Participating in the Emissions Reduction Fund

A guide to the savanna fire management method 2015
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This guideline should be read in conjunction with the Carbon Credits (Carbon Farming Initiative) Act 2011 and supporting Regulations (current versions of which can be found on the Comlaw website). Changes to the legislation may affect the information in this document. This document is not intended to provide legal advice. Entities are responsible for determining their obligations under the law and for applying the law to their individual circumstances. Entities should seek independent professional advice if they have any concerns.
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.

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 \( t\text{CO}_2\text{-e} \) 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.

Emissions Reduction Fund projects must be conducted according to an approved method. Approved methods include all Emissions Reduction Fund methods and all original Carbon Farming Initiative methods.

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 a savanna fire management project may offer a range of other benefits for scheme participants. Examples include social, cultural, community and employment opportunities, as well as biodiversity benefits.

Using this guide

This guide provides an introduction to conducting a savanna fire management project using the Carbon Credits (Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management) Methodology Determination 2015 (referred to as the method), and provides a summary to assist you to read the method. Methodology Determinations set out the rules for conducting activities under the Emissions Reduction Fund to earn ACCUs. Methodology Determinations can be accessed through the Clean Energy Regulator website.

It is part of a set of guides called Participating in the Emissions Reduction Fund. One guide, Getting started, provides an overview of the Emissions Reduction Fund – how it works and what you need to know to get started. The guide Claiming and selling ACCUs, provides more detail about reporting and auditing requirements as well as auctions, contracts with the Australian Government and selling your ACCUs. Other guides in the set are like this one, designed to provide a summary that assists you to read individual methods.

Together, the guides will help you understand what is involved in conducting an Emissions Reduction Fund project from start to end. The guides are complementary to the Carbon Credits (Carbon Farming Initiative) Act 2011 (referred to as the CFI Act), the associated legislative rules, approved methods and their explanatory statements, but do not replace them. They have 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.
Overview of a savanna fire management project

A savanna fire management project involves the application of strategic, lower intensity early dry season (EDS) fire management to reduce the risk and extent of higher intensity fires that occur mostly in the late dry season (LDS). The use of managed fire can help to reduce the extent of fire spread and hence the potential area burnt. Effective fire management also reduces the fire return time, which further reduces the amount of greenhouse gases emitted. This method covers two rainfall zones, the high rainfall zone and the low rainfall zone.

Under the savanna burning method, abatement is determined by calculating the annual emissions for each year in the reporting period, and comparing this with average annual emissions during the baseline period (either 10 or 15 years prior to project commencement). Emissions resulting from the project are calculated using models that account for fire season, the years since last burnt, and vegetation fuel types present in the two rainfall zones.

Projects require a validated vegetation fuel type map for the project area. Fire scar maps for each fire season of each year in the baseline and reporting years must also be derived using satellite data. The vegetation fuel type and fire scar maps are overlaid to estimate the potential area burnt in each fire season of each year.

In addition, years since last burnt (YSLB) maps are created by overlaying the vegetation fuel type maps with the fire scar maps from preceding years. The YSLB maps determine how much fuel would be available in each pixel of the vegetation map. By putting together the vegetation fuel type and the YSLB, the potential emissions of methane and nitrous oxide for each fire season can be estimated using fuel loads and other parameters defining the burning efficiency and combustion of fuels.

The actual emissions during the baseline and from the project also account for the patchiness of burnt fire scars in the fire season, with more complete burns occurring with higher intensity fires in the late dry season. Emissions in the reporting year also arise from use of fossil fuel to establish and maintain the project activity.

Participants can either complete geospatial and other calculations manually, or use the appropriate version of the Savanna Burning Abatement Tool (SavBAT 2) which simplifies the reporting and record-keeping requirements.

What is SavBAT 2?

SavBAT 2 is short for Savanna Burning Abatement Tool (version 2). This tool automates a number of the mathematical calculations and Global Information System processes used in estimating greenhouse gas abatement in savanna fire management projects. SavBAT 2 is available free of charge on from the North Australia Fire Information Service website which also provides guidance material.

Scheme participants can choose to calculate net annual project abatement manually or by using SavBAT 2. For project areas that fall across both rainfall zones; SavBAT 2 must be used.

To conduct a savanna fire management project and earn ACCUs make sure you read and understand the method and other legislative requirements. To do this you will need to:

- Download the Carbon Credits (Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management) Methodology Determination 2015 (referred to as the method) and Explanatory Statement.
- Download and understand how the Carbon Credits (Carbon Farming Initiative) Act 2011 (the CFI Act), the Carbon Credits (Carbon Farming Initiative) Regulations 2011 and the Carbon Credits (Carbon Farming Initiative) Rule 2015 apply to a project.
- If you are planning to transition an existing savanna fire management project to this method, apply by using the application to use a different method form.
- Check the Savanna Fire Management Rainfall Zone spatial data layers published on www.environment.gov.au to establish whether your project area(s) are in the high and/or low rainfall zones.
› Access and use the Savanna Burning Abatement Tool (SavBAT 2) if you choose to use the tool to calculate project net abatement.

› If using SavBAT 2 to calculate project net abatement you do not have to save a copy of the maps used by the tool, although the maps SavBAT 1 and SavBAT 2 use are available on the North Australian Fire Information (NAFI) website for your information. If you do not use SavBAT2 you need to source NAFI fire maps or create your own to undertake the GIS analysis that informs the calculations as per the method.

› Ensure you have the legal right to conduct your project and that this right is maintained for the life of your project. This includes ensuring that you have a fire permit for each burning event in your project.

› Apply to register as a scheme participant, to open an account in the Australian National Registry of Emissions Units (ANREU) and to conduct a savanna fire management project.

› Set up your project according to the instructions in Parts 3 and 4 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, obtain an audit schedule for your project from the Clean Energy Regulator and engage a Category 2 or 3 Greenhouse and Energy Auditor early on in your project. Submit audits of your project according to your audit schedule.

› Determine the change in the greenhouse gas emissions, in carbon dioxide equivalents (CO₂-e, resulting from the project using the calculations in Part 4 of the method.

› Submit your project report and application for ACCUs to the Clean Energy Regulator for assessment.

Remember to download a copy of the explanatory statement to read along with the Carbon Credits (Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management) Methodology Determination 2015. Explanatory statements provide further detail about each part of the method and are important documents for interpreting and understanding the method.
What does a savanna fire management project look like?

A savanna fire management project uses fire management techniques with the intention of increasing the ratio of the area burnt during the early dry season (EDS), to the total area burnt each year, when compared to the fire activity under the baseline. For this method, the EDS is defined as 1 January to 31 July in each calendar year, and the late dry season (LDS) is the remainder of the year. Each year in northern Australia, there is also a wet season, which occurs approximately from November to April. For the purposes of this method, the definitions of the early and late dry seasons overlap with the wet season, as fire generally does not occur during the wet season.

Project participants will have to show that they have the legal right to conduct the burning activity. This includes the requirement to be able to produce a fire permit from the relevant authority for each burning event undertaken during the project’s duration. Participants will need to be aware of and ensure that throughout the duration of the project, they can demonstrate that they have any other permissions that are required to conduct the activity, for example, permission from traditional owners under relevant state or federal laws (such as native title or land rights legislation), lease holders or land owners.

Fire management must occur in the EDS, and may also occur in the LDS. The fire management method may be combined with natural or constructed barriers such as roads, tracks, streams, creeks and rock pavements to extinguish fires or reduce their spread. However, the project must not be one that reduces fuel loads (vegetation that might burn) using any method other than by fire management. For example, the project cannot increase stocking densities in or adjacent to the project for the explicit purpose of reducing the fuel load and therefore the spread of fires in the late dry season.

The activity must occur in areas specified as the high rainfall zone or the low rainfall zone (see Figure 1), as defined by the Savanna Fire Management Rainfall Zone spatial data layers (high and low rainfall) published on the Department of the Environment website, and must contain at least one of the vegetation types for the relevant rainfall zone as listed in Schedule 1 of the method.

Because the only abatement credited under the method is abatement that is genuinely additional to abatement that had occurred during the baseline period, the newness requirement of the CFI Act does not apply to savanna fire management projects registered under this method. The regulatory additionality requirement of the CFI Act is met provided that the fire management activity is not required under Australian Government, state or territory law for the primary purpose of emissions reduction. Full details on what is required for a savanna fire management project to be considered eligible by the Clean Energy Regulator, including evidence of how the project meets those requirements, are in Part 3 of the method and explanatory statement.

Setting up and running a savanna fire management project

How a savanna fire management project is set up and run is critical for calculating the change in greenhouse gas emissions from the project activity, which in turn determines the amount of abatement that has occurred and how many ACCUs may be issued for the project.

Parts 3 and 4 of the method and explanatory statement describe in detail how to set up a project, how to calculate the amount of emissions under baseline and project years, as well as the net abatement that has occurred. Some of the main components are discussed in this section.

Existing savanna burning projects registered under Carbon Farming Initiative methods can apply to transition to this method by completing the application to use a different method form.
Define the project area(s)

You must ensure your project is defined according to the project requirements set out in Part 3 of the method. A savanna fire management project may include one or more project areas. Regardless of the number of project areas, each must be defined as being in either the high rainfall zone or the low rainfall zone, or both. For project areas that straddle both rainfall zones, SavBAT 2 must be used for calculations. Project areas cannot be varied following the first project report. New project areas may be added but existing project areas may not be modified.

Mapping requirements

Vegetation fuel type map

A single vegetation fuel type map must be created and validated prior to the first project report. The map must show the vegetation fuel types that occur in the project and be created and validated so that it meets the requirements in Part 4 Division 2. The map must cover the whole project area.

An exception is for transitioning projects (projects that were registered under the Carbon Farming Initiative), where an existing vegetation map created and validated in accordance with an earlier determination may be used. Another exception is where additional project areas are added, either at the time of an existing project transitioning into the new method, or if new project areas are added at a later date; in these cases an additional vegetation map covering the new areas will be required.

The method does not specify the steps required in creating a vegetation fuel type map because this is dependent on the data that is available and the experience of the person who creates the map. The method does, however, specify the required process. Regardless of the approach taken in creating the map, survey data from the entire project, or project areas if added separately, will need to be collected to assist in the interpretation and classification of the raw data and information. This survey data is commonly referred to as ‘calibration data’.

Additionally, a validation survey must be conducted to validate the vegetation fuel type map. The data for the validation survey must not be the same data used previously as calibration data for the map. The validation survey must contain a set of waypoints that are geographical points where information is collected. Criteria for the validation survey include the timing for when it is conducted, and the minimum number, attributes and requirements of the set of waypoints.

Part 4 Division 2 of the method describes how to validate the vegetation fuel type map after the validation survey is complete. The validation of all vegetation maps used for the project will be checked during the audit process to ensure they have been validated in accordance with the relevant method.

Figure 1: The activity must occur in areas specified in either the savanna fire management high or low rainfall zone spatial data layers published on www.environment.gov.au
Monthly and seasonal fire maps

In addition to the vegetation fuel type map, monthly fire maps and seasonal fire maps must be created for each project area. These maps provide the basis for calculating the fire scar area used in abatement calculations. A fire map for each month and fire season of each year in the baseline and project must be either sourced from the North Australian Fire Information (NAFI) website or developed and validated from other sources. The NAFI maps are available in the SavBAT 2 tool.

Years since last burnt (YSLB) maps

Participants must produce a YSLB map in each calendar year in the baseline period and each year reported on in the crediting period. A YSLB map shows how many years have elapsed since each pixel in a fire map was last burnt. The time since last burning influences the fine fuel load available (as calculated by equation 14) and therefore the amount of greenhouse gases emitted in the most recent fire. Participants not using SavBAT 2 must create their own YSLB maps.

Calculating net annual abatement for the project

The method for calculating net abatement for a savanna fire management project involves several steps as detailed in Part 4 Divisions 3 and 4 of the method. Figure 2 on page 9 shows a decision flowchart of the calculations for determining net project abatement for a savanna fire management project.

As explained in Part 4, Division 1, Section 18 of the method, if a project has more than one project area, the steps set out in Division 3 and, where appropriate, Division 4 must be done separately for each project area. The carbon dioxide equivalent net abatement amount for each year in the crediting period that is being reported on is then calculated from the sum of the carbon dioxide equivalent net abatement amounts, for each project area and for all years.

The calculations detailed in Part 4 Division 3—Calculation of carbon dioxide equivalent net abatement amount—general, are completed by all scheme participants, either using SavBAT2 where functionality includes these equations, otherwise they must be calculated manually. You should check that you are using the most current version of SavBAT 2, and what functionality is included, as the tool is updated from time to time.

For scheme participants not using SavBAT 2, Part 4 Division 4—Calculation of net annual project abatement without using SavBAT 2 of the method must be followed.

Calculating emissions from the project

Every project needs to take into account emissions that arise from the operation of the project (see Divisions 3 and 4 in the method). This is to ensure these emissions are included in calculations that determine net CO₂-e abatement for each year in the crediting period. For a savanna fire management project, these emissions are divided into those derived from project fire activity and those derived from fossil fuel use.

Potential greenhouse gas emissions from methane (CH₄) and nitrous oxide (N₂O) emitted from fire activity are calculated using equations 10 to 13. The potential greenhouse gas emissions are those that would occur if the whole of the fire scar area were completely combusted when burnt. Equations 10 to 13 segregate the potential emissions into CH₄ and N₂O, and into two fuel size classes, a fine fuel size and a combined coarse, heavy and shrub fuel size.

Equation 9 is then used to calculate the total potential fire emissions per hectare, by adding together the four potential greenhouse gas emissions. Equations 6 and 7 use the area burnt, a measure of combustion potential (patchiness) and the total potential fire emissions to calculate the actual fire emissions for each calendar year for each project area.

Annual fossil fuel emissions are calculated using equations 2 and 15. Equation 2 must be calculated by everyone (SavBAT 2 and non-SavBAT 2 users); equation 15 need only be completed if not using the SavBAT 2 tool.

The actual fire emissions for each calendar year for each project area, when added to the annual fossil fuel emissions, determine the total annual project emissions using equation 5.

What is CO₂-e?

CO₂-e is a measure of the warming effect of different greenhouse gases. 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.
Calculate the average annual baseline emissions

If not using the SavBAT 2 tool, the baseline period and the average annual baseline emissions in each project area must be determined in accordance with Part 4 Division 4 Subdivision 3 of the method. The baseline period starts the year prior to project commencement, except in the case of transitioning projects, which can use pre-existing baseline periods. The length of the baseline period is 15 years for areas in the low rainfall zone and 10 years for areas in the high rainfall zone.

After the baseline period is determined, average annual baseline emissions for the project are calculated using equation 4A if the project area is in a low rainfall zone and equation 4B if the project area is in a high rainfall zone.

Calculate the adjusted net annual project abatement

The net annual project abatement is then calculated using equation 3 for each project area. The net annual project abatement is derived from the total annual project emissions and the average annual baseline emissions. When calculated manually, the net annual project abatement must be for a project area that is wholly in either the high rainfall zone or the low rainfall zone. SavBAT 2 is able to calculate net annual project area abatement across both rainfall zones. Remember, this must be done for each project area.

The net annual project abatement requires adjusting to manage the risk of the project containing some years in which emissions are higher than the average annual baseline emissions. The uncertainty buffer adjusts the net annual abatement in each project area to reduce the risk of over-crediting of projects. The uncertainty buffer for each project area is cumulative, and is added to in years in which the net annual abatement is greater than zero and subtracted from in years in which the net annual abatement is less than zero. The uncertainty buffer is capped at a threshold defined as five per cent of the average annual baseline emissions. The uncertainty buffer and the net annual project area abatement are adjusted based on the value of the uncertainty buffer in the previous year, and the current year’s net project area abatement. Section 26 of the explanatory statement contains several examples to demonstrate how the uncertainty buffer is applied.

At the time of producing this guide, the SavBAT 2 tool does not calculate adjusted net annual abatement, so this must be calculated manually.

The net project abatement for the reporting period (in tonnes of CO₂-e) is calculated manually using equation 1 by adding together the adjusted net annual abatement for each year in each project area that is being reported on in the crediting period. The CO₂-e net abatement amount will determine the number of ACCUs you may be eligible to receive in a reporting period.
Figure 2 shows the key steps in calculating abatement with reference to the method equations and sections. Some steps are required for the whole project while others are required for each project area or the SavBAT tool is used. The majority of steps shown are automated.

1. Identify eligible area(s) of project in low and high rainfall zones (sections 10 – 14)
2. Create project vegetation fuel type map (section 21)
3. Validate project vegetation fuel type map (sections 22 – 23)
4. Produce Year Since last Burn map (sections 22 – 23)
5. Calculate potential fire emissions (section 46; Equation 9)
6. Calculate fine fuel loads (sections 53 – 54; Equation 14)
7. Calculate potential methane and nitrous oxide emissions from (i) fine and (ii) coarse, heavy and shrub fuels (sections 47 – 50; validated fire maps)
8. Calculate project fire emissions (sections 36 – 37; Equations 6 and 7)
9. Calculate total project emissions (section 35; Equation 5)
10. Calculate fossil fuel use by fuel type for each project area (section 28; Equation 2)
11. Will the SavBAT 2 tool be used for calculations?
   - Yes
     1. Calculate area burnt (section 38; Equation 8)
     2. Calculate fire scar area (section 45)
     3. Determine baseline period (section 33)
     4. Calculate average annual baseline emissions (sections 34; Equations 4A and 4B)
     5. Calculate fossil fuel emissions (section 55; Equation 15)
     6. Calculate capped uncertainty buffer (section 26)
   - No
     1. Yes
     2. No

12. Were Monthly / seasonal fire maps sourced from NAFI?
13. Does SavBAT 2 calculate adjusted abatement?
   - Yes
     1. Net annual project area abatement (SavBAT 2 output)
   - No
     1. Calculate net annual project area abatement

14. FOR EACH PROJECT AREA AND YEAR BEING REPORTED ON
   - Calculate adjusted net annual project area abatement and uncertainty buffer (section 26)

15. FOR THE PROJECT REPORT
   - Calculate adjusted net annual project abatement (section 24; Equation 1)
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. The means of collecting and recording 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 as expected.

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

You are required to monitor the amount of fossil fuel used when undertaking project activities. Records of fossil fuel consumption of vehicles and machinery should be collected for each project area and calendar year. A number of approaches may be used to record fossil fuel use including invoices, vehicle logbooks, aircraft logbooks, records of project activities and reports of calculated consumption. If fossil fuel use for project activities cannot be monitored separately from fossil fuel use for non-project activities, fossil fuel use may be estimated based on time spent undertaking project activities and average fuel consumption of vehicles and machinery.

All calculations, whether completed manually or by using the SavBAT 2 tool, must be retained.

It is important you comply with specified reporting, monitoring and record keeping requirements. Failure to do so could constitute a breach of the legislation, with consequences for continued participation in the Emissions Reduction Fund and/or a financial penalty.

Project and audit reports

You need to report on your project to the Clean Energy Regulator and must report on each project area at least every two years. Audits are required where indicated in your project’s audit schedule, which the Clean Energy Regulator will provide following registration of your project. Audits are also required for validation of vegetation fuel type maps, and fire maps where NAFI maps are not sourced.

Scheme participants may report on only some project areas in each report; this is called partial reporting. All project areas are not required to be reported on in each report, but must be reported every two years. All years in all project areas must have been reported on either in the final report or in earlier reports.

Part 5 Division 1 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 appropriate form. Full reporting, record keeping and monitoring requirements are set out in regulations and rules made under the CFI Act. You should familiarise yourself with these requirements.

The Clean Energy Regulator does not automatically issue ACCUs on receipt of a project report but may do so following assessment and approval of project reports.

Emissions Reduction Fund projects are able to generate credits throughout their crediting period. Crediting periods for each type of project are set out in Part 5 of the CFI Act. The crediting period for a savanna fire management project is 25 years.
The role of audit

Audits assess whether a project complies with the project registration, the relevant method and legislative requirements. Audit reports are only required where indicated in the project’s audit schedule or on request from the Clean Energy Regulator and must be prepared by a registered category 2 or 3 greenhouse and energy auditor. A list of auditors is available on the Clean Energy Regulator website under National Greenhouse and Energy Reporting.

The Clean Energy Regulator recommends you engage your auditor early when developing your project to ensure the project is auditable and to assist the auditor to plan activities throughout the reporting and post-reporting periods. The costs of any audit are your responsibility or the responsibility of your organisation. You must make available to the auditor all necessary documents and information, including data records, receipts and other supporting documentation, and calculation spread sheets. For more information about auditing your project see Participating in the Emissions Reduction Fund – Claiming and selling ACCUs.

Making changes to a project

You must notify the Clean Energy Regulator of any changes to your circumstances or your project or operations that may affect project ownership, the project’s eligibility or the amount of abatement reported and the number of ACCUs claimed. A project owner must seek approval from the Clean Energy Regulator if they intend to make a significant change from the project as outlined in the application.

Resources

› For more information about the Emissions Reduction Fund – www.cleanenergyregulator.gov.au
› For more information regarding method development – www.environment.gov.au
› Refer to www.comlaw.gov.au for all legislative instruments, including the:
  » Carbon credits (Carbon Farming Initiative) Act 2011 (current version)
  » Carbon credits (Carbon Farming Initiative) Regulations 2011
  » Carbon Credits (Carbon Farming Initiative) Rule 2015
  » Carbon Credits (Carbon Farming Initiative—Emissions Abatement through Savanna Fire Management) Methodology Determination 2015
  » Explanatory statement
  » Participating in the Emissions Reduction Fund – Getting started
  » Participating in the Emissions Reduction Fund – Claiming and selling ACCUs
  » Enquiries on participating in the Emissions Reduction Fund – call 1300 553 542 or email enquiries@cleanenergyregulator.gov.au
  » For more information on satellite data for fire scar mapping visit North Australian Fire Information (NAFI) – http://www.firenorth.org.au/NAFI2/
  » For more information on the SavBAT 2 tool – http://savbat2.net.au