



Australian Government
Clean Energy Regulator

EMISSIONS
REDUCTION
FUND

Participating in the Emissions Reduction Fund

A guide to the alternative waste
treatment method 2015



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 alternative waste treatment project using the *Carbon Credits (Carbon Farming Initiative—Alternative Waste Treatment) Methodology Determination 2015* (the AWT method) 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/Series/C2011A00101>

Overview of an alternative waste treatment (AWT) project

Alternative waste treatment (AWT) is a way of processing waste rather than sending it straight to landfill. AWT creates fewer emissions than when waste decomposes in landfill and can create usable products from waste. An AWT project diverts mixed solid waste from landfill to be processed into compost, solid fuel or biogas. In this way, the project helps to reduce the amount of greenhouse gas emissions entering the atmosphere. When organic material is left to decay in landfill it releases greenhouse gas emissions as methane for up to 100 years. Methane is a potent greenhouse gas with a Global Warming Potential of 21.

Global warming potential

All greenhouse gases have a Global Warming Potential (GWP). The GWP value assigned to a greenhouse gas is based on its ability to trap heat in the atmosphere compared to CO₂, as well as the rate at which it decays and leaves the atmosphere. The GWP of CO₂ is 1 when its source is non-biogenic, and zero when its source is biogenic. This is because CO₂ from biogenic sources is part of the Earth's natural carbon cycle, that is, the carbon was stored in biodegradable organic material and will be reabsorbed by vegetation. The carbon cycle maintains a balance of carbon emitted to the atmosphere and reabsorbed by vegetation.

Emissions Reduction Fund projects are able to generate ACCUs throughout their crediting period. The crediting period for an AWT project is seven years.

An Emissions Reduction Fund AWT project must follow the requirements set out in the Act, method, legislative rules and regulations. One ACCU is equal to one tonne of avoided CO₂-e emissions. To conduct an AWT project and earn ACCUs, make sure you read and understand the method and other legislative requirements. You will need to:

- Download the [Carbon Credits \(Carbon Farming Initiative—Alternative Waste Treatment\) Methodology Determination 2015²](#), and the Explanatory Statement.
- Download the *Carbon Credits (Carbon Farming Initiative) Act 2011* (the CFI Act), and the Regulations and legislative rules.
- Understand how the CFI Act, regulations and legislative rules apply to your project.
- Ensure you have the legal right to conduct 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 an AWT project.
- Set up your project according to the method and as you described in your project application.
- Set up record keeping and monitoring systems for your project as required by Part 5 of the methodology determination.
- Estimate the average annual abatement of your project and obtain an audit schedule for your project from the Clean Energy Regulator.

² <https://www.legislation.gov.au/Details/F2015L00060>

- Engage a Category 2 Greenhouse and Energy Auditor early on in your project. Submit audits of your project according to your audit schedule.
- Determine the amount of emissions your project avoids using the calculations in Part 4 of the method.
- Submit your project report as well as your application for ACCUs to the Clean Energy Regulator for assessment.

Remember to download a copy of the [explanatory statement](#)³ to read along with the alternative waste treatment method. Explanatory statements provide further detail about each part of the method and are important documents for interpreting and understanding a method.

What does an alternative waste treatment project look like?

An AWT project involves a purpose-built facility for processing eligible solid waste that would have otherwise gone to landfill. It can be a new facility or expand on an existing facility. Detailed definitions regarding the technology that can be used and the waste that can be included is in Part 1, Sections 5, 6 and 7 of the method.

The facility must use eligible waste treatment technology. This can be:

- an enclosed composting facility; open windrows are permitted only as a final step to mature the compost product
- process engineered fuel manufacture
- an anaerobic digester that collects the resulting biogas and sends it to a combustion device such as a flare, boiler, internal combustion engine or other similar device used to combust biogas.

What waste can be included in an AWT project?

An AWT project processes eligible solid mixed waste that would normally go to landfill. This includes:

- commercial and industrial waste
- construction and demolition waste
- municipal solid waste (grouped into Class I or Class II waste, see section 5 of the method).

What waste cannot be included in an AWT project?

An AWT project does not include waste that would not normally go to landfill:

- recyclable paper, paperboard, glass, metal or plastic that is separated at the point of generation
- green waste or wood waste that is separated at the point of generation
- putrescible waste that is separated at the point of generation
- organic waste from the livestock industry, such as straw bedding and manure mixes
- biosolids.

³ <https://www.legislation.gov.au/Details/F2015L00060/Explanatory%20Statement/Text>

Eligible CFI Waste

Projects that were covered by a CFI AWT Determination retain the definitions for eligible waste that previously applied to the offsets project. This provides consistency for transitioning projects.

Waste that is separated at the point of generation is collected often through systems such as a recycling waste centre, separate bins, or a green waste drop-off centre. It cannot be included in an AWT project because it does not usually go to landfill.

Details on what is required for an AWT project to be considered eligible by the Clean Energy Regulator, including evidence showing how the project meets those requirements, are in Part 3 of the method and explanatory statement.

Transitioning from other AWT methods

There are four AWT methodology determinations (methods) that were released under the Carbon Farming Initiative which credit emissions reductions from diverting waste from landfill between the period 1 July 2010 (the start date for the CFI) and 1 July 2012 (the start date of the carbon tax). The methods are:

- the Carbon Credits (Carbon Farming Initiative) (Avoided Emissions from Diverting Legacy Waste from Landfill for Process Engineered Fuel Manufacture) Methodology Determination 2012
- the Carbon Credits (Carbon Farming Initiative) (Diversion of Legacy Waste to an Alternative Waste Treatment Facility) Methodology Determination 2013
- the Carbon Credits (Carbon Farming Initiative) (Avoided Emissions from Diverting Legacy Waste through a Composting Alternative Waste Technology) Methodology Determination 2013
- the Carbon Credits (Carbon Farming Initiative) (Enclosed Mechanical Processing and Composting Alternative Waste Treatment) Methodology Determination 2013

An eligible project currently using one of these methods may apply to transition to this new method. To transition your project, you will need to complete and submit the [appropriate form](#)⁴. Requirements for transitioning projects can be found in Part 3 of the method. A project that transitions to this method will retain the eligible waste definitions that applied under the previous method. It must also be implemented in the way it was described when it was approved for registration.

Setting up and running an alternative waste treatment project

How an AWT project is set up and run is critical for calculating how much greenhouse gas is avoided as a result of a project, which in turn determines the amount of abatement that has occurred and how many ACCUs may be issued for a 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 avoided as well as the net abatement that has occurred. Some of the main components are discussed in this section.

⁴ <http://www.cleanenergyregulator.gov.au/ERF/Forms-and-resources>

Setting up a new or an expansion AWT project

To set up a new AWT project or expand on an existing one, you will need to create capacity to process eligible waste that would otherwise enter landfill. This could involve building a new facility, or expanding the capacity at an existing facility. The requirements for projects are in Part 3 of the method.

An expansion project can be approved only if adequate records of historic waste process activity at the facility are available. You will need to calculate from your own records how much putrescible waste was processed by the existing facility in the 24 months before you make your application. You can use weighbridge records, evidence of waste processing contracts, invoices or other appropriate records to support your claim.

Calculating abatement

Part 4 of the method and explanatory statement describe in detail how to calculate the net abatement that has occurred.

There are many calculations that need to be conducted to determine how much abatement your project has achieved in each reporting period.

The equation flow charts in figures 2-4 give an overview of these equations, the data required to conduct them and what they are calculating. ACCUs are issued according to the net abatement figure for each reporting period.

Calculate project baseline

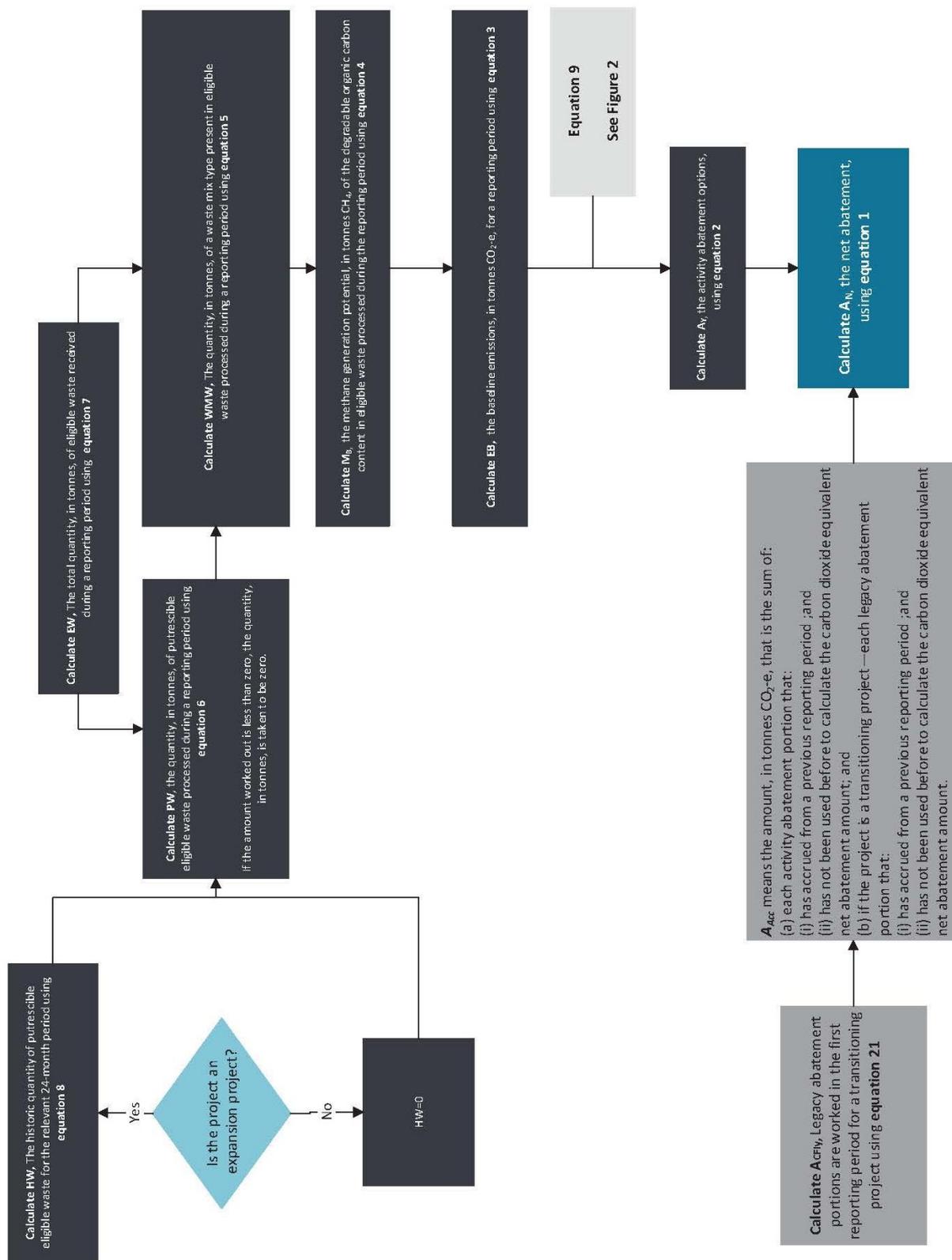
The project baseline estimates the emissions that would have occurred under normal business conditions. For AWT projects this is an estimation of the emissions that would have occurred if waste had been sent to landfill. Project Baseline is calculated from the organic content of the waste, the type of organic material, and the emissions it would generate as it breaks down in landfill. The project baseline also accounts for the amount of methane that would be captured and combusted if the project had not occurred and this is taken to be the average percentage of landfill gas captured in the state or territory in which the project operates. The average value is determined using data from the Australian National Greenhouse Gas Inventory. The table in Section 22 gives the percentages for different types of projects.

To be able to do this calculation (Equation 3, Section 22), you need to be able to show:

- the total amount of eligible waste you received during the reporting period (Equation 7)
- the amount of each type of waste received during the same period (Equation 5; use Equation 6 to calculate the amount of putrescible waste)
- for expansion projects only, the amount of putrescible eligible waste you received for the 24 months before you lodge your project application. This value is set to zero for new projects and transitioning projects.

If there was no putrescible waste in a reporting period then emissions from waste for that year are set to zero. That means there is no abatement for that year. See figure 1 for more information on how to calculate the project baseline.

Figure 1: calculating the project baseline



What is the NGER Determination?

Many of the calculations in the method and explanatory statement use criteria and values from the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (NGER Determination) to calculate the net amount of emissions you have avoided as a result of your project.

The NGER Determination is updated from time to time. Where possible, you must use the values from the most recent NGER Determination that was available when your reporting period ended. Current and historical versions of the NGER Determination are available on the [Federal Register of Legislation](#).⁵

Calculating emissions from the project

Every project needs to take into account emissions that arise from the use of fuel or other activities required to run the project (see Division 3, Equation 9). This is to ensure these emissions are included in calculations that determine net abatement.

You will need to know, for each reporting period:

- the amounts of fuel and electricity you used to run the project (Equations 10 and 11)
- the total amount of eligible waste you received (Equation 7)
- the proportion of eligible putrescible waste to total putrescible waste processed (Equations 9 and 13)

You will also need to calculate emissions from the treatment of putrescible eligible waste in each reporting period (Equation 12) for each of the following processes used in your AWT project:

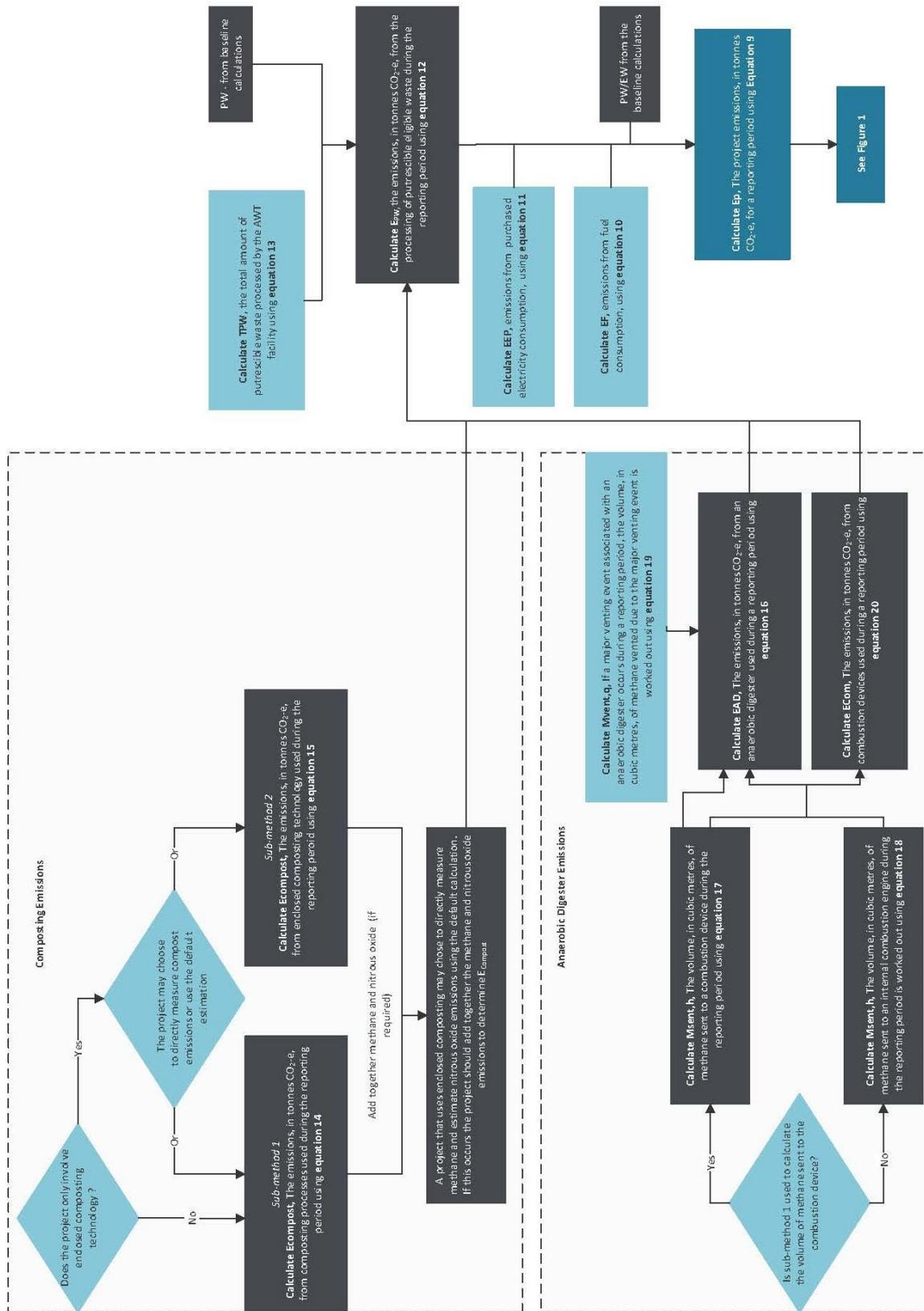
- composting (section 34 of the method)
- anaerobic digestion (Equation 16), and the combustion of biogas (Equation 20).

These calculations are described in more detail below and can be seen in figure 2.

Table 1 in Part 4 of the method lists the greenhouse gases emitted from each of these processes. Emissions from processing ineligible waste are not included in this method. Processed engineered fuel manufacture does not include project emissions other than those from fuel and electricity use. You do not need to include emissions from the transport of waste or products to and from your facility.

⁵ <https://www.legislation.gov.au/>

Figure 2: calculating emissions from the project



Composting emissions calculations—open windrow or enclosed composting?

Emissions from composting are calculated using the equations in section 34 of the method. The choice of sub-method depends on whether there is any open windrow component used in the composting process. If open windrow composting is used to mature the final compost product then emissions are calculated by measuring the amount of waste composted and applying an emissions factor from the NGER Determination for the greenhouse gas (either nitrous oxide or methane) (Equation 14).

If enclosed composting is used to process the waste then either direct measurement or a default emissions factor may be used to calculate emissions. Sub-method 2 is for the direct measurement of composting emissions (Equation 15). You can't use this sub-method if the AWT project includes any open windrow composting.

Anaerobic digestion emissions

Anaerobic digestion produces biogas, which is then transferred to a combustion device to destroy the methane before gas is released to the atmosphere. The combustion process can also be used to produce electricity.

Emissions from anaerobic digestion can come from leakage of the anaerobic digester (Equation 16) which is 2 per cent of methane produced; and through venting of the anaerobic digester (Equation 19).

Emissions from biogas combustion are calculated using Equation 20, which relies on the volume of methane sent to a combustion device. You can calculate this from either:

1. the volume of biogas sent to a combustion device, (Equation 17), or
2. the electricity produced by an internal combustion engine (Equation 18).

Calculating the net amount of abatement and number of ACCUs

Emissions reductions are calculated in an AWT project using an *activity abatement portion*, which is the total emissions reduction in one year, divided into seven abatement portions (Equation 2). The first abatement portion is included in the offsets report for the reporting period. The other six portions accrue over the next six years and are included in the relevant offsets reports.

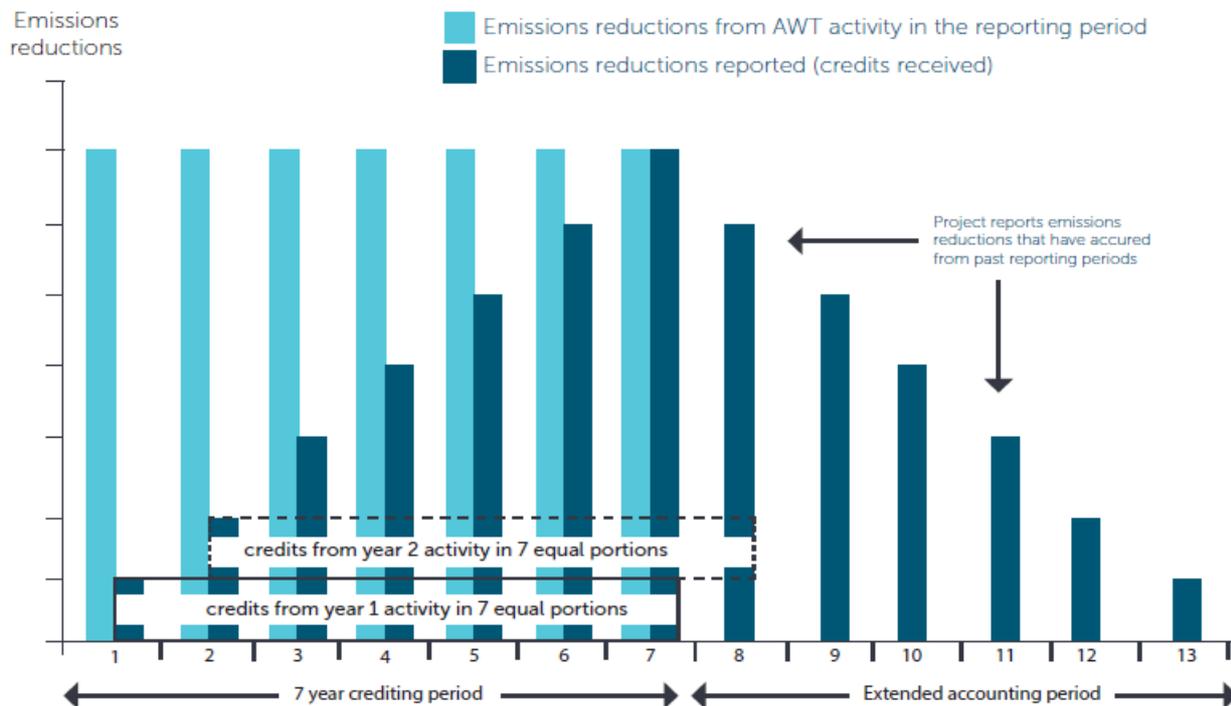
Why seven years?

Organic material releases greenhouse gases for the 100 years it decays. In AWT projects, the total abatement is divided over the crediting period of seven years instead of 100 to simplify reporting.

The result is that the net abatement for the reporting period will be the abatement portion for the period plus the sum of activity abatement portions that have accrued from previous reporting periods. In the first year, there are no accruals from previous reporting periods, so only one-seventh of the abatement for that year is credited (Figure 3). After the seventh year, only accruals from previous years are counted: there are no new abatement portions. This means that AWT projects receive credits for project activity within the seven year crediting period over an extended accounting period which is approximately 13 years (depending on the reporting regime selected).

Figure 3. An example of crediting AWT in seven equal portions and the extended accounting period.

Note: the example assumes equal reporting periods at 12 month intervals and that emissions reductions in each reporting period remain the same over the seven year crediting period.



For transitioning projects, credits generated from CFI legacy waste diversion activity can be calculated using Equation 21. This equation divides any remaining abatement credits into three equal portions that are added to the abatement portion in each of the first three years of the transitioning AWT 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 Division 1 of the method and relevant sections of the legislative rules. 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 collecting 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. For AWT projects required records include:

- the amount of each type of waste received and processed by the project
- how much electricity, compost or other product the project produces
- how much fuel and electricity is used to run the AWT project
- the volume of biogas sent to combustion devices and the methane content of that biogas.

When developing the recommended monitoring and record keeping plan, check that you have the right controls and processes around your data for example: Are you collecting your data efficiently and will you be able to maintain your data in the event of an emergency such as a fire?

The participant is required to report any periods where it is not possible to meet monitoring requirements, as well as situations where the version of the National Greenhouse and Energy Reporting (Measurement) Determination (NGER Determination) used for determining a parameter or factor, is not that in force at the end of the reporting period. See Part 5 Division 1 of the NGER Determination and below for more detail about this.

Section 45 lists parameters used in the calculation of net abatement that require monitoring, including specifications for the procedure, frequency of monitoring, and how to derive the parameter value based on the measurements and monitoring data. It is important that participants understand and comply with specified reporting, monitoring and record keeping requirements of the method, Act and legislative rules. Failure to do so could constitute a breach of the legislation, with consequences for continued participation in the ERF and/or a financial penalty.

Project and audit reports

You need to report on your project to the Clean Energy Regulator and may report as frequently as once a month, where allowed for, in the legislative rules made under the *Carbon Credits (Carbon Farming Initiative) Act 2011*. Audits are required where indicated in the project's audit schedule – which is provided following registration.

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

Part 5 of the method lists the information that must be included in your project reports. Ensuring that you meet these requirements will streamline report processing. Some of the project requirements are discussed in more detail below. Full reporting, record keeping and monitoring requirements are set out in regulations and rules made under the Act. You should familiarise yourself with these requirements.

Crediting period and extended accounting

The crediting period for AWT projects is seven years. This means that registered projects can receive ACCUs for seven years of waste diversion activity. However, because of the activity abatement portion approach to calculating emissions reductions, the reporting and issuing of credits for this activity will occur over a longer period - referred to as the extended accounting period.

Applications for ACCUs can be made at the same time as you submit your reports using the [appropriate form](#)⁶. The Clean Energy Regulator will not issue Australian carbon credit units automatically on receipt of a report.

⁶ <http://www.cleanenergyregulator.gov.au/ERF/Forms-and-resources>

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 two greenhouse and energy auditor; a [list of auditors](#)⁷ is available on the Clean Energy Regulator website.

You will receive an audit schedule following successful project registration. This schedule will advise when a project audit must be conducted. All projects will need to include an audit report with their first project report.

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 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.

Making changes to the project

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

Resources

- For more information on participating in the ERF- www.cleanenergyregulator.gov.au⁸
- For more information regarding method development see the [Department of the Environment website](#)⁹
- The Federal Register of Legislation¹⁰ is the site where you can find all legislative instruments including the:
 - » [Carbon credits \(Carbon Farming Initiative\) Act 2011 \(current version\)](#)¹¹
 - » [Carbon credits \(Carbon Farming Initiative\) Regulations 2011](#)¹²
 - » [Carbon Credits \(Carbon Farming Initiative\) Rule 2015](#)¹³
 - » [Alternative Waste Treatment Methodology Determination 2015](#)¹⁴
- Enquiries on participating in the ERF - 1300 553 542; enquiries@cleanenergyregulator.gov.au¹⁵

⁷ <http://www.cleanenergyregulator.gov.au/NGER/For-auditors/Register-of-auditors>

⁸ <http://www.cleanenergyregulator.gov.au/>

⁹ <http://www.environment.gov.au/>

¹⁰ <https://www.legislation.gov.au/>

¹¹ <https://www.legislation.gov.au/Series/C2011A00101>

¹² <https://www.legislation.gov.au/Series/F2011L02583>

¹³ <https://www.legislation.gov.au/Details/F2015L00156>

¹⁴ <https://www.legislation.gov.au/Details/F2015L00060>

¹⁵ <mailto:enquiries@cleanenergyregulator.gov.au>