Carbon Farming (Quantifying Carbon Sequestration by Permanent Environmental Plantings of Native Tree Species using the CFI Reforestation Modelling Tool) Methodology Determination 2012

Carbon Credits (Carbon Farming Initiative) Act 2011

I, MARK DREYFUS, Parliamentary Secretary for Climate Change and Energy Efficiency, make this Methodology Determination under subsection 106 (1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

Dated 8 June 2012

MARK DREYFUS

Parliamentary Secretary for Climate Change and Energy Efficiency

Contents

Part 1 Preliminary

1.1 Name of Methodology Determination

This Methodology Determination is the *Carbon Farming (Quantifying Carbon Sequestration by Permanent Environmental Plantings of Native Species using the CFI Reforestation Modelling Tool) Methodology Determination 2012.*

1.2 Commencement

This Methodology Determination commences on 1 July 2010.

1.3 Application

(1) This Methodology Determination applies to a project to establish and then maintain, in any part of Australia except the external territories, a permanent planting that is also an environmental planting which:

(a) is established only by direct seeding or planting; and

(b) contains trees that, on the project area, have the potential to attain:

(i) a crown cover of at least 20% across the area of land; and

(ii) a height of at least 2 metres.

(2) For the avoidance of doubt, the planting may have been established prior to 1 July 2010.

Note: Subsections 27 (15) and (16) of the Act provide that a project may not be credited for abatement that occurs prior to 1 July 2010. Further limitations on the timing of establishment of plantings may apply to a project by virtue of the criteria in subsection 27 (4) of the Act.

1.4 Definitions

In this determination:

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

carbon estimation area means a stratum of the project area that is determined in accordance with section 2.3 of this Methodology Determination.

CFI Mapping Tool means the online mapping tool used to define a project area, published by the Department and updated from time to time.

carbon stock means the quantity of carbon held within the relevant carbon pool or pools in an area at a specified time.

carbon stock change means the difference in the carbon stock in the relevant carbon pools in an area over a specified period of time.

disturbance event means an event that affects the growth of trees, and includes natural disturbances such as fire, pest, disease or storm and artificial disturbances.

exclusion area means an area within the project area which is determined in accordance with section 2.4 of this Methodology Determination and is not included when calculating the total net abatement amount for a project.

fallen timber means biomass that is not:

(a) a log with hollows;

(b) a log with growing moss and fungi; or

(c) fallen timber as a result of cutting, breaking off or harming standing living or dead trees or shrubs.

greenhouse gas assessment boundary – see section 3.2 of this Methodology Determination**.**

initial carbon stock means the carbon stock existing in an area at the establishment of the project.

Reforestation Modelling Tool means an online tool, published by the Department and as updated by the Department from time to time, that estimates the carbon stock in an area.

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

relevant carbon pool, in relation to this Methodology Determination, means the living biomass and the dead organic matter.

stratification means the division of a project area into areas with common attributes in accordance with the CFI Mapping Guidelines.

thinning means the selective removal of plants, primarily undertaken to improve the growth rate or health of the remaining vegetation.

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

NGER Regulations means the regulations made under the *National Greenhouse and Energy Reporting Act 2007* as in force from time to time.

non-forested land is land that does not have trees situated on it that:

(a) have attained, or have the potential to attain, a crown cover of at least 20% across the area of land; and

(b) have reached, or have the potential to reach, a height of at least 2 metres.

nursery operations means the operations involved in the propagation, breeding and early cultivation of plants.

woody plants means trees and shrubs.

Note: Other words and expressions used in this Methodology Determination have the meaning given by section 5 of the Act or by the Regulations. These terms include:

- baseline;
- CFI Mapping Guidelines;
- CFI rainfall map;
- eligible offsets project;
- emission;
- environmental planting;
- greenhouse gas;
- known weed species;
- relevant carbon pool;
- offsets project;
- offsets report;
- permanent planting;
- project;
- project area;
- project proponent;
- Regulator;
- reporting period;
- tree.

The CFI Mapping Guidelines, CFI rainfall map, CFI Mapping Tool and CFI Reforestation Modelling Tool are available from the Department's website on www.climatechange.gov.au.

Part 2 Project requirements

2.1 Requirements that must be met for an offsets project to be an eligible offsets project

(1) For paragraph 106 (1) (b) of the Act, this section sets out requirements that must be met for an offsets project to which this Methodology Determination applies to be an eligible offsets project.

(2) A project must consist of the establishment and maintenance of a planting mentioned in section 1.3 in an area which, for the five years prior to establishment:

(a) either:

(i) has been used for grazing, pasture management, cropping, nature conservation, settlement; or

(ii) has not been used for any purpose; and:

(b) has been non-forested land; and

(c) has not had woody plants removed, other than known weed species required to be cleared by law.

(3) The environmental planting must:

(a) be established only by direct seeding or planting; and

(b) contain trees that, on the project area, have the potential to attain:

(i) a crown cover of at least 20% across the area of land; and

(ii) a height of at least 2 metres.

(4) Ripping and mounding must not be used for site preparation over more than 10% of a carbon estimation area if, according to the CFI rainfall map, the area receives greater than 800mm long-term average annual rainfall.

(5) Following commencement of a project:

(a) biomass from plants that have been thinned must not be removed from the project area other than:

(i) for fire management; or

(ii) in accordance with traditional indigenous practices or native title rights;

(b) only fallen timber may be removed for firewood;

(c) not more than 10% of fallen timber may be removed for firewood in a calendar year;

(d) plants must not be removed for use as fencing; and

(e) grazing by livestock must not occur in the project area:

(i) for three years following the seeding or planting of plants in an area; or

(ii) at any time, if it would prevent the regeneration of trees.

(6) The project must meet the requirements for a project area, carbon estimation areas and exclusion areas specified in this Part.

(7) Project proponents must use the Reforestation Modelling Tool, using the mixed species environmental planting setting in that tool, for the calculations where specified in Part 3 of this Methodology Determination.

Note 1: Subregulation 3.1 (6) of the Regulations requires an application for a sequestration offsets project to be accompanied by a geospatial map of the project area.

Note 2: An environmental planting may only be thinned for ecological purposes and firewood may only be removed for personal use: see the definition of 'permanent planting' in regulation 1.3 of the Regulations.

2.2 Requirements for the project area

(1) The boundaries of the project area must be determined in accordance with the CFI Mapping Guidelines.

Requirement to stratify project area into carbon estimation areas

(2) The project area must be stratified into carbon estimation areas and exclusion areas according to the site characteristics and management practices that will affect the growth rate of trees in the area.

(3) The project area must contain at least one carbon estimation area and may include one or more exclusion areas.

2.3 **Requirements for a carbon estimation area**

Requirement to include a model point location

(1) A carbon estimation area must contain a model point location (latitude and longitude) for use by the Reforestation Modelling Tool. A model point location must not change unless the carbon estimation area is re-stratified into two or more areas.

Planting and management of a carbon estimation area

(2) A carbon estimation area must:

(a) have uniform site characteristics, including:

(i) soil type;

(ii) aspect;

(iii) position on slope; and

(a) be planted or seeded with the same species or combination of species; and

(b) be established and managed using the same methods, including:

(i) preparation prior to planting;

(ii) planting;

(iii) thinning;

(iv) weed control treatment; and

(v) the application of fertiliser.

(3) The planting or seeding within a carbon estimation area must be done within a 30 day period.

(4) For the avoidance of doubt, a carbon estimation area:

(a) must be located wholly within the project area; and

(b) may be located wholly within or adjoin the boundaries of an exclusion area.

Requirement to re-stratify a carbon estimation area

(5) A carbon estimation area must be re-stratified if:

(a) the management regime in the area or part of the area changes; or

(b) if the site characteristics in the area are found to be not uniform.

Information and documents to identify a carbon estimation area

(6) The geographic boundaries of each carbon estimation area for the project area must be identified on a geospatial map in accordance with the CFI Mapping Guidelines:

(a) either:

(i) for projects established prior to the date that the project is declared an eligible offsets project, with the application for a declaration pursuant to section 27 of the Act; or

(ii) for projects established on or after the date that a project is declared an eligible offsets project, at the time that the first offsets report is submitted to the Regulator; and

(b) when the project area or carbon estimation area is re-stratified.

(7) A carbon estimation area and its boundaries must be determined in accordance with the CFI Mapping Guidelines.

2.4 **Requirements for an exclusion area**

(1) An exclusion area must be created for an area of land within a project area that:

(a) in the five years prior to establishment, has had woody plants removed, other than known weed species required to be cleared by law; or

(b) cannot otherwise be used to undertake the project activity.

Note: There are restrictions about establishing vegetation on land where clearing has occurred: see subsection 56 (1) of the Act and Regulation 3.36 of the Regulations.

(2) An exclusion area:

(a) must be located wholly within the project area;

(b) may be located wholly within or adjoin the boundaries of a carbon estimation area; and

(c) must not contain a model point location.

Information and documents to identify an exclusion area

(3) The geographic boundaries of an exclusion area must be identified on a geospatial map of the project area in accordance with the CFI Mapping Guidelines:

(a) either:

(i) for projects established prior to the date the project is declared an eligible offsets project, with the application for a declaration pursuant to section 27 of the Act; or

(ii) for projects established on or after the date a project is declared an eligible offsets project, at the time the first offsets report is submitted to the Regulator; and

(b) when a project area or a carbon estimation area is re-stratified and this affects the boundary of an exclusion area or creates a new exclusion area.

Part 3 Calculating the carbon dioxide equivalent net abatement amount for a project in relation to a reporting period

Division 3.1 Preliminary

3.1 General

(1) For paragraph 106 (1) (c) of the Act, this Part sets out requirements that must be met to ascertain the carbon dioxide equivalent net abatement amount for a reporting period for an offsets project to which this Methodology Determination applies.

(2) In this Part:

(a) all calculations are in respect of activities undertaken, or outcomes achieved, during the reporting period for the offsets project; and

(b) if a calculation in Division 3.2 refers to a factor or parameter prescribed in the *NGER Measurement Determination* or the *NGER Regulations*, the person carrying out the calculations must apply, to the entire offsets reporting period, the *NGER Measurement Determination* or *NGER Regulations* in force at the time that the offsets report was submitted or was required to be submitted, whichever occurs first.

(3) The data used in the calculations set out in Division 3.2 must comply with the requirements set out in Division 3.3.

3.2 Greenhouse gas assessment boundary

The following greenhouse gases must be taken into account when making calculations under this Part in respect of each of the following kind of carbon pools and emission sources within the project area. No other gases, carbon pools or emission sources may be taken into account.

Table of gases accounted for in the abatement calculations.

Carbon pools and emission sources	**Greenhouse gas**
Live above-ground biomass	Carbon dioxide (CO_2)

Live below-ground biomass	Carbon dioxide (CO_2)
Dead plant material and debris	Carbon dioxide (CO_2)
Fuel use	Methane (CH_4) Nitrous oxide (N_2O) Carbon dioxide (CO_2)
Fire	Methane (CH_4) Nitrous oxide (N_2O) Carbon dioxide (CO_2)

3.3 Calculating the baseline for the project

(1) For the purposes of paragraph 106 (4) (f) of the Act, the baseline for the project is taken to be zero.

Division 3.2 Calculations

Subdivision 3.2.1 Calculating the carbon dioxide equivalent net abatement amount

3.4 Calculating the initial carbon stock of the project area

(1) For projects established on or after the date a project is declared an eligible offsets project, the initial carbon stock (IC_{PA}) is zero.

(2) For projects established prior to the date the project is declared an eligible offsets project, the initial carbon stock for a project area is the carbon stock at the date the declaration of the eligible offsets project takes effect and is calculated using the following formula:

$\mathbf{IC_{PA}} = \sum_{\mathbf{i=1}}^{\mathbf{n}} \mathbf{IC_{CEA,i}}$	**Equation 1a**

where:

$\mathbf{IC_{PA}}$ = initial carbon stock (in tonnes C) for the project area.

$\mathbf{IC_{CEA,i}}$ = initial carbon stock (in tonnes C) for the i^{th} carbon estimation area within the project area on the date the declaration of the eligible offsets project takes effect, as determined using the Reforestation Modelling Tool.

n = number of carbon estimation areas within a project area.

(3) Unless the initial carbon stock is zero, the calculation of the initial carbon stock for a project must be done each time a report is submitted to the Regulator to ensure the correct values for initial carbon stock are input from the Reforestation Modelling Tool.

3.5 Calculating the carbon stock of the project area at the end of a reporting period

(1) The carbon stock for a project area is to be calculated at the end of a reporting period using the following formula:

$\mathbf{C_{PA}(r_c)} = \sum_{i=1}^{n} \mathbf{C_{CEA,i}(r_c)}$	**Equation 1b**

where:

$\mathbf{C_{PA}(r_c)}$ = carbon stock (in tonnes C) for the project area at the end of the reporting period (r_c).

$\mathbf{C_{CEA,i}(r_c)}$ = carbon stock (in tonnes C) for the i^{th} carbon estimation area within the project area at the end of the reporting period (r_c) determined using the Reforestation Modelling Tool.

n = the number of carbon estimation areas within a project area.

$\mathbf{r_c}$ = the month ending the reporting period.

3.6 Calculating the carbon stock change for the project area

(1) The carbon stock change for the project area is to be calculated for the first reporting period using the following formula:

$\Delta C_{PA}(r_c) = C_{PA}(r_c) - IC_{PA}$	**Equation 2a**

where:

$\Delta C_{PA}(r_c)$ = carbon stock change (in tonnes C) for the project area for the reporting period ending in the month r_c.

$C_{PA,}(r_c)$ = carbon stock (in tonnes C) for the project area at the end of the reporting period (r_c).

IC_{PA} = initial carbon stock (in tonnes C) for the project area.

r_c = the month ending the current reporting period.

(2) The carbon stock change for a project area is to be calculated for the second and subsequent reporting periods using the following formula:

$\Delta C_{PA}(r_c) = \left(C_{PA}(r_c) - C_{PA}(r_p)\right) - \left(IC_{PA} - IC_{PA}(r_p)\right)$	**Equation 2b**

where:

$\Delta C_{PA}(r_c)$ = carbon stock change (in tonnes C) for the project area for the reporting period ending in the month r_c.

$C_{PA}(r_c)$ = carbon stock (in tonnes C) for the project area at the end of the reporting period.

$C_{PA}(r_p)$ = carbon stock (in tonnes C) for the project area for the previous reporting period (r_p).

IC_{PA} = initial carbon stock (in tonnes C) for the project area, calculated in accordance with section 3.4.

$IC_{PA}(r_p)$ = initial carbon stock (in tonnes C) for the project area for the previous reporting period (r_p), calculated in accordance with section 3.4.

r_c = the month ending the current reporting period.

$\mathbf{r_p}$ = the month ending the previous reporting period.

Note: Equation 3 has been deliberately omitted from this Methodology Determination.

3.7 Converting the carbon stock change to carbon dioxide equivalent (CO_2-e)

The carbon dioxide equivalent (CO_2-e) carbon stock change for the project for the reporting period is to be calculated using the following formula:

$\Delta C_{P,CO_2}(r_c) = \Delta C_{PA}(r_c) \times \frac{44}{12} \times GWP_{CO_2}$	**Equation 4**

where:

$\mathbf{\Delta C_{P,CO2}(r_c)}$ = carbon stock change (in tonnes CO_2-e) for the project for the reporting period ending in the month r_c.

$\mathbf{\Delta C_{PA}(r_c)}$ = carbon stock change (in tonnes C) for the project for the reporting period ending in the month r_c.

$\mathbf{GWP_{CO_2}}$ = Global Warming potential of carbon dioxide as specified in regulation 2.02 of the *NGER Regulations*.

$\mathbf{r_c}$ = the month ending the current reporting period.

Subdivision 3.2.2 Calculating the carbon dioxide equivalent of offset project emissions

3.8 Calculating methane and nitrous oxide emissions from biomass burning

(1) The emission of methane due to biomass burning for the reporting period is to be calculated using the following formula:

$$\mathbf{E_{P,CH_4}(r_c)} = \sum_{i=1}^{n}\left(\sum_{t=r_p+1}^{t=r_c}\left(\mathbf{M_{tb,i}(t)} + \mathbf{M_{db,i}(t)}\right) \times \mathbf{EF_{mass,CH_4}} \times \mathbf{GWP_{CH_4}}\right)$$	**Equation 5**

where:

$\mathbf{E_{P,CH_4}(r_c)}$= emissions of CH_4 (in tonnes CO_2-e) from biomass burning for the project for the reporting period ending in the month (r_c).

$\mathbf{M_{tb,i}}$ = tree layer carbon (tonnes C) for each carbon estimation area (i), emitted to the atmosphere for each month (t) of the reporting period determined using the Reforestation Modelling Tool.

$\mathbf{M_{db,i}}$ = debris layer carbon (tonnes C) for each carbon estimation area (i),emitted to the atmosphere for each month (t) of the reporting period determined using the Reforestation Modelling Tool.

$\mathbf{EF_{mass,CH_4}}$ = derived constant, calculated from the product of carbon mass, emission factor and molecular mass fraction as sourced from Tables 7.20, 7.21 and 7.22 of the National Inventory Report 2010; = 7.182×10^{-3}.

$\mathbf{GWP_{CH_4}}$ = global warming potential of methane as specified in regulation 2.02 of the *NGER Regulations*.

$\mathbf{n}$ = the number of carbon estimation areas (i) within the project area.

$\mathbf{r_c}$ = the month ending the reporting period.

$\mathbf{r_p}$ = the month ending the previous reporting period.

(2) The emission of nitrous oxide due to biomass burning for the reporting period is to be calculated using the following formula:

$$\mathbf{E_{P,N_2O}(r_c)} = \sum_{i=1}^{n}\left(\sum_{t=r_p+1}^{t=r_c}\left(\mathbf{M_{tb,i}(t)} + \mathbf{M_{db,i}(t)}\right) \times \mathbf{EF_{mass,N_2O}} \times \mathbf{GWP_{N_2O}}\right)$$	**Equation 6**

where:

$\mathbf{E_{P,N_2O}(r_c)}$ = emissions of N_2O (in tonnes CO_2-e) from biomass burning for the project for the current reporting period.

$\mathbf{M_{tb,i}}$ = tree layer carbon (tonnes C) for each carbon estimation area (i), emitted to the atmosphere for each month (t) of the current reporting period determined using the Reforestation Modelling Tool.

$\mathbf{M_{db,i}}$ = debris layer carbon (tonnes C) for each carbon estimation area (i), emitted to the atmosphere for each month (t) of the current reporting period determined using the Reforestation Modelling Tool.

$\mathbf{EF_{mass,N_2O}}$ = derived constant, calculated from the product of carbon mass, carbon to nitrogen ratio, an emission factor and molecular mass fraction as sourced from Tables 7.20, 7.21 and 7.22 of the *National Inventory Report 2010*;
$= 1.329 \times 10^{-5}$.

$\mathbf{GWP_{N_2O}}$= global warming potential of nitrous oxide as specified in regulation 2.02 of the *NGER Regulations.*

$\mathbf{n}$ = number of carbon estimation areas (i) within the project area.

$\mathbf{r_c}$ = the month ending the current reporting period.

$\mathbf{r_p}$ = the month ending the previous reporting period.

(3) Total emissions due to biomass burning for the reporting period is to be calculated using the following formula:

$E_F(r_c) = E_{P,CH_4}(r_c) + E_{P,N_2O}(r_c)$	**Equation 7**

where:

$E_F(r_c)$ = total emissions (in tonnes CO_2-e) from biomass burning for the current reporting period.

$E_{P,CH4}(r_c)$ = emissions of CH_4 (in tonnes CO_2-e) from biomass burning for the project for the current reporting period.

$E_{P,N2O}(r_c)$ = emissions of N_2O (in tonnes CO_2-e) from biomass burning for the project for the current reporting period.

r_c = the month ending the current reporting period.

3.9 Calculating emissions from fuel use

(1) Emissions from fuel use must be calculated from the previous reporting period to the end month of the current reporting period.

(2) The quantity of fuel use for each fuel type (i) for the reporting period is to be calculated using the following formula:

$Q_i(r_c) = \sum_{t=r_p+1}^{t=r_c} Q_i(t)$	**Equation 8**

where:

$Q_i(r_c)$ = quantity of fuel type (i) (kilolitres) combusted within the current reporting period.

Q_i = quantity of fuel type (i) (kilolitres) combusted in month (t) for:

(a) stationary energy purposes; and

(b) transport energy purposes.

r_c = the month ending the current reporting period.

$\mathbf{r_p}$ = the month ending the previous reporting period.

(3) The fuel emissions for each fuel type (i) and each greenhouse gas (carbon dioxide, nitrous oxide and methane) for the reporting period is to be calculated using the following formula:

$$\mathbf{E_{ij}(r_c)} = \frac{\mathbf{Q_i(r_c)} \times \mathbf{EC_i} \times \mathbf{EF_{ijoxec}}}{\mathbf{1000}}$$	**Equation 9**

where:

$\mathbf{E_{ij}(r_c)}$ = fuel emissions for each fuel type (i) and each greenhouse gas (j) for the reporting period.

$\mathbf{Q_i(r_c)}$ = quantity of fuel type (i) (kilolitres) combusted within the reporting period.

$\mathbf{EC_i}$ = energy content factor of fuel type (i) (gigajoules per kilolitre), as prescribed in Schedule 1 of the *NGER Measurement Determination.*

$\mathbf{EF_{ijoxec}}$ = emission factor for each gas type (j) (carbon dioxide, nitrous oxide and methane) for fuel type (i) (in kilograms CO_2-e per gigajoule) as prescribed in Schedule 1 of the *NGER Measurement Determination.*

$\mathbf{r_c}$ = the month ending the current reporting period.

Note 1: If Q_i is measured in gigajoules, then EC_i = 1.

Note 2: The relevant energy content and emission factors are included, with worked examples, in the National Greenhouse Accounts Factors available from the Department's website on www.climatechange.gov.au/climate-change/emissions.aspx.

(4) The total emissions from fuel for the reporting period is to be calculated using the following formula:

$$\mathbf{E_E(r_c)} = \sum_{\mathbf{i=1}}^{\mathbf{p}} \sum_{\mathbf{j=1}}^{\mathbf{q}} \mathbf{E_{ij}\,(r_c)}$$	**Equation 10**

where:

$E_E(r_c)$ = total project fuel emissions (in tonnes CO_2-e) for the reporting period.

$E_{ij}(r_c)$ = fuel emissions for each fuel type (i) and each greenhouse gas (j) (carbon dioxide, nitrous oxide and methane) (in tonnes CO_2-e) for the reporting period.

p = the number of different types of fuel (i).

q = the number of different types of gas emitted from fuel gas type (j) (carbon dioxide, methane or nitrous oxide).

r_c = the month ending the current reporting period.

Subdivision 3.2.3 Calculating the carbon dioxide equivalent net abatement amount

3.10 Calculating the carbon dioxide equivalent net abatement amount

For paragraph 106 (1) (c) of the Act, the carbon dioxide equivalent net abatement amount for an offsets project to which this Methodology Determination applies for a reporting period ($A_P(r_c)$) is taken, for the purposes of the Act, to be the amount calculated using the following formula:

$$\mathbf{A_P(r_c)} = (\Delta \mathbf{C_{CO_2}(r_c)} - \mathbf{E_F(r_c)} - \mathbf{E_E(r_c)})$$	**Equation 11**

where:

$A_P(r_c)$ = project abatement for the reporting period (in tonnes CO_2-e).

$\Delta C_{CO2}(r_c)$ = carbon stock change (in tonnes CO_2-e) for the project for the current reporting period ending in the month r_c.

$\mathbf{E_F(r_c)}$ =	total project emissions from biomass burning (in tonnes CO_2-e) for the current reporting period.
$\mathbf{E_E(r_c)}$ =	total project fuel emissions (in tonnes CO_2-e) for the current reporting period.

Division 3.3 Data collection

3.11 Reforestation Modelling Tool

(1) The Reforestation Modelling Tool must be used to determine:

(a) the initial carbon stock for each carbon estimation area within the project area ($IC_{CEA,i}$);

(b) the carbon stock for a carbon estimation area within a project area at the end of the reporting period ($IC_{CEA,i}$);

(c) the tree layer carbon emitted to the atmosphere for each month of a reporting period ($M_{tb,i}$);

(d) the debris layer carbon emitted to the atmosphere for each month of a reporting period ($M_{db,i}$); and

(e) the emissions from fire within a carbon estimation area within a project area ($E_F(r_c)$).

(2) To determine the parameters specified in subsection (1), the project proponent must collect and provide to the Reforestation Modelling Tool in the format required by the tool:

(a) the area and modelling point latitude and longitude data for each carbon estimation area; and

(b) forest management information as set out in section 4.5 for each carbon estimation area.

(3) The information must be provided using the 'mixed species environmental planting' setting in the Reforestation Modelling Tool.

3.12 Fuel use emissions

Project proponents must collect data on the quantity of fuel recorded in kilolitres (kL) for each fuel type combusted for each project activity within a reporting period.

Part 4 Monitoring, record-keeping and reporting requirements

Division 4.1 General

4.1 Application

For the purposes of subsection 106 (3) of the Act, a project proponent of an offsets project to which this Methodology Determination applies must comply with the monitoring, record-keeping and reporting requirements of this Part.

4.2 Geospatial information requirements

The CFI Mapping Tool or a geographic information system that meets the requirements of the CFI Mapping Guidelines must be used to monitor and report on geospatial information in accordance with the CFI Mapping Guidelines.

Division 4.2 Monitoring requirements

4.3 Project monitoring

(1) A project proponent must monitor a project area and adjust the boundaries of carbon estimation areas and exclusion areas within the project area to ensure the areas comply with sections 2.2, 2.3 and 2.4 of this Methodology Determination.

(2) A project proponent must monitor disturbance events within the project area and provide the appropriate information required by the Reforestation Modelling Tool.

(3) On-ground observation or satellite imagery, or both, may be used to monitor a project.

Division 4.3 Record-keeping requirements

4.4 Records that must be kept

(1) The project proponent must create and maintain the following records:

(a) evidence of fuel use for each month of the project (including invoices and receipts);

(b) a description of how carbon estimation areas were identified and evidence to support stratification (such as satellite imagery, soil, vegetation and landform maps);

(c) evidence of species or species mix planted or seeded within the project area;

(d) evidence that the trees within the project area:

(i) attain, or have the potential to attain, a crown cover of at least 20% across the area of land; and

(ii) reach, or have the potential to reach, a height of at least 2 metres

(e) date stamped Reforestation Modelling Tool output files (.rmd file) for each carbon estimation area in a project area;

(f) forest management information as set out in section 4.5 below;

(g) project area information as set out in section 4.6 below; and

(h) all input data for, and the result of, each equation set out in Part 3.

4.5 Forest management information

Forest management information is:

(a) for a carbon estimation area, the:

(i) planting or seeding date;

(ii) planting or seeding method;

(iii) species planted (mix and proportion of each species);

(iv) density planted (stems per hectare); and

(v) anticipated crown cover;

(b) evidence that the dominant land uses in the project area for the five years prior to tree planting or seeding were grazing, pasture maintenance, cropping, settlements, nature conservation or no use;

(c) the information required as inputs to the Reforestation Modelling Tool, including:

(i) type and timing of management events (e.g. planting, thinning, weed control, any fertiliser application); and

(ii) type, timing and extent of disturbance events; and

(d) a description of any management actions or disturbance events that affected a carbon estimation area during the reporting period, including, if applicable, actions proposed and undertaken to ensure that carbon stocks are restored.

4.6 Project area information

Project area information is:

(a) geospatial maps to identify:

(i) the project area;

(ii) carbon estimation areas; exclusion areas; and

(iii) carbon estimation areas model points; and

(b) a list of names used for the project area and associated carbon estimation areas if the information is not clearly visible on the maps.

Division 4.4 Offsets report requirements

4.7 Information that must be included in first offsets report

The following information is required to be included in the first offsets report for a project to which this Methodology Determination applies:

(a) carbon dioxide equivalent net abatement amount for the project;

(b) carbon stock change for the first reporting period for the project;

(c) total emissions due to biomass burning for the project;

(d) total emissions from fuel for the project;

(e) initial carbon stock for the first reporting period;

(f) for projects established prior to the date a project is declared an eligible offsets project, the initial carbon stock for the project at the date the declaration of the eligible offsets project takes effect;

(g) the carbon stock for the project at the end of the reporting period;

(h) forest management information set out in section 4.5;

(i) project area information set out in section 4.6; and

(j) date stamped Reforestation Modelling Tool output files (.rmd file) for each carbon estimation area in a project area.

4.8 Subsequent reporting periods

The following information is required to be included in the second and subsequent offsets reports:

(a) carbon dioxide equivalent net abatement amount for the project for the reporting period;

(b) carbon stock change for the project for the reporting period;

(c) total emissions due to biomass burning for the project;

(d) total emissions from fuel for the project;

(e) the initial carbon stock for the project;

(f) carbon stock for the project at the end of the reporting period;

(g) forest management information set out at paragraphs 4.5 (c) and (d), and any change to the forest management information provided in the previous reporting period;

(h) any change to the carbon estimation area or exclusion area information provided in the previous reporting period; and

(i) date stamped Reforestation Modelling Tool output files (.rmd file) for each carbon estimation area in a project area.

Note

All legislative instruments and compilations are registered on the Federal Register of Legislative Instruments kept under the *Legislative Instruments Act 2003*. See www.frli.gov.au.