



Australian Government

Clean Energy Regulator

EMISSIONS
REDUCTION
FUND

Participating in the Emissions Reduction Fund

A guide to the Avoided Clearing
of Native Regrowth method



The Emissions Reduction Fund

The Emissions Reduction Fund is a voluntary scheme that aims to reduce Australia's greenhouse gas emissions by providing incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions.

Emissions Reduction Fund projects must be conducted according to an approved method. A number of activities are eligible under the scheme and individuals and organisations taking part may be able to earn Australian carbon credit units (ACCUs). One ACCU is earned for each tonne of carbon dioxide equivalent (tCO₂-e) stored or avoided by a project. ACCUs may be sold to generate additional income, either to the Government through a Carbon Abatement Contract or on the secondary market.

Why participate?

As well as contributing to Australia's efforts to reduce the amount of greenhouse gas entering the atmosphere and the opportunity to earn ACCUs, running an Emissions Reduction Fund project may offer a range of other benefits for scheme participants. Examples include increases in biodiversity, better air quality, reduced energy consumption or income from electricity generation exported into the grid.

Using this guide

This guide provides an introduction to conducting an Avoided Clearing of Native Regrowth project using the Carbon Credits (Carbon Farming Initiative - Avoided Clearing of Native Regrowth) Methodology Determination 2015, which you can access through the Clean Energy Regulator website. Methods set out the rules for conducting activities under the Emissions Reduction Fund to earn ACCUs.

The guide is complementary to the [Carbon Credits \(Carbon Farming Initiative\) Act 2011¹](#) (the Act), the associated legislative rules, approved method and explanatory statement, but does not replace them. It has been prepared by the Clean Energy Regulator, an independent Australian statutory authority responsible for administering legislation to reduce carbon emissions and increase the use of clean energy.

¹ <https://www.legislation.gov.au/Details/C2016C00727>

Running an Avoided Clearing of Native Regrowth project

An Avoided Clearing of Native Regrowth project involves retaining areas of native forest that would otherwise be cleared in the normal course of events.

In doing so, the project helps to reduce the amount of greenhouse gas entering the atmosphere because carbon is stored in the forest's trees as they grow, instead of being released into the atmosphere upon clearing. The carbon stored is called 'carbon stock', while the overall reduction in greenhouse gases as a result of a project is termed 'abatement'.

The carbon stock held in the project's trees and debris (dead plant material) is calculated using a computer modelling tool called the Full Carbon Accounting Model (FullCAM). FullCAM is used to model a 'baseline scenario' (in which the land would normally be cleared) and a 'project scenario' (in which the land is no longer cleared). The difference between two scenarios is the amount of additional carbon stored because of the project. The net amount of abatement during a project's reporting period is then determined by subtracting any emissions, due to fires, from the amount of carbon stock. The resulting amount of abatement is used to determine the number of Australian carbon credit units (ACCUs) your project may be issued.

The method uses clearing history for evidence of the clearing that would have occurred in the normal course of events.

As a sequestration activity, that is, an activity that stores carbon in vegetation or soil, an Avoided Clearing of Native Regrowth project is subject to a 'permanence obligation'. This means the project must be maintained 'permanently' (for a nominated period of either 100 or 25 years). If a fire or other disturbance occurs in the project area during the permanence period, causing a decline in the amount of carbon stock, regrowth must be managed to allow the carbon stock to return to previously reported values. Alternatively, ACCUs equivalent to the loss of carbon caused by the disturbance must be relinquished.

To conduct an Avoided Clearing of Native Regrowth project and earn ACCUs, make sure you read and understand the method and other legislative requirements. You will need to:

- Download the [Carbon Credits \(Carbon Farming Initiative - Avoided Clearing of Native Regrowth\) Method 2015²](#) and its [Explanatory Statement³](#).
- Download and understand how the [Carbon Credits \(Carbon Farming Initiative\) Act 2011⁴](#) (the CFI Act) the Carbon [Credits \(Carbon Farming Initiative\) Regulations 2011 \(the CFI Regulations\)⁵](#) and the [Legislative Rules⁶](#) apply to a project.

² <https://www.legislation.gov.au/Details/F2015L00164>

³ <https://www.legislation.gov.au/Details/F2015L00164/Explanatory%20Statement/Text>

⁴ <https://www.legislation.gov.au/Details/C2016C00727>

⁵ <https://www.legislation.gov.au/Details/F2015C00658>

⁶ <https://www.legislation.gov.au/Details/F2016C00128>

- Download and use the [Full Carbon Accounting Model \(FullCAM\)⁷](#) software package (requires Internet access and a Windows-capable computer) and the [Guidance for using FullCAM⁸](#) in Avoided Clearing of Native Regrowth projects.
- Ensure you have the legal right to conduct your project as well as the consent of everyone with a legal interest in the land (eligible interest holders).
- Apply to register as a scheme participant, to open an account in the Australian National Registry of Emissions Units (ANREU) and to conduct an Avoided Clearing of Native Regrowth eligible offsets project.
- Determine if your project meets the eligibility requirements as per Part 3 of the method.
- Conduct management activities as required by Part 3 of the method.
- Set up record keeping and monitoring systems for your project as required by Part 5 of the method.
- Estimate the average annual abatement of your project (also known as the Forward Abatement Estimate) and obtain an audit schedule for your project from the Clean Energy Regulator.
- Engage a Category 2 Greenhouse and Energy Auditor early on in your project. You will need to submit audits of your project according to your audit schedule.
- Determine the amount of carbon your project stores and the amount of net abatement resulting from your project using the calculations in Part 4 of the method.
- Submit your offsets reports as well as your applications for ACCUs to the Clean Energy Regulator for assessment.

What does an Avoided Clearing of Native Regrowth project look like?

An Avoided Clearing of Native Regrowth project avoids emissions by protecting areas of native forest that would otherwise be cleared in the normal course of events.

Projects can be run on land that has:

- Native forest cover, in any area of Australia where there is FullCAM data. Plantations and environmental plantings are excluded.
- Clearing permitted. The land must have been cleared at least twice in the past. It must also have been used for grazing or cropping after each clearing event, before native forest regenerated. If the land has never been cleared, it is ineligible under this method.
- Evidence of the land's clearing history, regeneration history and land use history, among other requirements.

⁷ <http://www.environment.gov.au/climate-change/greenhouse-gas-measurement/land-sector>

⁸ <http://www.environment.gov.au/system/files/pages/646d9bec-94b7-4a3b-ad48-f2296f4ac3b0/files/fullcam-guidelines-avoided-clearing-native-regrowth.pdf>

Once your project has been approved the requirements to run the project are minimal, apart from ongoing management of the native forest. The amount of carbon stored in the native forest is modelled using FullCAM in the last month of each reporting period for your project.

All the details of what is required for a project to be considered eligible by the Clean Energy Regulator, including the type of evidence showing how the project area meets those requirements, are in Part 3 of the method.

What is native forest cover?

Land has native forest cover if the land is dominated by trees that are located within their natural range, have attained a crown cover of at least 20% of the area of land and have reached a height of at least 2 metres.

Crown cover is the amount of land covered by the outer edges (diameter) of a tree crown or group of tree crowns. You must demonstrate that you have >20% canopy cover.

Setting up and running an Avoided Clearing of Native Regrowth project

How an Avoided Clearing of Native Regrowth project is set up and run is critical for calculating how much carbon is stored, which in turn determines the amount of abatement that has occurred. Parts 3 and 4 of the method and the explanatory statement describe in detail how to set up a project, and how to calculate the amount of carbon stored and the amount of net abatement that has occurred.

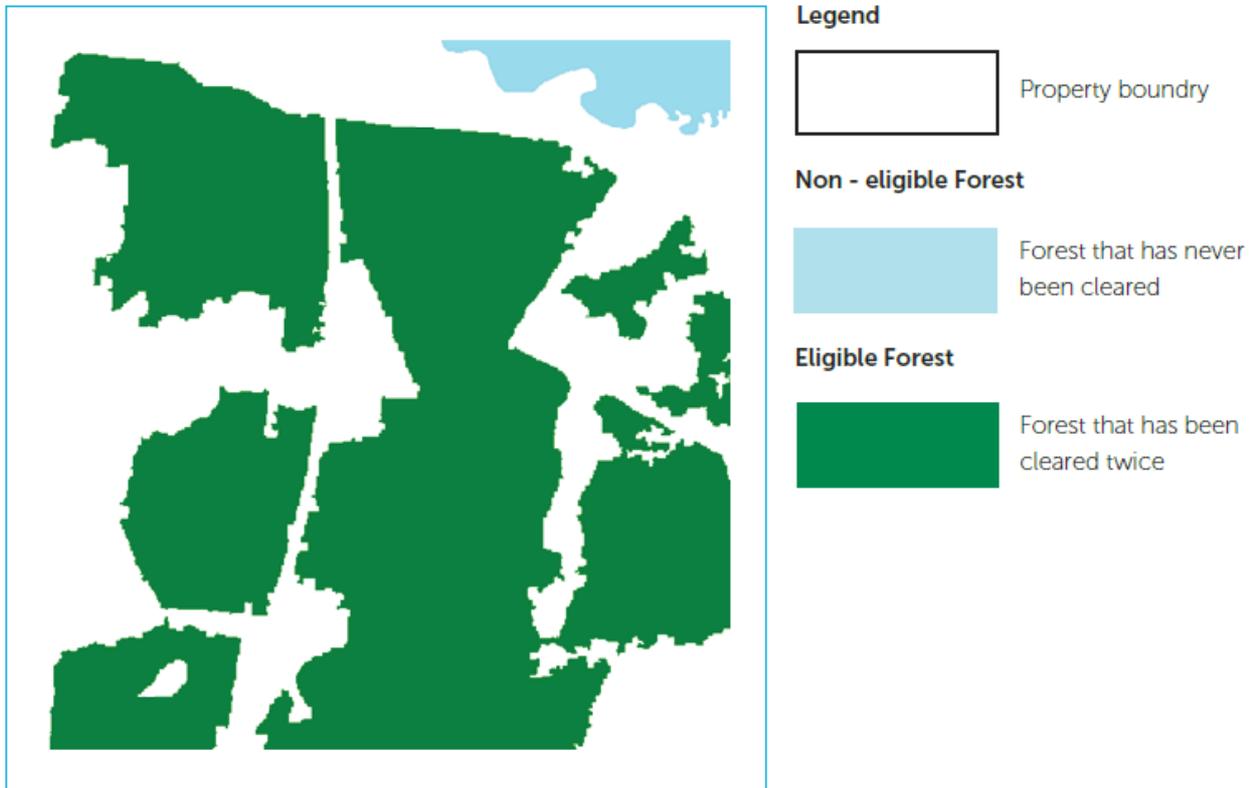
Setting up and running an Avoided Clearing of Native Regrowth project can be divided into the following parts:

Establish the project area and determine its eligibility

The first step in an Avoided Clearing of Native Regrowth project is to assess whether your land is eligible and establish the proposed project area (see Part 3, Division 2 in the method for full requirements).

Every part of the land used for the project must fulfil the method's requirements. Unlike similar projects, such as Avoided Deforestation, defining exclusion areas (areas of land on which the project is not implemented) is not required in Avoided Clearing projects. Figure 1 shows an example of land that is eligible. The green areas in this figure represent areas of eligible forest, while the blue area is ineligible forest, because it has never been cleared, the white area is non-forest land.

Figure 1: Land on which a project can be carried out



Evidence of native forest cover in your project area is essential (Section 10 in the method). Evidence of native forest cover must include a list of the dominant tree species on the land, plus written evidence that they are within their natural growing range, and may include aerial remotely sensed imagery, or the most recent native forest cover data layer in the [Carbon Farming Mapping tool](#)⁹.

The method requires you to demonstrate ‘where’ forest clearing can occur, and to estimate ‘when’ the clearing would occur. This information is essential for determining the eligibility of the project. To demonstrate the ‘where’; you need to provide the Clean Energy Regulator with evidence that unrestricted clearing is permitted on the land (Section 12). You will also need to provide evidence (Section 14) of at least two past clearing events in each carbon estimation area (see below). Where there has been more than two past clearing events, you need to only provide evidence of the two most recent clearing events.

This evidence is needed because the method rests on the assumption that land that has been cleared twice is likely to be cleared again. If the land has been cleared only once, and then allowed to return to native forest, it cannot be assumed that clearing the land provided any economic benefit to the landholder; if it did, the land would presumably have remained cleared. If the land is cleared a second time, however, it is assumed that the landholder benefited economically from the first clearing, and is thus likely to clear the area a third time.

⁹ <http://ncat.climatechange.gov.au/cmt/#/Home>

To estimate the ‘when’; you need to provide evidence to demonstrate when the regeneration began across the carbon estimation areas after each clearing event (Section 15). Your evidence must also show that regeneration began (or is likely to have begun) in a particular calendar year. This information is used to determine the age of the forest the last time it was cleared, which in turn is used as a proxy for the next time it will be cleared (See timing of clearing and regeneration, next page). This information is important for FullCAM modelling purposes.

Finally, you must provide evidence of land use history (Section 17) to show that grazing or cropping did occur after the two most recent clearing events in each carbon estimation area.

Stratify the project area into carbon estimation areas

As part of determining your project’s eligibility, you need to divide, or ‘stratify’, the project area into carbon estimation areas (CEAs) as per Part 3, Division 3 in the method. This must be done before you submit your application, because each CEA must have certain characteristics to be eligible for inclusion in your project (Section 20–21 in the method). Once defined in the application for the project, the CEA boundaries cannot be varied.

The CEAs are used to model the amount of carbon stored in your project using FullCAM. Within each CEA there must be the same:

- forest type or vegetation community
- clearing history
- regeneration history.

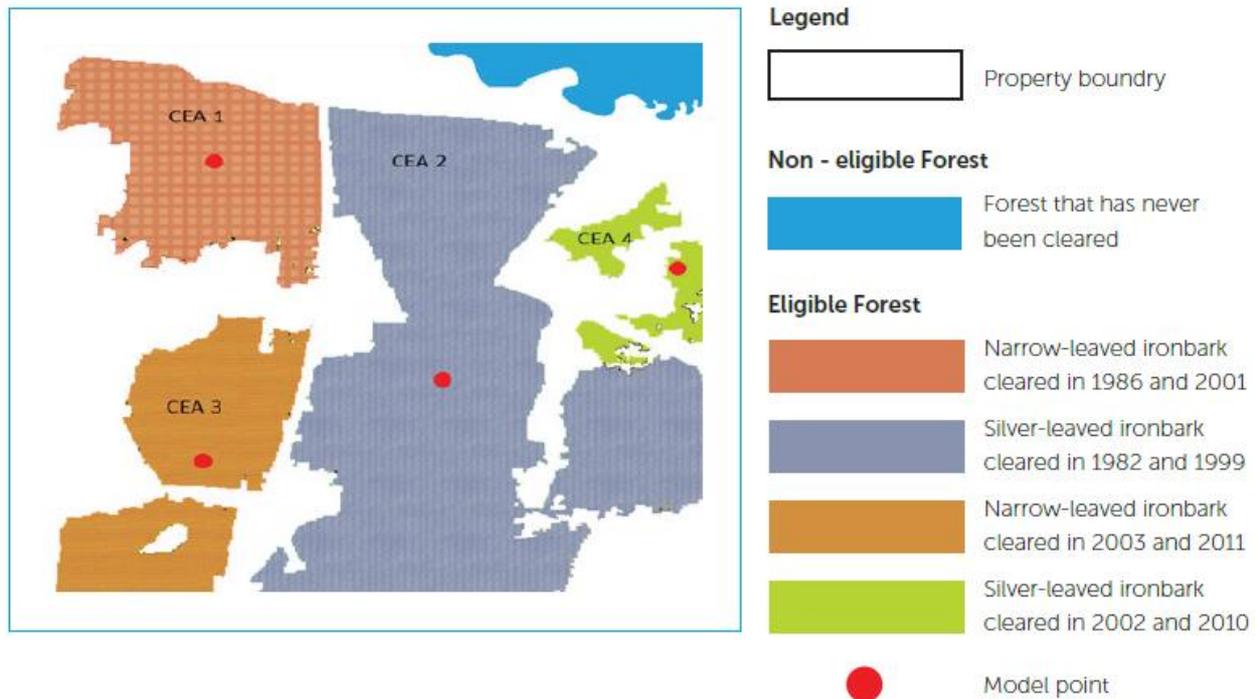
If a CEA varies in these characteristics, then FullCAM cannot model the carbon stored within it accurately, because different areas of land in the CEA will sequester carbon at different rates.

A CEA can be a single area of land or separate areas, as long as they are less than 250 metres apart (Figure 2). The boundaries of each CEA must be defined in accordance with the CFI mapping guidelines and using field surveys, aerial photography, satellite imagery, or maps.

Each CEA must be given a ‘model point location’, which represents the entire CEA and is used to model the carbon stock in FullCAM. The model point should be located roughly in the centre of each CEA.

In Figure 2 the areas of eligible land have been labelled as four different carbon estimation areas (CEAs), each with its own consistent forest type, regeneration and clearing history. CEA 4 is split by a distance of less than 250 metres. The red dots mark each CEA’s model point locations.

Figure 2: Example of model point locations for different carbon estimation areas



Determine the timing of clearing and regeneration

To assess whether your CEAs are eligible to include in the project, you must determine the timing of clearing and regeneration in each one. This information is also required for the FullCAM modelling, and is based on the following two criteria:

- Part 3, Division 3, Subdivision 3 – Timing of clearing and regeneration
- Part 3, Division 4 – First baseline clearing event.

To determine the timing of clearing and regeneration, you must provide the following five values for each CEA as part of your application:

1. the year in which the forest began to regenerate across the CEA after the second most recent clearing event (Section 23)
2. the year in which the most recent clearing event occurred (Section 24)
3. the age of the forest at the most recent clearing event (Section 25)
4. the date on which the forest began to regenerate across the CEA after the most recent clearing event (Section 26)
5. the day on which the first baseline clearing event occurs (Section 27).

It is in your best interests to provide the most comprehensive evidence possible for each of the first four values in this list. If your evidence is incomplete, you must make a conservative estimate of these values instead. By making a conservative estimate, you reduce the net abatement amount when the carbon stock is modelled in FullCAM.

For numbers 1–4 in the list above, the conservative estimate will always be the last year in a given range of years. For example, if you do not have evidence that the forest was cleared in a particular year but do have evidence that it was cleared between 1995 and 1998, then for the purposes of modelling, the forest was cleared in 1998.

If you do not have evidence that the forest in a proposed CEA was most recently cleared in either a particular year, or within a period of no more than three years, then you cannot include that CEA in your project.

First baseline clearing event

The date of the first baseline clearing event is used in the FullCAM modelling of your project's baseline scenario (see 'Calculate project baseline' for more detail).

The first baseline clearing event is the first event that is 'avoided' in the project scenario. Accordingly, it is a clearing event that is modelled but that does not actually occur.

The first baseline clearing event is modelled to occur on 1 January in the year in which the forest reaches the age at which it was most recently cleared.

This is the year in which regeneration began after the most recent clearing (number 4 in the list above), plus the age at which the forest was most recently cleared (number 3 in list above). For example, if the forest was 17 years old when it was most recently cleared in 1998 and it began to regenerate in 2000 then the first baseline clearing event occurs on 1 January 2017 (2000 + 17).

The date of the first baseline clearing event in each CEA must be within a six-year period, which starts on 1 January three years before you submit your application and ends on 1 January three years after you submit your application. For example, if you made your application in 2017, the first baseline clearing event for the CEAs must be between 1 January 2014 and 1 January 2020. If the date does not fall in this range for any proposed CEAs, then they must not be included in your project.

Calculate project baseline

The project baseline represents what would happen if your project did not occur. It provides a point against which any changes in the amount of carbon stored by a project in a reporting period are measured.

For Avoided Clearing of Native Regrowth projects, the project baseline is modelled using FullCAM (Section 35 in the method).

FullCAM models a 'baseline scenario' (in which the land would normally be cleared) and a 'project scenario' (in which the land is no longer cleared) to work out the amount of carbon stored and any

emissions. You therefore need to run two FullCAM plot files for each CEA; one for the baseline scenario and one for the project scenario (see the FullCAM guidance document for details.)

The baseline scenario involves the following projected series of events, repeatedly modelled over a 100-year period:

- regeneration
- clearing
- windrow and burn fires.

A windrow and burn fire describes the burning of debris heaped into windrows after clearing. These are included in the baseline scenario because they are common practice, and because they reduce the size of the debris pool, and therefore the carbon stored in the forest.

The baseline scenario events are modelled to occur over certain intervals, as per Section 36 of the method (see Figure 3).

Figure 3: Interval between projected events



This figure gives an example of the events modelled in the baseline scenario. The first baseline clearing event occurs in 2018 when the trees are aged 11. Windrow and burn fires are projected to occur one year after clearing, and regeneration is projected to occur two years after clearing. The interval between each event is therefore 13 years.

Manage your project

As mentioned in the previous section, you need to model both the baseline scenario and the project scenario in FullCAM. During your project, this must be done for each CEA in the final month of each reporting period (Section 43 in the method).

The net abatement amount generated by your project is then calculated by comparing the two scenarios modelled in FullCAM (see 'Calculate the net amount of abatement').

Like the baseline scenario, the project scenario is also a series of modelled events (Section 38–42 in the method). It involves:

- the regeneration after the most recent clearing event
- thinning events
- fire events
- non-fire disturbance events, such as an insect attack
- additional regeneration events, if a natural disturbance kills all the trees in a CEA.

These events are only modelled as they occur. It is required to include them, because they may have an impact on the project's net abatement.

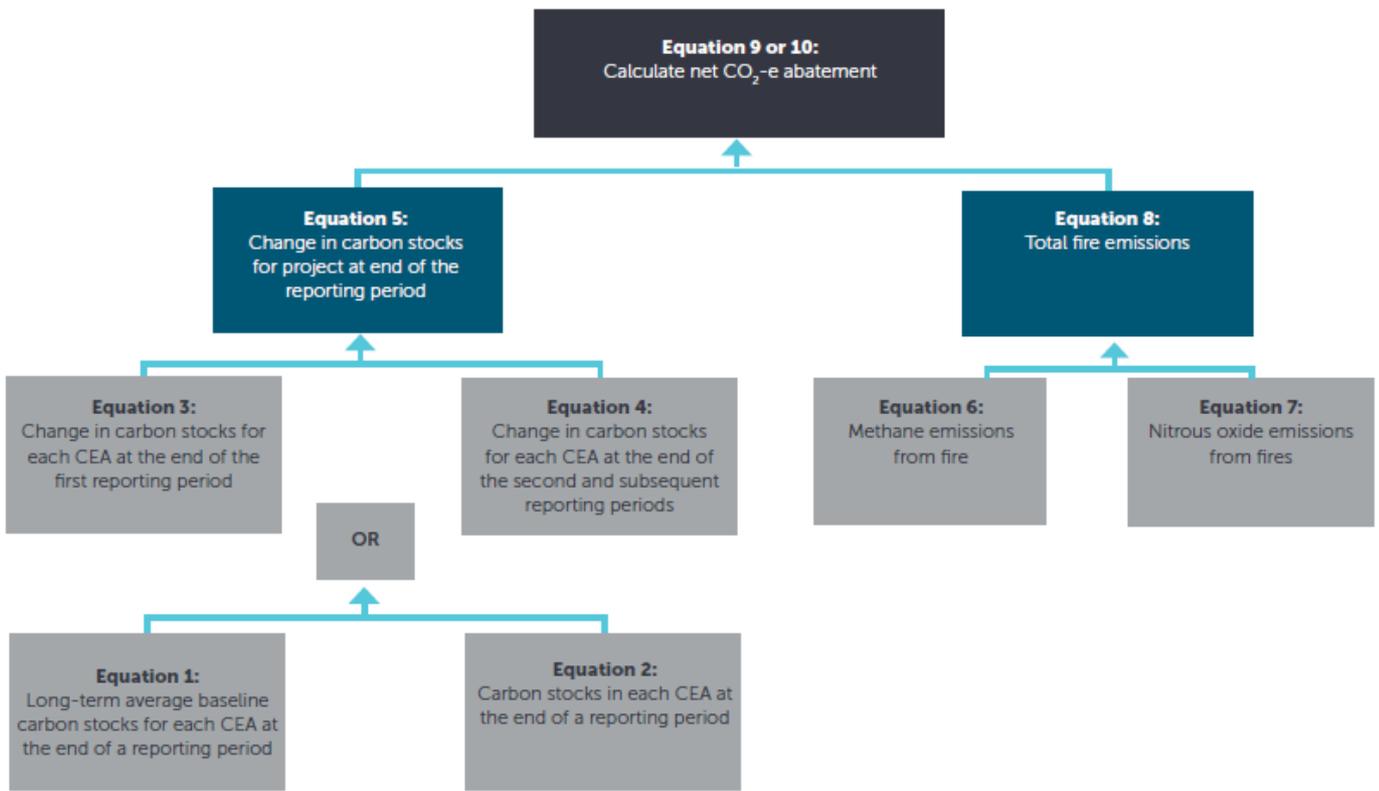
While running your project, certain management activities are either required or restricted, because they affect the amount of carbon stock calculated by FullCAM (see Part 3 Division 5).

For example, you must actively reduce the risk of damage from fire, weeds and feral animals in each CEA, and you cannot use fertiliser. You may remove up to 10% of fallen timber, but only for personal use.

You may also thin trees for ecological purposes, subject to the following rules:

- the material thinned must remain in the CEA
- forest cover must be maintained
- thinning must not decrease carbon stock below that reported in your most recent offsets report.

Figure 4: Equation tree for calculating net abatement achieved by a project



See Figure 4 Equation tree for calculating net abatement achieved by a project

To calculate the net CO₂-e abatement from an Avoided Clearing of Native Regrowth project, you need to follow a sequence of equations.

The long-term average baseline carbon stocks for each CEA are modelled using FullCAM and calculated using Equation 1. The carbon stocks in each CEA at the end of the reporting period are also modelled using FullCAM and are calculated using Equation 2.

For the first reporting period, the change in carbon stocks in each CEA is calculated using Equation 3. For the second and all subsequent reporting periods, the change in carbon stocks in each CEA is calculated using Equation 4, to take into account the carbon stock from the previous offsets report. The change in carbon stocks in each CEA is then summed to calculate the project's total change in carbon stocks using Equation 5.

To determine the project's net CO₂-e abatement for a reporting period, emissions from fires during the reporting period (Equations 6–8) are subtracted from the total change in carbon stock at the end of the reporting period using either Equation 9 or Equation 10. Equation 9 is used for the first reporting period, or whenever the net abatement in the previous offsets report was greater than or equal to zero. Equation 10 is only used if the net abatement in the previous offsets report was less than zero, which may have occurred as the result of a serious natural disturbance in the project area.

The resulting amount of abatement, in tonnes of carbon dioxide equivalents, or tCO₂-e, is reported to the Clean Energy Regulator when applying to be issued with ACCUs.

Data to complete these equations are drawn from a number of sources, which include:

- FullCAM outputs
- Data readily available from the [National Greenhouse and Energy Reporting \(NGER\) Measurement Determination](#)¹⁰
- [NGER Regulations](#)¹¹
- Information recorded by the person responsible for the project, such as fire and thinning events.

¹⁰ <https://www.legislation.gov.au/Details/F2016C00691>

¹¹ <https://www.legislation.gov.au/Details/F2016C00722>

Calculate emissions from the project

Every project needs to take into account emissions that arise while running it (see Section 53 in the method). This is to ensure these emissions are included in calculations that determine changes in net CO₂-e abatement for a reporting period and crediting period (see Figure 4).

In an Avoided Clearing of Native Regrowth project, the only emissions you need to account for come from fires (described in the method as 'biomass burning'). The emissions are calculated using outputs from the FullCAM modelling (Section 53 in the method).

What's CO₂-e?

CO₂-e is a measure of the warming effect of different greenhouse gases that allows them to be compared to the equivalent amount of carbon dioxide. It refers to the amount of carbon dioxide that would give the same warming effect as each greenhouse gas that is emitted or stored by an activity.

Biomass burning emissions from methane and nitrous dioxide are calculated separately in tonnes of carbon dioxide equivalents (tCO₂-e) (Equations 6 and 7). They are then added together to determine total emissions from burning (Equation 8).

Calculate the net amount of abatement

This is the final step in the calculation sequence for a reporting period. At this stage, the total change in carbon stock for the project area is calculated and then converted to CO₂-e (See Equation 5 in Figure 4).

To ensure the net amount of abatement is calculated for individual reporting periods only and not cumulatively, carbon stock from the most recent previous offsets report is subtracted. Emissions from fires are then subtracted from the total change in carbon stock to calculate the net amount of abatement in tCO₂-e (Equation 9 or 10). Equation 10 ensures that if there is a fire event that destroys carbon stocks, then crediting does not commence until those carbon stocks have been recovered across the project.

Monitoring and record keeping

The Clean Energy Regulator recommends you draw up a plan for the monitoring, data collecting and record keeping required for a project report as specified in Part 5 of the method. This means the collecting and recording of data will need to be in place from the start of the project. Should a project report and associated audit show that data collection and record keeping has not been in place for the entire reporting period, ACCUs may not be issued for some or all of that reporting period.

When developing your plan, make sure you have the right controls and processes in place, regarding your data. Are you collecting your data efficiently? Will you be able to maintain your data in the event of an emergency, such as a fire?

For an Avoided Clearing of Native Regrowth project, you must keep a record of all the evidence provided in Part 3 of the method that was used to prove your project's eligibility. Date-stamped FullCAM output files must also be kept for every CEA in every reporting period.

You must monitor and record any fires and other natural disturbances, and also record any thinning events.

Section 58 in the method lists all the records that you must create and keep.

Project and audit reports

You need to report on your project to the Clean Energy Regulator and may report as frequently as every six months where allowed for in the legislative rules made under the *Carbon Farming Initiative Act (2011)*. Audits are not required for every report but are required according to your audit schedule.

For sequestration projects, the first report must be made between six months and five years from the date the project was declared eligible and then up to every five years thereafter.

Section 56 of the method lists the information that must be included in your project reports. Applications for ACCUs can be made at the same time as you submit your project reports using the electronic ERF Project Reporting and Crediting Application form through the Clean Energy Regulator [Client Portal](#)¹². The Clean Energy Regulator will not issue ACCUs automatically on receipt of a project report.

Carbon Farming Initiative projects are able to generate credits throughout their crediting period. Crediting periods for each type of offsets project are set out in Part 5 of CFI Act and CFI Regulations. The crediting period for an Avoided Clearing of Native Regrowth project is 25 years.

The role of audit

Audits assess whether a project complies with the registered project's declaration, the relevant method and legislative rules and/or whether abatement has been correctly calculated. Audit reports must be prepared by a registered Category 2 Greenhouse and Energy Auditor. A [list of auditors](#)¹³ is available on the Clean Energy Regulator website.

The Clean Energy Regulator recommends you engage your auditor early when developing your project to ensure the project has sound systems and processes for capturing, reporting and recording data and to assist the auditor to plan activities throughout the reporting periods. The costs of any audit are your responsibility or the responsibility of the scheme participant. You must make available to the auditor all necessary documents and information, including data records, receipts and other supporting documentation.

¹² <http://www.cleanenergyregulator.gov.au/OSR/CP>

¹³ <http://www.cleanenergyregulator.gov.au/NGER/For-auditors/Register-of-auditors>

Making changes to your project

You must notify the Clean Energy Regulator of any changes to your personal circumstances or to your project's circumstances or operations that may affect the project's eligibility or the amount of abatement reported and the number of ACCUs claimed.

Resources

- For more information on participating in the ERF - www.cleanenergyregulator.gov.au¹⁴
- For more information regarding method development – www.environment.gov.au¹⁵
- www.legislation.gov.au¹⁶ is the site where you can find all legislative instruments including the:
 - » [Carbon credits \(Carbon Farming Initiative\) Act 2011](https://www.legislation.gov.au/Details/C2016C00727)¹⁷
 - » [Carbon credits \(Carbon Farming Initiative\) Regulations 2011](https://www.legislation.gov.au/Details/F2015C00658)¹⁸
 - » [Legislative Rules](https://www.legislation.gov.au/Details/F2016C00128)¹⁹
 - » [Carbon Credits \(Carbon Farming Initiative— Avoided Clearing of Native Regrowth\) Methodology Determination 2015](https://www.legislation.gov.au/Details/F2015L00164)²⁰
 - » [Explanatory statement](https://www.legislation.gov.au/Details/F2015L00164/Explanatory%20Statement/Text)²¹
- Enquiries on participating in the ERF - 1300 553 542; enquiries@cleanenergyregulator.gov.au²²
- FullCAM technical support: DCCEE-FullCAM@environment.gov.au²³
- Queries relating to using FullCAM for the Avoided Clearing of Native Regrowth methodology: CFI@environment.gov.au²⁴

¹⁴ <http://www.cleanenergyregulator.gov.au/>

¹⁵ <http://www.environment.gov.au/>

¹⁶ <https://www.legislation.gov.au/>

¹⁷ <https://www.legislation.gov.au/Details/C2016C00727>

¹⁸ <https://www.legislation.gov.au/Details/F2015C00658>

¹⁹ <https://www.legislation.gov.au/Details/F2016C00128>

²⁰ <https://www.legislation.gov.au/Details/F2015L00164>

²¹ <https://www.legislation.gov.au/Details/F2015L00164/Explanatory%20Statement/Text>

²² <mailto:enquiries@cleanenergyregulator.gov.au>

²³ <mailto:DCCEE-FullCAM@environment.gov.au>

²⁴ <mailto:CFI@environment.gov.au>