# DRAFT EXPLANATORY STATEMENT

*Carbon Credits (Carbon Farming Initiative) Act 2011*

*Draft Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Variation, 2016*

## Background

### Emissions Reduction Fund

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 Act was amended by the *Carbon Farming Initiative Amendment Act 2014* to establish the Emissions Reduction Fund (ERF). The ERF expands on the Carbon Farming Initiative (CFI) by extending the scope of eligible emissions reduction activities and by streamlining existing processes. 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) and rules for monitoring, record-keeping and reporting. These methodologies 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.

The ERAC must include in its advice to the Minister the Committee's opinion on whether a proposed determination complies with the offsets integrity standards set out in section 133 of the Act. The offsets integrity standards require that an eligible project should result in carbon abatement that is unlikely to occur in the ordinary course of events and is eligible carbon abatement under the Act. In summary, the offsets integrity standards also include that:

- amounts are measurable and capable of being verified;
- the methods used are supported by clear and convincing evidence;
- material emissions which are a direct consequence of the project are deducted; and

- estimates, assumptions or projections used in the determination should be conservative.

Offsets projects that are undertaken in accordance with a methodology determination and approved by the Clean Energy Regulator (the Regulator) can generate Australian carbon credit units, representing abatement 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 for the future delivery of emissions reductions.

Further information on the Emissions Reduction Fund is available at: www.environment.gov.au/emissions-reduction-fund.

**Beef Cattle Herd Management**

The Determination made in 2015 is titled the *Carbon Credits (Carbon Farming Initiative—Beef Cattle Herd Management) Methodology Determination,2015* (the Determination). It provides for crediting emissions reductions from projects that improve the production efficiency of pasture-fed beef cattle herds.

Beef cattle production is a major livestock industry and contributes around 60 per cent of emissions from agriculture and up to 11 per cent of national emissions.

The main source of emissions from beef cattle is methane from enteric fermentation (the digestion processes in ruminant animals). Beef cattle also produce nitrous oxide emissions from dung and urine. Enteric methane emissions from pasture-fed beef cattle rose by 6 per cent between 1990 and 2013, in line with an increase in the size of the national herd.

The Determination provides for emissions reductions through adoption of measures to reduce the emissions intensity of beef production. Emissions intensity can be measured as emissions per kilogram of beef produced. Emissions intensity can be reduced through taking steps to improve productivity. For example, supplying higher quality feed improves growth rates, enabling cattle to reach market weight earlier with lower emissions over their lifetime.

Productivity improvements have delivered an overall decline in the emissions intensity of production for a large portion of the national beef cattle herd from the 1980s to the mid 1990s. However, studies show an increase in emissions intensity in recent decades, demonstrating the potential for further improvements. For example, data on the number and weight of beef cattle produced nationally for domestic consumption and export is available from the Australian Bureau of Statistics and Australian Bureau of Agricultural and Resource Economics and Sciences. When converted to standard equivalent annual emissions values for adult cattle, the data shows that emissions intensity increased by about 0.6 per cent annually between 1994 and 2013.

The ERF credits emissions reductions resulting from improvements in emissions intensity—reductions in emissions per unit of output—as a practical way to support economic growth while reducing emissions. An emissions intensity approach rewards deliberate effort by crediting reductions in the emissions intensity of each unit produced, regardless of whether production is expanding or contracting.

The Determination provides for crediting of total emissions avoided compared to the baseline as a result of undertaking new management actions that reduce emissions intensity. Such actions can reduce emissions intensity in the following ways.

(1) Increasing the ratio of liveweight (LW) for age in the herd. Improving cattle productivity enables target weights to be reached earlier, thereby reducing the number of days for which cattle produce emissions. The LW of cattle relative to their age could be either the same as, or higher than, it was before the project began. Similarly, the age at which a particular weight can be reached could be earlier than it was before the project began.

(2) Reducing the average age of the herd, which also results in cattle producing emissions for fewer days and avoids emissions from older cattle with declining productivity.

(3) Reducing the proportion of unproductive animals in the herd, for example by removing heifers that fail pregnancy testing. Such actions provide more grazing area for productive animals, and can help increase birth rates and survival.

(4) Changing the relative numbers in each livestock class (e.g. bulls, cows and steers of different ages, as described in the National Inventory Report) within the herd to increase the herd's liveweight gain (LWG). For example, actions to improve weaner survival can reduce emissions because a smaller herd with fewer breeding cattle can produce the same or greater LW. Fattening unfinished cattle rather than increasing breeder numbers can avoid emissions which would have occurred through delayed finishing on poor quality pastures.

The Determination does not specify particular types of project activity to achieve such outcomes. However, proponents must identify in the section 22 application (see below) at least one activity that can reasonably be expected to deliver such outcomes. To be eligible for this Determination a project activity in the reporting period must be a new activity or a variation of an activity that was not being carried out before or during the emissions intensity reference period. When reporting on this new activity the proponent must report on how the activity led to emissions abatement.

Project activities could include: sowing improved pasture; introducing superior genetics; introducing feed supplements; and installing fencing on rangeland properties to allow alignment of mating and calving times with favourable seasonal conditions.

Activities can be changed during the project, as long as the requirements of the Determination are met.

The following activities are ineligible under the Determination:

- land cleared of perennial woody vegetation for the purposes of the project (unless the clearing is required by law);
- feeding of non-protein nitrogen such as urea or nitrates;

- a project activity that comprises only grazing cattle on a different area of land; and
- cattle in feedlots.

Project proponents who could use the Determination include beef cattle graziers producing cattle for live export or slaughter, sale to another producer for finishing, or breeding. Enterprises with single or multiple beef cattle grazing operations can also undertake a project. Therefore a project may also comprise multiple herds.

The Determination's flexibility in relation to eligible activities recognises the diversity of beef cattle production operations and the range of avenues for improving production efficiency. Activities adopted in extensive rangeland operations may differ from those used in more intensive operations in temperate regions.

The Determination recognises that the number of cattle managed by a business operation is likely to change from year to year in the normal course of events. Numbers may be reduced during droughts and increased under favourable conditions. Cattle may also be transferred between separate properties owned by an entity, and sold on to other cattle producers.

Given these variables, the Determination does not prohibit changes in herd composition and the location in which the herd grazes during a project. However, each herd in a project needs to be tracked over time to enable estimation of baseline and project emissions and to ensure that emissions reductions are delivered only through project activities. The Determination therefore includes requirements linking each herd with a business operation and the records and livestock inventory of the business, In order to maintain the integrity and transparency of emissions calculations, cattle cannot be transferred outside of the project boundary unless it is to a herd in a business which is linked to it in a larger business structure. The destination herd must also be part of an eligible emissions abatement project. All other movements must be as a sale at market price.

While a reduction in the number of animals in a herd may be one outcome of a project, the Determination enables emissions reductions to be achieved through increased productivity per animal and does not incentivise reduced production. The Determination also does not preclude an increase in the number of animals in a herd, but any associated change in emissions intensity would be reflected in the net abatement amount.

Productivity improvements achieved through a project could result in a proponent selling larger numbers of cattle, for example to enterprises that finish cattle for slaughter. However, project activities that result in an increase in the number of animals leaving the project property are unlikely to lead to an increase in the size of the national herd. The size of the national herd is constrained by factors such as the carrying capacity of grazing land, availability of land, and environmental influences, for example drought. These factors, as well as market factors, such as the price of beef, will have a far greater influence on management decisions of other beef cattle producers than the actions of project proponents.

This assessment is supported by recent trends in the size of the national pasture-fed beef cattle herd, which fluctuates from year to year due to climate and market influences. In recent decades the overall trend has been a gradual increase; the number of pasture-fed beef cattle grew from 21.9 million in 1990 to 25.7 million in 2013. It has subsequently fallen to around 21.5 million after widespread drought in northern Australia. The net increase in

national herd size over 25 years has been less than 1 per cent per annum. Increased meat production is thus much more likely to result from improvements in factors such as liveweight gain (LWG) rate and reproductive performance rather than increased numbers of cattle among project proponents.

Abatement is calculated for a reporting period as the difference between baseline and project emissions for each herd and each year in the reporting period. Where a project comprises multiple herds, total abatement is the sum of the abatement for each herd.

Baseline emissions for each year in a reporting period represent the emissions that would have occurred in the absence of project activities. LWG values are used to derive emissions intensity estimates, from which baseline emissions are estimated. The use of emissions intensity values, rather than absolute values, to calculate baseline emissions allows fluctuations in emissions due to climate/environment to be taken into account. The baseline emissions can then be considered as representative estimates for comparing with the effect on emissions of project activities.

Project emissions are the total emissions of the entire herd for each year.

Only enteric methane emissions and nitrous oxide emissions from dung and urine are accounted for in abatement estimates. These emissions are related to feed intake per day, the duration of that feed intake and the protein content and dry matter digestibility of the feed. These factors are incorporated in abatement calculations, and where a change in diet is a project activity, details of the change are required as an input to calculations.

Proponents are required to use the Beef Cattle Herd Management Calculator (the Calculator) to calculate abatement annually. The Determination sets out the inputs required by the Herd Management Calculator. Abatement estimates require information on cattle numbers, LW and LWG. Information required for cattle numbers includes each class of cattle (e.g. all classes of heifers, steers and bulls) and the duration of their presence in the herd each year. Values for LWG may be obtained by weighing animals or, where this is not practical, through verifiable alternative means specified in the Determination.

*The Variation*

The draft*Carbon Credits (Carbon Farming Initiative—Beef Cattle Herd Management) Methodology Variation, 2016* (the Variation) simplies the project boundary of an eligible project and provides greater flexibility in adding more herds to a project after the Section 22 application. In order to achieve these outcomes, however, several conditions need to be met:

(a) the business operation and its inventory must be maintained separately over time;

(b) the herd must be managed and pastured separately from herds not in a project unless a written, arm’s length agistment arrangement is in place between the proponent and the management of the other herd;

(c) cattle cannot be transferred from the herd to a linked herd unless that herd is also a project herd. A linked herd is one which is linked, by, for example, being part of a parent entity of the same or a different business operation or by being linked in

trading, as for example, in a supply chain transferring cattle toward a market. Movements of cattle to a non- project herd must be made as a transparent sale at market price.

Baseline emissions are estimated by different methods for full data herds having three years of historical baseline data compared to limited data herds having less than three years of data. Only one limited data herd is allowed in each project. Baseline emissions are estimated a follows.

For Full data herds

(a) Calculate emissions intensity of historical LWG as total emissions of all animals in the herd for three emissions intensity reference period years divided by total LWG for those years.

(b) Multiply the result of (a) by the LWG for each year in the reporting period.

(c) Project emissions are the total emissions of the entire herd for each year.

For Limited data herds

(a) Calculate emissions intensity of historical LWG as total emissions of all animals in the herd for the number of emissions intensity reference period years for which data is available divided by the total LWG of the herd for those years.

(b) Compare the emissions intensity calculated by (c) above with emissions intensity calculated by (a) above. The emissions intensity of the limited data herd will be the lower of the two values

(c) Multiply the result of (a) by the LWG for each year in the reporting period;

A new worksheet has been added to the Calculator to allow proponents to estimate the numbers of cattle in a sample of a herd or group of animals from the herd required to meet a targeted precision of estimation required for the Variation and for purposes such as financial audit.

**Purpose**

The draft *Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Variation, 2016* (the Variation) amends the *Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management)Methodology Determination,2015*.

The Determination was made on 9 September 2015 and sets out the rules for implementing and monitoring Beef Cattle Herd Management projects on eligible land.

The Variation clarifies and simplifies requirements throughout the Determination, and implements several operational changes. It simplifies the definition of a herd as the project boundary by removing provisions for non- inventory cattle, making the herd only the animals on the inventory of the business operation of the proponent. A shorter emissions intensity reference period is allowed for entry of Limited Data compared to Full Data herds but with

size limits and baseline restrictions. The provision facilitates entry of herds on or after the Section 22 application for a project.

**Legislative provisions**

The Determination was made under subsection 106(1) of the Act.

The Variation amends the original Determination and is made under subsection 114(1) of the Act, which empowers the Minister to vary, by legislative instrument, a methodology determination.

**Operation**

The Variation primarily amends the Determination to replace the requirements to provide three years of emissions intensity data for all herds entering a project, so that one of the herds which enters the project on or after the date of the Section 22 Application can have at least one year of data. Conservative size and baseline restrictions apply, compared to herds having three years of emissions intensity reference period data. The effect of the change is to facilitate greater abatement through incorporation of additional herds into a project after the Section 22 Application date. The movement of cattle to non- project herds is now permitted only through transparent sale. The provision replaces previous arrangements for incorporation of entities and sub entities into the project herd. The effect is to ensure greater integrity and a simpler project boundary comprising only the cattle on the inventory of a discrete business operation whose records and cattle inventory must be maintained continuously over time.

The Variation amends the Determination to make explicit the arrangements for projects that are already declared as eligible offsets projects that move to the 'varied Determination' – that is, the Determination as varied by the Variation. Proponents of projects that are already declared eligible and whose crediting period has already commenced would need to apply to the Regulator under section 128 of the Act to have the varied Determination apply to their project. This is because under section 126 of the Act, a methodology determination continues to apply to projects that are already declared eligible under it and whose crediting periods have already commenced, even if the determination is subsequently varied.

It is intended that projects that are declared eligible under the original Determination would be readily able to transfer across to the varied Determination.

If a proponent has applied to the Regulator for declaration of a Herd management project as an eligible offsets project, but a decision on the application has not been made when the Variation comes into force, the application would be assessed under the varied Determination rather than under the original Determination that was specified in the application for declaration.

**Public consultation**

The Variation has been developed by the Department of the Environment and Energy. Exposure drafts of the Variation were published on the Department's website for public consultation from 2 August to 15 August 2016.

Details of the submissions received after public consultation are provided on the Department's website: www.environment.gov.au

The Department has also consulted closely with the Regulator when developing the Variation.

**Determination details**

Details of the draft determination and an explanation of the changes covered under the Variation are given in Details of the Determination and Schedule 1 of Amendments to the Determination in Attachment A. A full explanation of the Determination, as varied, is given in Attachment B. A statement of compatibility with human rights is set out at Attachment C. Numbered sections and items in this explanatory statement align with the relevant sections and items of the Variation and the Schedule. The definition of terms highlighted in ***bold italics*** can be found in the Variation or the varied Determination.

For the purpose of subsections 114(2), (2A) and (7B) of the Act, in varying a methodology determination, the Minister must have regard to the advice of the Emissions Reduction Assurance Committee (ERAC) as to whether the Minister should vary the determination, and is not able to make the variation if the ERAC has advised the Minister that the varied methodology determination does not comply with one or more of the offsets integrity standards. The Minister must be 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 must have 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 varied methodology determination applies, and other relevant considerations.

**Note on this explanatory statement**

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

**Details of the Variation**

# Part 1—Preliminary

## 1 Name

Section 1 of the varied Determination sets out the full name of the varied Determination, which is the *Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Determination,2015*.
Section 126(2) of the Act specifies that the version of a determination as it existed prior to a variation continues to apply to a project even if a variation is made during its crediting period. Proponents of projects registered under an earlier version of a determination may apply to the Regulator to have the varied determination applied to their project.

## 2 Commencement

Section 2 provides that the Determination will be in force from its commencement (which is taken to have occurred on 9 September 2015) until the day before it would otherwise be repealed under subsection 50(1) of the LI Act. Instruments are repealed under that provision on the first 1 April or 1 October following the tenth anniversary of registration on the Federal Register of Legislative Instruments. In accordance with subparagraph 122(1)(b)(i) of the Act, section 2 of the varied Determination sets out the time that the Determination would expire. If the Determination expires in accordance with section 122 of the Act or is revoked under section 123 of the Act 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 sections 125 and 127 of the Act.

Under section 27A of the Act, the Emissions Reduction Assurance Committee may also suspend the processing of applications under a determination if there is reasonable evidence that the methodology determination does not comply with one or more of the offsets integrity standards. This does not affect applications for declaration already received by the Regulator before such a suspension or declared eligible offset projects which apply the determination.

## 3 Authority

This determination is made under subsection 106(1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

## 4 Amendment of methodology determination

Section 4 provides that the Determination is amended as set out in Schedule 1 to the Variation.

# Schedule 1—Amendments of the Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Determination, 2015

**[1] Section 5 Definition of Arm's length agistment arrangement**

Item 1 of Schedule 1 repeals the definition of an Arm's length agistment and replaces it with a new definition. This change to the definition of an arm's length agistment arrangement is made because if entities are linked, they may exchange grazing freely but, because they must be part of a project, their emissions can be accounted for separately. Linked entities in, for example, a supply chain will not require written contracts for use of spare grazing capacity. The change also clarifies the logic for treating agistment and co- grazing differently.

**[2] Section 5 Definition of an *associate***

Item 2 repeals the definition of an associate because the term is no longer required under changes to the separate business operation requirement described below.

**[3] Section 5 Definition of *business operation***

The note added at the end of the definition of a business operation broadens the scope of operations allowed in the determination provided that the business operation satisfies the separate business operation requirement and the herd continuity requirement. The provision allows a business operation which is not an entity in its own right but a part of a parent entity (e.g. a farm or station which maintains its own records separate to the parent entity) to be the business operation for the purposes of the project. A business operation must be described so that an initial inventory of cattle is available for the purpose of participating in a herd management project. That inventory may later be supplemented by cattle of an additional but discrete herd in the project which may be added after the Section 22 application for a project if all conditions are met.

**[4] Section 5 Definition of *emissions intensity reference period***

The change allows the definition to apply to the correct subsection 11(5) rather than the former subsection 14(2).

**[5] Section 5 after definition of *crude protein***

The following definition is inserted:

***data reference date***, for a herd, means the data reference date specified in accordance with paragraph 8(4)(e).

The data reference date is used as the basis on which parameters such as numbers and classes of cattle and their liveweight gain during the Emissions Intensity Reference Period (EIRP) is established before the section 22 applicaton for registration of a project. It is a time no more than 3 months before the section 22 application to allow for muster and collection of data. The term is further explained in section 11.

**[6] Section 5 Definition of an *entity***

The note added at the end of the definition of an entity provides clearer definition of the scope of operations allowed under the determination following the removal of the less rigorous concept of an associate. It provides detail on the provisions of Section 184(4) of the *A New Tax System (Goods and Services Tax) Act 1999.* Section 184(4) of that Act allows a variety of persons, businesses, body corporate, superannuation funds among others to be registered for GST. The note thus allows all forms of organisation of a business operation to have a separate identity and facilitates the separate accounting of emissions of that business operation without the need to determine whether two businesses are associates or not.

**[7] Section 5 Definition of *herd***

The change to the definition of a herd removes the need to distinguish between inventory and non-inventory cattle. A herd relates to a business operation and is simply all the cattle that are on the livestock inventory of the business operation at a particular time. Provisions for non-inventory cattle on the inventories of associate businesses to be included in the cattle of the herd are no longer required. The effect is to greatly simplify the project boundary.

**[8] Section 5 Definition of *inventory cattle***

The definition of inventory cattle has been repealed and replaced by the definition of a herd.

**[9] Section 5 before the definition of livestock class**

A new definition for the term linked has been inserted to substitute for the use of the less robust term ***associate*** as the basis for determining whether transfers (rather than sales) of cattle between business operations can occur

> ***linked***, of an entity, means that:
>
> (a) 2 entities that are members of a group that constitutes the parent entity of a business operation are ***linked*** to each other; and
>
> (b) 2 entities that are related entities within the meaning given by section 9 of the *Corporations Act 2001* are also ***linked*** to each other; and
>
> (c) 2 entities that are both linked to a third entity under paragraph (a) or (b) or this paragraph are also ***linked*** to each other.
>
> ***linked***, of a business operation, means that if:
>
> (a) 2 entities are linked to each other; and
>
> (b) each entity is, or is part of the parent entity of, a different business operation;
>
> the 2 business operations are ***linked*** to each other.
>
> ***linked***, of a herd, means that if 2 business operations are linked to each other, their respective herds are ***linked*** to each other.

The definition of linked in relation to a businesss operation, entity or herd in section 5, has implications for the transfer of cattle between business operations compared to a sale at market price, which must occur when movement of cattle occurs between businesses which are not linked or where one of the linked businesses is not participating in an eligible offsets project. Cattle cannot be transferred from the herd to a linked herd unless the linked herd is also in a project. The definition replaces the concepts of primary and secondary businesses and is a more robust basis for considering relationships between business operations than the looser concept of an associate.

**[10] Section 5 Definition of non-inventory cattle**

The definition is repealed. The definition formerly applied to cattle of a secondary business operation that was created by transfers between business entities having associate relationships. It is no longer required because the concept of a secondary business no longer applies.

**[11] Section 5 Definition of parent entity**

The change in definition allows a single business operation to be a part of a parent entity or to be the parent entity in itself without necessarily having an Australian Business Number (ABN). However, either the business operation or its parent entity must be registered for GST. The business operation, however, needs to be carefully defined to meet the requirements of subsection 8(1) and paragraph 8(4)(b), to demonstrate how it meets the separate business operation requirement.

**[12] Section 5 Definition of primary business operation**

The definition of primary business operation has been repealed because there is no longer a need for the two concepts of primary and secondary businesses in defining whether a herd is part of the project or not. Only one type of business operation is now considered on the basis of whether it satisfies the requirements as a separate business operation requirement (Section 9) and the Herd Continuity Requirement (Section 10).

**[13] Section 5 Definition of secondary business operation**

The definition of secondary business operation has been repealed because it is no longer needed. The provision that transfers (rather than sales at market price) between a project herd and a non project herd are not permitted, removes the potential to create a secondary business.

**[14] Section 5 Definition of sub-entity**

The definition of sub-entity has been repealed because it has been replaced by the concept of a business operation which is not necessarily an entity in its own right but is able to conduct a project, regardless of whether it is part of an entity having an ABN, as long as it has the necessary inventory of cattle and business records to prove that it meets the separate business operation requirement.

**[15] Section 5 subsection (2), including preceding subheading, but not including following note**

The subheading and subsection have been repealed and replaced by the new definition of a parent entity and the removal of the term sub-entity. Sub entity is no longer required as it is effectively replced by the concept of a business operation with its own records and either registered for GST or linked to a parent entity which is registered for GST.

**[16] Boxed note before section 7**

The previous boxed note on keeping the herd simple has been replaced by a short summary of the essential concepts of herd and business organisation in the method, which are given in

Sections 8-14 of the Variation. The changes to the determination have the effect of keeping the herd simple in themselves because they eliminate the concepts of non-inventory cattle, associates and secondary businesses.

**Summary**

The project proponent must specify at least one herd for the project in the section 22 application, and may specify other herds later (these do not extend the crediting period).

A herd is specified by specifying the business operation to which it is attached—the herd consists, at any particular time, of the cattle that are on the livestock inventory of the business operation at that time.

The herds, or all herds but one, must have full historical data. The baseline emissions of such a herd with full historical data are calculated using the data from that herd only.

One herd may have only partial historical data. There is a limit on how large this herd can be. When calculating its baseline emissions, a cap is imposed that is based on historical data from full data herds.

To comply with the methodology of this determination requires that, for each herd in the project:

(a) the business operation and its livestock inventory must be maintained separately from any others that are part of the project, and have continuity over time; and

(b) the herd must be managed and pastured separately from herds not in a project; and

(c) cattle cannot be transferred from the herd to a linked herd unless the linked herd is also in a project.

A project proponent with several herds may find it preferable to include all of them in the project, even if some are not expected to generate significant emissions reductions, in order to allow joint pasturing and transfers from one herd to another.

**[17] Sections 8 to 14**

Item 17 of Schedule 1 repeals sections 8-14 with new sections 8-13. There will be no new section 14 in the Variation so that there will be a gap in the numbering of sections. Where additional sections are added they use both numerical and alphabetical characters, as in "section 21A".

**8 Herds of the project**

Subsection (8)(1) requires a project to have at least one herd in a specified business operation at the time of the Section 22 application. To meet the requirements of paragraph 11(4)(d)

there must be at least one *reference herd* with complete data for a three year EIRP. Thus if there is only one herd in the project, it must have complete data for a three year EIRP.Subsection (8)(2) allows the proponent to apply to the Clean Energy Regulator (CER) to include another herd, from a separate business operation, in the project after the section 22 application. The provision caters for mergers and acquisitions by proponents involved in business expansion after a project has started. More than one herd with full historical data may be allowed to enter the project after the section 22 date. Further provisions in section 11 deal with the case of herds without complete data for an EIRP. Only one such herd may enter the project on or after the section 22 date.

Subsection(8)(3) requires the CER to accept the application if all conditions of Part 3 of the Variation are met. Subsection (8)(2) requires a proponent to apply for admission of the additional herd rather than notifying the CER but subsection 8(3) also provides discretion to the CER in accepting the herd or not, based on the requirements of Part 3.

*Information required in application*

Subsection (8)(4) requires the proponent to meet several conditions relating to the specification of a business for which an inventory of cattle is kept and which defines the herd of the project

The section 22 application or application under subsection (8)(2) must include the following information for each business operation:

(a) if it is a business entity, the nature and structure of the entity or group of entities of which it is a part. The proponent could, for example, include the name, postal address or propery PIC number, ABN or ACN of the entity, and, if applicable, the parent entity and the types of operations in which it is involved. If it is large enough to require reporting to the Australian Securities Investement Corporation (ASIC), it could state the frequency of reporting on matters such as herd size and composition relevant to the project;

(b) if it is a single business operation, it must specify how it meets the separate business operation requirement. Specifically, if it is, for example, a single farm or station it must show that it has business records defining its operations, such as tax records, separate inventories and herd management books used at times of muster or other operations which define it as a separate business. Under the provisions of Section 9 it must show that it has a parent entity ( which may be itself under the provisions of the definition of a parent entity);

(c) entities are often part of a parent entity with multiple types of business which include but are not exclusively related to, beef cattle operations. If the entity is different to other operations, for example, as a breeding property compared to an operation involved in preparing cattle for a feedlot or a feedlot, this must be stated. The provision is relevant, for example, in deciding on transfers between linked entities;

(d) the changes in structure and ownership of the business which have occurred since the beginning of the EIRP. This provision is made so that a continuity of records including the cattle inventory and transactions around it is available throughout a period of change of ownership and/or management;

(e) the data reference date, which must be no more than 3 months before the section 22 application date or the date of application for a new herd to enter the project. The limit allows proponents adequate time to muster and record the herd size and composition;

(f) the reference size of the herd, which is the total number of all cattle in that herd on the data reference date;

(g) the years constituting the EIRP for the herd. The information is necessary for the purpose of meeting conditions in paragraphs 11(4)(b) and 11(4)(c) and subsection 11(5) related to the proximity of data to the data reference date, allowable historical period for data collection and the length of the EIRP for herds with complete and incomplete data;

(h) the land on which the cattle of the herd grazed in each year of the emissions intensity reference period, other than under an arm's length agistment arrangement (for the purpose of emissions calculations using NIR methods and for paragraph 11(4)(d);

(i) to the extent possible, the land on which the cattle of the herd are expected to graze during each year of the crediting period, other than under an arm's length agistment arrangement. The information is required for paragraph 17(2)(d) related to eligible project activities which exclude grazing on new land with no other management change.

## 9 Separate business operation requirement

Section 9 specifies the conditions that must be met for a project to meet the separate business operation requirement. The project must satisfy either the entire entities subsection (9)(2) or the Discrete Operations subsection (9)(3) at all times between the beginning of its emissions intensity reference period and the end of the crediting period.

The provision is based on the information provided in Section 8 for entities or separate business operations defined by their records including cattle inventories, management records and cattle transactions. The provision allows both entities and business operations which are not an entity in their own right but a part of a parent entity registered for GST (e.g. a farm or station which maintains its own records separate to the parent entity) to be the business operation for the purposes of the project. A business operation must be described so that an initial inventory of cattle is available for the purpose of participating in a herd management project. That inventory may later be supplemented by inventory cattle of an additional but discrete herd in the project which may be added after Section 22 application for a project if all conditions are met.

*Entire entities*

A business operation satisfies this subsection if it consists of a registered entity or a group of registered entities. In this case, the entity must have an ABN or ACN on which its taxation records (such as business activity statements, quarterly or annual income tax records) are based and provide clear definition of the entity and the nature of its operations.

*Discrete operations*

A business operation satisfies this subsection if:

(a) its parent entity consists of an entity or a group of entities that are registered for GST (they do not need to be companies to be registered for GST); and

(b) it maintains a livestock inventory that is separate from other livestock inventories of its parent entity (as seen in its business records, taxation records of the parent entity, for example); and

(c) the herd is managed as a discrete group of animals over time (as seen in, for example, muster data, records of cattle movements as a result of electronic ear tagging, herd books for the herd) ; and

(d) it is possible to account for all movements (including transfers and sales) of cattle into and out the livestock inventory (whether to other livestock inventories of the parent entity, or to other business operations). This condition can be met with appropriate invoices, receipts and cattle movement data which must be kept for taxation purposes or to meet traceability requirements in business-as-usual operations.

## 10 Herd continuity requirement

Herd continuity is an essential requirement for the integrity of the method because emissions intensity in the EIRP and in the crediting period must be comparable on the basis of the same herd and not completely different herds in different business-as-usual locations.

Subsection 10(1) requires that the project must be one in which the business operation for each herd satisfies herd continuity requirements when business structures, management and ownership of the business operation change. The requirement applies at all times between the beginning of its emissions intensity reference period and the end of the crediting period:

Paragraph 10(1)(a) applies where the business operation consists of a registered entity or a group of registered entities—at any change in the entities, the livestock inventories of the entities must be transferred in such a way that the same animals are on the livestock inventory of the business operation before and after the change;

This provision ensures that at a change in structure of abusiness operation consisting of an entity or group of entities, a completely new inventory of cattle (a different herd) cannot be used to continue the project.

Paragraph 10(1)(b) applies to a business operation at any change in the registered entity or entities that constitute its parent entity, the livestock inventories of the entities are transferred in such a way that the same animals are on the livestock inventory of the business operation before and after the change;

As for paragraph 10(1)(a), the provision ensures that at any change in the parent entity for a business operation, a completely new inventory of cattle (a different herd) cannot be used to continue the project.

Paragraph 10(1)(c) requires no break in the continuity of the livestock inventory of a business operation and, in particular, its livestock inventory continues to be maintained separately from other livestock inventories of its parent entity;

This provision allows changes in the ownership of a business operation and its management, provided that the inventory of livestock, consisting of the same animals before or after the change, is maintained and can be attributed directly to the business operation before and after the change.

Paragraph 10(1)(d) requires no break in the continuity of the management of the herd as a discrete group of animals;

This provision means that although the person(s) responsible for management may change, the herd is still managed as a discrete group of animals which is not, for example, amalgamated with other herds. This applies, for example when a merger between two types of operations such as a backgrounding operation for a feedlot and a breeding operation are merged. Herd continuity is maintained if there is no change to the inventories of the two operations.

Paragraph 10(1)(e) requires that the information referred to in Schedule 2 is available for the herd. Schedule 2 outlines the inputs required for the Herd Management Calculator.

This provision, with the separate business operation requirement, has the effect that each herd must be accounted for separately in the calculator. In practice, a separate business with separate herd records will find it easier to use separate runs of the Calculator to coincide with records kept for all other purposes. A parent entity with a number of smaller entities, as in a value chain, would also find the practice desirable because it provides a record of the effectiveness of management in reducing emissions intensity of each herd. Finally, if animals from different herds, along with their purchases and sales, births and transfers are amalgamated, there is a risk that the data entry capacity of the Calculator would be exceeded.

Subsection 10(2) allows for a livestock inventory that is temporarily empty to maintain continuity  based on both a continuity of records for the herd and a continuity of management in the absence of cattle in the herd.The provision applies, for example when a herd  is sold off due to drought and new animals have to be purchased by management after the drought. As long as the facilities and  and management of the business operation are maintained there is no break in continuity. The provision allows flexibility of management in response to environment for a designated business operation for the project.

### 11 Requirement relating to emissions intensity reference data

Paragraph (11(1)(a) requires all herds to have their own historical emissions intensity data. Paragraph (11(1)(b) limits the number of herds which can be added to a project with less than three years of EIRP data. The provision is made for conservatism in assessment of emissions in combination with the provisions of Section 21 which requires conservative estimates of the baseline for herds with less than three years of EIRP data.

*The data reference date for a herd*

For the purposes of this section, the project proponent must choose for each herd a date (the data reference date) that is no more than 3 months earlier than the date of the relevant section 22 application or application for the herd under section 8. Paragraph 8(4)(e) above requires a proponent to nominate the data reference date. It may be convenient to use the annual muster as the data reference date and as a point at which to commence the crediting period for simplicity of data collection to meet the requirements of subsection 25(1)(a) requiring that data be collected within one month of rthe beginning or end of the project reporting year.

*Full data herds*

Subsection 11(3) and Paragraphs 11(3)(a) and 11(3)(b) specify the EIRP so that a proponent cannot choose years with the highest emissions intensity of LWG but must use the most recent three years of data for which there is positive LWG (not necessarily consecutive years). The historical seven year time allowance provides sufficient scope to select a year in

which tax records of the inventory and its transactions are likely to be still available. The requirement for positive LWG, recognises that natural factors such as drought beyond proponent control may occur and that a negative LWG as a result of drought or other uncontrollable circumstances, would bias estimates of emissions intensity under the control of management.

*Limited data herds*

Paragraph (11)(4) (a) defines a limited data herd as one which is not a full data herd because it does not have full data for a three year year historical emissions intensity reference period. However, it must have data at the data reference date (no more than three months before the section 22 application) for up to two years in which LWG was greater than zero. The effect is that a herd with three full years of data must enter all three years so that the emissions intensity of that herd cannot be manipulated by selecting data from only some of the years.

Subparagraph (11)(4)(b)(ii) requires that when available, the data should be for the one or two years immediately preceding the data reference date. However, when data for a year or years immediately preceeding that date is not available, data for the next year preceding the data reference date, sequentially for up to seven years preceeding the data reference date, may be used.

Paragraph (11)(4)(c) limits the reasons that data for a particular year can be considered as unavailable. They are restricted to either situations where a physical herd did not exist (e.g. inventory empty due to drought an destocking) or the data for the herd was not available because it was managed outside the project or business operation. Subparagraph 11(4)(c)(i)(B) and the note to section 11, provide for the case in which data for up to two years immediately preceding the data reference date might not be available, for example, to new owners of an acquired or merged business. If only one year of data is available (i.e. since the purchase or merger), the herd satisfies the requirement of a limited data herd.

Subparagraph 11(4)(c)(ii) requires that if the project proponent has the necessary data for a year, but the LWG for the year was not greater than zero, the lack of LWG was due to natural disturbances. This provision is made because the determination does not accept that, except in the case of a natural disturbace, a normal business, operated for profit, would have a total herd LWG which is not greater than zero. Such a business cannot reasonably claim the emissions intensity of LWG for that year as a representative emissions intensity.

Paragraph (11)(4)(d) requires that there be at least one reference herd, being a full data herd that was specified in the section 22 application and is in the same region as the herd. The reference herd emissions intensity of LWG may influence the baseline of the limited data herd according to provisions of Section 21. The emissions intensity used in estimation of the baseline will be the lower of the emissions intensity calculated for the limited data herd or the average emissions intensity of the reference herd or herds.

Paragraph (11)(4)(e) requires that at least one of the reference herds had more cattle on its data reference day than the limited data herd had on its data reference day. This requirement limits the size of the herd with limited data to less than the size of the largest reference herd. It is included for conservatism of abatement estimates because a large herd with limited data might unduly bias the EIRP estimate of emissions intensity.

*Emissions intensity reference period*

For this determination, the EIRP for a herd is:

(a) for a full data herd—the 3 years mentioned in paragraph (3)(b); and
(b) for a limited data herd—the 1 or 2 years mentioned in subparagraph(4)(b)(ii).

The years in the emissions intensity reference period need not be consecutive, particularly since data for a year with a LWG greater than zero may not be available. Each herd in the project must have its own EIRP. Each such EIRP might consist of a different set of years. However, the resulting emissions intensity estimate for the limited data herd will have to meet the baseline requirements of Section 21.

*Definitions*

Subsection11(5) defines liveweight gain for the purposes of the section as follows:

***liveweight gain*** for the herd for the year means the LWG calculated using Equation 5 (section 21C). The calculation in section 21C excludes the LW present at purchase by subtracting the LW present at sale and thus provides an estimate of incremental annual LWG.

## 12 Requirement relating to transfers of cattle

Section 12 provides the requirements that must be met in relation to the transfer of cattle between herds. These provisions apply for every transfer to or from another herd between the data reference date for the herd and the end of the crediting period. They remove the need for the concept of secondary businesses and non-inventory cattle because a secondary business can no longer be created through transfer of animals from one herd to another (non-project) herd.

Under Paragraph (12)(1)(a) no transfers are permitted to herds which are not linked to the project herd. A movement of cattle to a non-project herd can only be made using a transparent sale at market price. Transfers can only occur if the herd to which animals are transferred to during the project period is linked in a business structure to the original project herd. Under the provisions of paragraph(12)(1)(b) the destination herd must also be a project herd. If the transfer is historical (made before the elgibility date), the destination herd must be included in the project.

Subsection (12)(2) makes an exception where a transfer to an abattoir, export facility or any other facility will remove the animal from the national emissions boundary. Such a transfer might occur, for example to an abattoir owned by the parent entity of the business operation (i.e. it is linked to the business operation) but which is not in itself part of an eligible abatement project.

## 13 Requirement relating to co-grazing

Subsection (13)(1)(a) limits co-grazing to animals which are each members of a project herd and are therefore accounted for separately. The subsection prohibits grazing project and non-project animals together unless an arm’s length agistement agreement for either the project cattle or the other cattle is in place to allow grazing together to use surplus grazing capacity. An exception is made in the case of project cattle on agistment with other cattle or when non-

project cattle are agisted with project cattle on land controlled by the proponent. Cattle are frequently separated in such circumstances for ease of management and agistment is not usually available unless there is surplus feed available. Feed intake is not limited and the estimation of emissions based on duration of grazing days, class, weight and feed type remains valid.

In addition, paragraph (13)(1)(b) requires that all animals be identifiable as a member of the herd (see also section 16) and paragraph (13)(1)(c) requires that liveweights of cattle be available for the period in which co-grazing occurs so that impacts on emissions can be estimated by entering data according to Schedule 2.

These provisions are intended to prevent inaccurate accounting of emissions of project cattle as a result of their inability to maintain maximum intake for the quality of feed available, which is an assumption of the calculations behind the method based on the NIR. If cattle are co-grazed in a situation of limited feed supply, the two groups will limit the potential daily intake of each other. Since the emissions of the non-project cattle are not accounted and the emissions of project cattle would be inaccurately accounted, the practice cannot be allowed.

**[18] Section 16**

The section has been repealed and replaced by a simpler requirement for animal identification.

**16 Animal identification requirement**

Section 16 sets out requirements for identifying animals in a herd. Identification needs to cover their livestock class and date of entry (e.g. when bought) or discovery (e.g. when mustered on properties with porous boundaries) or exit from the herd, to meet the requirements of Schedule 2. For each year in the EIRP and crediting period, the project proponent must be able to identify the date at which an individual animal, as a member of a group of animals of a particular animal class, enters or leaves the herd. This could be done using, for example, NLIS tag numbers recorded as the date of entry/exit in a herd book. Identification of entry and exit dates is required so that the duration of emissions of an animal within a group of sale animals, for example, can be accurately estimated.

## [19] Subsection 19(3), note

The note at Subsection 19(3) has been amended to reflect the repeal and replacement of Section 21.

## [20] Section 21

The original section has been repealed to facilitate the incorporation of different approaches to estimation of baseline emissions for full data and limited data herds.

**21 The baseline emissions**

The calculation of baseline emissions for herds with three years of EIRP data is the same as in the Determination made in 2015. It includes the discount for natural variance in emissions intensity seen in the Australian herd during 1994 to 2014 on the basis of Australian Bureau of

Statistics data. However, the Variation applies a conservative approach to estimation of the baseline in the case of limited data herds with less than 3 years of EIRP data. The baseline emissions in that case are calculated using the lower of the two values for baseline emissions intensity of the full data reference herd(s) or the limited data herd in the same NIR region.

The same NIR region is used in recognition of the need to compare across natural environments which are as similar as possible, whilst accepting that a region such as Queensland may be extremely diverse. For this reason, proponents should carefully consider the incorporation of limited data herds with high emissions intensities into a project with an existing reference herd having low emissions intensity. More carbon credits would possibly be generated by gathering data for an additional 1-2 year period before incorporating the herd into the project. Similarly, there is no advantage in incorporating a limited data herd with low emissions intensity into a project with full data herds of higher intensity.

### 21A Historical annual emissions intensity

Subsection (21(A)(1) provides the equation used for estimation of historical annual emissions intensity (i.e the emissions intensity of the EIRP for either full or limited data herds. Historical annual emissions intensity is the sum of emissions for each of the years in that period divided by the sum of incremental annual LWG for those years. The definition of LWG at section 21C is applied an explains the basis of incremental annual gain.

Paragraph 21A(2)(a) requires the proponent to take into account only emissions from the emissions sources specified in the table in section 20 when calculating emissions intensity. The reasons for excluding other sources are explained in Section 20 of the original 2015 determination (see Attachment B).

This assumption for diet in the EIRP in paragraph 21A(2)(b) is made because it is not considered likely that proponents would be able to supply data on where animals grazed in the EIRP and on the quality of pasture. The assumption provides overall conservatism of abatement estimates to the determination because if the herd had been fed higher quality feed for the LWG recorded in the EIRP, the emissions intensity would have been higher than estimated.

### 21B Reference emissions intensity for a limited data herd

Section 21B provides the basis for estimating average emissions intensity for one or more reference herds in the project. The average emissions intensity is the sum of emissions across all herds for all three years of the EIRP divided by the sum of incremental annual LWG for all herds and all three years of the EIRP. The formula provides the weighted average reference emissions intensity for herds with varying emissions intensities and total emissions.

### 21C Liveweight gain for a year

The formula in section 21C ensures that only the incremental annual LWG within the herd is estimated, excluding the effect of LW purchased into the project by subtracting LW purchased from LW sold and deducting opening LW from ending LW.

## [21] Paragraphs 28 (c) and (d)

These paragraphs are repealed because section 28A (see below) has been substituted for them.

## [22 ] Subparagraph 28 (e)(i)

In Subparagraph 28(e)(i) “inventory cattle”, is replaced by “herd”. This change is made because a herd now consists only of its inventory cattle and there is no need to distinguish such cattle from non- inventory cattle as in the original determination.

In Subparagraph 28(e)(i) “on which the cattle”,is replaced by “on which cattle of the herd”. This change is made for the same reason as above. Cattle in a herd no longer need to be identified in terms of whether they are inventory or non-inventory cattle

## [23] Before section 29

### 28A General

The project proponent must keep records for each herd that demonstrate that sections 9 and 10 (the separate business operation and herd continuity requirements) are satisfied at all times.This information is not specified but should include the calculator runs for each herd and the data supporting the entries required in Schedule 2 to demonstrate the management of a discrete herd continuously over time and records describing business structure and location and management changes in the EIRP and the project.

## [24] Subsection 30(3)

Paragraph (30)(3) requires the proponent to identify the land on which the majority of the herd grazed in each year of the reporting period (other than land on which the cattle grazed under an arm’s length agistment arrangement). This paragraph distinguishes land controlled by the proponent in a project from that of a business which is not a project and thus where co-grazing may occur. Because surplus feed is assumed to be available under agistment, the issues around co-grazing and its effect on intake, rumen fill and the estimation of emissions are not applicable.

The paragraph is also relevant to the requirements of paragraph 17(2)(d) regarding project activities, which cannot be based solely on the grazing of animals on a different area of land.

# Text of the Draft Explanatory Statement for the Carbon Credits (Carbon Farming Initiative—Beef Cattle Herd Management) Methodology Determination, 2015 as varied by the: Draft Carbon Credits (Carbon Farming Initiative—Beef Cattle Herd Management) Methodology Variation, 2016

## Part 1—Preliminary

### 1 Name

Section 1 of the varied Determination sets out the full name of the varied Determination, which is the *Carbon Credits (Carbon Farming Initiative- Beef Cattle Herd Management) Methodology Determination,2015*.
Section 126(2) of the Act specifies that the version of a determination as it existed prior to a variation continues to apply to a project even if a variation is made during its crediting period. Proponents of projects registered under an earlier version of a determination may apply to the Regulator to have the varied determination applied to their project.

### 2 Commencement

Section 2 provides that the Determination will be in force from its commencement (which is taken to have occurred on 9 September 2015) until the day before it would otherwise be repealed under subsection 50(1) of the LI Act. Instruments are repealed under that provision on the first 1 April or 1 October following the tenth anniversary of registration on the Federal Register of Legislative Instruments. In accordance with subparagraph 122(1)(b)(i) of the Act, section 2 of the varied Determination sets out the time that the Determination would expire. If the Determination expires in accordance with section 122 of the Act or is revoked under section 123 of the Act 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 sections 125 and 127 of the Act.

Under section 27A of the Act, the Emissions Reduction Assurance Committee may also suspend the processing of applications under a determination if there is reasonable evidence that the methodology determination does not comply with one or more of the offsets integrity standards. This does not affect applications for declaration already received by the Regulator before such a suspension or declared eligible offset projects which apply the determination.

### 3 Authority

This determination is made under subsection 106(1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

## 4 Amendment of methodology determination

Section 4 provides that the Determination is amended as set out in Schedule 1 to the Variation.

## 5 Definitions

This section defines a number of terms used in the varied Determination.
Under section 23 of the *Acts Interpretation Act 1901*, words in the varied Determination in the singular number will generally include the plural and words in the plural number include the singular.

Key definitions in section 5 that are incorporated by the varied Determination are set out below.

In this determination:

> ***arm's length agistment arrangement*** means a written contract:
>
> (a) under which a party with more grazing available than is needed for its own cattle allows the other party to use the spare grazing capacity; and
>
> (b) where the parties are not linked entities.

Item 1 of Schedule 1 repeals the definition of an Arm's length agistment and replaces it with a new definition. This change to the definition of an arm's length agistment arrangement is made because if entities are linked, they may exchange grazing freely but, because they must be part of a project, their emissions can be accounted for separately. Linked entities in, for example, a supply chain will not require written contracts for use of spare grazing capacity. The change also clarifies the logic for treating agistment and co- grazing differently.

> ***business operation*** means an operation consisting of the whole or a part of an entity or group of entities:
>
> (a) that involves pasture grazing of cattle; and
>
> (b) in relation to which a livestock inventory of those cattle is maintained.
>
> Note: A business operation that defines a herd of cattle for a project must satisfy the separate business operation requirement (section 9) and the herd continuity requirement (section 10) means beef cattle.

The note added at the end of the definition of a business operation broadens the scope of operations allowed in the determination provided that the business operation satisfies the separate business operation requirement and the herd continuity requirement. The provision allows a business operation which is not an entity in its own right but a part of a parent entity (e.g. a farm or station which maintains its own records separate to the parent entity) to be the business operation for the purposes of the project. A business operation must be described so that an initial inventory of cattle is available for the purpose of participating in a herd management project. That inventory may later be supplemented by cattle of an additional but discrete herd in the project which may be added after the Section 22 application for a project if all conditions are met.

> ***data reference date***, for a herd, means the data reference date specified in accordance with paragraph 8(4)(e).

The data reference date is used as the basis on which parameters such as numbers and classes of cattle and their liveweight gain during the Emissions Intensity Reference Period (EIRP) is established before the section 22 applicaton for registration of a project. It is a time no more than 3 months before the section 22 application to allow for muster and collection of data. The term is further explained in section 11.

> ***entity*** has the same meaning as in the *A New Tax System (Goods and Services Tax) Act 1999*.

The note added at the end of the definition of an entity provides clearer definition of the scope of operations allowed under the determination following the removal of the less rigorous concept of an associate. It provides detail on the provisions of Section 184(4) of the *A New Tax System (Goods and Services Tax) Act 1999.* Section 184(4) of that Act allows a variety of persons, businesses, body corporate, superannuation funds among others to be registered for GST. The note thus allows all forms of organisation of a business operation to have a separate identity and facilitates the separate accounting of emissions of that business operation without the need to determine whether two businesses are associates or not.

> ***herd*** of a business operation, at a particular time, means all cattle that are on the livestock inventory of the business operation at that time.
>
> Note: An animal *in utero* will not be a separate member of the herd

The change to the definition of a herd removes the need to distinguish between inventory and non-inventory cattle. A herd relates to a business operation and is simply all the cattle that are on the livestock inventory of the business operation at a particular time. Provisions for non-inventory cattle on the inventories of associate businesses to be included in the cattle of the herd are no longer required. The effect is to greatly simplify the project boundary.

> ***linked***, of an entity:
>
> (a) 2 entities that are members of a group that constitutes the parent entity of a business operation are ***linked*** to each other; and
>
> (b) 2 entities that are related entities within the meaning given by section 9 of the *Corporations Act 2001* are also ***linked*** to each other; and
>
> (c) 2 entities that are both linked to a third entity under paragraph (a) or (b) or this paragraph are also ***linked*** to each other.
>
> ***linked***, of a business operation: if:
>
> (a) 2 entities are linked to each other; and
>
> (b) each entity is, or is part of the parent entity of, a different business operation;
>
> the 2 business operations are ***linked*** to each other.
>
> ***linked***, of a herd: if 2 business operations are linked to each other, their respective herds are ***linked*** to each other.

The definition of linked in relation to a businesss operation, entity or herd in section 5, has implications for the transfer of cattle between business operations compared to a sale at

market price, which must occur when movement of cattle occurs between businesses which are not linked or where one of the linked businesses is not participating in an eligible offsets project. Cattle cannot be transferred from the herd to a linked herd unless the linked herd is also in a project. The definition replaces the concepts of primary and secondary businesses and is a more robust basis for considering relationships between business operations than the looser concept of an associate.

***parent entity***, of a business operation, means:

(a) if the business operation (whether or not it is itself an entity or group of entities) is only a part of a larger entity or a group of entities—the entity or group of entities of which it is a part; and

(b) otherwise—the business operation.

The change in definition allows a single business operation to be a part of a parent entity or to be the parent entity in itself without necessarily having an Australian Business Number (ABN). However, either the business operation or its parent entity must be registered for GST. The business operation, however, needs to be carefully defined to meet the requirements of subsection 8(1) and paragraph 8(4)(b), to demonstrate how it meets the separate business operation requirement.

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# Part 2—Herd management projects

### 6 Herd management projects

For paragraph 106(1)(a) of the Act, this determination applies to an emissions avoidance offsets project that can reasonably be expected to result in eligible carbon abatement through reducing emissions from a herd of cattle that are ordinarily grazed together, by any of the following:

(a) Increasing the ratio of liveweight (LW) for age in the herd. Improving cattle productivity enables target weights to be reached earlier, thereby reducing the number of days for which cattle produce emissions. The LW of cattle relative to their age could be either the same as, or higher than, it was before the project began. Similarly, the age at which a particular weight can be reached could be earlier than it was before the project began.

(b) Reducing the average age of the herd, which also results in cattle producing emissions for fewer days and avoids emissions from older cattle with declining productivity.

(c) Reducing the proportion of unproductive animals in the herd, for example by removing heifers that fail pregnancy testing. Such actions provide more grazing area for productive animals, and can help increase birth rates and survival.

(d) Changing the relative numbers in each livestock class (e.g. bulls, cows and steers of different ages, as described in the National Inventory Report) within the herd to increase the herd's liveweight gain (LWG). For example, actions to improve weaner survival can reduce emissions because a smaller herd with fewer breeding cattle can produce the same or greater LW. Fattening unfinished cattle rather than increasing breeder numbers can avoid emissions which would have occurred through delayed finishing on poor quality pastures.

A project covered by subsection (1) is ***a herd management project***.

# Part 3—Project requirements

**Summary**

The project proponent must specify at least one herd for the project in the section 22 application, and may specify other herds later (these do not extend the crediting period).

A herd is specified by specifying the business operation to which it is attached—the herd consists, at any particular time, of the cattle that are on the livestock inventory of the business operation at that time.

The herds, or all herds but one, must have full historical data. The baseline emissions of such a herd with full historical data are calculated using the data from that herd only.

One herd may have only partial historical data. There is a limit on how large this herd can be. When calculating its baseline emissions, a cap is imposed that is based on historical data from full data herds.

To comply with the methodology of this determination requires that, for each herd in the project:

(a) the business operation and its livestock inventory must be maintained separately from any others that are part of the project, and have continuity over time; and

(b) the herd must be managed and pastured separately from herds not in a project; and

(c) cattle cannot be transferred from the herd to a linked herd unless the linked herd is also in a project.

A project proponent with several herds may find it preferable to include all of them in the project, even if some are not expected to generate significant emissions reductions, in order to allow joint pasturing and transfers from one herd to another.

### 7 Operation of this Part

Part 3 sets out requirements that must be met for a herd management project to be an eligible offsets project under paragraph 106(1)(b) of the Act.

### 8 Herds of the project

Subsection (8)(1) requires a project to have at least one herd in a specified business operation at the time of the Section 22 application. To meet the requirements of paragraph 11(4)(d) there must be at least one *reference herd* with complete data for a three year EIRP. Thus if there is only one herd in the project, it must have complete data for a three year EIRP.Subsection (8)(2) allows the proponent to apply to the Clean Energy Regulator (CER)

to include another herd, from a separate business operation, in the project after the section 22 application. The provision caters for mergers and acquisitions by proponents involved in business expansion after a project has started. More than one herd with full historical data may be allowed to enter the project after the section 22 date. Further provisions in section 11 deal with the case of herds without complete data for an EIRP. Only one such herd may enter the project on or after the section 22 date.

Subsection(8)(3) requires the CER to accept the application if all conditions of Part 3 of the Variation are met. Subsection (8)(2) requires a proponent to apply for admission of the additional herd rather than notifying the CER but subsection 8(3) also provides discretion to the CER in accepting the herd or not, based on the requirements of Part 3.

*Information required in application*

Subsection (8)(4) requires the proponent to meet several conditions relating to the specification of a business for which an inventory of cattle is kept and which defines the herd of the project

The section 22 application or application under subsection (8)(2) must include the following information for each business operation:

(a) if it is a business entity, the nature and structure of the entity or group of entities of which it is a part. The proponent could, for example, include the name, postal address or propery PIC number, ABN or ACN of the entity, and, if applicable, the parent entity and the types of operations in which it is involved. If it is large enough to require reporting to the Australian Securities Investement Corporation (ASIC), it could state the frequency of reporting on matters such as herd size and composition relevant to the project;

(b) if it is a single business operation, it must specify how it meets the separate business operation requirement. Specifically, if it is, for example, a single farm or station it must show that it has business records defining its operations, such as tax records, separate inventories and herd management books used at times of muster or other operations which define it as a separate business. Under the provisions of Section 9 it must show that it has a parent entity ( which may be itself under the provisions of the definition of a parent entity);

(c) entities are often part of a parent entity with multiple types of business which include but are not exclusively related to, beef cattle operations. If the entity is different to other operations, for example, as a breeding property compared to an operation involved in preparing cattle for a feedlot or a feedlot, this must be stated. The provision is relevant, for example, in deciding on transfers between linked entities;

(d) the changes in structure and ownership of the business which have occurred since the beginning of the emissions intensity reference period (EIRP). This provision is made so that a continuity of records including the cattle inventory and transactions around it is available throughout a period of change of ownership and/or management;

(e) the data reference date, which must be no more than 3 months before the section 22 application date or the date of application for a new herd to enter the project. The limit allows proponents adequate time to muster and record the herd size and composition;

(f) the reference size of the herd, which is the total number of all cattle in that herd on the data reference date;

(g) the years constituting the EIRP for the herd. The information is necessary for the purpose of meeting conditions in paragraphs 11(4)(b) and 11(4)(c) and subsection 11(5) related to the proximity of data to the data reference date, allowable historical period for data collection and the length of the EIRP for herds with complete and incomplete data;

(h) the land on which the cattle of the herd grazed in each year of the emissions intensity reference period, other than under an arm's length agistment arrangement (for the purpose of emissions calculations using NIR methods and for paragraph 11(4)(d);

(i) to the extent possible, the land on which the cattle of the herd are expected to graze during each year of the crediting period, other than under an arm's length agistment arrangement. The information is required for paragraph 17(2)(d) related to eligible project activities which exclude grazing on new land with no other management change.

## 9 Separate business operation requirement

This provision allows both entities and business operations which are not entities in their own right but a part of a parent entity registered for GST (e.g. a farm or station which maintains its own records separate to the parent entity) to be the business operation for the purposes of the project. A business operation must be described so that an initial inventory of cattle is available for the purpose of participating in a herd management project. That inventory may later be supplemented by inventory cattle of an additional but discrete herd in the project which may be added after Section 22 application for a project if all conditions are met.

The project must be one in which the business operation for each herd satisfies subsection (2) or (3) at all times between the beginning of its emissions intensity reference period and the end of the crediting period. This provision is based on the information provided in Section 8 for entities or separate business operations defined by their records including cattle inventories, management records and cattle transactions.

*Entire entities*

A business operation satisfies this subsection if it consists of a registered entity or a group of registered entities. In this case, the entity must have an ABN or ACN on which its taxation records (such as business activity statements, quarterly or annual income tax records) are based and provide clear definition of the entity and the nature of its operations.

*Discrete operations*

A business operation satisfies this subsection if:

(a) its parent entity consists of an entity or a group of entities that are registered for GST ( they do not need to be companies to be registered for GST); and

(b) it maintains a livestock inventory that is separate from other livestock inventories of its parent entity (as seen in its business records, taxation records of the parent entity, for example); and

(c) the herd is managed as a discrete group of animals over time (as seen in, for example, muster data, records of cattle movements as a result of electronic ear tagging, herd books for the herd); and

(d) it is possible to account for all movements (including transfers and sales) of cattle into and out the livestock inventory (whether to other livestock inventories of the parent entity, or to other business operations). This condition can be met with appropriate invoices, receipts and cattle movement data which must be kept for taxation purposes or to meet traceability requirements in business-as-usual operations.

**10 Herd continuity requirement**

Herd continuity is an essential requirement for the integrity of the method because emissions intensity in the EIRP and in the crediting period must be comparable on the basis of the same herd and not completely different herds in different business-as-usual locations.

Subsection 10(1) requires that the project must be one in which the business operation for each herd satisfies herd continuity requirements when business structures, management and ownership of the business operation change. The requirement applies at all times between the beginning of its emissions intensity reference period and the end of the crediting period:

Paragraph 10(1)(a) applies where the business operation consists of a registered entity or a group of registered entities—at any change in the entities, the livestock inventories of the entities must be transferred in such a way that the same animals are on the livestock inventory of the business operation before and after the change;

This provision ensures that at a change in structure of abusiness operation consisting of an entity or group of entities, a completely new inventory of cattle (a different herd) cannot be used to continue the project.

Paragraph 10(1)(b) applies to a business operation at any change in the registered entity or entities that constitute its parent entity, the livestock inventories of the entities are transferred in such a way that the same animals are on the livestock inventory of the business operation before and after the change;

As for paragraph 10(1)(a), the provision ensures that at any change in the parent entity for a business operation, a completely new inventory of cattle (a different herd) cannot be used to continue the project.

Paragraph 10(1)(c) requires no break in the continuity of the livestock inventory of a business operation and, in particular, its livestock inventory continues to be maintained separately from other livestock inventories of its parent entity;

This provision allows changes in the ownership of a business operation and its management, provided that the inventory of livestock, consisting of the same animals before or after the change, is maintained and can be attributed directly to the business operation before and after the change.

Paragraph 10(1)(d) requires no break in the continuity of the management of the herd as a discrete group of animals;

This provision means that although the person(s) responsible for management may change, the herd is still managed as a discrete group of animals which is not, for example, amalgamated with other herds. This applies, for example when a merger between two types of operations such as a backgrounding operation for a feedlot and a breeding operation are

merged. Herd continuity is maintained if there is no change to the inventories of the two operations.

Paragraph 10(1)(e) requires that the information referred to in Schedule 2 is available for the herd. Schedule 2 outlines the inputs required for the Herd Management Calculator.

This provision, with the separate business operation requirement, has the effect that each herd must be accounted for separately in the calculator. In practice, a separate business with separate herd records will find it easier to use separate runs of the Calculator to coincide with records kept for all other purposes. A parent entity with a number of smaller entities, as in a value chain, would also find the practice desirable because it provides a record of the effectiveness of management in reducing emissions intensity of each herd. Finally, if animals from different herds, along with their purchases and sales, births and transfers are amalgamated, there is a risk that the data entry capacity of the Calculator would be exceeded.

Subsection 10(2) allows for a livestock inventory that is temporarily empty to maintain continuity based on both a continuity of records for the herd and a continuity of management in the absence of cattle in the herd.The provision applies, for example when a herd is sold off due to drought and new animals have to be purchased by management after the drought. As long as the facilities and and management of the business operation are maintained there is no break in continuity. The provision allows flexibility of management in response to environment for a designated business operation for the project.

**11 Requirement relating to emissions intensity reference data**

Paragraph (11(1)(a) requires all herds to have their own historical emissions intensity data. Paragraph (11(1)(b) limits the number of herds which can be added to a project with less than three years of EIRP data. The provision is made for conservatism in assessment of emissions in combination with the provisions of Section 21 which requires conservative estimates of the baseline for herds with less than three years of EIRP data.

*The data reference date for a herd*

For the purposes of this section, the project proponent must choose for each herd a date (the data reference date) that is no more than 3 months earlier than the date of the relevant section 22 application or application for the herd under section 8. Paragraph 8(4)(e) above requires a proponent to nominate the data reference date. It may be convenient to use the annual muster as the data reference date and as a point at which to commence the crediting period for simplicity of data collection to meet the requirements of subsection 25(1)(a) requiring that data be collected within one month of rthe beginning or end of the project reporting year.

*Full data herds*

Subsection 11(3) and Paragraphs 11(3)(a) and 11(3)(b) specify the EIRP so that a proponent cannot choose years with the highest emissions intensity of LWG but must use the most recent three years of data for which there is positive LWG (not necessarily consecutive years). The historical seven year time allowance provides sufficient scope to select a year in which tax records of the inventory and its transactions are likely to be still available. The requirement for positive LWG, recognises that natural factors such as drought beyond proponent control may occur and that a negative LWG as a result of drought or other

uncontrollable circumstances, would bias estimates of emissions intensity under the control of management.

*Limited data herds*

Paragraph (11)(4) (a) defines a limited data herd as one which is not a full data herd because it does not have full data for a three year year historical emissions intensity reference period. However it must have data , at the data reference date (no more than three months before the section 22 application) for up to two years in which LWG was greater than zero. The effect is that a herd with three full years of data must enter all three years so that the emissions intensity of that herd cannot be manipulated by selecting data from only some of the years.

Subparagraph (11)(4)(b)(ii) requires that when available, the data should be for the one or two years immediately preceding the data reference date. However, when data for a year or years immediately preceeding that date is not available, data for the next year preceding the data reference date, sequentially for up to seven years preceeding the data reference date, may be used.

Paragraph (11)(4)(c) limits the reasons that data for a particular year can be considered as unavailable. They are restricted to either situations where a physical herd did not exist (e.g. inventory empty due to drought an destocking) or the data for the herd was not available because it was managed outside the project or business operation. Subparagraph 11(4)(c)(i)(B) and the note to section 11, provide for the case in which data for up to two years immediately preceding the data reference date might not be available, for example, to new owners of an acquired or merged business. If only one year of data is available (i.e. since the purchase or merger), the herd satisfies the requirement of a limited data herd.

Subparagraph 11(4)(c)(ii) requires that if the project proponent has the necessary data for a year, but the LWG for the year was not greater than zero, the lack of LWG was due to natural disturbances. This provision is made because the determination does not accept that, except in the case of a natural disturbace, a normal business, operated for profit, would have a total herd LWG which is not greater than zero. Such a business cannot reasonably claim the emissions intensity of LWG for that year as a representative emissions intensity.

Paragraph (11)(4)(d) requires that there be at least one reference herd, being a full data herd that was specified in the section 22 application and is in the same region as the herd. The reference herd emissions intensity of LWG may influence the baseline of the limited data herd according to provisions of Section 21. The emissions intensity used in estimation of the baseline will be the lower of the emissions intensity calculated for the limited data herd or the average emissions intensity of the reference herd or herds.

Paragraph (11)(4)(e) requires that at least one of the reference herds had more cattle on its data reference day than the limited data herd had on its data reference day. This requirement limits the size of the herd with limited data to less than the size of the largest reference herd. It is included for conservatism of abatement estimates because a large herd with limited data might unduly bias the EIRP estimate of emissions intensity.

*Emissions intensity reference period*

For this determination, the EIRP for a herd is:

(a) for a full data herd—the 3 years mentioned in paragraph (3)(b); and
(b) for a limited data herd—the 1 or 2 years mentioned in subparagraph(4)(b)(ii).

The years in the emissions intensity reference period need not be consecutive, particularly since data with for a year with aLWG greater than zero may not be available..Each herd in the project must have its own EIRP. Each such EIRP might consist of a different set of years. However, the resulting emissions intensity estimate for the limited data herd will have to meet the baseline requirements of Section 21

*Definitions*

Subsection11(5) defines liveweight gain for the purposes of the section as follows:

***liveweight gain*** for the herd for the year means the LWG calculated using Equation 5 (section 21C). The calculation in section 21C excludes the LW present at purchase by subtracting the LW present at sale and thus provides an estimate of incremental annual LWG.

## 12 Requirement relating to transfers of cattle

Section 12 provides the requirements that must be met in relation to the transfer of cattle between herds. These provisions apply for every transfer to or from another herd between the data reference date for the herd and the end of the crediting period. They remove the need for the concept of secondary businesses and non-inventory cattle because a secondary business can no longer be created through transfer of animals from one herd to another (non-project) herd.

Under Paragraph (12)(1)(a) no transfers are permitted to herds which are not linked to the project herd. A movement of cattle to a non-project herd can only be made using a transparent sale at market price. Transfers can only occur if the herd to which animals are transferred to during the project period is linked in a business structure to the original project herd. Under the provisions of paragraph(12)(1)(b) the destination herd must also be a project herd. If the transfer is historical (made before the elgibility date), the destination herd must be included in the project.

Subsection (12)(2) makes an exception where a transfer to an abattoir, export facility or any other facility will remove the animal from the national emissions boundary. Such a transfer might occur, for example to an abattoir owned by the parent entity of the business operation (i.e. it is linked to the business operation) but which is not in itself part of an eligible abatement project.

## 13 Requirement relating to co-grazing

Subsection (13)(1)(a) limits co-grazing to animals which are each members of a project herd and are therefore accounted for separately. The subsection prohibits grazing project and non-project animals together unless an arm’s length agistement agreement for either the project cattle or the other cattle is in place to allow grazing together to use surplus grazing capacity. An exception is made in the case of project cattle on agistment with other cattle or when non-

project cattle are agisted with project cattle on land controlled by the proponent. Cattle are frequently separated in such circumstances for ease of management and agistment is not usually available unless there is surplus feed available. Feed intake is not limited and the estimation of emissions based on duration of grazing days, class, weight and feed type remains valid.

In addition, paragraph (13)(1)(b) requires that all animals be identifiable as a member of the herd (see also section 16) and paragraph (13)(1)(c) requires that liveweights of cattle be available for the period in which co-grazing occurs so that impacts on emissions can be estimated by entering data according to Schedule 2.

These provisions are intended to prevent inaccurate accounting of emissions of project cattle as a result of their inability to maintain maximum intake for the quality of feed available, which is an assumption of the calculations behind the method based on the NIR. If cattle are co-grazed in a situation of limited feed supply, the two groups will limit the potential daily intake of each other. Since the emissions of the non-project cattle are not accounted and the emissions of project cattle would be inaccurately accounted, the practice cannot be allowed.

### 15 Requirements relating to the management of herds

Section 15 sets out the types of cattle eligible for a herd management project. Subsection 15(1) requires that only beef cattle herds that are grazed in Australia may participate in eligible offsets projects.

Subsection 15(2) requires that the majority of feed for the herd must come from grazing on pastures (which may be naturalised, improved or native) or from forage crops (e.g. grazing oats, grazing triticale, forage sorghums). In the Herd Management Calculator (see below), the extent of supplementation is thus limited to 50% of feed intake.

Subsection 15(3) requires an eligible herd to be managed in a way consistent with one of the following:

(a) ANZSIC class 0142 (beef cattle farming); or
(b) ANZSIC class 0144 (sheep-beef cattle farming); or
(c) ANZSIC class 0145 (grain-sheep or grain-beef cattle farming).

These ANZSIC classes provide standard classifications for different types of cattle grazing based activities. The first note to section 15 notes that herds managed in specialised feedlots (ANZSIC class 0143; beef cattle feedlots) are not eligible. Feedlot cattle are not eligible as their diets consist of high levels of dry matter digestibility (DMD) and crude protein (CP) supplied via hand or mechanical feeding and they spend little to no time grazing on naturalised pasture.

The second note to section 15 recognises that in the normal course of managing a herd, some individual animals will leave the herd and some will be added to the herd.

### 16 Animal identification requirement

Section 16 sets out requirements for identifying animals in a herd. Identification needs to their livestock class and date of entry (e.g. when bought) or discovery (e.g. when mustered on properties with porous boundaries) or exit from the herd to meet the requirements of Schedule

2. For each year in the emissions intensity reference period and crediting period, the project proponent must be able to identify the date at which an individual animal, as a member of a group of animals of a particular animal class, enters or leaves the herd. This could be done using, for example, NLIS tag numbers recorded as the date of entry/exit in a herd book. Identification of entry and exit dates is required so that the duration of emissions of an animal within a group of sale animals, for example, can be accurately estimated.

## 17 Project activity

*Requirement to implement project activity*

Section 17 sets out the requirements for eligible project activities.

Subsection 17(1) requires that proponents must undertake at least one ***project activity*** for each year in the crediting period and for each herd in a project.

A project activity is an agricultural practice that complies with the requirements of subsection 17(2).

Paragraph 17(2)(a) requires a project activity to be an agricultural practice that can reasonably be expected to reduce emissions from the herd through one of the measures specified in paragraphs 6(1)(a) to 6(1)(d).

Project activities may include, but are not limited to:

(a) feeding supplements containing higher levels of DMD and CP, particularly in dry seasons when naturalised pasture can have low nutritional value;
(b) changes that influence the age of the herd, such as culling of unproductive animals or reducing the number of breeders to produce the same weight of livestock sold or a higher survival rate of weaners;
(c) installing new fencing to ensure joining can be timed to occur when feed is most plentiful, thereby improving the survival and health of heifers and calves; and
(d) genetic improvements that increase the productivity of the herd.

Proponents may choose to undertake multiple project activities, but only one project activity is required for a herd management project to be eligible. As indicated in the note to subsection 17(1), if a project involves more than one herd, different project activities may be adopted for each herd. In addition, project activities can change over time as long as they comply with subsection 17(2).

Paragraph 17(2)(b) requires that a project activity must either:

(i) have not been undertaken during the emissions intensity reference period; or

(ii) be a variation of a practice that was undertaken during the emissions intensity reference period.

A variation of a practice that was undertaken during the emissions intensity reference period could be, for example, a substantial increase in the number of cattle fed supplements. It may also involve the substantial expansion or rehabilitation of improved pastures or an intensification of an existing practice, e.g. a doubling of the establishment of watering points from previous practice. The proponent must be able to demonstrate in the section 22

application that the extent of the proposed variation can reasonably be expected to reduce emissions from cattle.

Allowing for activities that are variations of previous practices recognises that an increase in production efficiency of the herd can be achieved through incremental improvements to existing management practices, beyond the level that would otherwise have occurred in a business as usual situation.

Paragraph 17(2)(c) provides that feeding non-protein nitrogen to a herd is not an eligible project activity. The feeding of non-protein nitrogen supplements for cattle includes urea and nitrates. Urea is a commonly used supplement in some regions, while nitrates are not commonly used. The *Carbon Credits (Carbon Farming Initiative) (Reducing Greenhouse Gas Emissions by Feeding Nitrates to Beef Cattle) Methodology Determination,2014* provides for crediting emissions reductions from projects that feed nitrate supplements to cattle, either in place of, or in addition to, urea. That determination provides specifically for this particular activity, and therefore the activity is not eligible for herd management projects. However, the Determination does not preclude feeding of non-protein nitrogen to a herd involved in a herd management project. Separate projects using the two determinations could potentially be undertaken for the same herd if all requirements of both determinations can be met.

Paragraph 17(2)(d) provides that simply moving the herd to graze on a different area of land is not an eligible project activity. Moving a herd to a different area of land does not meet the Determination's requirements regarding agricultural practices that can reasonably be expected to reduce emissions. However, the Determination does not preclude grazing a herd on a different area of land if an eligible agricultural practice is undertaken.

Subsection 17(3) provides that at least one agricultural practice must be nominated in the section 22 application.

Subsection 17(4) provides that, for each practice nominated, the section 22 application should include the following information to demonstrate that each practice can reduce emissions through one of the measures in subsection 17(1) and meet the other requirements of subsection 17(2).

(a) A description of the practice.

(b) An explanation of how the practice can reasonably be expected to reduce emissions from the herd through one of the measures specified in paragraphs 6(1)(a) to (d).

(c) Evidence to support the explanation. Types of evidence could include scientific papers, industry guidance documents or state/territory advice/guidelines amongst others. For example, state and territory government agencies and organisations such as Meat and Livestock Australia (MLA) publish information on a range of improved herd management practices, and industry advisers may provide written advice in support of a practice.

(d) For any practice not undertaken in the emissions intensity reference period, a statement indicating that fact.

(e) For any practice that is a variation of a practice undertaken in the emissions intensity reference period, a description of the previous practice and how the practice represents a variation of that practice.

(f) A statement that the practice does not consist of feeding non-protein nitrogen to a herd.

(g) A statement that the practice does not consist only of grazing the herd on a different area of land.

Subsection 17(5) provides that, where a subsequent decision is made to implement a different agricultural practice as a project activity, the practice must also meet the requirements of subsection 17(2).

A suggested approach for describing project activities is provided in Table 1. The examples included are indicative, and should not be considered as recommended actions or a comprehensive list.

Proponents are not required to provide information on other activities undertaken as part of managing the herd that are not directly related to the project.

**Table 1: Suggested approach for describing project activities in accordance with eligibility requirements**

| **Project activity** | **Corresponding activity in the emissions intensity reference period** | **How is this a new practice not previously undertaken or a variation of a previous practice?** | **How the project activity can reasonably be expected to reduce emissions** | **Supporting evidence of the potential effect on emissions** | **Evidence to verify the action was undertaken*** |
|---|---|---|---|---|---|
| Supplement feeding | Pasture feeding only | Feed is purchased and supplied to the herd during the dry season, improving the diet compared to the previous practice of providing pasture only. | Improved diets, particularly in the dry seasons, can increase LWG and prepare cattle for market at an earlier age. Better nutrition also improves animal health, survival and reproduction; reducing the proportion of unproductive animals in the herd. | Industry guidance documents<br><br>Journal papers<br><br>Documented consultant advice | Invoices and receipts from feed suppliers<br><br>Management records of feeding |
| Phosphorus supplements as required | Little or no Phosphorus supplementation | Phosphorus supplementation in the diet delivers productivity benefits particularly in young stock. | Supplementation in phosphorus deficient areas improves growth rate, reducing time to slaughter. It increases heifer survival, reduces the average age of the herd and improves survival to weaning. It also results in a change in herd structure that increases the proportion of animals in the herd with higher LWG rates. | Documented consultant recommendation<br><br>Journal papers<br><br>Industry guidance documents | Invoices /receipts from feed suppliers<br><br>Management records of the amount and timing of feeding |
| Installation of new fences to enable improved management of joining time | Minimal fencing and limited management of joining time | New fences allow bulls to be separated from heifers and more effective control over joining. | By controlling joining calves can be born when feed is available increasing survival of heifers and calves to weaning. Survival of heifers/calves reduces the average age of the herd. | State or territory government information materials | Invoices/ receipts for purchase of fencing materials<br><br>Invoices from fencing contractor |

*Attachment B*

| **Project activity** | **Corresponding activity in the emissions intensity reference period** | **How is this a new practice not previously undertaken or a variation of a previous practice?** | **How the project activity can reasonably be expected to reduce emissions** | **Supporting evidence of the potential effect on emissions** | **Evidence to verify the action was undertaken*** |
|---|---|---|---|---|---|
| Greater density of watering points | Low watering point density resulting in overgrazing areas close to water and uneaten feed at the outer limits of stock movement. | The rate of watering point establishment is increased, improving access to a wider feeding area and providing faster turnoff. | More watering points allow the herd to graze over a greater distance, increasing the rate of feed intake and reducing wasted energy in seeking water and feed. The outcomes reduce the time to slaughter, increase survival of calves and heifers, resulting in a reduced average age of the herd and a higher proportion of animals with higher LWG rates. | Published industry case studies | Invoices/ receipts for purchase of materials used to store or distribute water<br><br>Invoices from contractor<br><br>Date-stamped photographs of watering point installation |
| Use of Estimated Breeding Values to select bulls | Use visual, subjective assessment for selection. | Increased efficiency of feed conversion to reduce the average number of days from birth to slaughter in the herd. | Bulls selected using estimated breeding values will produce progeny with more efficient feed conversion, reducing number of days from birth to slaughter. | Published research | Invoices/receipts and catalogues with genetic information on bulls |

| | | | | | |
|---|---|---|---|---|---|
| Increased planting of improved pastures | Smaller areas of improved pastures, with pastures dominated by native species. | Improved pastures are of better nutritional quality and result in increased cattle growth rates. | Increase the percentage of improved pastures to improve the quantity and quality of pasture per hectare, thus increasing production efficiency and reduce the number of days from birth to slaughter. | Published studies | Invoices/receipts for purchase and planting of improved pasture species |

*Evidence verifying that actions were undertaken is not required to meet eligibility requirements but must be provided when reporting for the project. Examples have been included to show how the suggested approach could also assist with meeting reporting, record-keeping and monitoring requirements (see Part 5).

**18 Project not to involve feeding of cattle on cleared land**

Subsection 18(1) provides that a herd management project must not involve the feeding of cattle on land that has been, for the purposes of the project, partially or wholly cleared of perennial woody vegetation.

This requirement avoids the potential for clearing to be undertaken for the specific purpose of carrying out herd management project activities, such as pasture establishment. Clearing woody vegetation releases carbon dioxide that had previously been sequestered in the vegetation biomass. If the clearing of vegetation occurred for the purposes of the project then this release of carbon would offset project emissions reductions.

Subsection 18(2) provides an exception whereby a project could be undertaken on land where clearing was required by law. For example, the clearing of a declared woody weed species may be required by law. In this case, the land could be used for project activities following clearing.

Subsection 18(3) provides that where land has been partially or wholly cleared of woody perennial vegetation and the land would have been cleared if the project had not been undertaken, then the clearing is taken not to have been for the purposes of the project. This provision recognises that clearing for agricultural purposes may be undertaken, for example, in accordance with a previously approved vegetation management plan or clearing permit providing for clearing over a period of time. The Determination does not prevent such activities that would have been undertaken in the normal course of business.

# Part 4—Net abatement amount

## Division 1—The net abatement amount

### 19 Method for calculating the net abatement amount

Subsection 19(1) links the calculation of the carbon dioxide equivalent net abatement to the requirements of paragraph 106(1)(c) of the Act. It notes that Part 4 specifies the method for working out the carbon dioxide equivalent net abatement amount for a reporting period for a herd management project that is an eligible offsets project.

The equations in subsections 19(2) and 19(3) set out the calculation of the carbon dioxide equivalent net abatement amount for the project.

The carbon dioxide equivalent net abatement amount is calculated as the sum of abatement for all herds in the project across all years in the reporting period (Equation 1).

Equation 2 calculates the carbon dioxide equivalent net abatement amount for each herd and for each year in the reporting period, as used in Equation 1. These equations demonstrate how to calculate abatement as the difference between the baseline emissions for each herd and each year of the reporting period and the project emissions for each herd and each year of the reporting period.

These calculations show the change in total emissions as a result of the project. Changes in emissions intensity resulting from project activities are incorporated in the calculation of baseline emissions (see section 21).

In some circumstances, emissions for a year in a reporting period could be higher than baseline emissions, as a consequence of natural variation or a disturbance event. For example, cattle scheduled to be sold or transferred at a particular time may need to be retained for a longer period because their condition is poor due to a drought. Any annual abatement amounts for herds that are less than zero are not deducted from the carbon dioxide equivalent net abatement amount according to the provisions of paragraph (19)(3)(b). Instead, any negative abatement amounts are taken to be zero. Abatement is calculated by summing all amounts that are zero and greater than zero. This means that proponents are not liable for an increase in emissions in a project year.

Environmental variations could also result in positive effects on emissions reductions. The exclusion of negative abatement amounts from the net abatement amount calculation would generate an over-crediting risk in the absence of a discount applied to positive abatement amounts. In the Determination the exclusion of negative abatement amounts from the net abatement amount calculation is possible because of the application of a 4 per cent variance discount on positive abatement amounts to the baseline under section 21. 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.

## 20 Gases accounted for in abatement calculations

The following table specifies the greenhouse gases and emissions sources that are relevant to working out the carbon dioxide equivalent net abatement amount for a herd management project.

**Gases accounted for in abatement calculations**

| Item | Relevant emissions calculation | Emissions source | Greenhouse gas |
|---|---|---|---|
| 1 | Baseline emissions and project emissions | Enteric fermentation | Methane ($CH_4$) |
| 2 | Baseline emissions and project emissions | Dung and urine | Nitrous oxide ($N_2O$) |

Section 20 lists the greenhouse gases and emissions sources that are accounted for in order to determine the net abatement amount for a herd management project. The emissions sources and greenhouse gases that need to be taken into account when calculating the carbon dioxide equivalent net abatement for the project are enteric methane emissions and nitrous oxide emissions from dung and urine.

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

(a) Emissions from fossil fuel use in farm vehicles and equipment. These emissions are small relative to livestock emissions. Published information shows that use of fossil fuels for all purposes in beef production represents approximately 2% of enteric emissions of an adult animal. Improvements in efficiency of diesel engines contribute to this low proportion. Any change in emissions from these sources due to project activities would be immaterial.

(b) Emissions from the production and transport of supplementary feed, where feed supplementation is a project activity. The cost of growing and transporting cattle feed, particularly to northern Australia, is considerable compared to benefits and there is little evidence of this type of feeding except when driven by drought situations. In southern Australia the emissions from this source would occur anyway for alternative markets in the absence of the project.

(c) Emissions from animal feed production and transport from off-site sources. Such emissions are highly variable and difficult to quantify. For example, nitrous oxide emissions associated with irrigated grain production will be higher than for dryland production because of the use of higher rates of nitrogen fertiliser. In addition, proponents may not be able to identify the source of feed supplements, for example when purchased as bulk grain.

(d) Emissions from nitrogen fertilisers used in pasture establishment are not likely to be material because most pastures used in beef cattle production rely on legumes (which do not require nitrogen fertiliser) for their nitrogen requirements.

(e) Emissions from the operation of the property and routine marketing of cattle such as cattle breeding, husbandry, transport and processing. These emissions will not change materially between the baseline and project. Projects are likely to be managed within a given property carrying capacity and focus on the production of the same or fewer numbers at the same or higher LWG in less time.

## Division 2—The baseline emissions

### 21 The baseline emissions

The calculation of baseline emissions for herds with three years of EIRP data is the same as in the Determination made in 2015. It includes the discount for natural variance in emissions intensity seen in the Australian herd during 1994 to 2014 on the basis of Australian Bureau of Statistics data. However, the Variation applies a conservative approach to estimation of the baseline in the case of limited data herds with less than 3 years of EIRP data. The baseline emissions in that case are calculated using the lower of the two values for baseline emissions intensity of the full data reference herd(s) or the limited data herd in the same NIR region.

The same NIR region is used in recognition of the need to compare across natural environments which are as similar as possible, whilst accepting that a region such as Queensland may be extremely diverse. For this reason, proponents should carefully consider the incorporation of limited data herds with high emissions intensities into a project with an existing reference herd having low emissions intensity. More carbon credits would possibly be generated by gathering data for an additional 1-2 year period before incorporating the herd into the project. Similarly, there is no advantage in incorporating a limited data herd with low emissions intensity into a project with full data herds of higher intensity.

### 21A Historical annual emissions intensity

Subsection (21(A)(1) provides the equation used for estimation of historical annual emissions intensity (i.e. the emissions intensity of the EIRP) for either full or limited data herds. Historical annual emissions intensity is the sum of emissions for each of the years in that period divided by the sum of incremental annual LWG for those years. The definition of LWG at section 21C is applied an explains the basis of incremental annual gain.

Paragraph 21A(2)(a) requires the proponent to take into account only emissions from the emissions sources specified in the table in section 20 when calculating emissions intensity. The reasons for excluding other sources are explained in Section 20 of the original 2015 determination (see Attachment B).

This assumption for diet in the EIRP in paragraph 21A(2)(b) is made because it is not considered likely that proponents would be able to supply data on where animals grazed in the EIRP and on the quality of pasture. The assumption provides overall conservatism of abatement estimates to the determination because if the herd had been fed higher quality feed for the LWG recorded in the EIRP, the emissions intensity would have been higher than estimated.

### 21B Reference emissions intensity for a limited data herd

Section 21B provides the basis for estimating average emissions intensity for one or more reference herds in the project. The average emissions intensity is the sum of emissions across all herds for all three years of the EIRP divided by the sum of incremental annual LWG for all herds and all three years of the EIRP. The formula provides the weighted average reference emissions intensity for herds with varying emissions intensities and total emissions.

### 21C Liveweight gain for a year

The formula in section 21C ensures that only the incremental annual LWG within the herd is estimated, excluding the effect of LW purchased into the project by subtracting LW purchased from LW sold and deducting opening LW from ending LW.

## Division 3—The project emissions

### 22 Project emissions

For each year in the reporting period and for each herd in the project, the project emissions are the methane and nitrous oxide emissions from the sources referred to in the table in section 20, expressed as their carbon dioxide equivalent.

## Division 4—Use of Herd Management Calculator to perform calculations

### 23 Requirement to use Herd Management Calculator

Paragraph 23(1)(a) requires that proponents use the ***Herd Management Calculator*** for calculations in relation to each herd and for each year in the crediting and emissions intensity reference periods. The Herd Management Calculator is available on the Department's website.

Paragraph 23(1)(b) requires all inputs to be entered into the Herd Management Calculator in the manner described in the Calculator. Schedules 1 and 2 specify the required inputs. The Herd Management Calculator includes all the calculations required to determine the net abatement amount in accordance with the Determination. This Calculator will use data inputs made by proponents to calculate emissions for the project automatically, and the change between baseline and project emissions. Emissions are calculated for methane emissions from enteric fermentation (according to diet, duration of emissions, animal numbers and class, LW and LWG) and nitrous oxide emissions from dung and urine, as listed in section 20.

Paragraph 23(1)(c) notes that reference factors applied in the calculator will be those applying at the end of the relevant project reporting year. For example, if the last revision of the NIR was made in the year before the project year, that revision will still apply at the end of the following (project reporting) year.

> Note: Paragraph (c) includes the global warming potentials for methane and nitrous oxide prescribed by the *National Greenhouse and Energy Reporting Regulations 2008.*

The Herd Management Calculator has two main entry pages for inputting herd data. Entry page 1 requires data on cattle present in the herd for the whole of the year, including numbers and LW of cattle for each year of the emissions intensity reference and project periods. Data on cattle entered in the first entry page corresponds to the data for Item 2 of Schedule 2. Data for this entry page is only available at the end of the project year when both the opening numbers and LW by class of animals identified as being in the herd at the start of the year and their corresponding closing weights and numbers at the end of the year are known.

Data entry page 2 is for cattle that are in the herd for only a part of the emissions intensity reference period or project year. These cattle may be present at the beginning of the year, the end of the year or during the year. They include births, transfers within the herd or into or out

of the herd to non-project herds, purchases and sales of cattle. Data on cattle entered in the second entry page corresponds to the data for Items 3–7 of Schedule 2.

For both data entry pages, factors such as deaths or unaccounted losses or gains are estimated by difference from the opening stock, purchases, sales, births and closing stock (for data entry page 2) or opening stock and closing stock (for data entry page 1). In the Herd Management Calculator, all deaths are assumed to occur at the midpoint of the reporting year and are estimated by difference between opening stock, transactions and closing stock. This assumption is adopted because proponents are unlikely to be able to determine the date of death of all animals with reasonable accuracy.

Paragraph 23(c) requires that calculations using factors or parameters from an external source are to be taken from the version of the source in force at the end of the reporting period. Examples of such factors or parameters are the global warming potentials for methane and nitrous oxide prescribed by the *National Greenhouse and Energy Reporting Regulations 2008*.

**24 Assessment of average liveweight for inputs into the Calculator**

Accurate estimates of LW of all classes of animals from the beginning of the emissions intensity reference period to the end of the crediting period are necessary for estimating abatement. Section 24 provides the framework for grouping animals to assess average LW for inputs to the Herd Management Calculator. This framework informs detailed provisions for assessing average LW for the crediting period and emissions intensity reference period in sections 25 and 26 respectively.

Subsection 24(1) provides that, for specified inputs in Schedule 2, each livestock class of a group or subgroup of animals is an input group. The dates of the arrival and departure of the animals, or class, weight and age at the beginning an dend of the project or EIRP year for the resident herd, which are required inputs in Schedule 2, are defined as input dates.

Subsection 24(2) allows for estimating LW of a class of animals in an input group either as a single group or, for greater accuracy, several weighing groups according to the dates of arrival in, and/or departure from, the herd. A weighing group is an input group, or a part of an input group, for which LW is determined separately. A project proponent might wish to divide an input group into different weighing groups if they intend to apply different methods for weighing to different animals in the input group.

Example 1 in the notes at the end of subsection 25(1) demonstrates how this provision gives greater accuracy of estimation according to age and date of arrival into and departure from the herd.

Subsection 24(3) provides that the average LW of animals in several weighing groups is the weighted average of the weights in each group. It is assumed that normal best practice in weighing will involve prior calibration of scales using standard weights according to the manufacturer’s directions.

(a) weighing all the animals in the weighing group within one month before or after the input date and calculating the average;

(b) weighing all the animals in a statistically valid sample from the weighing group within one month before or after the input date, and estimating the average liveweight from the sample in accordance with, and to an accuracy that is consistent with, industry practice;

## 25 Inputs in the crediting period

Section 25 sets out the methods and timing for ascertaining LW in the crediting period. In general, direct measurement is required, except for mature weight animals and a default for weight at branding, tagging or other first-time identification procedure. One of the following methods is to be used.

Paragraph 25(1)(a) provides for weighing all animals in a weighing group within one month before or after the input date and calculating the average. This timing is required because daily LW changes over greater periods would result in unacceptable errors in estimation of emissions.

Paragraph 25(1)(b) allows for the use of a statistically valid sampling procedure as an alternative to weighing all animals in a weighing group, with the same timing requirements as above. Further details on a suitable procedure are given under section 30 of this Explanatory Statement. The accuracy required in sampling is not prescribed, because it will vary according to local industry practice and is usually determined according to environmental and management conditions at a financial audit. The note to subsection 25(1) indicates that values ascertained consistently with Accounting Standard AASB 141-*Agriculture* would be expected to meet the requirements of this method. Proponents may wish to seek the advice of a financial auditor with experience of local industry standards when determining the required degree of precision in sampling.

Paragraph 25(1)(c) allows the LW for each class of animals in the herd at the beginning of the first year of the crediting period to be determined from the weighing group rather than separate groups. This approach applies average LW of all animals in the herd, calculated in accordance with subsection 25(2). This provision recognises that information to identify weights of separate groups from historical data may not be available and that accurate measurement of a starting weight is essential.

Paragraph 25(1)(d) allows for the use of LW at the end of the previous year as an adequate estimate of LW at the beginning of the next year. The paragraph refers to subsection 25(3), which requires that when this method is used all animals in the weighing group must have been included in the input group at the end of the previous year.

Paragraph 25(1)(e) provides for the use of hot standard carcase weight of cull animals in the reporting year (converted to LW using the dressing out percentage supplied by the abattoir) as an exception to the use of direct measurement in the crediting period. This covers bulls and cows greater than 3 years of age that are not normally weighed because they usually reach a mature weight at 3 years old. Subsection 25(4) provides further details on this method.

Paragraph 25(1)(f) allows an exception to direct measurement on farm. Instead, measured weights from purchase and sale documentation may be used where such animals are bought or sold within one month before or after the input date.

Paragraph 25(1)(g) recognises that a weight at branding/tagging of newly born animals (branding/tagging is usually undertaken at 6 to 8 weeks after birth) is not usually taken and allows for a default weight of 75 kilograms (kg) to be entered into the Herd Management Calculator.

Two examples of application of methods for ascertaining inputs are provided under subsection 25(1).

Subsection 25(2) allows for calculating average LW of a livestock class at the beginning of the crediting period by weighing either all the animals in the class or a sample of the animals in the class. The provision is made to arrive at a measured weight for the beginning of the crediting period but can apply, as noted in paragraph 25(2)(b), for other input dates.

Subsection 25(3) deals with the provisions of paragraph 25(1)(d). It allows weight at the end of one year to be used as an estimate of weight at the beginning of the following year if the weighing group was accounted for in the input group entered at the end of the previous year. Any sales or transfers out of the weighing group at the end of the previous year would negate this option, because the average weight of the group would change between the end of the previous year and the beginning of the new year.

Subsection 25(4) provides, for the purposes of paragraph 25(1)(e), for estimating LW of mature cows and bulls using hot standard carcase weight and either an actual dressing out percentage of cull animals or a default parameter of 55% dressing out weight. The provision recognises the use of the 55 per cent default in the industry and the possibility that individual abattoirs may not report dressing out percentages. Dressing out percentages reflect the carcase resulting from removal of particular portions of the animals such as the hide, hooves, head and tail and a weight taken before chilling. LW may be calculated by dividing the hot standard carcase weight by the dressing out percentage expressed as a fraction.

**26 Inputs in the emissions intensity reference period**

Subsection 26(1) provides a hierarchy of methods to estimate LW for the emissions intensity reference period. The methods include options recognising that direct measurements using on-farm scales may not have been made. The first method in the hierarchy for which relevant data is available must be used.

Paragraph 26(1)(a) provides that any of the methods available for the crediting period can be used.

Paragraph 26(1)(b) provides the option of converting total value and animal numbers from sales or purchase documents to an average LW using an indicator price, as described in subsection 26(2). Animals in the weighing class must have been bought or sold within one month before or after the input date.

Paragraph 26(1)(c) allows for the use of a linear projection between a beginning and an ending weight to estimate a weight during the emissions intensity reference period, particularly for the beginning and end of each year. Further, the projection can be between two points up to 12 months before the beginning or after the end of the emissions intensity reference period. The method involves subtracting an assumed birth weight of 35kg from an opening weight and then calculating the liveweight gain rate per month between that modified opening weight and the end weight. A weight at any time after the opening weight date is then derived by multiplying the liveweight gain rate by the number of months involved.

Paragraph 26(1)(d) allows for an estimate of average LW of a class to be obtained using the method described in subsection 26(4) from an average of data from either all sales, purchases or an indicator price. This option can be used to provide an estimate of LW for the beginning

of the emissions intensity reference period when no scale weights, sales or purchase information or hot standard carcase weights for the first emissions intensity reference period year is available.

Subsection 26(2) describes the use of an indicator price from MLA as the industry marketing body under the *Australian Meat and Live-stock Industry Act 1997*. The numbers sold and the total value of sales from receipts, available from the MLA website, may be used to estimate LW. The data can be used to determine the appropriate average price for the class of animal in the nearest reference sale location to the project in a particular week of the year in which the animal was sold. Prices are available for young cattle (calves and vealers), trade steers, medium steers, medium cows and feeder steers.

Subsection 26(3) allows for the use of the default 55% dressing out parameter in combination with an indicator price where the price is quoted on a carcase weight basis.

Subsection 26(4) describes a method for estimating average LW of a class for an input date in the emissions intensity reference period from the average of all purchase, sale or indicator price data. As noted above, this method is a last option where application of the Determination would otherwise not be possible until new data had been collected.

# Part 5—Reporting, record-keeping and monitoring requirements

## Division 1—Operation of this Part

### 27 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 monitoring, record-keeping and reporting 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 reporting, record-keeping and monitoring 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

Note: Other reporting requirements are prescribed in the Rule.

### 28 Information in each offsets report

For paragraph 106(3)(a) of the Act, the following information must be included in each offsets report in relation to each herd:

(a) a description of the project activity or project activities undertaken in each year in the reporting period;

(b) all inputs and outputs from the Herd Management Calculator for the reporting period;

(c) a statement that:

i. identifies the land on which the herd grazed in each year of the reporting period (other than land on which cattle of the herd grazed under an arm's length agistment arrangement); and

ii. indicates that the land was not cleared, for the purposes of the project, partially or wholly of perennial woody vegetation except as allowed under section 18.

Proponents should assume that any data presented on the herd, the business operation or the land associated with such operations may be subject to audit and a request for independent data and information for verification.

Note that under the Act, a proponent has up to six months after the end of any reporting period to provide the project report. This provision is particularly relevant to multiple herds and to aggregated projects, because, for example, an aggregator may have project herds to report on that have different dates for the end of the project year.

## Division 3—Record-keeping requirements

Note: Other record-keeping requirements are prescribed in the Rule.

### 28A General

The project proponent must keep records for each herd that demonstrate that sections 9 and10 (the separate business operation and herd continuity requirements) are satisfied at all times. This information is not specified but should include the calculator runs for each herd and the data supporting the entries required in Schedule 2 to demonstrate the management of a discrete herd continuously over time and records describing business structure and location and management changes in the EIRP and the project.

### 29 Records that must be kept for purchased feed

Subsection 29(1) requires that records must be kept for activities involving a change in the diet of the herd or part of the herd when the change in diet involved purchased feed.

Subsection 29(2) requires that if feed was purchased from a commercial supplier, a fodder declaration form, commodity vendor declaration form, or equivalent record containing data on the CP and DMD of the feed constituting the dietary change must be kept.

Subsection 29(3) requires that if the feed was purchased from a non-commercial supplier, the proponent must keep a purchase invoice that describes the type of purchased feed. For example, lucerne hay, sorghum silage, distillers grains or feed barley are some of the feed options available. This information is used in the Herd Management Calculator through default tables to estimate the change in emissions related to modified diets.

## Division 4—Monitoring requirements

Note: Part 17 of the Rule sets out record-keeping requirements that relate to showing that monitoring requirements for the project are being complied with, and to collection of data while monitoring the project.

### 30 General

Subsection 30(1) requires that a proponent must conduct sufficient monitoring of the herd to determine the inputs required under Schedule 2. Monitoring methods are not specified but the data collected must satisfy Regulator and auditor requirements for factors such as collection method, reliability and compliance with the Determination.

Subsection 30(2) requires that in the crediting period, if the project activity involves a dietary change, the project must undertake sufficient monitoring to comply with Schedule 2.

Subsection 30(3) specifies monitoring requirements relating to the specification of a herd as described under section 8. These requirements are:

The following recommendations are provided to assist proponents in deciding on appropriate monitoring methods.

***Use of a previous audit***

In deciding whether existing records are adequate to satisfy the monitoring requirements, a proponent should consider whether available data has already been audited and provided for

another purpose. For example, a registered auditor other than an auditor engaged to review an Emissions Reduction Fund project may have previously examined a parameter in Division 4 for another purpose such as taxation prior to project commencement. In this case, if the opinion of that auditor was not an adverse opinion, the Regulator may consider whether the requirements of the Determination have been met for the monitoring of that parameter.

***Use of secondary data***

Alternatively, to meet the monitoring requirements for the project, it is recommended that, where possible, the proponent has two records or more available to support the determination of each parameter. Records that could be recorded by the proponent could come from a livestock agent, a carrier, from a purchase or sale, or derived from the NLIS tag system. It is the responsibility of the proponent to have the records required to validate emissions and emissions reductions produced in the project.

The data monitoring methods that could be used by a project proponent or collected from an independent source are set out below for the parameters in sections 24, 25, 26 and 29.

***Number and average age of cattle in each livestock class***

Records from a proponent could include:

- data from a herd book from an annual muster to account for entries to and exits from the herd and attrition factors such as deaths in the herd;
- taxation records of the opening and closing inventory of stock to support the herd book; and
- the data input page of the Herd Management Calculator.

Records from an independent source may include:

- records from the NLIS;
- abattoir receipts indicating numbers of cattle slaughtered;
- records of cattle exported overseas;
- receipts from sales or transfers of cattle with the name of purchaser/transferee and the date of sale/transfer; and
- cartage contractor receipts indicating date of cartage, cattle numbers and destination.

***LW and LWG***

Records for LW and LWG from a proponent may include:

- data from the herd book recorded at an annual or seasonal muster and at point of sale; and
- the data input page from the Herd Management Calculator.

Records from an independent source may include:

- abattoir receipts indicating hot standard carcase weight converted to LW;
- Eastern States Daily Indicator Prices published on the MLA website and converted to LW based on the total value of sales or purchases and the numbers of animals in each

class that were sold or purchased at a particular time and location. A default dressing out percentage of 55% may be used where prices are quoted as carcase weight;
- receipts from exporter indicating weight at sale; and
- saleyard receipts from point of sale for LW.

***Diet***

Records created by a proponent may include:
- days on supplement/established pasture in each credit reporting year from herd book entries of date of entry and date of exit from supplementation for each class of cattle supplemented; and
- a record of the time the cattle spend on feeding regimes in a herd book or feeding records from a delegate of the proponent supported by invoices/receipts, herd book records; and
- the data input page from the Herd Management Calculator.

Other records that can be used from an independent source are given in section 29.

***LW Sampling Approach***

LW and LWG for each livestock class in the herd can be determined from either direct measurement of the whole herd or sample herd or direct measurement of a random sample of all animals and classes in the herd. A suggested sampling approach is given below. It is available on the revised Herd Management Calculator by inputting the weights of a known number of of pilot survey animals and following instructions thereafter.

The requirements of the Determination can be met with any statistically valid sampling approach that provides an accurate representation of the fair value of livestock at any time (see AASB 141 for details of fair value concepts). Fair value is based on the numbers and LW at any time plus an acceptable price per kg. In practice, multiple sampling is conducted over time, and a projection of future LW is obtained, which can be used, for example, to estimate fair value of livestock at a future merger or acquisition date. The difference between such an estimate and the actual numbers and LW reflects the degree of precision of the estimate obtained by sampling. A financial auditor may set a target precision considered acceptable for the local conditions. The following is a suggested approach to sampling that can be used to meet any desired Targeted Precision (see below) set by an auditor.

Step 1: Pilot survey

For each cattle class, undertake a pilot survey to estimate variance in LW in relation to each group in that cattle class.

To undertake a pilot survey it is recommended that the proponent start by weighing a random sample of 10% of the animals of the class. A 10% sample is often close enough to give an accurate estimate of LW. However, it is not, on its own, a guarantee of adequate estimation of true average LW for the group, as every group in every herd has different variability around a mean weight.

Where multiple groups of cattle are separated by subdivision, breed, feed quality or any other parameter that makes the group identifiable as a unit, each group must be sampled separately.

A 10% random sample may be taken, for example, as the weights of 10 randomly selected animals, regardless of size or other characteristics, out of 100 to enter a weighing race. Every animal in the group must have an equal chance of being selected for weighing.

Step 2: Number of animals to be sampled to meet targeted precision

In order to determine the sample size required to estimate LW of animals in each group, to a required precision, Steps 2.1 and 2.2 in this sampling method should be completed in relation to each group. These steps are intended to provide an estimate of the variability of weights around an average weight that is the variance of the weights of the group.

Step 2.1: Coefficient of variation of each group

Use the data from the pilot survey to determine the standard deviation of the sample taken from the group. The standard deviation is a numerical value used to indicate how widely individuals in a group vary. The standard deviation of a sample is the square root of the sum of squared deviations from the mean of the samples taken.

| | |
|---|---|
| $s_{pre,i} = \sqrt{(x - \overline{x}_i)^2/N-1}$ | ***Equation 1 (sampling approach)*** |

Where:

$s_{pre,i}$ = sample standard deviation of LW from pilot or preliminary group (i) (kg LW).

x = individual weight of a sample animal in group (i).

$\overline{x}_i$ = sample mean weight from pilot data measured in group (i) (kg LW).

N= number of animals in a pilot sample of a group (i).

In order to determine the coefficient of variation within each sample taken from each group, the following formula must be completed:

| | |
|---|---|
| $CV_i = \left(\frac{s_{pre,i}}{\overline{x}_i}\right) \times 100$ | ***Equation 2 (coefficient of variation)*** |

Where:

$CV_i$= coefficient of variation of pilot sample in group (i).

$s_{pre,i}$ = sample standard deviation from pilot data in group (i) (kg of LW).

$\overline{x}_i$ = sample mean weight from pilot data measured in group (i) (kg LW).

Step 2.2: Number of animals to sample in each group

LW of a sample of a group in a herd should be within the accuracy demanded by an auditor. For example, the standard may be ±5% of the true value of the mean of the groups in the class at a 90% confidence level. The level of accuracy required is usually chosen by an auditor using local knowledge to provide an estimate of fair value of livestock at any time (see "LW sampling approach" above for derivation of fair value). This is the approach used under the recommended provisions of the AASB 14 system.

The standard of accuracy required is referred to as the **Targeted Precision**.

In order to estimate the required sample size to achieve the Targeted Precision in each group, the following formula should be used:

| | |
|---|---|
| $n_i = \frac{CV_i^2 \times t_{val}^2}{SE^2}$ | ***Equation 3 (sample size for target precision)*** |

Where:

$n_i$= estimated number of sample animals required to meet Targeted Precision (i).

$CV_i$ = coefficient of variation in pilot data as calculated in Equation 5 (expressed as a percentage).

$t_{val}$ = two-sided students t-value, at the degree of freedom equal to (n-1) where (n) is the number of animals, for a 90% confidence level.

SE = desirable or allowed level of sampling error (expressed as a percentage (in this example it is fixed as 5%)).

When the number of animals required in a sample to obtain the targeted precision has been established, the sampling procedure to obtain a true estimate of LW in a group from a sample should be validated using Step 2. This step involves additional sampling to either supplement the sample survey data and thus achieve Targeted Precision, or reduce the numbers in the sample whilst achieving the desired level of Targeted Precision.

Step 3: Validation of sample size in a LW survey

Once the number of animals in a sample required to obtain the Targeted Precision has been obtained (Equation 3 sampling approach), the process of sampling should be repeated using that number of animals.

Step 3.1: Standard error

The actual standard error of LW of animals in the sample should be calculated using the following formula:

| | |
|---|---|
| $SE_{i,r} = \frac{s_{i,r}}{\sqrt{n_{i,r}}}$ | ***Equation 4 (Standard error of final sampling with required number of animals)*** |

Where:

$SE_{i,r}$ = actual standard error of the LWs in the pilot survey in group (i) for reporting period (r).

$s_{i,r}$ = standard deviation of the LW data in group (i) for reporting period (r) (kg LW).

$n_{i,r}$ = number of sample animals from group (i) for reporting period (r).

i = group (i).

r = reporting period (r).

Step 3.2: Determination of Targeted Precision

In order to determine whether the survey has achieved Targeted Precision, the following formula should be used:

| | |
|---|---|
| $TP_{i,r} = \frac{SE_{i,r} \times t_{val}}{\overline{Q}_{i,r}} * 100$ | ***Equation 5 (actual target precision of estimate)*** |

Where:

$TP_{i,r}$=Targeted Precision error limit of the LW of a group (i) for reporting period (r) (%).

$SE_{i,r}$ = standard error of the survey in group (i) for reporting period (r) (kg).

$t_{val}$ = two-sided students t-value, at the degree of freedom equal to (n-1) where (n) is the number of animals sampled for a 90% confidence level.

$\overline{Q}_{i,r}$ = sample mean from LW data in group (i) using for the reporting period (r) (kg).

i = group (i).

r = reporting period (r).

The 90% confidence level must be used when determining the t-value.

The final value of $TP_{ir}$ must be less than or equal to the value required by the auditor (usually 5% or lower).

If the $TP_{ir}$ error limit is greater than the required value, additional animals must be surveyed until the Targeted Precision error limit is less than or equal to the required value. It is recommended that the proponent use Step 2 to test whether the sampling procedure needs to be repeated to meet the Targeted Precision at the time of initial muster, so that re-mustering is avoided.

Proponents may choose to obtain LW data through opening and closing stocks of a breeding herd that remains on the property from year to year and/or from weights at entry and exit from the herd for turnover stock. Entry and exit weights can be measured on-farm, obtained from purchase invoices and sale receipts, abattoir data, or from other sources as approved by the auditor. The opening and closing stocks of a class can be within a month before or after the annual project date. The Herd Management Calculator will project data from actual dated opening and closing stocks of animals to an annualised basis.

In Entry Page 1, LW data from opening and closing stocks and entry and exit weights is used by the LW and LWG model in the Herd Management Calculator to provide seasonal estimates of LW by class in the project. The model uses the relationship between feed quality and consumption, geographic location and other biological variables to estimate seasonal variation in LW and LWG. The estimates are then validated against the opening and closing LW (and/or entry and exit LW for turnover stock) entered by the proponent. The seasonal value of LW and LWG, the time on supplement and the seasonal variation in supplement composition provide the data for calculating annual methane and nitrous oxide emissions from the herd.

In Entry Page 2, a linear approach is used to calculate seasonal LWG for all cattle classes.

## Division 5—Reporting under section 77A of the Act

### 31 Requirements relating to reporting under section 77A of the Act

For section 77A of the Act, an overall project may only be divided into parts that consist of one or more whole herds.

A whole herd is required, as noted in section 8, based on business records as the project boundary. Division of the herd may create inaccurate estimates of overall project abatement, as recognised by the provisions of the business operation requirement.

The existence of separate businesses alone (and separate herds) may not satisfy the criteria for definition of a project herd if there is herd interaction. For example, a proponent may control a (primary) turnover or livestock trading business in which steers are sold or transferred regularly for slaughter and a (secondary) breeding business that provides steers to the turnover operation. In this case both businesses contribute to emissions generated by cattle under the control of the proponent and must be considered together. Alternatively, if the turnover business operates solely on cattle purchased from outside the control of the proponent (i.e. outside the project boundary), that business constitutes a single project herd for the purposes of calculating eligible abatement.

## Schedule 2—Inputs into Herd Management Calculator—general

The table in Schedule 2 describes the inputs required by the Herd Management Calculator, and the units (where applicable) to be used for each data input. Each data input is required for the emissions intensity reference period and crediting period. The inputs are derived as follows.

1. Identification of a region primarily occupied by each herd in the project. The region may comprise a territory, state, or a state and a sub-region, such as the Pilbara region of Western Australia. The regions are specified in the National Inventory Report.

2. For animals present in the herd at both the start and the end of the year:

   (a) cattle numbers for each livestock class must be recorded for each year of the emissions intensity reference period and the crediting period at the beginning and end of each year; and

   (b) average LW for each livestock class must be recorded for each year of the emissions intensity reference period and the crediting period at the beginning and end of each year.

This information is required separately for this part of the herd (Resident Herd) because the emissions of the animals present throughout the year are calculated in a different manner from the animals present for only a part of the year (Transient Herd). The difference is due to the fact that emissions are calculated on a seasonal basis in the Herd Management Calculator (in line with the National Inventory) based on changes in LW, feed quality and animal numbers. For animals present throughout the year the changes in LW are estimated in the Herd Management Calculator using a model based on the starting and ending weights and the location by region and diet of the animal. For animals present for a part of the year, the model is not required and a linear LW growth rate is assumed across seasons.

3. For animals that were in the herd at the start of the year but left during the year:

   (a) the number of animals in each livestock class at the beginning of the year; and

   (b) the average LW of each class at the beginning of the year.

An estimate of the average weights of a group of cattle is required for section 24. Individual animals also need to be identified with their particular group to ensure an accurate calculation of LW and LWG. For example, if a group of steers was purchased at the beginning of the project year on, for example, 1 April and was sold or transferred, with other animals purchased at other dates, in two groups on 31 May and 15 July. It will be necessary to be able to identify, at the time of sale, when all the animals being sold, entered the herd. Methods of identifying the animals by purchase date could include NLIS ear tags (preferred for auditing), brands, breeds, sex or any other reliable and durable method.

4. For each sub-group of sale or disposal animals, that were in the herd at the start of the year but left during the year:

   (a) the date(s) they left the herd;

(b) the reason they left the herd (i.e. whether they left for live export/slaughter or for sale for another purpose (such as sale to breeding or transfer to another herd));

(c) the number of animals by class in each sub-group that left the herd; and

(d) the average LW of each livestock class in the sub-group that left the herd.

This information on animal numbers and LW is required to calculate their combined impact on emissions.

5. For animals that entered the herd during the year:

   (a) the date they entered the herd;

   (b) how they entered the herd by origin (e.g. birth, purchase, internal or external transfer);

   (c) the numbers in each class and the date they entered the herd; and

   (d) the average LW of the animals that entered the herd on the date they entered.

'Other management actions' as a means of stock entry include transfer of animals from a herd outside the project.

6. For the sub-group of animals described in point 5 above that entered the herd during the year and was present at the end of the year:

   (a) the number of animals in each livestock class at the end of the year; and

   (b) the average LW of animals in each class at the end of the year.

As noted for item 2 of the table, the opening and closing stocks of animals, including their LW, are required by the Herd Management Calculator to ensure accurate accounting.

7. For the sub-group of animals described by point 5 above that entered and left the herd during the year:

   (d) the date(s) they left the herd;

   (e) the reason they left the herd (i.e. for live export or slaughter or for another purpose);

   (f) the number of animals by class in each sub-group that left the herd on each date; and

   (g) the average LW of each livestock class in the sub-group that left the herd at each date.

This information applies in particular to animals traded during the year. For example, store animals purchased and sold as fat animals. The difference in combined LW and numbers plus the duration over which the change occurs is used to calculate the change in emissions of the group between entry and exit from the herd.

The information required in items 1–7 is used to create a rolling account of animals that enter and leave the herd during the year, using their entry date as a starting point. When animals present in the herd for the whole of the previous year are sold or transferred in the project year, they are accounted for using this information.

When the complete inventory is considered, any discrepancies between opening and closing stocks are identified as unaccounted animal increases or attritions (e.g. deaths and unaccounted losses). Such animals may be unaccounted losses due to environmental factors,

such as drought or unaccounted gains from animals that wander onto the project property due to the lack or poor quality of fencing in an adjacent property. Thus there is no need for entry of data on deaths. All unaccounted losses are assumed to occur in the middle of the year but unaccounted gains are assumed to have created emissions for the emissions intensity reference or project years.

## Schedule 3—Inputs into Herd Management Calculator—dietary change

The note in Schedule 2 applying to paragraph 23(b) covers the method by which changes in the diet of the animal, from an assumed pure pasture diet in the reference period to a mixed pasture and supplement-based diet in the project, contribute to emission changes. The paragraph requires that the dietary change inputs to the Herd Management Calculator for DMD and CP for the crediting period are determined as a weighted average of supplementary feed and naturalised pasture feed (from seasonal values of the National Inventory Report).

Values for CP and DMD are established automatically in the Herd Management Calculator if the proponent specifies a particular supplement. The cattle feeds covered in the Herd Management Calculator are: grain, mixed grain, hay, cotton seed, improved pasture, leucaena, silage and crop. Values for northern Australia and southern Australia are included and are used according to the region specified by the proponent.

A proponent may provide for supplementary feed from the values given in a commodity vendor declaration form, fodder declaration form or equivalent (see section 29). If using unlisted purchased supplements, proponents must enter DMD and CP content from the records specified in section 29.

The weighted average provision is specified because a diet can be made up of several components such as grain and naturalised pasture. The Herd Management Calculator assumes that proponents would feed certain maximum proportions of the diet for each component entered into the Calculator. Example include grain (25%) (high levels are cost-prohibitive), cottonseed (20%) (owing to potential gossypol poisoning), and leucaena (30%) (due to potential mimosine poisoning). No more than two supplements in addition to a forage component may be selected. If two forage components (e.g. improved pasture and silage) are selected, the supplements will be limited to the balance required to make up 100% of the diet. Any further entries are ignored in calculation. The weighted average composition of the diet is then calculated.

In addition to diet quality information, item 3a of Schedule 2 requires the number of days in which the dietary supplement was fed. For simplicity to calculate nitrous oxide and methane emissions, it is assumed that if more than 50% of animals in any livestock class were supplemented, then all of the animals in that class were supplemented for the designated period. Proponents may consider keeping records of volumes and dates of supplement purchases as part of verifying the supplementation of a class of animals.

## Statement of Compatibility with Human Rights

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

The *Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Variation, 2016*

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 draft *Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Variation, 2016* (the Variation) amends the *Carbon Credits (Carbon Farming Initiative-Beef Cattle Herd Management) Methodology Determination, 2015*. The Variation allows for the entry of an additional discrete herd with less than three years of historical data into a project after the Section 22 application, using conservative assumptions of baseline emissions and restrictions on the size of the new herd. It also removes the provisions for non-inventory cattle and secondary businesses and requires all movements to cattle in non- project herds to be made as a transparent sale at market price.

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 *Carbon Credits (Carbon Farming Initiative) Act 2011*. Offsets projects that are approved by the Regulator can generate Australian carbon credit units.

### 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.

**Josh Frydenberg, Minister for the Environment and Energy**