



Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination Variation 2016

I, Greg Hunt, Minister for the Environment, make the following legislative instrument.

Dated 17:3:16

GREG HUNT

Greg Hunt
Minister for the Environment

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1 Name

This is the *Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination Variation 2016*.

2 Commencement

This instrument commences on the day after it is registered.

3 Authority

This instrument is made under subsection 114(1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

4 Amendment of methodology determination

The *Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination 2013* is amended as set out in Schedule 1.

Schedule 1—Amendments of the *Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination 2013*

[1] Parts 1 to 5

Repeal, substitute:

Part 1—Preliminary

1 Name

This is the *Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination 2013*.

2 Duration

Note: This determination commenced on 1 July 2010. See section 1.2 of this determination as originally made.

This determination remains in force for the period that:

- (a) begins when the determination commences; and
- (b) ends on the day before this determination would otherwise be repealed under subsection 50(1) of the *Legislation Act 2003*.

3 Definitions

In this determination:

Act means the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

baseline period, for a particular area of land—see sections 4 and 5.

carbon stock, of an area of land, at a specified time, means the quantity of carbon held within the area at that time as:

- (a) live above-ground biomass; or
- (b) live below-ground biomass; or
- (c) dead plant material and debris.

Note: In Part 4, when ascertaining the net abatement amount, carbon stock is worked out in tonnes C, while carbon stock change is worked out in tonnes CO₂-e.

CEA (short for carbon estimation area)—see subsection 15(2).

Note: A CEA must comply with various requirements of this determination, in particular, section 16.

CEA part (short for carbon estimation area part)—see subsection 16(1).

CFI mapping guidelines means the guidelines known as the Carbon Farming Initiative (CFI) Mapping Guidelines that are available on the Department's website, as in force from time to time.

Note: The CFI mapping guidelines could in 2016 be viewed on the Department's website (<http://www.environment.gov.au>).

CFI mapping tool means the carbon farming initiative mapping tool (however described) that is available on the Department's website, as in force from time to time.

Note: The CFI mapping tool could in 2016 be viewed on the Department's website (<http://www.environment.gov.au>).

clearing right means either of the following:

- (a) an approval to commence clearing required by Commonwealth, State or Territory law, issued by the relevant Commonwealth, State, Territory or local regulatory authority responsible for giving the approval;
- (b) any other legal right to clear land arising under Commonwealth, State or Territory law that does not require such an approval to be given before it is able to be exercised.

CO₂-e (short for carbon dioxide equivalent) of biomass or a greenhouse gas means the carbon dioxide mass equivalent of the biomass or greenhouse gas.

conservation land means an area that is owned and managed by the Commonwealth, a State or a Territory Government for biodiversity conservation.

disturbance event means an event (such as a fire, pest, disease or storm event), whether natural or caused by humans, that damages trees or slows their growth.

eligible land—see sections 4 and 5.

forest cover—a particular area of land has **forest cover** if:

- (a) the land has an area of at least 0.2 of a hectare; and
- (b) the land has trees that:
 - (i) are 2 metres or more in height; and
 - (ii) provide crown cover of at least 20% of the land.

forest potential—a particular area of land has **forest potential** if:

- (a) the land has an area of at least 0.2 of a hectare; and
- (b) the land has trees that, having regard to the location and characteristics of the land, are reasonably likely to:
 - (i) reach 2 metres or more in height; and
 - (ii) provide crown cover of at least 20% of the land.

former determination means:

- (a) in relation to a transferring project—the applicable methodology determination for the project immediately before the approval under section 130 of the Act; and
- (b) in relation to a transferee project—the applicable methodology determination for the transferor project immediately before its section 27 declaration was varied.

FullCAM means the Full Carbon Accounting Model that is available on the Department's website, as in force from time to time.

Note: FullCAM is used to model forest carbon stocks associated with land use and management for Australia's National Greenhouse Gas Inventory. FullCAM could in 2016 be viewed on the Department's website (<http://www.environment.gov.au>).

FullCAM events queue, for a particular CEA, means the series of management activities and disturbance events, and their associated dates of occurrence, that are used in FullCAM to model carbon stock and emissions from biomass burning in that CEA.

Note: See also section 30.

FullCAM guidelines means the guidelines for the use of FullCAM for the purposes of this determination that are available on the Department's website, as in force from time to time.

Note: The FullCAM guidelines could in 2016 be viewed on the Department's website (<http://www.environment.gov.au>).

HIR activity (short for human induced regeneration activity)—see subsection 7(2).

HIR determination (short for human induced regeneration determination) means either of the following:

- (a) the *Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest) Methodology Determination 2013*;
- (b) the *Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination 2013*.

HIR project (short for human induced regeneration project)—see section 7.

model point location means the model point location selected in accordance with section 29, identified by latitude and longitude.

modelling commencement date, for a CEA, means the relevant date selected by the project proponent in accordance with section 28.

native forest means an area of land that:

- (a) contains native vegetation; and
- (b) is dominated by trees that:
 - (i) are located within their natural range; and
 - (ii) provide or, having regard to the location and characteristics of the land, are reasonably likely to provide, a crown cover of at least 20% of the area of land; and
 - (iii) have reached or, having regard to the location and characteristics of the land, are reasonably likely to reach, a height of at least 2 metres; and
- (c) is not a plantation.

native vegetation, in relation to a particular area, means a mix of trees, shrubs, and understorey species that reflects the structure and composition of the vegetation that, having regard to the location and characteristics of the area, is expected to occur naturally in that area.

Note: The mix may consist of a monoculture where, having regard to the location and characteristics of the area, a monoculture would be expected to occur naturally.

net abatement amount, of an HIR project for a reporting period, means the carbon dioxide equivalent net abatement amount for the project in the reporting period for the purposes of paragraph 106(1)(c) of the Act.

NFMR determination (short for native forest from managed regrowth determination) means the *Carbon Credits (Carbon Farming Initiative) (Native Forest from Managed Regrowth) Methodology Determination 2013*.

NGER Measurement Determination means the applicable determination made under subsection 10(3) of the *National Greenhouse and Energy Reporting Act 2007*.

NGER Regulations means the *National Greenhouse and Energy Reporting Regulations 2008*.

plantation means a forest established for harvest.

project mechanism means the mechanism outlined in section 12.

regeneration means the regrowth of trees from the germination of *in situ* seed, or the growth of *in situ* seedlings, rootstock or lignotuber.

Rule means the *Carbon Credits (Carbon Farming Initiative) Rule 2015*.

section 22 application means the relevant application under section 22 of the Act for the declaration of an HIR project as an eligible offsets project.

section 27 declaration, for an HIR project, means the relevant declaration under section 27 of the Act.

section 29 application means an application to vary a section 27 declaration to add a project area or part of a project area.

tonnes C means tonnes of carbon.

transferee project means an HIR project that is a transferee offsets project in relation to an area of land for the purposes of section 57 of the Act.

Note: This is the eligible offsets project to which the area of land is transferred in a restructure.

transferor project, in relation to a transferee project, means the transferor offsets project in relation to the relevant area of land for the purposes of section 57 of the Act.

Note: This is the eligible offsets project from which the area of land is transferred in a restructure.

transferring project means an HIR project to which this determination applies as a result of an approval under section 130 of the Act.

Note: See also section 13.

tree means a perennial plant that has primary supporting structures consisting of secondary xylem.

4 Meaning of *eligible land* and *baseline period*—general rule

Note: This section applies subject to section 5, which sets out special rules for projects and land transferring from an HIR determination, and for land that was formerly part of a project that was covered by an NFMR determination.

- (1) Subject to subsection 5(1), for this determination, an area of land is **eligible land** if:
 - (a) it did not have forest cover at any time during its baseline period; and
 - (b) during its baseline period, it was used or managed in such a way that:
 - (i) for land that is not conservation land—one or more of the following mechanisms contributed to suppressing the development of forest cover:
 - (A) livestock;
 - (B) feral animals;
 - (C) plants not native to the area;
 - (D) mechanical or chemical destruction, or suppression, of regrowth; and
 - (ii) for land that is conservation land:
 - (A) either or both of the mechanisms referred to in sub-subparagraphs (b)(i)(B) and (C) contributed to suppressing the development of forest cover (whether or not livestock or mechanical or chemical destruction, or suppression of regrowth, of vegetation other than native vegetation also contributed to the suppression); and
 - (B) there was no mechanical or chemical destruction, or suppression of regrowth, of native vegetation; and
 - (c) as at the end of the baseline period, it was reasonable to expect that it would be necessary to undertake one or more HIR activities on the land in order for it to attain forest cover.
- (2) For subparagraphs (1)(b)(i) and (ii), it is irrelevant whether other external factors, such as drought or fire, also contributed to the suppression.
- (3) For this determination, the **baseline period** of an area of land is:
 - (a) for an area of land that was identified as part of the project area when the project was declared eligible, and subject to subsection 5(2)—the period of 10 years ending on the date of the section 22 application; and
 - (b) for an area of land that became part of the project area as a result of a later section 29 application, and subject to subsection 5(3)—the period of 10 years ending on the date of the section 29 application.

- (4) Subsection (3) applies regardless of whether this determination or another methodology determination was the applicable methodology determination at the time of the declaration or the variation.

5 Meaning of *eligible land* and *baseline period*—transferring projects and land

Eligible land—land previously part of project covered by NFMR determination

- (1) Despite subsection 4(1), an area of land is *eligible land* if:
 - (a) the area of land:
 - (i) is not conservation land; and
 - (ii) constituted a carbon estimation area for a project to which an NFMR determination applied (the *original* project); and
 - (iii) has since become part of the project area of a project to which this determination applies; and
 - (b) while it was part of the original project, the project proponent gave the Regulator an offsets report that reported on the carbon estimation area.

Baseline period—project transferring from HIR determination

- (2) Despite paragraph 4(3)(a), if:
 - (a) the project is a transferring project; and
 - (b) the former determination is an HIR determination; and
 - (c) a particular area of land was part of the project area of the project while the former determination was the applicable methodology determination;the *baseline period* for the area of land is the period that was the baseline period when the former determination was the applicable methodology determination.

Baseline period—land transferred from project covered by HIR determination

- (3) Despite paragraph 4(3)(b), if:
 - (a) the project is a transferee project in relation to an area of land (the *relevant area*); and
 - (b) the former determination for that area of land is an HIR determination; and
 - (c) a particular area of land is within the relevant area;the *baseline period* for the area of land is the period that was the baseline period when the relevant area was part of the project area of the transferor project.

6 References to factors and parameters from external sources

- (1) If a calculation in this determination includes a factor or parameter that is defined or calculated by reference to another instrument or writing, the factor or parameter to be used for a reporting period is the factor or parameter referred to in, or calculated by reference to, the instrument or writing as in force at the end of the reporting period.
- (2) Subsection (1) does not apply if:
 - (a) this determination specifies otherwise; or

- (b) it is not possible to define or calculate the factor or parameter by reference to the instrument or writing as in force at the end of the reporting period.

Part 2—HIR projects

7 HIR projects

- (1) For paragraph 106(1)(a) of the Act, this determination applies to an offsets project that:
 - (a) involves:
 - (i) assisting the regeneration of native forest; and
 - (ii) the attainment of forest cover;by undertaking one or more HIR activities on land that does not have forest cover; and
 - (b) can reasonably be expected to result in eligible carbon abatement.
- (2) Each of the following is an **HIR activity**:
 - (a) in relation to land that is not conservation land—the following activities:
 - (i) the exclusion of livestock and the taking of reasonable steps to keep livestock excluded;
 - (ii) the management of the timing, and the extent, of grazing;
 - (iii) the management, in a humane manner, of feral animals;
 - (iv) the management of plants that are not native to the project area;
 - (v) the implementation of a decision to permanently cease the mechanical or chemical destruction, or suppression, of regrowth;
 - (b) in relation to conservation land—an activity that:
 - (i) is of a kind referred to in subparagraphs (a)(iii) or (iv); and
 - (ii) is not ordinarily undertaken, or not ordinarily undertaken to that extent, on conservation land of that type in the relevant jurisdiction.
- (3) A project covered by subsection (1) is an **HIR project**.

Part 3—Project requirements

Division 1—Operation of Part

8 Operation of this Part

For paragraph 106(1)(b) of the Act, this Part sets out requirements that must be met for an HIR project to be an eligible offsets project.

Division 2—Requirements for declaration as eligible project

9 Location

The project area must consist of land for which FullCAM data exists.

10 Information to be included in application for declaration or variation

- (1) This section applies to:
 - (a) a section 22 application, which identifies a project area; and
 - (b) a section 29 application that adds a project area or part of a project area.
- (2) For this section, the **relevant area** is the relevant area of land referred to in subsection (1).
- (3) The application must:
 - (a) identify, on a geospatial map, at least one area of land (the **candidate CEA**) within the relevant area that:
 - (i) has an area of 0.2 hectares or more; and
 - (ii) is eligible land; and
 - (b) include a description of:
 - (i) unless the land is eligible land as a result of subsection 5(1)—the activities that were undertaken during the baseline period in the candidate CEA that prevented the land from having forest cover; and
 - (ii) the HIR activity that is expected to be undertaken in the candidate CEA; and
 - (c) include a copy or a description of any clearing right that:
 - (i) has previously been exercised in any part of the relevant area; and
 - (ii) imposes ongoing requirements relating to the management of the cleared land.

Note: The candidate CEA is identified for the purpose of assessing whether section 11 is satisfied. It might or might not be possible subsequently to stratify the candidate CEA as a CEA; this will depend on whether the candidate CEA satisfies the requirements set out in section 16.

- (4) If the candidate CEA is on conservation land, the application must:
 - (a) describe any relevant land management practices that:
 - (i) relate to the management of feral animals or the management of plants that are not native to the area (as appropriate) in that area; and

- (ii) are ordinarily undertaken on conservation land of that type in the relevant jurisdiction; and
 - (b) either:
 - (i) provide documentary evidence of those practices; or
 - (ii) identify any readily accessible public sources where those practices have been documented.
- (5) The area of land must be identified in accordance with the mapping requirements set out in section 24.

11 Land characteristics

Each of the following must include eligible land:

- (a) any project area;
- (b) any area of land added to a project area as a result of a section 29 application.

12 Project mechanism

- (1) The project proponent must, in an area of eligible land, undertake one or more HIR activities in a way that can reasonably be expected to result in the area becoming native forest, and attaining forest cover, through regeneration.
- (2) The project proponent must not undertake direct seeding or planting in the area of land.

Example 1: An area of land that is not conservation land has been subject to uncontrolled grazing by livestock and feral animals for the last 10 years, to an extent that prevented the area from attaining forest cover. The project proponent then applies for an HIR project, with the HIR activity involving the fencing off of the area of land in order to exclude livestock and feral animals.

Example 2: A farmer has regularly been destroying regrowth on an area of land that is not conservation land by mechanical means, with an approximately 3-yearly cycle, for the last 14 years. Two years after the last destruction event, the farmer decides to permanently cease the destruction of regrowth in that area of land, and applies for an HIR project. The HIR activity involves the implementation of the decision to permanently cease the mechanical destruction of regrowth.

Once the project is underway, when the farmer would otherwise have mechanically destroyed regrowth in accordance with the former 3-yearly cycle, the farmer does not destroy any of the vegetation that has regenerated on the area of land. Any carbon that had been sequestered in the project area between the date of the last destruction event and the start of the crediting period would constitute initial carbon stock under the determination, and would not count towards the net abatement amount. (See section 69 of the Act for when the crediting period starts.)

13 Eligibility requirements for transferring project and land

- (1) A transferring project is not an eligible offsets project if:
 - (a) the former determination states, for the purposes of this section, that it is one that cannot be a former determination for this determination; or
 - (b) an offsets report has not been submitted under the former determination; or

- (c) an offsets report has been submitted under the former determination, but the most recent such offsets report was for a part of the project but not the whole project.
- (2) A transferee project is not an eligible offsets project if the former determination includes the statement referred to in paragraph (1)(a).

Division 3—Operation of HIR projects

Subdivision 1—Operation of Part

14 Operation of eligible projects

An HIR project that is an eligible offsets project must be operated in accordance with this Division.

Subdivision 2—Stratification of the project area

15 Stratification of project area into CEAs

Initial stratification of project area

- (1) Before submitting the first offsets report for the project under this determination, some or all of the project area must be stratified into one or more CEAs.
 - Note: For transferring projects or transferee projects, this requirement would be satisfied by the deemed stratification under section 19. For such projects, the project proponent would be able to stratify further CEAs under this section if they chose.
- (2) For this determination, a **CEA** is an area of land:
 - (a) in which the project mechanism has been implemented; and
 - (b) that has started to become native forest through regeneration; and
 - (c) in relation to which carbon stock and emissions are to be calculated for the purposes of this determination.

Subsequent stratification of project area

- (3) Before submitting subsequent offsets reports, any area of land within the project area that is not already stratified as a CEA may be stratified into one or more further CEAs.

16 Requirements for CEAs and CEA parts

- (1) A CEA must be made up of:
 - (a) a single area with an unbroken perimeter (that area being a **CEA part**); or
 - (b) 2 or more areas of land, each with an unbroken perimeter (each such area being a **CEA part**), whether or not those areas of land are contiguous.

Requirements for CEAs and CEA parts

- (2) A CEA part must:
 - (a) be within the project area; and

- (b) have an area of at least 0.2 hectares; and
 - (c) consist only of land:
 - (i) that is eligible land; and
 - (ii) on which the project mechanism has been undertaken; and
 - (iii) that has forest potential.
- (3) A CEA part must not overlap with another CEA part.
- (4) A CEA must consist only of land:
- (a) that first exhibited regeneration at or around the same time; and
 - (b) for which it is possible, in accordance with the FullCAM guidelines, to model the entire CEA using:
 - (i) a single FullCAM events queue; or
 - (ii) where provided for in the FullCAM guidelines—2 or more FullCAM events queues;
 to represent the management activities and disturbance events in the area of land; and
 - (c) across which a similar mix of native vegetation is regenerating.
- Note: For paragraph (4)(b), see section 30 for the requirement for the FullCAM events queue or events queues to accurately reflect the set of management activities and disturbance events occurring across the CEA.
- (5) If a CEA consists of more than one CEA part:
- (a) each CEA part must be identified at the time the CEA is first stratified; and
 - (b) the whole of the CEA must be contained in a circle with a radius of 1.5 kilometres.

17 CEA and CEA part boundaries

- (1) The geographic boundaries of each CEA part must be identified on a geospatial map in accordance with the CFI mapping guidelines and the mapping requirements set out in section 24.
- (2) Subject to subsections (3) and (4), the boundary of a CEA part must be a polygon that has vertices that lie no more than 2 metres from the stems of the outer-most trees that regenerate as a result of the project mechanism.
- (3) If the proposed boundary of a CEA part would overlap with the boundary of another CEA part, then the boundary of each CEA part must be located equidistant between the areas along the length of the area where the overlap would otherwise have occurred.
- (4) If any proposed boundary of a CEA part would be outside the project area, the boundary of the CEA part must instead be aligned with the boundary of the project area.

18 Re-stratification of a CEA

- (1) A CEA may be re-stratified only in accordance with this section.
- (2) If a CEA does not satisfy the requirements of:

- (a) for a CEA that is taken to have been stratified under section 19 and that has not been reported on under this determination—section 16, other than paragraph 16(4)(c); and
 - (b) otherwise—paragraph 16(4)(b);
- the area of land that makes up the CEA must be re-stratified so that it consists only of either or both of the following:
- (c) land that is stratified as one or more CEAs, where each CEA complies with the relevant requirements;
 - (d) land that is not part of a CEA.
- (3) If it can no longer reasonably be expected that a particular CEA part:
- (a) will become native forest through regeneration; or
 - (b) will attain forest cover;
- the area of land that makes up the CEA part must be re-stratified so that it consists only of either or both of the following:
- (c) land that is stratified as one or more CEA parts, where each CEA part can reasonably be expected to:
 - (i) become native forest through regeneration; and
 - (ii) attain forest cover;
 - (d) land that is not part of a CEA.
- (4) A CEA may be re-stratified as necessary in order to comply with subsections 17(3) and (4).

19 CEAs transferring from other projects

- (1) This section applies in relation to an area of land within the project area if:
- (a) the following are satisfied:
 - (i) the project is a transferring project;
 - (ii) the area of land constituted a carbon estimation area under the former determination;
 - (iii) the carbon estimation area was reported on in the most recent offsets report for the former determination; or
 - (b) the following are satisfied:
 - (i) the project is a transferee project;
 - (ii) the relevant area of land is identical to the overlap between the project's project area and an area that constituted a carbon estimation area under the former determination;
 - (iii) the carbon estimation area was reported on in an offsets report under the former determination.
- (2) The area of land is taken to be stratified, for the purposes of this determination, as a CEA that consists of a single CEA part.
- (3) The project proponent may elect to treat 2 or more such CEAs as CEA parts, provided that these, and the resultant CEA, comply with section 16.

Subdivision 3—Project operation

20 Removal of biomass from CEAs

- (1) Biomass must not be removed from CEAs except in accordance with this section.
- (2) Biomass may be removed to the extent necessary to comply with any law of the Commonwealth, a State or a Territory.
- (3) Plants that are not native to a particular CEA may be removed from the CEA only if the removal is likely to improve the growth rate or health of the remaining native vegetation.
- (4) Dead biomass may be removed from a CEA if:
 - (a) the dead biomass:
 - (i) did not result from mechanical or chemical damage or destruction of native vegetation (whether or not the damage or destruction was in accordance with section 22); and
 - (ii) is to be used as firewood for personal use; and
 - (b) the carbon stock in the CEA after the removal would not be materially less than it would have been were the biomass not removed.

21 Livestock and grazing restrictions

- (1) If the HIR activity undertaken as part of the project includes the exclusion of livestock from a particular CEA and the taking of reasonable steps to keep the livestock excluded, then:
 - (a) the project proponent must exclude livestock from the CEA, and continue taking such steps, until such time as the CEA has forest cover through regeneration; and
 - (b) after forest cover has been so attained, the proponent may instead undertake the HIR activity management of the timing, and the extent, of grazing in that CEA, and in so doing, permit livestock in the CEA.
- (2) If the HIR activity undertaken as part of the project includes the management of the timing, and extent, of grazing in a particular CEA, grazing (including the grazing of livestock) may be permitted in the CEA only to the extent that the carbon stock in the CEA would not be materially less than it would have been were grazing not permitted.

22 Restriction on mechanical or chemical destruction of native vegetation

- (1) Within a CEA, native vegetation must not be mechanically or chemically damaged or destroyed unless required by or under law or permitted by this determination.
- (2) The project proponent may selectively damage or destroy native vegetation in a CEA if:
 - (a) the damage or destruction is primarily to improve the growth rate or health of the remaining native vegetation; and
 - (b) subject to subsection 20(2), the resulting biomass remains in the CEA.

23 Use of lime or fertiliser

Lime or fertiliser must not be used on land in a CEA.

Subdivision 4—Mapping requirements

24 Mapping requirements

For sections 10 and 17, mapping must be done using:

- (a) the CFI mapping tool; or
- (b) another geographic information system that meets the relevant geospatial information requirements of the CFI mapping guidelines.

Part 4—The net abatement amount

Division 1—Operation of this Part

25 Operation of this Part

For paragraph 106(1)(c) of the Act, this Part specifies the method for working out the net abatement amount for a reporting period for an HIR project that is an eligible offsets project.

26 Overview of gases accounted for in abatement calculations

The following table provides an overview of the carbon pools and greenhouse gases and emissions sources that are relevant to working out the net abatement amount for an HIR project.

Overview of gases accounted for in abatement calculations			
Item	Relevant carbon pool or emission source		Greenhouse gas
1	Carbon pool	Live above-ground biomass	Carbon dioxide (CO ₂)
2	Carbon pool	Live below-ground biomass	Carbon dioxide (CO ₂)
3	Carbon pool	Dead plant material and debris	Carbon dioxide (CO ₂)
4	Emission source	Fuel use	Methane (CH ₄) Nitrous oxide (N ₂ O) Carbon dioxide (CO ₂)
5	Emission source	Fire	Methane (CH ₄) Nitrous oxide (N ₂ O)

Division 2—Overview of method for calculating net abatement amount

Subdivision 1—Summary of method

27 Summary

The main equation for the net abatement amount for an HIR project for a reporting period is Equation 1. To calculate the net abatement amount, the project proponent must first ascertain the carbon stock change for the CEAs that are being reported on in that reporting period (Equations 2 to 5), and subtract from that the project emissions from biomass burning and from fuel use for those CEAs in that reporting period (Equations 6 to 10).

The amount so calculated is then adjusted where necessary by any carryover of negative abatement from the previous reporting period, A_{r-1} . If the resulting number A_r is zero or greater than zero, it represents the net abatement amount for

the reporting period. If A_r is a negative number, the net abatement amount for the reporting period is instead equal to zero, and the negative number is carried over into the next reporting period, and becomes A_{r-1} for that reporting period.

The carbon stock change and the emissions from biomass burning (but not the emissions from fuel use) are calculated using FullCAM.

Subdivision 2—Use of FullCAM

28 Modelling commencement date

- (1) For the purposes of calculating carbon stock in FullCAM, the project proponent must select, for each CEA, a modelling commencement date.
- (2) The modelling commencement date must be a date that is as close as practicable to, but no earlier than, the date at which sufficient regeneration has occurred in the area of land covered by the CEA to demonstrate that the area of land:
 - (a) has forest potential; and
 - (b) has started to become native forest through regeneration.

Note: Depending on the history of the land, the modelling commencement date could be before or after the implementation of the project mechanism in the CEA.

For example, regrowth might not have been suppressed for several years prior to the date that the project proponent implemented a decision to permanently cease destruction or suppression of regrowth, and to allow the area of land to become native forest through regeneration (see example 2 in section 12). In such a case:

- the modelling commencement date could, depending on the circumstances, be several years prior to the declaration of the project as an eligible offsets project; and
- when performing calculations using FullCAM, the proponent would be required to take account of all management actions and disturbance events that occurred in the area of land since the modelling commencement date (see section 30); and
- the net abatement amount for the project would not include carbon stock that was sequestered in the area of land before the start time of the crediting period; such carbon stock is treated as initial carbon stock in section 33, and is subtracted during the calculation of the net abatement amount.

29 Model point location

- (1) The project proponent must select a model point location for each CEA for use in FullCAM.
- (2) The model point location must:
 - (a) be representative of the CEA; and
 - (b) be as close as reasonably practicable to the centre of the CEA.

Note: For a CEA with 2 or more CEA parts, the model point location must be as close as reasonably practicable to the centre of the CEA parts when taken together.

- (3) The model point location need not be within the CEA or, for a CEA with 2 or more CEA parts, within any of the CEA parts.

- (4) The model point location must not change unless the CEA is re-stratified in accordance with section 18.

30 FullCAM events queue

The FullCAM events queue or events queues that are used to model carbon stock and emissions from biomass burning in a particular CEA must:

- (a) comply with any relevant requirements of the FullCAM guidelines; and
- (b) accurately reflect the set of management activities and disturbance events that occurred in the area of land that comprises that CEA during the period being modelled.

31 Use of FullCAM to calculate net abatement amount

- (1) FullCAM must be used in accordance with the FullCAM guidelines to determine the following amounts under this Part for each CEA that is being reported on in a particular reporting period:
 - (a) where calculation of initial carbon stock is required for a particular CEA—the C mass of forest debris (CD_i) and trees (CT_i) for the CEA immediately before the beginning of the reporting period;
 - (b) the C mass of forest debris (CD_i) and trees (CT_i) at the end of the reporting period;
 - (c) the mass of CH_4 emitted during the reporting period due to biomass burning ($E_{CH_4,i}$);
 - (d) the mass of N_2O emitted during the reporting period due to biomass burning ($E_{N_2O,i}$).
- (2) To determine these parameters, the project proponent must use the following information for each CEA, in the format required by FullCAM, as input data for FullCAM simulations:
 - (a) the model point location;
 - (b) the modelling commencement date;
 - (c) the FullCAM events queue.

Division 3—The net abatement amount

32 Calculating the net abatement amount

- (1) For paragraph 106(1)(c) of the Act, the net abatement amount for a reporting period r is:
 - (a) if A_r , as given by Equation 1, is zero or greater than zero—equal to A_r ; and
 - (b) if A_r , as given by Equation 1, is less than zero—equal to zero.

Note: If A_r for a reporting period r is less than zero, the negative value is carried forward to the following reporting period as A_{r-1} in Equation 1, and reduces the net abatement amount for that reporting period.

- (2) For subsection (1), A_r (in tonnes CO_2 -e) is given by the following equation:

$A_r = \Delta C_r - E_B - E_F + A_{r-1}$	Equation 1
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where:

ΔC_r is the carbon stock change (in tonnes CO₂-e) for the CEAs that are being reported on in reporting period r—see Equation 2.

E_B is the project emissions from biomass burning (in tonnes CO₂-e) for the CEAs that are being reported on in the reporting period—see Equation 6.

E_F is the project fuel emissions (in tonnes CO₂-e) for the CEAs that are being reported on in the reporting period—see Equation 9.

A_{r-1} is the carryover net abatement amount from previous reporting periods (in tonnes CO₂-e), and is ascertained in accordance with Division 6.

Note: A_{r-1} is either equal to zero or is a negative number that represents negative abatement from one or more previous reporting periods, and that is brought forward to, and accounted for in, reporting period r under this determination.

Division 4—Calculation of carbon stock change

33 Calculating carbon stock change for reporting period in tonnes CO₂-equivalent (CO₂-e)

- (1) For subsection 32(2), the carbon stock change (in tonnes CO₂-e) for the CEAs that being are reported on in reporting period r, ΔC_r , is calculated using the following equation:

$\Delta C_r = \frac{44}{12} \times (C_r - C_{r-1} - IC_r)$	Equation 2
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where:

C_r is the closing carbon stock for reporting period r (in tonnes C), and is calculated in accordance with subsection (2).

C_{r-1} is, subject to subsections (3) and (4):

- (a) equal to zero if:
- (i) reporting period r is the first reporting period for the project under this determination; and
 - (ii) the project has not been reported on under another applicable methodology determination; and
- (b) otherwise—equal to the closing carbon stock for the reporting period r – 1 that preceded reporting period r (in tonnes C), as calculated for the purposes of the offsets report for that reporting period under the

methodology determination that was the applicable methodology determination for that reporting period.

Note 1: The amount C_{r-1} accounts for carbon stock that has been sequestered in the project area as the result of the regeneration of native vegetation before the reporting period r , and that has been reported on in a previous offsets report.

Note 2: If the project is a transferring project, a final offsets report will have been completed for the entire project under the former determination—see section 13. C_{r-1} for the first reporting period under this determination will, subject to subsections (3) and (4), be the carbon stock reported in that offsets report.

IC_r is the initial carbon stock (if any) for reporting period r (in tonnes C), and is calculated in accordance with subsection (5).

Note: The amount IC_r accounts for carbon stock that has been sequestered in the project area as the result of the regeneration of native vegetation before the reporting period r , but that has not been reported on in a previous offsets report. The first time a CEA is reported on, its initial carbon stock for the reporting period might be either zero or a non-zero value. Subsequently, its initial carbon stock for the reporting period is zero.

Calculation of C_r

- (2) For subsection (1), the closing carbon stock for reporting period r (in tonnes C), C_r , is calculated using the following equation:

$C_r = \sum_i C_{i,r}$	Equation 3
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where:

i is a CEA that is being reported on in reporting period r .

$C_{i,r}$ is the carbon stock for the i^{th} CEA that is being reported on in reporting period r , in tonnes C, as at the end of the reporting period, and given by C_i as calculated in accordance with subsection (6) for the last month of the reporting period.

Adjustment to C_{r-1} for restructured project

- (3) If, in reporting period r , the project becomes a transferee project in relation to an area of land that was a carbon estimation area, or part of a carbon estimation area, under the transferor project, the amount C_{r-1} is increased by the amount of carbon stock, in tonnes C, that was sequestered in that area at the end of the last reporting period of the transferor project before the transfer, ascertained using the methodology determination that applied to the transferor project.
- (4) If, in reporting period r , the project becomes a transferor project in relation to an area of land that was a CEA, or part of a CEA, the amount C_{r-1} is decreased by the amount of carbon stock, in tonnes C, that was sequestered in that area at the end of the last reporting period before the transfer, ascertained using this determination.

Calculation of IC_r

- (5) For subsection (1), the initial carbon stock (if any) for reporting period r (in tonnes C), IC_r, is calculated using the following equation:

$IC_r = \sum_i IC_{i,r}$	Equation 4
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where:

i is a CEA that is being reported on in reporting period r.

IC_{*i,r*} is:

- (a) for a CEA *i*:
- (i) that is stratified during reporting period r under section 15; and
 - (ii) for which the modelling commencement date is not within reporting period r;
- equal to the carbon stock for the CEA, in tonnes C, as at the beginning of reporting period r, and given by C_{*i*} as calculated in accordance with subsection (6) for the last month before the start of the reporting period; and
- (b) in any other case—equal to zero.

Calculation of carbon stock for ith CEA

- (6) For subsections (2) and (5), the carbon stock for the *i*th CEA, C_{*i*} (in tonnes C) is calculated using the following equation:

$C_i = (CD_i + CT_i) \times A_i$	Equation 5
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where:

CD_{*i*} is the C mass of forest debris (in tonnes C per hectare) for the *i*th CEA, determined using FullCAM.

CT_{*i*} is the C mass of trees (in tonnes C per hectare) for the *i*th CEA, determined using FullCAM.

A_{*i*} is the area (in hectares) of the *i*th CEA.

Note 1: See also section 31 for the use of FullCAM in calculating the net abatement amount.

Note 2: For subsection (2), C_{*i*} represents the amount C_{*i,r*}. For subsection (5), C_{*i*} represents the amount IC_{*i,r*}.

Division 5—Calculation of project emissions

34 Outline of Division

For subsection 32(2), the emissions from biomass burning and the fuel emissions for the CEAs that are being reported on in the reporting period, E_B and E_F , in tonnes CO₂-e, are calculated in accordance with this Division.

35 Calculation of methane and nitrous oxide emissions from fire

- (1) For subsection 32(2), the project emissions from biomass burning (in tonnes CO₂-e) for the CEAs that are being reported on in the reporting period, E_B , is calculated using the following equation:

$E_B = E_{B,CH_4} + E_{B,N_2O}$	Equation 6
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where:

E_{B,CH_4} is the emissions of CH₄ from biomass burning for the reporting period (in tonnes CO₂-e)—see Equation 7.

E_{B,N_2O} is the emissions of N₂O from biomass burning for the reporting period (in tonnes CO₂-e)—see Equation 8.

- (2) For subsection (1), the emissions of CH₄ from biomass burning for the reporting period (in tonnes CO₂-e), E_{B,CH_4} , is calculated using the following equation:

$E_{B,CH_4} = GWP_{CH_4} \times \sum_i (E_{CH_4,i} \times A_i)$	Equation 7
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where:

GWP_{CH_4} is the global warming potential of methane as specified in the NGER Regulations.

i is a CEA that is being reported on in the reporting period.

$E_{CH_4,i}$ is the mass of CH₄ emitted during the reporting period due to biomass burning in the i^{th} CEA determined using FullCAM (in tonnes per hectare).

Note: See also section 31 for the use of FullCAM in calculating the net abatement amount.

A_i is the area (in hectares) of the i^{th} CEA.

- (3) For subsection (1), the emissions of N₂O from biomass burning for the reporting period (in tonnes CO₂-e), E_{B,N_2O} , is calculated using the following equation:

$E_{B,N_2O} = \left(\frac{GWP_{N_2O}}{1000} \right) \times \sum_i (E_{N_2O,i} \times A_i)$	Equation 8
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where:

GWP_{N_2O} is the global warming potential of nitrous oxide as specified in the NGER Regulations.

i is a CEA that is being reported on in the reporting period.

$E_{N_2O,i}$ is the mass of N₂O emitted during the reporting period due to biomass burning in the i^{th} CEA determined using FullCAM (in kilograms per hectare).

Note: See also section 31 for the use of FullCAM in calculating the net abatement amount.

A_i is the area (in hectares) of the i^{th} CEA.

36 Calculation of emissions from fuel use

- (1) For subsection 32(2), the project fuel emissions (in tonnes CO₂-e) for the CEAs that are being reported on in the reporting period, E_F , is calculated using the following equation:

$E_F = \sum_f \sum_k E_{f,k}$	Equation 9
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where:

f is a fuel that was used during the reporting period in a CEA that is being reported on in that reporting period.

k is a greenhouse gas emitted by the use of that fuel, and takes on the values CO₂, CH₄ and N₂O.

$E_{f,k}$ is the fuel emissions for fuel type f and greenhouse gas k (in tonnes CO₂-e) for the CEAs that are being reported on in the reporting period—see Equation 10.

- (2) For subsection (1), the fuel emissions for fuel type f and greenhouse gas k (in tonnes CO₂-e) for the CEAs that are being reported on in the reporting period, $E_{f,k}$, is calculated using the following equation:

$E_{f,k} = \frac{Q_f \times e_f \times F_{f,k}}{1000}$	Equation 10
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where:

Q_f is the quantity of fuel type f combusted within the reporting period across the CEAs that are being reported on in that reporting period (in kilolitres), ascertained on the basis of:

- (a) raw data; or
- (b) estimates for quantities and types of fuel used.

e_f is the energy content factor of fuel type f, as prescribed in Schedule 1 of the NGER Measurement Determination (in gigajoules per kilolitre).

$F_{f,k}$ is the emission factor for fuel type f and greenhouse gas k as prescribed in Schedule 1 to the NGER Measurement Determination (in kilograms CO₂-e per gigajoule).

Division 6—Calculation of carryover net abatement amount, A_{r-1}

37 Calculating the carryover amount

- (1) For subsection 32(2), the carryover net abatement amount for reporting period r, A_{r-1} , is equal to zero, unless any of the following subsections provides otherwise.

Calculation of A_{r-1} —negative abatement for previous reporting period under this determination

- (2) Subject to subsection (4), if:
 - (a) the project reported under this determination for the reporting period r – 1 that preceded reporting period r; and
 - (b) the value of A_r calculated for the purposes of determining the net abatement amount for that preceding reporting period was a negative number;

then A_{r-1} is instead equal to that negative number.

Calculation of A_{r-1} —transferring project with negative abatement for previous reporting period or reporting periods

- (3) If:
 - (a) during reporting period r, the project became a transferring project; and
 - (b) the former determination was an NFMR determination; and
 - (c) the net abatement amount for the final reporting period under that determination was a negative number;

then A_{r-1} is instead equal to that negative number.

- (4) If:
 - (a) during reporting period r, the project became a transferring project; and
 - (b) in one or more earlier reporting periods for the project, the net abatement amount:
 - (i) was ascertained under an HIR determination; and
 - (ii) was a negative number;

then A_{r-1} is instead equal to the sum of the net abatement amounts from previous reporting periods for the project:

- (c) for which the net abatement amount was calculated under an HIR determination; and
- (d) for which the net abatement amounts were negative numbers.

Part 5—Reporting, record-keeping and monitoring requirements

Note: General reporting, notification, record-keeping and monitoring requirements are set out in the Act and the Rule. This Part includes supplementary requirements specific to this determination.

Division 1—Offsets report requirements

38 Operation of this Division

For paragraph 106(3)(a) of the Act, this Division sets out information that must be included in an offsets report about an HIR project that is an eligible offsets project.

39 Information that must be included in offsets reports

- (1) The following information must be included in each offsets report for each CEA that is reported on in the relevant reporting period:
 - (a) the location and boundaries of the CEA, identified on a geospatial map (see subsection 17(1));
 - (b) whether the CEA is on conservation land;
 - (c) if the CEA has 2 or more CEA parts—the identity of the CEA parts of which it consists;
 - (d) if not clearly visible on the map—a list of names or other labels used to identify the CEA and CEA parts;
 - (e) a description of the HIR activity that was undertaken in the CEA;
 - (f) the location of its model point;
 - (g) its modelling commencement date;
 - (h) if, in accordance with the FullCAM guidelines, the project proponent was required to estimate the proportion of trees that died as a result of a fire or other disturbance event—a description of the process the proponent used to assess that proportion;
 - (i) if the CEA is on conservation land:
 - (i) a description of any relevant land management practices that:
 - (A) relate to the management of feral animals or the management of plants that are not native to the area (as appropriate) in that area; and
 - (B) are ordinarily undertaken on conservation land of that type in the relevant jurisdiction; and
 - (ii) either:
 - (A) documentary evidence of those practices; or
 - (B) a reference to any readily accessible public source where those practices have been documented; and
 - (iii) a description of how the HIR activity that was undertaken differs from any such practices; and
 - (j) date stamped FullCAM output files (.plo file) for the CEA.

- (2) If the project is a transferring project, the first offsets report under this determination must contain a copy or a description of any clearing right:
 - (a) that was exercised in any part of the project area before the project commenced; and
 - (b) that imposes ongoing requirements relating to the management of the cleared land; and
 - (c) a copy or a description of which has not previously been provided to the Regulator.
- (3) If the information referred to in paragraphs (1)(a) to (i) about a particular CEA has been provided in an earlier offsets report, the proponent may instead state that fact and identify the relevant report.
- (4) If, in the circumstances described in paragraph 6(2)(b), a factor or parameter is defined or calculated for a reporting period by reference to an instrument or writing as in force from time to time, the offsets report about the project for the reporting period must describe the reasons why it was not possible to define or calculate the factor or parameter by reference to the instrument or writing as in force at the end of the reporting period.

Division 2—Record-keeping requirements

40 Operation of this Division

For paragraph 106(3)(c) of the Act and paragraph 100(2)(m) of the Rule, this Division sets out record-keeping requirements for an HIR project that is an eligible offsets project.

41 Records that must be kept

- (1) The project proponent must make and keep records that evidence the plant species or species mix regenerating within each CEA.
- (2) The project proponent must make and keep, for each CEA:
 - (a) records that evidence the activities that were undertaken during the baseline period for the CEA that contributed to suppress the development of forest cover in the CEA; and
 - (b) records that demonstrate how the CEA was identified and how stratification and re-stratification were undertaken; and
 - (c) records that evidence that the area of land that makes up the CEA is eligible land; and
 - (d) records that evidence that the modelling commencement date satisfies subsection 28(2), including any of the following:
 - (i) remotely-sensed imagery;
 - (ii) documented regeneration;
 - (iii) relevant expert information, for example, about local growth rates and rainfall data; and

- (e) records that evidence the commencement of one or more HIR activities that resulted in, or could reasonably be expected to result in, the CEA becoming native forest through regeneration and attaining forest cover; and
- (f) a description of the type and timing of management activities and disturbance events, and their associated dates of occurrence, including but not limited to:
 - (i) the activities and events that are relevant to determining the FullCAM events queue; and
 - (ii) where necessary, any activities proposed or undertaken to ensure that carbon stocks are restored; and
- (g) records that evidence the description referred to in paragraph (f); and
- (h) records that evidence that the FullCAM events queue accurately represents the set of management activities and disturbance events occurring in the CEA; and
- (i) records that evidence that any livestock permitted in the CEA were permitted in accordance with section 21; and
- (j) records relating to fuel use on project activities.

Example 1: For paragraph (2)(b), the records could include relevant remotely-sensed imagery, and soil, vegetation and landform maps.

Example 2: For paragraph (2)(c), the project proponent could retain date-stamped, geo referenced, remotely-sensed imagery for each year of the baseline period. This could consist of the National Inventory Forest Extent Data as published by the Department of the Environment for the relevant year.

Example 3: For paragraph (2)(e), the project proponent could retain records of activities that assist the area of land becoming native forest through regeneration, such as:

- records of fencing to exclude livestock, to remove feral animals, or to manage non-native plant species; and
- records of a change in land management to CEA, such as the reduction of mechanical or chemical suppression of regrowth.

The records could further include records of estimated tree density (stems per hectare) and anticipated crown cover at maturity.

Example 4: For paragraph (2)(f), the activities and events could include management events such as regeneration, and disturbance events such as fire.

Example 5: For paragraph (2)(j), records could, for example, include invoices, vehicle logbooks, records of project activity, or reports of calculated consumption based on hourly or per hectare consumption rates. If fuel use records for project activities cannot be disaggregated from other non-project activities, estimates of project fuel use may be based on the time spent undertaking project activities and the known average fuel consumption of vehicles or machinery.

Division 3—Monitoring requirements

42 Operation of this Division

For paragraph 106(3)(d) of the Act, this Division sets out monitoring requirements for an HIR project that is an eligible offsets project.

43 Project monitoring

Note: Monitoring specified in this section may be done by ground observation or remotely-sensed imagery.

The project proponent must:

- (a) monitor the CEAs of the project for compliance with Subdivision 3 of Division 3 of Part 3 (which deals with project operation); and
- (b) monitor management activities and disturbance events within each CEA; and
- (c) undertake sufficient monitoring of each CEA so as to be able to ascertain:
 - (i) the area of each CEA that is burnt in each reporting period; and
 - (ii) whether the CEA is required to be re-stratified as described in subsection 18(3).

Division 4—Reporting under section 77A of the Act

44 No division of CEA

For subsection 77A(2) of the Act, the division of the overall project must not result in the division of a CEA.