbon project. After site inspections and mapping, Julie recommends that 20 hectares of the property be planted to radiata pine. The nearest softwood sawmill is 85km away.

Key aspects

Project area	20 hectares (plantable area)
Approach	Species: <i>Pinus radiata</i> softwood plantation 1st thinning – Age 14 2 nd thinning – Age 21 harvest at 30 years
Permanence period	25 years
Total ACCUs	5,669 units

Roles and responsibilities

Landholder	Project service provider
• Make land available • Provide funds and resources • Protect carbon for permanence period • Receive ACCUs • Receive returns from harvest	• Develop plantation plans for (and with) each landholder. • Co-ordinate all sourcing of seedlings, planting, making sure trees grow well and harvesting • Carbon modelling and reporting • Receive fees for services

Carbon credit yields

The total ACCU yields for this example are 5,669 units. Figure 13 presents the accumulation of ACCUs throughout the life of the project.

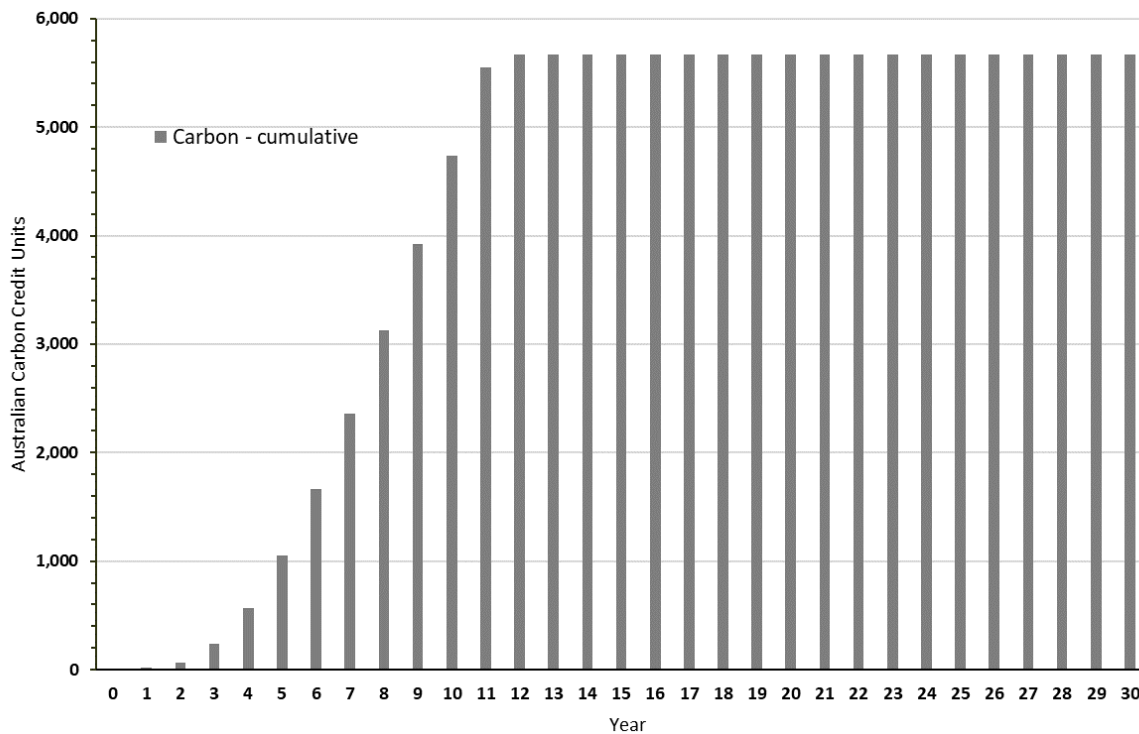


Figure 16: Cumulative yield of Australian Carbon Credit Units

Estimated revenue and costs

The following estimates do not include the cost of land as it is assumed in this case study that Mary and Roy own the land outright.

Incorporating the returns from timber harvesting and the sale of all ACCUs generated (at \$30/ACCU), the total revenue from this example is \$880,575 with total costs coming to \$597,205 (Table 2). This leads to a return of \$283,370 at the end of the project.

The internal rate of return, based on a discount rate of 7.0%, is:

- 8.0% for timber and carbon combined
- 3.9% for timber alone.

In terms of cashflow, there are considerable costs at the start of the project relating to site preparation and planting, but the revenue from the sale of ACCUs early in the life of the project mean that it becomes cost-positive at around year 14. Annual cashflow is presented in Figure 17 and cumulative cashflow is presented in Figure 18.

Table 2: Revenue and costs

Operating inflows					Total (30 years)	
<u>Timber</u>					t	\$
Radiata pulp and log					9,600	\$ 710,500
Total timber revenue						\$ 710,500
<u>ACCUs</u>					ACCUs	\$
Radiata					5,669	\$ 170,075
Total carbon revenue					5,669	\$ 170,075
Total Revenue						\$ 880,575
Operating outflows					Total (30 years)	
<u>Timber</u>						\$
Establishment (preparation and planting)						\$ 40,000
Property maintenance						\$ 34,800
Silviculture						\$ 11,600
Forest management						\$ 23,200
Roading, harvest and haulage						\$ 249,136
Property - other						\$ 174,000
Total Timber expenses						\$ 532,736
<u>Carbon</u>						
Carbon registration and reporting						\$64,469
Total operating outflows						\$597,205
NET total operating cashflows						\$ 283,370

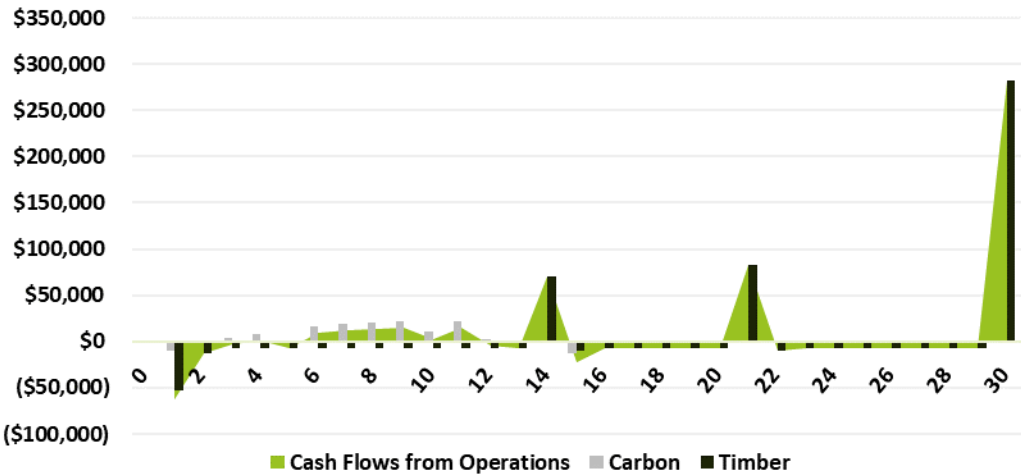


Figure 17: Annual cashflow

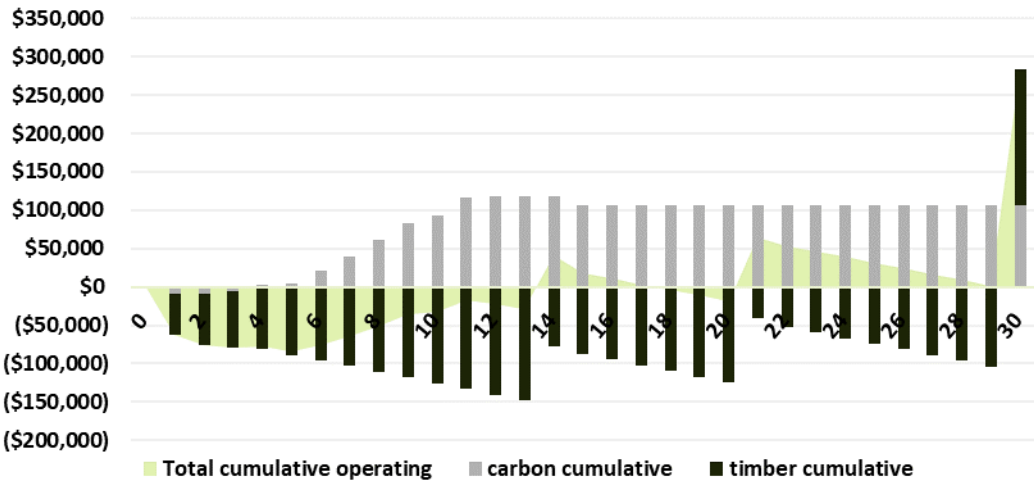


Figure 18: Cumulative cashflow

Case Study 3 - Aggregation of 5 landholders

Project description

Five Gippsland landholders who live within 10 km of each other in central Gippsland agreed to work together to register a carbon project to generate ACCUs and returns from harvesting the timber. They work with a project aggregator to form a collaborative called Gippsland Carbon Group Venture. Each landholder nominates 6 hectares of their land for establishing long rotation softwood plantations. They engage a project service provider to assist with the planning, establishment and management of the plantations, as well as to manage all of the carbon registration and reporting requirements. The nearest softwood sawmill is 100km away.

Key aspects

Project area	30 hectares
Approach	<i>Species- Pinus radiata</i> 1st thinning – Age 14 2 nd thinning – Age 21 harvest at 30 years
Permanence period	25 years
Total ACCUs	8,504 (1,417 per landholder)

Project structure

Figure 19 shows the relationships between the landholders, and the Project Originator.

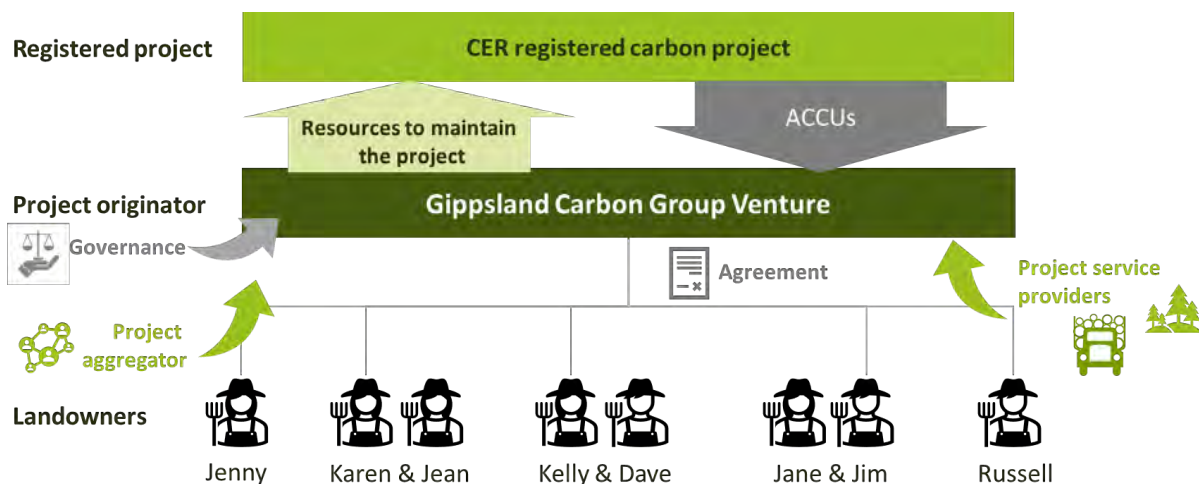


Figure 19: Project relationships diagram

Roles and responsibilities

Landholders	Project aggregator	Project originator 'Gippsland Carbon Group Venture'	Project service provider
• Make land available • Provide funds and resources • Protect carbon for permanence period • Receive ACCUs • Receive returns from harvest	• Can be a local landcare network or other facilitator. • Help facilitate a project by bringing interested landholders together • Act as a 'project manager' for the project	• Is the 'entity' (group, partnership, company, etc) that the group of landholders form • Register the project. • Governance — Financial audit — Legal advice	• Develop plantation plans for (and with) each landholder. • Co-ordinate all sourcing of seedlings, planting, making sure trees grow well and harvesting • Carbon modelling and reporting • Receive fees for services

Considerations

Efficiencies and scale - Joining small projects together has the potential to reduce costs, particularly relating to seedling purchase, establishment and harvesting operations. Aggregations should also reduce the cost of audits as the projects can be audited together and some significant efficiencies can be gained. Against that, to ensure strong governance, the preparation of progress reports, financial reports and annual financial statements for the joint entity may incur additional overheads.

Aligning what each landholder wants to do - Efficiencies are gained when groups of landholders work together such as in the 'Gippsland Carbon Group Venture' example shown above. For that to work well, all the landholders need to agree:

- **Legal structure** to register the project, manage contributions of funds and payment for services and supplies and how the ACCUs will be distributed. Carbon projects will go for at least 25 years so getting professional advice for the right legal structure for your group is a good investment.
- **Commencement date** – not mandatory but it will reduce carbon modelling workload and therefore auditing costs
- **Permanence date** – each carbon vegetation project can only nominate one permanence period: 25 or 100 years. All landholders in the Group need to agree the permanence period prior to registering the project because, once registered, the permanence period is set.
- **Contributions by each landholder** in cash and how much they do themselves. Having a documented agreement prior to commencing the project can avoid problems down the track.
- **How to exit the carbon project** – make sure it is clear how one party can exit the project if their circumstances change and they no longer want to be involved.

Carbon credit yields

The total combined ACCU yields for this example is 8,504 units, which equates to 1,417 units per landholder. Figure 20 presents the accumulation of ACCUs throughout the life of the project.

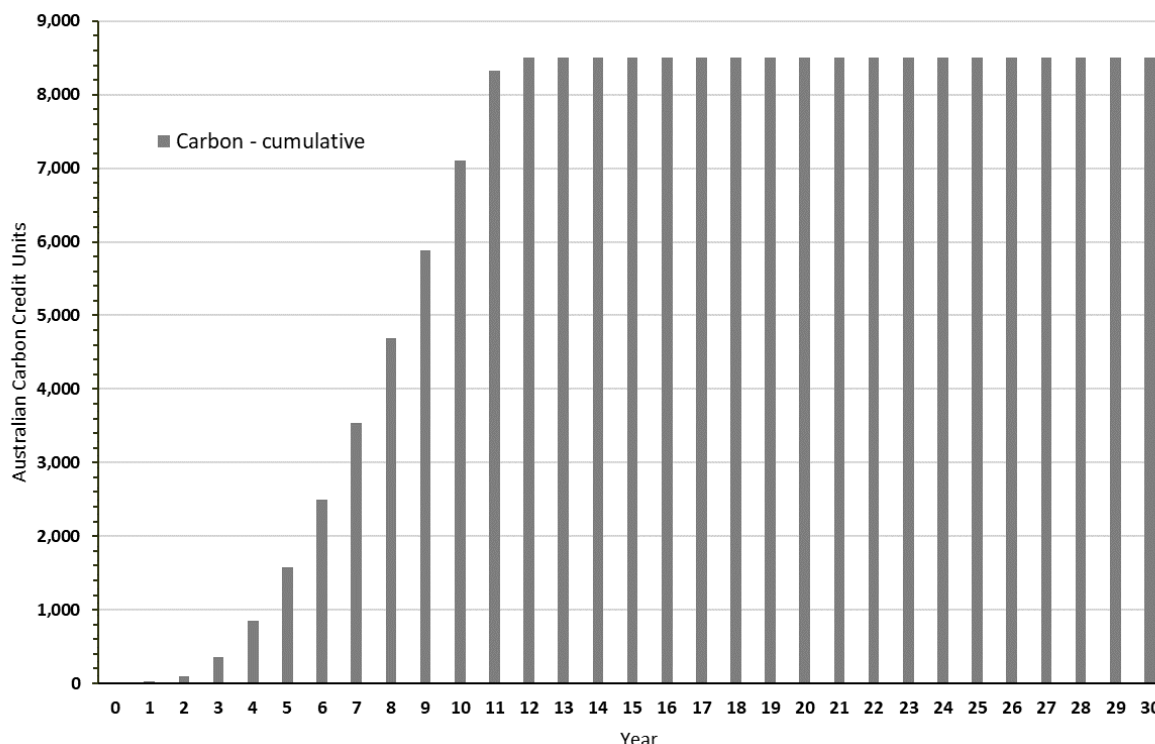


Figure 20: Cumulative yield of Australian Carbon Credit Units

Estimated revenue and costs

The following estimates do not include the cost of land as it is assumed in this case study that each landholder owns the land outright.

Additional costs for the aggregated group include increased legal and financial audit costs. The costs of the carbon project are also higher because there are 5 CEAs and these will incur more work in terms of modelling, reporting and auditing than a single CEA but are likely to be less than five small individual projects. Overhead costs may become diluted if more landholders join the joint project.

Incorporating the returns from timber harvesting and the sale of all ACCUs generated (at \$30/ACCU), the total revenue from this example is \$1,320,862 with total costs coming to \$866,110 (Table 3). This leads to a return of \$454,762, which equates to a return of \$90,952 for each landholder.

Based on a discount rate of 7.0%, the internal rate of return for timber and carbon combined is 7.6%. The internal rate of return for timber alone is 4.7%.

In terms of cashflow, there are considerable costs at the start of the project relating to site preparation and planting, but the revenue from the sale of ACCUs early in the life of the project mean that it becomes cost-positive at around year 10. Annual cashflow is presented in Figure 21 and cumulative cashflow is presented in Figure 22.

Table 3: Revenue and costs

Operating inflows					Total (30 years)	
Timber					t	\$
Radiata pulp and log					14,400	\$ 1,065,750
Total timber revenue						\$ 1,065,750
ACCUs					ACCUs	\$
Radiata					8,504	\$ 255,112
Total timber revenue					8,504	\$ 255,112
Total Revenue						\$ 1,320,862
Operating outflows					Total (30 years)	
Timber						\$
Establishment (preparation and planting)						\$ 60,000
Property maintenance						\$ 52,200
Silviculture						\$ 17,400
Forest management						\$ 34,800
Roading, harvest and haulage						\$ 373,497
Property - other						\$ 194,000
Total Timber expenses						\$ 731,897
Carbon						
Carbon registration and reporting						\$134,204
Total operating outflows						\$866,100
NET total operating cashflows						\$ 454,762

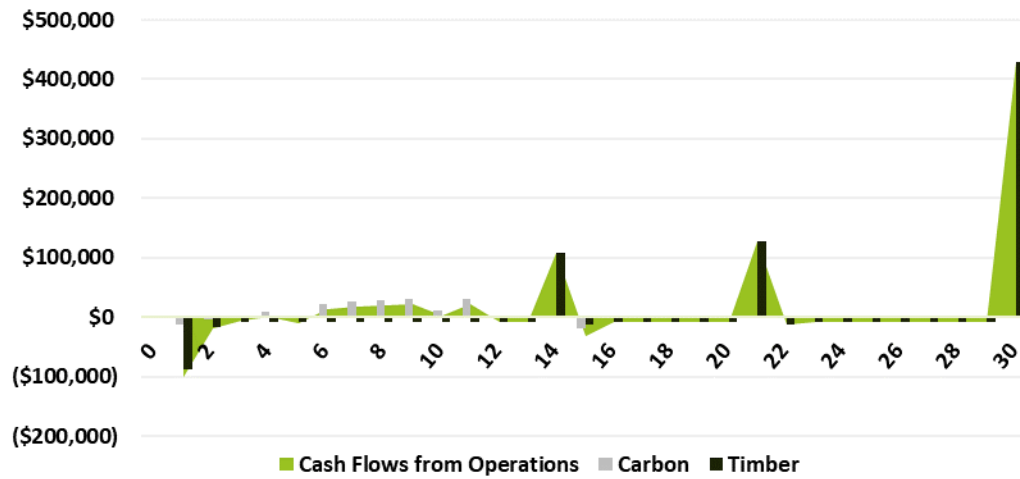


Figure 21: Annual cashflow

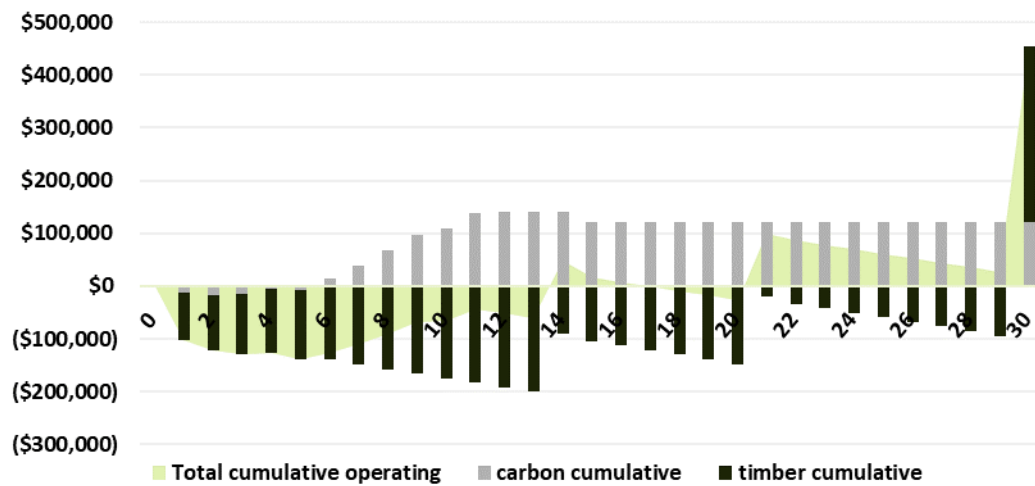


Figure 22: Cumulative cashflow

Finding more information

Here are some sites you can visit to help you learn more about carbon farming and tree plantations.

Carbon sequestration information

[Clean Energy Regulator – Plantation forestry](#) – Web page dedicated to Plantation Methodology that provides more detailed information.

[Understanding your plantation forestry project](#) – Emissions Reduction Fund (ERF) simple method guide for plantation forestry projects registered under the Carbon Credits (Carbon Farming Initiative – Plantation Forestry) Methodology Determination 2022.

[The Plantation Forestry Methodology](#) – Carbon Credits (Carbon Farming Initiative – Plantation Forestry) Methodology Determination 2022. Includes details about project notification to the Minister for Agriculture, Fisheries and Forestry.

[Plantation Methodology Determination – Explanatory Statement](#) – Provides a detailed explanation of the Plantation Methodology determination.

[ERF Forms and Resources](#) – Web page for all forms relating to the ERF, as well as other resources.

[Mapping Guidance](#) – Carbon Farming Initiative (CFI) Mapping Guidelines (Version 5, 2018)

[FullCAM Guidelines for 2022 Plantation Forestry Methodology](#) – Requirements for use of the Full Carbon Accounting Model (FullCAM) with the ERF methodology determination.

[Forest Management Plan Guidance](#) – Outlines the key requirements for a forest management plan required under the methodology

[Financial Assessment Guidance](#) – Assists proponents, and qualified independent persons, to prepare and review financial assessments under Schedules 3 and 4 of the method.

[Carbon Market Institute](#) – Includes a directory of service providers.

Growing plantations and forestry experts

[Factsheet: Plantation forestry projects](#) – Simple 2-page introduction to plantation forestry projects.

[Find a Registered Forestry Professional](#) – To be admitted and remain on the register, Registered Forestry Professionals (RFP's) must have completed a recognised forestry qualification, participate in continuing professional development, and commit to a Code of Ethics.

Find a local agroforestry network

[Gippsland Agroforestry Network](#) – This network is non-profit and interested in developing a profitable and sustainable timber industry in Gippsland, based on the production of wood from farm plantations and private native forests. It brings together farmers, professional foresters, landcarers, nursery owners, contractors, sawmillers, advisors and those who just have an interest.

[Bass Coast Landcare Network](#) – This network collaborates with groups, the community, and partners to provide on-ground services in the delivery of innovative land and environmental management practices in support of healthy and resilient communities and ecosystems for generations to come.

[Farmed Forests of the North East](#) – This network is a growers group within Forestry Australia.

[Ballarat Region Treegrowers Network](#) – This network is a growers group within Forestry Australia.

[Otway Agroforestry Network](#) – This is a landcare group that encourages rural property owners to establish and manage trees for the reasons that matter to them.

Other land use consent requirements

Legislation	Governing body	Outline	Specific obligations
<i>Aboriginal Heritage Act 2006</i> (Vic)	Secretary to the Department of Premier and Cabinet	To protect and conserve Aboriginal cultural heritage. To promote public awareness, understanding and management as an integral part of land and natural resource management. To establish an Aboriginal Cultural Heritage Register to record sites; establish processes for assessment of activities that may harm cultural heritage; promote the use of agreements and establish dispute resolution mechanisms.	Review planned plantation area for areas of cultural heritage sensitivity. If the proposed plantation area is within a specified zone, specialist advice may be needed to survey the site prior to beginning any ground disturbance.
<i>Agricultural and Veterinary Chemicals (Control of Use) Act 1992</i> (Vic) <i>Agricultural and Veterinary Chemicals Act 1994</i> (Vic)	Agriculture Victoria	Imposes controls in relation to the use, application and sale of agricultural and veterinary chemical products, fertilisers and stock foods to protect public health, the environment, users, other activities, and to ensure products are fit for purpose and used in accordance with label requirements.	Agricultural chemical must be used in compliance with container labels and commercial operators must be trained.
<i>Catchment and Land Protection Act 1994</i> (Vic)	Department of Environment, Land, Water and Planning	Provides a framework for the integrated management and protection of catchments; encourages community participation in the management of land and water resources; sets up controls on noxious weeds and pest animals.	Declared weeds and pest animals must be controlled.

Legislation	Governing body	Outline	Specific obligations
<i>Climate Change Act 2010</i> (Vic)	Department of Environment, Land, Water and Planning	Separates ownership of the land from ownership of the trees on the land and enables ownership of the carbon held within trees and rights to harvest trees separately from the land.	This statute may supply an opportunity to separate the ownership of carbon and timber rights from the land.
<i>Country Fire Authority Act 1958</i> (Vic)	Country Fire Authority	Confers on the Authority a responsibility to prevent and suppress fire on all land (urban and rural) outside the Melbourne Metropolitan Fire District, but does not include any forest, national park or protected public land.	Under this legislation, plantation owners must supply their own forest fighting resources.
<i>Flora and Fauna Guarantee Act 1988</i> (Vic)	Conservation Regulator	To establish a legal and administrative structure to enable and promote the conservation of Victoria's native flora and fauna, and to provide for a choice of procedures which can be used for the conservation, management or control of flora and fauna and the management of potentially threatening processes.	Plantation managers have a duty of care to ensure their operations do not affect listed flora and fauna.
<i>Environment Protection Act 2017</i> (Vic)	Environmental Protection Authority	The legislative framework for the protection of human health and the environment from pollution and waste. It sets out principles of environment protection and provides for a general environmental duty to minimise risks of harm to human health and the environment from pollution or waste. Pollution includes smoke, dust and noise. Waste includes anything that is deposited, discharged, emitted or disposed of into the environment in a manner that alters the environment.	Specifies standards for water quality and air quality. Within the Latrobe Valley, the smoke from fires associated with plantation management activities is strictly controlled.

Legislation	Governing body	Outline	Specific obligations
<i>Heavy Vehicle National Law Application Act 2013</i> (Vic)	National Heavy Vehicle Regulator	Enabling legislation for the Heavy Vehicle National Law.	Timber haulage must follow the requirements of this legislation.
<i>Heritage Act 2017</i> (Vic)	Heritage Council of Victoria	The Victorian Heritage Register lists and provides legal protection for heritage places and objects that are significant to the history and development of Victoria.	Plantation managers have a duty of care to ensure their operations do not affect listed heritage values.
<i>Occupational Health and Safety Act 2004</i> (Vic)	WorkSafe Victoria	To secure the health and safety of employees, eliminate risk and to protect the public's health and safety. Provides head of power for development of relevant industry safety codes (i.e. Code of Practice for first aid in the workplace).	All operations are subject to the requirements of this legislation.
<i>Prevention of Cruelty to Animals Act 1986</i> (Vic)	Agriculture Victoria	Prohibits cruelty to animals.	Timber production operations must not cause any cruelty to animals unless otherwise authorised under the <i>Wildlife Act 1975</i> .
<i>Public Health and Wellbeing Act 2008</i> (Vic)	Department of Health and Human Services	Provides for the licensing of commercial business to be registered to administer poisons. N.B. Commercial Pesticide Application licences are administered under the <i>Agricultural and Veterinary Chemicals (Control of Use) Act 1992</i> .	Businesses applying herbicides commercially must hold a licence under this legislation.
<i>Road Management Act 2004</i> (Vic)	Department of Infrastructure and all road management authorities	To establish a coordinated management system that will promote safe and efficient road networks at state and local levels.	Timber extraction operations that have potential to impact traffic flow may need special permission under this legislation.

Legislation	Governing body	Outline	Specific obligations
<i>Water Act 1989</i> (Vic)	Department of Environment, Land, Water and Planning	Controls the use and allocation of water and protects qualities of waterways and their in-stream uses. N.B. permits to alter stream flows and build crossings are administered under this legislation.	Stream crossings for timber extraction roads are likely to require a permit prior to construction under this legislation.
<i>Wildlife Act 1975</i> (Vic)	Conservation Regulator	Protects wildlife and regulates its commercial use.	Permits to destroy or harm wildlife like koalas and swamp wallabies may be needed to ensure successful plantation establishment and authorise harvesting operations in some parts of Gippsland.



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