

EXPLANATORY STATEMENT

Carbon Credits (Carbon Farming Initiative) Act 2011

Carbon Credits (Carbon Farming Initiative—Reducing Greenhouse Gas Emissions from Fertiliser in Irrigated Cotton) Methodology Determination 2015

Background

The *Carbon Credits (Carbon Farming Initiative) Act 2011* (the Act) enables the crediting of greenhouse gas abatement from emissions reduction activities across the economy. Greenhouse gas abatement is achieved either by reducing or avoiding emissions or by removing carbon from the atmosphere and storing it in soil or trees.

In 2014, the Australian Parliament agreed to the *Carbon Farming Initiative Amendment Act 2014*, which establishes the Emissions Reduction Fund (ERF). The ERF has three elements: crediting emissions reductions, purchasing emissions reductions, and safeguarding emissions reductions.

Emissions reduction activities are undertaken as offsets projects. The process involved in establishing an offsets project is set out in Part 3 of the Act. An offsets project must be covered by, and undertaken in accordance with, a methodology determination.

Subsection 106(1) of the Act empowers the Minister to make, by legislative instrument, a methodology determination. The purpose of a methodology determination is to establish procedures for estimating abatement (emissions reductions and sequestration) from eligible projects and rules for monitoring, record keeping and reporting. The determinations will ensure that emissions reductions are genuine—that they are both real and additional to business as usual.

In deciding to make a methodology determination the Minister must have regard to the advice of the Emissions Reduction Assurance Committee (ERAC), an independent expert panel established to advise the Minister on proposals for methodology determinations. The Minister will also consider any adverse environmental, economic or social impacts likely to arise as a result of projects to which the determination applies.

Offsets projects that are undertaken in accordance with the methodology determination and approved by the Clean Energy Regulator (the Regulator) can generate Australian carbon credit units, representing emissions reductions from the project.

Project proponents can receive funding from the ERF by submitting their projects into a competitive auction run by the Regulator. The Government will enter into contracts with successful proponents, which will guarantee the price and payment schedule for the future delivery of emissions reductions.

Further information on the ERF is available at:

www.environment.gov.au/emissions-reduction-fund.

Background: Irrigated Cotton

The irrigated cotton industry is located mainly in the major river valleys of eastern Australia, including the Murrumbidgee, Lachlan, Namoi, Barwon, Darling, Gwydir, Macintyre, Condamine, Fitzroy and Murray River systems. Cotton has also been produced in the Ord Valley of Western Australia. The industry has the world's highest average irrigated yields but yields and area planted are limited by water availability in most years.

The industry faces profitability pressures as a result of relatively static average world prices for cotton and increasing costs. To counter this, the industry has invested in yield and efficiency improvement technologies promoted by the Cotton Research and Development Corporation, State and Commonwealth agencies and private sector providers. Despite these investments, average yields over the past 10 years have been relatively stable and nitrogen fertiliser use has increased at an average rate of approximately 2–3% per annum across the industry. Average rates of nitrogen fertiliser use have generally exceeded yield potential, and there is opportunity to improve on-farm allocation of fertiliser according to yield potential of fields within the farm.

The *Carbon Credits (Carbon Farming Initiative—Reducing Greenhouse Gas Emissions from Fertiliser in Irrigated Cotton) Methodology Determination 2015* (the Determination) provides for generating abatement from reducing emissions associated with synthetic fertiliser use in irrigated cotton.

Synthetic fertiliser emissions occur from both direct and indirect sources. The direct emissions are a result of denitrification (loss of oxygen from nitrate) which converts nitrate (NO_3^-) to nitrous oxide (N_2O). The use of urea, a nitrogen fertiliser containing carbon, can also contribute to direct carbon dioxide emissions during dissolution in the soil. Indirect nitrous oxide emissions from fertiliser occur through leaching and runoff and from volatilization of ammonia followed by redeposition as nitrogen. Nitrous oxide contributes to greenhouse gas impacts at low concentrations because its Global Warming Potential is 298 times that of carbon dioxide.

The Determination provides for generating abatement from emissions reductions achieved by increasing the efficiency of nitrogen fertiliser use in irrigated cotton production relative to the efficiency of nitrogen fertiliser use prior to the project. Nitrogen fertiliser use efficiency is a measure of the ratio of lint yield to nitrogen applied via synthetic fertiliser (kg lint yield per kg N). An increase in nitrogen fertiliser use efficiency is equivalent to a decrease in emissions intensity from synthetic fertiliser use in irrigated cotton (kg $\text{CO}_2\text{-e}$ per kg lint yield).

Because nitrogen fertiliser use efficiency is calculated using both nitrogen fertiliser use and yield, abatement can be generated by reducing fertiliser use while maintaining or increasing yield, or by increasing yield without a proportional increase in fertiliser use. This approach also ensures that abatement from emissions reductions cannot be generated through a contraction of yield without a reduction in fertiliser use. The Determination therefore enables irrigated cotton growers to adjust nitrogen fertiliser rate according to field yield potential in the project area, provided that nitrogen fertiliser use efficiency increases.

Industry data shows that there is potential for irrigated cotton growers to improve nitrogen fertiliser use efficiency. Nitrogen fertiliser use efficiency has varied from approximately 7.3 to 11.4 kg lint per kg N over the past 10 years on an industry-wide basis. Grower surveys and research data show that nitrogen fertiliser use efficiency could be increased to 13–18 kg lint per kg N while maintaining or increasing yields. Approximately 13% of cotton growers achieved this level of efficiency in 2013, which indicates there is scope to maintain or increase yields while reducing N fertiliser inputs to achieve emissions reductions. Research data suggests that average nitrogen fertiliser application rates could potentially be reduced from the current industry average of 243 kg of fertiliser nitrogen per hectare to less than 200 kg N per hectare while maintaining average industry yields in excess of 2000 kg lint per hectare. The reductions

achieved, however, will vary from property to property as a result of the management of individual fields and could be greater or smaller than these industry averages.

The Determination supports a broad range of activities to improve the efficiency (reduce the emissions intensity) of fertiliser use in irrigated cotton, including activities to improve lint yield without a proportional increase in nitrogen fertiliser application rate, and activities to modify the rate, timing, method and type of nitrogen fertiliser application. At least one new management action to improve nitrogen fertiliser use efficiency must be undertaken in the project area, but the Determination provides proponents with the flexibility to select management actions that suit their individual circumstances.

The Determination applies only to cotton crops grown under irrigation, where the emissions of nitrous oxide can be directly related to the rate of fertiliser nitrogen used on the cotton crop. Under dryland conditions, emissions from fertiliser application depend on rainfall intensity and duration as well as fertiliser rate. Dryland production of cotton is excluded from the Determination.

Cotton is typically grown in rotation with a range of other crops, including wheat and pulses. Cotton is the only crop in the production system eligible for generating abatement for a reduction in emissions from synthetic fertiliser use. Emissions from other crops grown in rotation with cotton, with the exception of green manure, are excluded from the Determination. Nitrous oxide emissions from residues of green manure crops planted within the cotton area immediately before cotton must be accounted for, because proponents may introduce additional green manure crops as part of the project.

The Determination provides for generating abatement by reducing emissions associated with synthetic fertiliser use only. Emissions reductions or increases associated with manures and organic amendments that do not meet the definition of synthetic fertiliser, such as poultry litter, beef feedlot manure and composted ginning trash, are not accounted for in the Determination.

Application of the Determination

The Determination sets out the detailed rules for implementing and monitoring offsets projects that would reduce emissions of greenhouse gases by reducing the emissions intensity of fertiliser use in irrigated cotton. These rules have been designed to help ensure that emissions reductions are real and additional to business as usual.

Project proponents wishing to implement projects under the Determination must make an application to the Regulator under section 22 of the Act. They must also meet the general eligibility requirements for an offsets project set out in subsection 27(4), which include compliance with the requirements set out in the Determination, and the additional requirements in subsection 27(4A) of the Act. The additional requirements are:

- the newness requirement;
- the regulatory additionality requirement; and
- the government program requirement.

The government program requirement is provided for in the *Carbon Credits (Carbon Farming Initiative) Rule 2015*. Subsection 27(4A) of the Act provides that a methodology determination may specify requirements in lieu of the Act's newness requirement or the regulatory additionality requirement. The Determination does not specify any requirements in lieu, and the newness and regulatory additionality requirements in the Act apply to determine whether a project is an eligible offsets project.

Public Consultation

The Determination was developed by the Department of the Environment in collaboration with a technical working group of experts from the cotton and fertiliser industries. The nitrous oxide technical working group held meetings on 19 August 2011, 16 April 2013 and 16 October 2014. The technical working group reviewed several draft versions of the Determination prior to release of the exposure draft of the Determination for public consultation.

The exposure draft of the Determination was published on the Department's website for public consultation from 14 November 2014 to 12 December 2014.

Determination Details

The Determination is a legislative instrument within the meaning of the *Legislative Instruments Act 2003*.

Details of the Determination are at [Attachment A](#).

For the purpose of subsections 106(4), (4A) and (4B) of the Act, in making this Determination the Minister has had regard to, and agrees with, the advice of the Emissions Reduction Assurance Committee that the Determination complies with the offsets integrity standards and that the proposed Determination should be made. The Minister is satisfied that the carbon abatement used in ascertaining the carbon dioxide equivalent net abatement amount for a project is eligible carbon abatement from the project. The Minister also had regard to whether any adverse environmental, economic or social impacts are likely to arise from the carrying out of the kind of project to which the Determination applies and other relevant considerations.

Subitem 393A(2) of Schedule 1 of the *Carbon Farming Initiative Amendment Act 2014* operated in relation to this Determination to deem the request to the Interim ERAC to be the relevant request to the statutory ERAC under subsection 106(10) of the Act. Subitem 393A(3) then allowed the ERAC to consider the consultation on the exposure draft which occurred before 13 December 2014 and not re-open consultation under section 123D of the Act.

Note on this explanatory statement

Numbered sections in this explanatory statement align with the relevant sections of the Determination.

A statement of compatibility with human rights is set out at [Attachment B](#).

Details of the Methodology Determination

Part 1 Preliminary

1 Name

Section 1 sets out the full name of the Determination, which is the *Carbon Credits (Carbon Farming Initiative—Reducing Greenhouse Gas Emissions from Fertiliser in Irrigated Cotton) Methodology Determination 2015*.

2 Commencement

Section 2 provides that the Determination commences on the day after it is registered. This means the determination commences on the day after it is registered on the Federal Register of Legislative Instruments (FRLI).

3 Authority

Section 3 provides that the Determination is made under subsection 106(1) of the Act.

Subsection 106(1) of the Act provides that the Minister may, by legislative instrument, make a certain type of determination. Subsection 106(2) of the Act specifies that the determination is to be known as a methodology determination.

4 Duration

Under subparagraph 122(1)(b)(i) of the Act, a methodology determination remains in force for the period specified in the Determination.

The effect of section 4 is that the Determination remains in force from commencement until the day before it would otherwise be repealed under subsection 50(1) of the *Legislative Instruments Act 2003*.

Instruments are repealed under that provision on the first 1 April or 1 October following the tenth anniversary of registration on FRLI. Section 4 ensures that the Determination expires in accordance with subparagraph 122(1)(b)(i) of the Act.

If the Determination expires in accordance with section 122 or is revoked under section 123 during a crediting period for a project to which the Determination applies, the Determination will continue to apply to the project during the remainder of the crediting period under subsections 125(2) and 127(2) of the Act. Project proponents may apply to the Regulator during a reporting period to have a different methodology determination apply to their projects from the start of that reporting period (see subsection 128(1) of the Act).

5 Definitions

Section 5 defines a number of terms used in the Determination.

Generally, where terms are not defined in the Determination, they have the meaning given by section 5 of the Act.

Under section 23 of the *Acts Interpretation Act 1901*, words in the Determination in the singular number include the plural and words in the plural number include the singular.

Key definitions in section 5 of the Determination include those set out below.

A cotton area is an area of land that is the aggregate of the fields, each with a unique identifying code found on ginnery receipts, on which cotton was planted and irrigated in that year. In the crediting period (but not the emissions intensity reference period), the cotton area excludes any field in which crop residues remaining after harvest are burned. The cotton area is a subset of the project area and is expected to change on an annual basis due to a range of factors including water availability and rotational cropping. The cotton area does not include parts of the project area on which cotton was not planted and irrigated in a given year. A cotton area must be recognizable as a combination of fields mapped for each project. The cotton area does not need to have a single boundary, as fields on which cotton was planted do not have to be adjacent to each other.

A green manure is a legume that is planted in a field to improve the soil for a subsequent cotton crop. A green manure crop is not harvested and the above ground growth is returned to the soil. Examples of green manure are vetch, faba beans, chickpeas and annual clovers. Non-legume crops which require nitrogen fertiliser are not included in the definition of green manure.

A synthetic fertiliser is a product applied to soil to enhance soil fertility which has a manufacturer's label that guarantees that the product has a minimum nitrogen content that is greater than or equal to 0.5% for solid fertilisers, and greater than or equal to 0.1% for liquid fertilisers or solid fertilisers applied in solution. Synthetic fertilisers do not include solid or liquid organic products created using waste products of other industries that do not meet these labelling and minimum nitrogen content standards. For example, synthetic fertilisers do not include manures, such as poultry litter or beef feedlot manure, or mulches and composts, such as composted ginning trash.

Part 2 Irrigated cotton projects

6 Irrigated cotton projects

The effect of paragraphs 27(4)(b) and 106(1)(a) of the Act is that a project must be covered by a methodology determination, and that the methodology determination must specify the kind of offsets project to which it applies.

Section 6 provides that the Determination applies to an offsets project that involves an improvement in the nitrogen fertiliser use efficiency in irrigated cotton. The Determination defines these kinds of projects as irrigated cotton projects.

Part 3 Project Requirements

Division 1 Eligible projects

7 Operation of this Part

The effect of paragraph 106(1)(b) of the Act is that a methodology determination must set out requirements that must be met for a project to be an eligible offsets project. Under paragraph 27(4)(c) of the Act, the Regulator must not declare that a project is an eligible offsets project unless the Regulator is satisfied that the project meets these requirements.

Part 3 of the Determination specifies a number of requirements that must be met in order for a project to be an eligible offsets project.

A key requirement under the ERF is that credits are issued for emissions reductions that are ‘additional’—that is, emissions reductions would not likely have occurred under normal business conditions, in the absence of the ERF. The newness, regulatory additionality and government program requirements are additionality requirements specified in subsection 27(4A) of the Act. These requirements are sufficient for eligible irrigated cotton projects and therefore the Determination does not specify requirements in lieu of those in the Act.

The Determination specifies how the newness requirement is to be applied to irrigated cotton projects. Division 3 of Part 3 requires that proponents of irrigated cotton projects undertake at least one new management action in the crediting period, which is different from an historical management action undertaken during the emissions intensity reference period and has the potential to increase the nitrogen fertiliser use efficiency of the cotton area.

Division 2 Application for declaration

8 Emissions intensity reference period maps

Section 8 requires that the proponent submit annual maps for the emissions intensity reference period to the Regulator at the time of application, and at the time of an application to vary the project area (if relevant). The mapping requirements are prescribed in sections 13 and 14.

The maps provided in accordance with this section specify the boundaries of the project area, and so are central in delimiting the area in which the project will be carried out. The project must be carried out on a single area of land over the crediting period (the project area), and the baseline emissions for the emissions intensity reference period must be calculated in relation to that same area of land. In addition to specifying the project area, the maps required under this section show the stratification of the cotton area for the relevant year of the emissions intensity reference period into fields, in accordance with section 13.

Division 3 Management action

9 Management actions

Section 9 requires that proponents must undertake at least one new management action which aims to increase the nitrogen fertiliser use efficiency of the cotton area. Proponents may choose to undertake multiple new management actions, but only one new management action is required. The same new management action can be applied in each year of the crediting

period. A new management action is an action undertaken with respect to the cotton area during the crediting period, which is different from the historical management actions undertaken in the emissions intensity reference period. A new management action must be undertaken each time there is a cotton area in the crediting period. This action may, however, occur prior to the year in which the cotton is planted, provided that the action aims to improve the nitrogen fertiliser use efficiency on the cotton area. For example, the new management action may consist of planting a legume prior to the cotton crop, instead of planting wheat, and undertaking follow-up soil testing to determine the nitrogen requirements of the subsequent cotton crop. A new management action can be an enhancement or improvement to an historical management action, and does not need to be a completely different management practice. For example, a new management action may be the adoption of higher quality soil testing practices, to test nitrogen availability at the correct depth, in each field, in each cotton crop year, in order to inform nitrogen fertiliser application rates. This recognises that an increase in nitrogen fertiliser use efficiency can be achieved through incremental improvements to existing management practices.

At the time of application and when an application is made to vary a project by adding or removing project areas proponents are required to provide the Regulator with a description of the historical management actions undertaken during the emissions intensity reference period and the proposed new management actions to be undertaken during the crediting period, and an explanation of how the new management actions meet the requirements of section 10 of the Determination. A suggested method for describing new management actions when submitting a project application is provided in Table 1 below. The same method could be adopted for describing new management actions in offsets reports, in accordance with section 22 of the Determination.

10 New management actions

Section 10 sets out the standards for new management actions.

Subsection 10(1) requires that new management actions must not be inconsistent with the relevant myBMP (Best Management Practice) standard, as defined by the Cotton Research and Development Corporation and available at www.mybmp.com.au. This requirement ensures that proponents do not undertake new management actions, for example actions to increase yield, that are inconsistent with good practice and that could have adverse impacts on the environment.

Proponents could also use Best Management Practice standards to demonstrate how the new management actions undertaken as part of the project meet the requirements of this section (see Table 1 below).

Subsection 10(2) requires that the new management action must have the potential to increase the nitrogen fertiliser use efficiency of the cotton area. The Determination does not prescribe the minimum intensity or extent of application of the new management action, but the new management action must have the potential to increase the nitrogen fertiliser use efficiency, and thereby reduce emissions, in the cotton area. Therefore, actions should be implemented at a field scale, and in sufficient fields in the cotton area, to have the potential to achieve an impact on emissions from synthetic fertiliser use.

Subsection 10(3) describes how an increase in nitrogen fertiliser use efficiency can be achieved. As nitrogen fertiliser use efficiency is the lint yield divided by the N applied via synthetic fertiliser, an increase in nitrogen fertiliser use efficiency can be achieved by increasing the lint yield of the cotton area without a proportional increase in the amount of synthetic fertiliser nitrogen applied, or reducing the amount of synthetic fertiliser nitrogen applied while maintaining or increasing yield. For example, an increase in nitrogen fertiliser

use efficiency could be achieved if lint yield increased by 20% and synthetic fertiliser nitrogen applied increased by only 15%.

An increase in nitrogen fertiliser use efficiency can also be achieved in circumstances where yield decreases, provided that the amount of synthetic fertiliser nitrogen applied decreases at a greater rate than the yield. For example, nitrogen fertiliser use efficiency could be increased if yield decreased by 10% but the amount of synthetic fertiliser nitrogen applied decreased by 15%.

There is a wide range of management actions that could be implemented to improve lint yield, such as actions to improve general crop nutrition or water use efficiency, which are not described in the Determination (and are expected to occur in the normal course of events). Subsection 10(4) lists the classes of actions that could be implemented to decrease the rate of nitrogen applied via synthetic fertiliser. The classes of management actions are broad and no particular individual management action is mandatory under the Determination. This provides proponents with the flexibility to select management actions that best suit their circumstances. Some examples of particular management actions are provided in Table 1 below. This Table provides an indicative list only, and does not describe all management actions that are eligible under this Determination. It is likely soil nitrogen testing, implemented at the appropriate intensity, time, field distribution and soil depth, will be an important component of irrigated cotton projects to determine nitrogen availability and optimise synthetic fertiliser application rates. While soil nitrogen testing is likely to be widely adopted as a project decision-making tool, it is not required to calculate abatement and is therefore not a mandatory project requirement under the Determination.

A suggested method for describing a new management action, consistent with the requirements of section 10, when submitting a project application is provided in Table 1 below.

Table 1: Suggested method for describing example new management actions in accordance with requirements of section 10 of the Determination

New Management Actions	What I used to do (in the emissions intensity reference period)	Why is this action new or a refinement of a previous action in the baseline	How will it affect nitrogen fertiliser use efficiency and emissions	Evidence to verify the action was undertaken	Source of information on the potential effect on emissions
Improving the yield of cotton without a proportional increase in N by treating each field according to yield potential with a combination of actions to change water use efficiency, N application rates, and rotation crops.	Assumed field was N limited and applied N at a rate irrespective of field yield potential, particularly in continuous cotton crop rotations.	The action recognizes that yield is dependent on a range of factors such as soil structure, water supply, variety and weather conditions.	Reduces both direct and indirect emissions from synthetic fertiliser because a yield increase will be obtained without a proportional increase in synthetic fertiliser application rate.	Field book records of management, including water use, fertiliser use, and rotation crops. Gin receipts for yield. Records for synthetic fertiliser application rates (see Part 5).	Information from Australian Cotton Research Institute. Consultant recommendation. Relevant CRDC BMPs for surface irrigation design, soil structure, nutrition and nitrogen.
Reduce overall farm application rate of synthetic fertiliser N at the same average yields using information from soil test, predictive modelling, and a mid-season leaf test.	Standard historical rates for the rotation (for example 300 kg N/ha for continuous cotton crops and 250 kg N/ha for cotton crops with wheat in rotation).	Decisions about synthetic fertiliser application rates accounts for the available residual N from the previous season (determined via soil tests) and the potential for the plant to recycle N in the crop from leaf to seed (determined via leaf tests).	Reduces both direct and indirect emission from synthetic fertiliser.	Soil and leaf test data, outputs of predictive modelling runs. Records for synthetic fertiliser application rates (see Part 5).	Irrigated Cotton Calculator outputs predicting the impact of reductions in synthetic fertiliser N application on emissions.

New Management Actions	What I used to do (in the emissions intensity reference period)	Why is this action new or a refinement of a previous action in the baseline	How will it affect nitrogen fertiliser use efficiency and emissions	Evidence to verify the action was undertaken	Source of information on the potential effect on emissions
Make a decision on further applications of N according to yield potential for the field at mid-December and the weather conditions since planting. Use leaf test to determine N requirements.	Apply nitrogen after Christmas whenever there was visible yellowing of the cotton leaf.	Decisions about further N fertiliser applications account for recycling of N in the plant and account for weather conditions as they affect yield. Recognises that yield potential is largely set by mid December, for a range of reasons, and additional N cannot improve it.	Reduces both direct and indirect emissions from synthetic fertiliser.	Contractor aerial application records from emissions intensity reference period and crediting period to demonstrate application timing. Leaf test results.	Extension system advice based on Australian Cotton Research Institute data.
Map nitrogen status from soil tests and use a precision application system across cotton area.	Applied the same rate of synthetic fertiliser regardless of nitrogen status across the cotton area.	Action contributes to optimum rather than maximum N fertiliser application rates and maximises potential response to N availability in soil.	On average, reduces both direct and indirect emissions from synthetic fertiliser.	Receipts for purchase of precision application machinery and computers.	Field day when benefits were explained. Evidence from neighbouring grower, John Smith, who had used the system and knew the effects on yield and synthetic fertiliser costs.

Division 4 Emissions intensity reference period

11 Determining the emissions intensity reference period

Section 11 prescribes the rules for determining the emissions intensity reference period for each project area, which is the historic period from which data is sourced in order to calculate the emissions intensity of the baseline for a particular project area.

The baseline emissions intensity of synthetic fertiliser use and green manure residue incorporation in the emissions intensity reference period is used to determine the baseline emissions for each year in the crediting period.

The default emissions intensity reference period is the six year period immediately prior to the first day of the crediting period. Six years is a reasonable period in which proponents could be expected to have retained records required to calculate the emissions intensity of a cotton crop.

The annual emissions intensity of synthetic fertiliser use and green manure residue incorporation (in tonnes of carbon dioxide equivalent per tonne of lint yield, t CO₂-e/t lint yield) is calculated for each year in which cotton was planted in the emissions intensity reference period, unless information to calculate emissions intensity is not available for a particular year. If information is available for a particular cotton crop year within the emissions intensity reference period, that year must be included in the calculation of baseline emissions intensity.

The baseline emissions intensity for the emissions intensity reference period is based on a minimum of three cotton crop years, (for example, for project areas where cotton is rotated with other crops), and a maximum of six cotton crop years, (for example, for project areas with continuous cotton rotations).

A minimum of three cotton crop years is required in order to provide a reasonable estimate of the baseline emissions intensity. Where data for three cotton crop years is not available in the six years immediately prior to the first day of the crediting period, for example because of infrequent cotton rotations, the emissions intensity reference period may be extended one year at a time until data is available for three cotton crop years. The emissions intensity reference period can be extended to a maximum of nine years.

Division 5 Project area requirements

12 Project area

Under the Act, the 'project area' is, for an area-based offsets project, defined as being the area of land on which the project has been, is being, or is to be carried out. Under the Determination, the boundaries of each project area are delimited at the time of application under section 22 of the Act, or whenever further project areas are added to the project – see section 8 of the Determination. Subsection 12(1) provides that each project area must consist only of land on the whole of which cotton could, since the beginning of the emissions intensity reference period, be grown.

The cotton area in each year in the emissions intensity reference period and crediting period must be within the boundaries of the relevant project area, as specified in accordance with section 8. Each project area should include all of the area intended for use for irrigated cotton production and for which proponents will seek to generate abatement by improving synthetic fertiliser use efficiency. For example, a project area could consist of selected fields suitable for growing cotton on a particular farm, or it could consist of all such fields. If a project area is part of a farm, the proponent must create and keep records required by the Determination for that part of the farm that is in the project area, as distinct from those parts of the farm that are

outside the project area. Given that records are created and maintained at a farm level, if a project includes multiple farms, it is recommended that the proponent identify each farm as a separate project area.

Subsection 12(3) requires that the boundaries of a project area, once identified in an application under section 8 of the Determination, must not change. Project areas may be added to or removed from the project, in applications to the Regulator to vary the project, but the boundaries of individual project areas must not change. Subsection 12(3) gives effect to the policy that, once a project area has been included as part of a project, the project area cannot be amalgamated with other project areas, divided, enlarged, or reduced in size.

The method for calculating the carbon dioxide equivalent net abatement amount under the Determination is premised on the basis that the total area over which abatement is calculated is constant over time, that is, that it is the same area of land during each year of the emissions intensity reference period and each year of the crediting period. The method does not deal with the possibility that the area over which abatement is calculated might vary in size over time. Subsection 12(3) operates to prevent project areas from being amalgamated with one another, expanded, reduced in size, or split into two or more smaller project areas, to ensure that the method works, and calculates abatement, correctly.

A project may include multiple project areas if, for example, the project is an aggregate of several irrigated cotton farms. Subsection 12(3) does not prevent the addition of further project areas to, nor the removal of entire project areas from, a project.

13 Stratification

Section 13 requires proponents to stratify a project area into fields in order to verify the location and area of the cotton area in each year of the emissions intensity reference period and the crediting period. Stratification into fields enables irrigated cotton projects to verify the yield of cotton in the cotton area in each year, as cotton gin receipts identify the field from which seed cotton was received to produce a particular weight of lint.

Subsection 13(2) requires that each field has a unique identifier, and that the unique identifier must not change if the field perimeter does not change. This does not mean that field perimeters cannot change from year to year, provided that the fields are within the project area. Field perimeters may change from year to year, for example through redesign under irrigation improvement, or to reflect changes in the areas in which cotton is to be planted. If a field perimeter changes, a new field identifier is applied from that year.

Proponents may use existing field numbering systems (1, 2, 3 etc) when issuing a unique identifier to each field. In circumstances where multiple farms and project areas are included in a project (for example, an aggregated project) each project area could be assigned a unique number as a prefix to existing field numbers to ensure that each field in the project has a unique identifier (1-1, 1-2, 1-3 etc, and 2-1, 2-2, 2-3 etc).

14 Mapping format and precision

Section 14 prescribes that maps must be in digital GIS-format. The precision required for defining the perimeters of the fields is also identified in section 14. Proponents may use the Carbon Farming Mapping Tool, or another GIS-based mapping tool that meets the standards prescribed in the section, to stratify the project area.

Part 4 Net abatement amount

Division 1 The net abatement amount

15 Method for calculating the net abatement amount

Paragraph 106(1)(c) of the Act provides that a methodology determination must specify how to calculate the carbon dioxide equivalent (CO₂-e) net abatement amount for the project in relation to a reporting period.

For each project area, the annual project area abatement amount is the difference between the baseline emissions and project emissions from synthetic fertiliser application and green manure residue incorporation in the cotton area in each year of the reporting period. The baseline emissions are the emissions from synthetic fertiliser and green manure that would have occurred to achieve the cotton lint yield in each project area in each year of the reporting period, calculated based on the baseline emissions intensity of synthetic fertiliser and green manure use (tonnes of CO₂-e per tonne lint yield) in the emissions intensity reference period. Further information on the process for calculating the baseline emissions is provided in section 17.

The carbon dioxide equivalent net abatement amount for the reporting period is calculated by summing all the annual project area abatement amounts that are greater than zero for all years in the reporting period and for all project areas in the project. An aggregated project, which includes more than one farm, may have multiple project areas.

If the annual project area abatement amount for a year in the reporting period is less than zero or equal to zero, it is taken to be zero for the purpose of calculating the carbon dioxide equivalent net abatement amount for the reporting period. That is, if project emissions are greater than baseline emissions for a year within the reporting period, that year is excluded from the calculation of the carbon dioxide equivalent net abatement amount. This means that proponents are not liable for an increase in emissions in a project year, which may occur as a consequence of natural variation or as a consequence of a disturbance event (for example, a pest infestation) that reduces yield and nitrogen fertiliser use efficiency.

The exclusion of negative annual project area abatement amounts from the net abatement amount calculation would generate an over-crediting risk in the absence of a discount applied to positive annual project area abatement amounts. In this Determination, the exclusion of negative annual project area abatement amounts from the net abatement amount calculation is possible because of the application of a discount on positive annual project area abatement amounts, applied through a 6.5% variance discount to the baseline. The application of this discount reduces the risk that abatement is generated, and consequently credits are issued, for an emissions decrease that is the consequence of natural variation, and not improved management. More information on the variance discount, including the rationale for the size of the variance discount, is provided in section 18.

16 Gases accounted for in abatement calculations

Section 16 provides a summary of the greenhouse gases and emissions sources that are accounted for in order to determine the net abatement amount for an irrigated cotton project. The emission sources and greenhouse gases which need to be taken into account when calculating the carbon dioxide equivalent net abatement for the project are nitrous oxide (N₂O) emissions from synthetic fertiliser application (excluding urea), carbon dioxide (CO₂) emissions from synthetic fertiliser (urea) application, and nitrous oxide (N₂O) emissions from green manure residues.

Emissions from residues of green manure crops are included in the calculation of the net abatement amount because the Determination may provide an incentive for proponents to

introduce green manure as an additional non-harvested rotation crop before cotton as a means of increasing biological nitrogen inputs to the soil and reducing synthetic fertiliser application rates. For example, a green manure crop could be planted after a cereal rotation and before a cotton rotation in the crediting period which may not have occurred in the emissions intensity reference period (i.e., no winter crop between the cereal and cotton crops in the baseline). Subsection 16(2) prescribes that only emissions from green manure planted immediately prior to the cotton crop (that is, between the harvest of the previous crop and the planting of the cotton crop) on the same area as the cotton planting must be included in the calculation of the net abatement amount. If a green manure crop is planted, and the crop fails, emissions from this source must still be included in the calculation of abatement. All green manure crops that are planted are assumed to have a yield of 2 tonnes of dry matter per hectare, which is a reasonable estimate for dryland production of green manure such as faba bean.

Subsection 16(3) prescribes that only synthetic fertiliser applied to the cotton area is accounted for in order to determine the net abatement amount. The synthetic fertiliser must be applied after the harvest of the previous crop (which may be a cotton crop or other rotation crop) and before the harvest of the cotton area, for the emissions to be included in the calculation of the net abatement amount. Emissions from synthetic fertiliser applied to other crops grown in rotation with cotton are not included in the abatement calculation.

A number of emissions sources are excluded from the abatement calculations for the following reasons:

- **Manures and other organic fertilisers.** Emissions from manures and other organic fertilisers that do not meet the definition of synthetic fertiliser are excluded. These sources are the by-product of other processes (such as intensive animal production) and their emissions would have occurred irrespective of the project. Emissions associated with the application of manures and other organic fertilisers to the cotton crop would be no greater than the emissions that would have occurred had the sources been stockpiled or applied to land elsewhere. The National Inventory applies the same emissions factor to manures, irrespective of whether they are applied to dryland or irrigated systems. Manures and other organic fertilisers that are typically applied to cotton crops include beef feedlot manure, poultry manure and cotton mill trash compost.
- Emissions from **cotton crop residues**, which increase or decrease in proportion to cotton yield, have been excluded. While the Determination provides for yield increases through generating abatement from emissions reductions achieved via increasing cotton yield without a proportional increase in synthetic fertiliser use, it is not likely that the Determination will *drive* an increase in cotton yield. Yield increases and decreases are expected to occur in the normal course of events owing to factors such as increased water availability or improved seasonal conditions. Cotton is a high value cash crop and incentives to improve yield exist irrespective of the project. At an industry level, yields have been relatively stable over the past ten years and, given the generally increasing limitation imposed by available irrigation water, it is not expected that average cotton yields will increase. In summary, incentives provided by this Determination are likely to drive a change in synthetic fertiliser use, and are unlikely to drive an increase in cotton yield and therefore an increase in cotton crop residue emissions that would be reflected in the Australian National Greenhouse Accounts.
- Emissions from **other crops grown in rotation** with cotton have been excluded. The project may provide an incentive to switch from non-legume rotation crops (such as wheat) to legume rotation crops (such as soybean) in order to improve biological

nitrogen inputs into the soil and reduce synthetic fertiliser application rates. In all cases, except for legume pastures, a change to a greater proportion of legume crops as a result of incentives provided by the project would result in lower emissions. Legume crops do not use nitrogen fertiliser and their residues do not contain proportionately higher nitrogen content than fertilized non-legume crops such as wheat, maize or rice. Legume pastures are unlikely to be planted as grazing is rarely conducted on irrigated parts of cotton farms. The exclusion of rotation crops therefore provides a conservative estimate of net abatement.

- Emissions from **soil carbon** are excluded. Soil carbon is unlikely to decline as a consequence of the project, as the project does not provide incentives for reductions in cotton crop productivity.
- Emissions from **burning of cotton crop residues** are excluded. In the crediting period, the cotton area does not include fields in which cotton crop residues are burned after harvest. Burning of cotton crop residues may have occurred in the emissions intensity reference period (although burning is practised by less than 5% of cotton producers), and the exclusion of this source from baseline emissions is conservative.
- Emissions from **offsite synthetic fertiliser production and transport** are excluded, as emissions from these sources are expected to be lower in the project than the baseline and their exclusion is conservative.
- Emissions from **fuel used for fertiliser application equipment and pumping** within the project area are excluded. The emission differences from these sources are small, difficult to estimate and are expected to be lower in the project than the baseline due to reductions in synthetic fertiliser use. Their omission provides a conservative estimate of abatement.

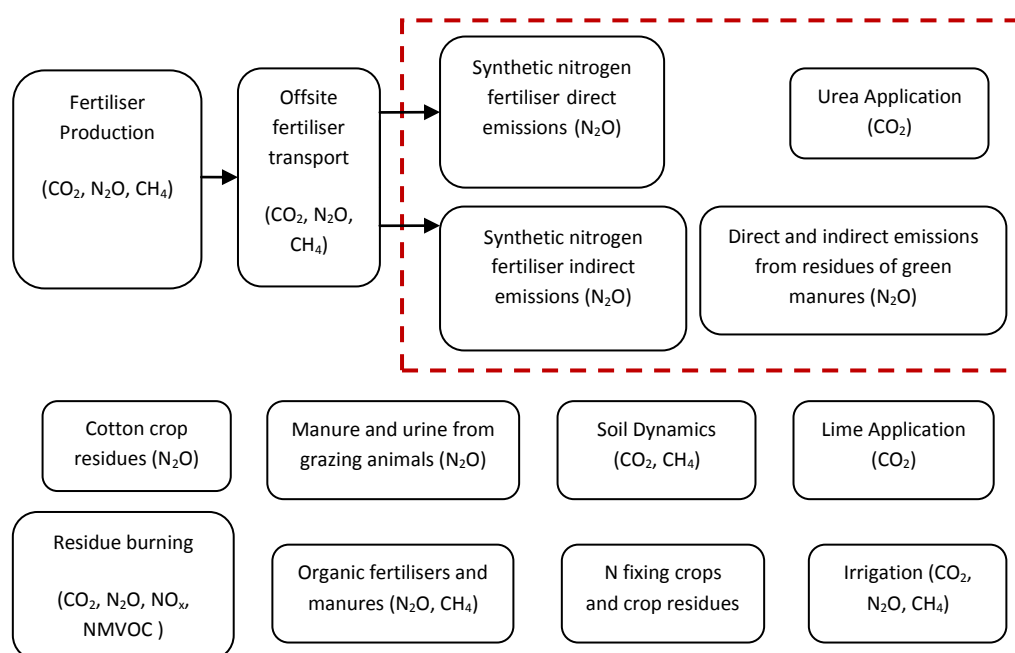


Figure 1 Greenhouse gas emissions boundary of the Determination

Division 2 The baseline emissions

17 The baseline emissions

Section 17 describes the steps in calculating baseline emissions for each project area for each year in the reporting period.

Determining the baseline emissions for each year in a reporting period requires calculating the baseline emissions intensity of synthetic fertiliser and green manure use (tonnes of CO₂-e per tonne of lint yield) in the emissions intensity reference period, multiplying this by the tonnes of lint yield in that year of the reporting period, and subtracting the variance discount specified in section 18.

Subsection 17(2) describes the steps for calculating the baseline emissions intensity, which include:

- Calculating total emissions (direct and indirect) from synthetic fertiliser (including urea) applied to the cotton area, and total emissions (direct and indirect) from green manure residues planted on the cotton area prior to the cotton crop, for each year of the emission intensity reference period (in which the lint yield was not zero);
- Summing the total emissions from synthetic fertiliser and green manure residues in each year of the emissions intensity reference period;
- Calculating the emissions intensity in each year of the emissions intensity reference period, by dividing the total emissions from synthetic fertiliser and green manure residues by the lint yield in that year of the emissions intensity reference period; and
- Calculating the average emissions intensity for the emissions intensity reference period (the baseline emissions intensity), by summing the emissions intensity for each year and dividing this number by the number of years in the emissions intensity reference period.

Emissions from synthetic fertiliser include direct emissions of nitrous oxide, indirect emissions of nitrous oxide from leaching and runoff, and indirect emissions of nitrous oxide from volatilisation of ammonia and its redeposition as nitrogen. Emissions from synthetic fertiliser (urea) also include carbon dioxide emissions resulting from the dissolution of urea in soil. Nitrous oxide emissions from synthetic fertiliser are calculated based on the total amount of nitrogen applied via synthetic fertiliser to the cotton area, using standard National Inventory methods and factors implemented in the Irrigated Cotton Calculator.

Emissions from green manure residues include direct emissions of nitrous oxide, and indirect emissions of nitrous oxide from leaching and runoff. Emissions from green manure residues planted are calculated based on an assumed yield of 2 tonnes of dry matter per hectare and the green manure area in hectares, using standard National Inventory methods and factors implemented in the Irrigated Cotton Calculator. All green manure crops that are planted are assumed to have a yield of 2 tonnes of dry matter per hectare.

The lint yield must be greater than zero in order to calculate emissions intensity for a year in the emissions intensity reference period.

18 The variance discount

Section 18 prescribes the variance discount that must be applied in the calculation of baseline emissions. This discount is automatically applied in the Irrigated Cotton Calculator.

Nitrogen fertiliser use efficiency (or emissions intensity) is affected by environmental factors,

such as weather conditions that affect yield, and management factors, such as decisions about nitrogen fertiliser application rates.

Records of industry average yields and fertiliser use between 2004 and 2013 indicate that there is an approximate 13% annual variation in nitrogen fertiliser use efficiency. Assuming that approximately half of this variation is due to natural variation beyond proponent control, and half is due to management factors, a variance discount of 6.5% is applied to the baseline. The application of this variance discount helps to ensure that the annual project area abatement amounts exclude emissions reductions that may have occurred due to environmental variation.

Environmental variation may also result in an increase in emissions between the baseline and project, resulting in negative abatement. The application of the variance discount to the baseline, which reduces positive abatement amounts, means that it is possible to exclude negative abatement years from the calculation of net abatement (see section 15).

Division 3 The project emissions

19 The project emissions

Project emissions are the sum of total emissions (direct and indirect) from synthetic fertiliser (including urea) applied to the cotton area, and total emissions (direct and indirect) from green manure residues planted on the cotton area prior to the cotton crop, for each year of the reporting period. Emissions from each source are calculated using standard National Inventory methods and factors implemented in the Irrigated Cotton Calculator.

Division 4 Use of Irrigated Cotton Calculator

20 Requirement to use Irrigated Cotton Calculator

Section 20 requires that proponents perform the calculations described in Part 4, for each project area and for each year in the reporting period, using the Irrigated Cotton Calculator, which is available on the Department's website. The Irrigated Cotton Calculator includes all the calculations required to determine the net abatement amount in accordance with the Determination and its use is mandatory.

Paragraph 20(1)(b) requires that the calculations must be performed by entering the inputs required by the Irrigated Cotton Calculator which are specified in subsection 20(2).

The calculation of the net abatement amount in the Determination includes factors and parameters taken from other sources, which may change from time to time, and the Irrigated Cotton Calculator will be updated accordingly. The effect of paragraph 20(1)(c) is that the Irrigated Cotton Calculator must apply the Global Warming Potential for nitrous oxide that is prescribed by the *National Greenhouse and Energy Reporting Regulations 2008* in force at the end of the reporting period and the emissions factors of the most recent National Inventory Report.

Subsection 20(2) describes the inputs that must be entered into the Irrigated Cotton Calculator in the emissions intensity reference period and crediting period to calculate the carbon dioxide equivalent net abatement amount.

Proponents are required to input into the Irrigated Cotton Calculator the region in which the project area is located. The four regions in which irrigated cotton is, or could be, produced include New South Wales, Queensland, Victoria and Western Australia. The region in which the project area is located needs to be identified because a parameter for calculating indirect

emissions from green manure residues (FRAC_{WET} , the fraction of N available for leaching and runoff) varies from region to region. In circumstances where the project area includes two regions (Queensland and New South Wales, or New South Wales and Victoria), an average of the two regional parameter values is applied.

Part 5 Reporting, record-keeping and monitoring requirements

Division 1 Operation of this Part

21 Application

Subsection 106(3) of the Act provides that a methodology determination may require the project proponent of an eligible offsets project to comply with specified reporting, record-keeping and monitoring requirements.

Under Parts 17 and 21 of the Act, a failure to comply with these requirements may constitute a breach of a civil penalty provision, and a financial penalty may be payable.

The monitoring, record-keeping and reporting requirements specified in Part 5 of the Determination are in addition to any requirements specified in the Act and subordinate legislation.

Proponents are required to monitor and keep records to demonstrate that the project meets the eligibility parameters listed in Part 3 of the Determination.

Division 2 Offsets report requirements

The Act and subordinate legislation provide for flexible reporting periods. Proponents should be aware that the Act and subordinate legislation may also specify other reporting and notification requirements affecting the Determination.

22 Information in each offsets report

Section 22 prescribes the information that must be provided in each offsets report, which includes the annual maps prepared in accordance with section 13 and all inputs and outputs from the Irrigated Cotton Calculator for each year in the reporting period.

Given the diversity of activities that could be undertaken and allowed under the Determination, and the adaptive management implemented in irrigated cotton production systems, proponents may seek to change the new management actions over the course of the crediting period. Therefore, as part of the offsets report, proponents are required to report on the new management actions undertaken in each year in the reporting period.

Division 3 Record-keeping requirements

The effect of paragraph 106(3)(c) of the Act is that a methodology determination may require the project proponent of an eligible offsets project to comply with specified record-keeping requirements.

23 Records that must be created and kept

The *Carbon Credits (Carbon Farming Initiative) Rule 2015* requires a wide range of records relating to the establishment, operation, abatement claimed and events affecting the project, be kept. In addition to this general requirement, section 23 sets out the record-keeping requirements for an irrigated cotton project.

Section 23 requires that a copy be kept of the relevant myBMP (Best Management Practice) standard for the action, in force at the time the new management action is undertaken. It is expected that myBMP standards will be updated from time to time and the standard which applied to the new management action at that previous time may not be readily accessible on the myBMP website archive.

Section 23 also requires that with respect to the synthetic fertilisers applied, records are kept of the product name, mass applied, and nitrogen content of each type of synthetic fertiliser.

For each year in the crediting period, proponents are required, under the *Carbon Credits (Carbon Farming Initiative) Rule 2015*, to keep records of new management actions undertaken. Table 1 in this explanatory statement provides an indicative list of the evidence that could be collected and retained to demonstrate that new management actions were undertaken and met the standards prescribed in section 10 of the Determination.

For different industries, records management will be undertaken in different ways and at different time intervals. Given the challenges of ensuring robust data has been collected over the emissions intensity reference period and will be collected during the crediting period, proponents may utilise a variety of information sources, which may include a mix of digital records, field books and other hard copy records, in order to verify parameters.

Given that proponents may lack specific and independent records relating to historical practices, minimum record-keeping requirements may be different for the emissions intensity reference period compared to the crediting period. Proponents are required to have sufficient records for parameters that are used in the Irrigated Cotton Calculator (cotton area, lint yield, the mass and nitrogen content of synthetic fertiliser and green manure area) and irrigation status in the emissions intensity reference period and crediting period, to satisfy an auditor. A list of examples of the types of records which could be expected to be kept follows (Table 2). The list is not exhaustive but demonstrates the types of data sources that may be kept in support of the record-keeping requirements. Not all of the records identified in Table 2 must be kept and other records which demonstrate actions or activities could be collected and retained to meet the record-keeping requirements.

Table 2: Examples of record type

Description
Records could include but are not limited to: Cotton Area – Invoices for cotton seed purchases data for the relevant year in the emissions intensity reference period or crediting period, as evidence that cotton was grown in that year and to verify cotton crop area. – Invoice for GMO licence for the relevant year in the emissions intensity reference period or crediting period. – The map of the fields in which cotton was planted in the relevant year of the emissions intensity reference period or reporting period, in accordance with section 13 and the format and precision requirements of section 14. – Field book records or electronic records from the cotton area to demonstrate cotton seeding rate. – Satellite data (e.g. internet maps) on the location of cotton and other crop production in the relevant year of the emissions intensity reference period or crediting period. – Seeder calibration settings such as dated photographic evidence. – Local or Regional average data for the production system for the reporting year. – Water pumping and withdrawal rights data Irrigation status – A permanent water licence or right to pump or divert water from a river, groundwater or canal, or to capture water from overland flow. – Permit/licence for infrastructure to capture water (in circumstances where a licence to capture water from overland flow is not required). – A receipt for a temporary water purchase. – For groundwater, field record books or electronic records with a log of pumping dates and estimated delivery volumes to the cotton area. – For overland flow reservoirs, field record books or electronic records with a log of pumping dates to the cotton area. – Proxies enabling calculation by difference from gross farm purchases such as the approximate farm synthetic nitrogen fertiliser distribution among crops other than cotton and their yields in the relevant year of the emissions intensity reference period or crediting period. – Soil nitrogen mapping data and model run recommendations based on soil tests. Nitrogen applied via synthetic fertiliser – Synthetic fertiliser receipts with product name and mass and product data sheets with nitrogen content. – Contractor records with operator name, geographical information (field identifier linking it to project area and proponent and date of recording) signed by the operator. – Record or procedure for synthetic fertiliser application rate calibration signed by the contractor. – Records of farm visits or communications on fertiliser rates, cotton area and management by certified crop consultants, signed by the consultant.

- Receipts from payments to aerial or other fertiliser application contractors.
- Farm field books or electronic records compiled by landowners (or their own workers) from application equipment providing fertiliser product name, application rates, operator name.
- Geographical information (field identifier linking it to relevant project), GPS data from tractor monitor, and date of when the record of fertiliser application was made.
- Record or procedure/settings for fertiliser application calibration of the equipment used by the landowner. A picture or copy of the settings chart for the equipment used is required if this record is kept.
- Tax records for fertiliser inputs to the project area in the relevant year of the emissions intensity reference period or crediting period.
- Record keeping of machinery used during fertiliser application (e.g. start and end records from hectare metre for cotton basal applications).

Lint Yield

- Crop gin receipts or weighbridge tickets for modules or round bales marked with the unique cotton field identifier described in section 13.
- Field book data on numbers of round bales or modules of cotton harvested.
- Data from industry surveys or local government records.
- Haulage contractor receipts

Green Manure Area

- Invoices for the purchase of green manure seed for the relevant year in the emissions intensity reference period or crediting period, as evidence that green manure was grown in that year and to verify the green manure area.
- If the green manure seed was saved from a harvested crop, a signed record of the mass of seed used on the area planted, witnessed by a third party (such as a certified crop consultant).
- A statement identifying the fields or parts of fields in which green manure was planted in the relevant year of the emissions intensity reference period or reporting period, with reference to the maps produced in accordance with sections 13 and 14.
- Soil test data from fields planted with green manure and fields in the cotton area which did not grow green manure.
- Field book records of synthetic nitrogen fertiliser use rates on green manured/non-green manured areas.

Division 4 Data and monitoring requirements

24 Monitoring requirement

Paragraph 106(3)(d) of the Act provides that a methodology determination may require the proponent of an eligible offsets project to comply with specified monitoring requirements.

Monitored parameters are measured according to the instructions provided in Part 5 of the Determination.

The *Carbon Credits (Carbon Farming Initiative) Rule 2015* contains record-keeping requirements that relate to data that is collected while monitoring the project. Examples of records that can satisfy the record-keeping requirements are outlined in Table 2.

25 Cotton area

Section 25 requires that proponents monitor, in relation to each field in the cotton area, the area, in hectares, the planting density, in kilograms of seed planted per hectare, and the irrigation status for each year in the emission intensity reference period and crediting period.

Planting density (the total kilograms of seed planted per hectare) is required to be monitored to help verify the cotton area. Where a cotton crop was planted in several events on the same area, due to, for example, unsatisfactory germination rates in the first planting, proponents are encouraged to keep records of each planting event to assist in explaining unusual planting densities.

Section 25 requires that proponents monitor the irrigation status of each field in the cotton area. The proponent must be able to verify that the whole area of each field in the cotton area was irrigated at least once, by any application method. A cotton crop grown in a field that has irrigation infrastructure, but is not irrigated, must not be included in the cotton area.

26 Lint yield

Section 26 requires that proponents determine the lint yield, in tonnes of lint produced by the cotton gin from seed cotton received from the field, for each year in the emissions intensity reference period and crediting period.

27 Synthetic fertiliser

Section 27 requires that proponents determine the total amount of nitrogen, in kilograms, applied via synthetic fertiliser to each field of the cotton area in each year of the emissions intensity reference period and crediting period. To determine total nitrogen, proponents must monitor the mass of each type of synthetic fertiliser applied, and the nitrogen content (in percent nitrogen of total mass) of the synthetic fertiliser. Records required to verify these parameters are described in section 23.

28 Green manure

Section 28 requires that proponents monitor the area of green manure planted, in hectares, and the planting density, in kilograms of seed planted per hectare for each year in the emission intensity reference period and crediting period in which green manure was planted in the cotton area immediately prior to the planting of the cotton crop (see subsection 16(2)). Proponents must identify the unique identifier of each field, or part of each field, in which green manure was planted with reference to the relevant map stratified in accordance with section 13. This helps to ensure an accurate estimate of the green manure area, in hectares.

Division 5 Reporting under section 77A of the Act

29 No division of project area

The effect of subsection 77A(1) of the Act is that project proponents may divide a project (the 'overall project') into two or more parts and report on those parts as if they were projects in their own right. Each of these parts can be reported on separately.

The effect of section 77A is that, if an overall project is divided in this manner, the project proponent is to give to the Regulator, among other things, offsets reports for the period for which the project is divided, as if each part into which the project has been divided were an eligible offsets project in its own right. An offsets report is not required for the entire, undivided project. Section 77A does not otherwise impact on when offsets reports are required.

Subsection 77A(2) of the Act provides that the division of the overall project must comply

with such requirements (if any) as are set out in the applicable methodology determination for the overall project. For irrigated cotton projects, those requirements are set out in section 29.

Section 29 specifies that a project may not, for the purposes of section 77A of the Act, be divided into parts that are smaller than one entire project area. Projects that consist of multiple project areas (for example, aggregations) may be divided into parts that consist of one or more entire project areas.

Statement of Compatibility with Human Rights

Prepared in accordance with Part 3 of the Human Rights (Parliamentary Scrutiny) Act 2011

Carbon Credits (Carbon Farming Initiative—Reducing Greenhouse Gas Emissions from Fertiliser in Irrigated Cotton) Methodology Determination 2015

This legislative instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

Overview of the legislative instrument

The *Carbon Credits (Carbon Farming Initiative—Reducing Greenhouse Gas Emissions from Fertiliser in Irrigated Cotton) Methodology Determination 2015* (the Determination) sets out the detailed rules for implementing and monitoring offsets projects that would reduce emissions of greenhouse gases by avoiding emissions from the cultivation of irrigated cotton by increasing the nitrogen fertiliser use efficiency of that process.

Project proponents wishing to implement the Determination must make an application to the Clean Energy Regulator (the Regulator) and meet the eligibility requirements set out under the Determination. Offsets projects that are approved by the Regulator can generate Australian Carbon Credit Units, representing emissions reductions from the project. Project proponents can receive funding from the Emissions Reduction Fund by submitting their projects into a competitive auction run by the Regulator. The Government will enter into contracts with successful proponents, which will guarantee the price and payment for the future delivery of emissions reductions.

Human rights implications

This legislative instrument does not engage any of the applicable rights or freedoms.

Conclusion

This legislative instrument is compatible with human rights as it does not raise any human rights issues.

Greg Hunt, Minister for the Environment