

Explanatory Statement

Carbon Credits (Carbon Farming Initiative) Act 2011

Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination Variation 2016

PUBLIC EXPOSURE DRAFT

Purpose

The *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination Variation 2016* (the Variation) will amend the *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination 2015* (the Determination).

The Variation will implement a number of changes designed to expand the coverage of methane conversion processes under the Determination. This variation expands the Determination to cover all chemical reactions involving the conversion of methane to carbon dioxide, including thermal, catalytic and chemical processes. These changes enable the crediting of emissions reduction from the use of ventilation air methane (VAM) oxidation devices.

In 2012, VAM emissions accounted for up to 60 per cent (approximately 12.7 million tonnes) of fugitive emissions from Australian underground coal mines. By expanding coverage of the Determination to allow VAM oxidation, new opportunities to unlock potential abatement may become available to project proponents.

A number of small administrative corrections or clarifications will also be made to the Determination.

Note that this document is provided as an exposure draft for the members of public for the proposed changes and does not constitute the final policy arrangements.
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Legislative provisions

The Determination was made under subsection 106(1) of the *Carbon Credits (Carbon Farming Initiative) Act 2011* (the Act).

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

Background

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.

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 reduction and sequestration) from eligible projects and rules for monitoring, record keeping and reporting. These methodologies will help ensure that emissions reductions are genuine—that they are both real and additional to business-as-usual.

The Determination was made on 13 February 2015, and sets out the detailed rules for implementing and monitoring projects that avoid emissions through the destruction of the methane component of coal mine waste gas. Since the Determination was made, the Department of the Environment and Energy has considered whether further opportunities for abatement of emissions of coal mine waste gas should be made available.

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

Operation

The Variation will significantly amend sections 14, 15, 16, 21, 23, 26, 28, 30, 36 and 40 of the Determination. Division 7A and section 16A will be added to the Determination. A number of minor amendments will also be made to other sections in order to facilitate these changes.

The Variation will not affect projects that are already declared eligible under, and using, the existing Determination. Even after a determination has been varied, a project that was declared as an eligible offsets project before the variation can continue to use the determination in the form it was at the time the project was declared eligible, under section 126 of the Act. The project proponent may apply to the Clean Energy Regulator (the Regulator) for approval to move to the varied determination under section 128 of the Act. All eligible offsets projects approved after the commencement of the Variation will need to comply with the Determination as varied by the Variation, even if the applications were submitted before the Variation commenced.

Consultation

The Variation has been developed by the Department of the Environment and Energy.

A detailed proposal for the Variation, in the form of a marked up copy of the Determination showing the Determination as varied by the Variation, will be published on the Department's website for public consultation from 2 August to 29 August 2016. Details for how to make a submission are provided on the Department of the Environment and Energy website, www.environment.gov.au.

Determination details

A description of provisions in the Determination affected by the proposed Variation is provided at [Attachment A](#). Numbered sections in this explanatory statement align with the relevant sections of the Determination. The definition of terms in ***bold italics*** can be found in the Variation or the 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, and agree with, the advice of the Emissions Reduction Assurance Committee (ERAC). ERAC ensures that the varied methodology determination complies with the offsets integrity standards and that the varied methodology determination should be made. 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.

Exposure draft

Details of provisions in the Determination subject to this Variation

If amended as proposed, the following sections of the Determination will be amended by the Variation as described below.

Part 1 Preliminary

5 Definitions

A number of terms will be introduced, amended or deleted in the Determination as a result of making provision for oxidation of ventilated air methane (VAM).

The principal changes to definitions are as follows:

Coal mine waste gas will now no longer include hydrocarbon substances which are drained from decommissioned coal mines, or their shafts or ducts. This change elucidates the exclusion of decommissioned mine drainage from the method by excluding decommissioned mines in this definition as well as in the eligibility requirements. A mine must operate under a mining lease to be eligible under the Determination. A mine operating under a petroleum lease alone is ineligible under the Determination.

Coal mine waste gas will also now be additionally defined as a substance that is continuously maintained in gaseous form until release or conversion. This has been introduced to clarify that coal mine waste gas that has not been continuously maintained in a gaseous form (e.g. liquefied coal mine waste gas) is not an eligible energy source in the method.

Combust or **Combustion** will now be defined in the Determination. This term refers to the conversion of methane to carbon dioxide by use of a flame. This is required to create a distinction from other approaches which convert methane to carbon dioxide which do not involve combustion, such as flameless oxidation.

Convert or **conversion** will be introduced into the Determination. The term covers both combustion and flameless forms of oxidation, and will generally be used in place of the term *combustion* throughout the Determination as combustion refers specifically to the conversion of methane to carbon dioxide in the presence of oxygen and a flame. By replacing *combustion* with the term *conversion*, activities which do not combust methane will also be covered under the Determination.

There are some sections where the term *combustion* will be retained:

- Section 26, which refers exclusively to emissions from flaring devices;
- Section 40, which refers to historic abatement at mines. This is because it requires the use of data on the combustion of methane combustion reported in accordance with the *National Greenhouse and Energy Reporting Act 2007* (the NGER Act);
- Section 41, which refers to the combustion of fuel for stationary energy purposes worked out in accordance with the NGER Act; Section 47, which specifies monitoring requirements. This is because item 6 of the table in subsection 47(1) provides monitoring requirements for the purposes of section 26 (see above), and subsection 47(4) specifically relates to the operation of flaring devices.

A note will be added to the ***decommissioned underground coal mine*** definition . This note clarifies that a mine is deemed as decommissioned if one or more (rather than all) of the associated clauses apply.

Flameless oxidation and ***flameless oxidation device*** will be introduced into the Determination. Flameless oxidation is a process involving the chemical oxidation and conversion of methane to carbon dioxide and can occur with or without utilization of thermal energy and with or without a catalyst. It is distinct from the process of methane combustion in a flare, which requires the presence of oxygen and a flame to convert the methane to carbon dioxide. These definitions are required to expand the Determination to cover methane destruction from devices such as ventilated air methane oxidation devices where previously only flaring was permitted. In general, this will mean that references to *flaring* in the Determination will be generally be revised to *flaring or flameless oxidation* (for example, flaring devices will henceforth be referred to as *flaring or flameless oxidation devices*, new or expansion flaring projects will be referred to as *new or expansion flaring or flameless oxidation projects*, etc.). However, as section 26 contains provisions which are unique to flaring devices, these will continue unchanged.

Flaring has been amended to clarify that methane is being converted through the process of combustion.

The changes in terminology will also affect the definitions of ***electricity production device***, ***existing electricity production device***, ***integrated monitoring system***, ***material abatement***, ***operating***, and ***recognised capacity***.

The symbols used in equations will now be standardised throughout the method. Previously the same symbols were used to represent different devices in different equations. Installed flaring or flameless oxidation devices will now be represented by the letter h, installed electricity devices by the letter i, existing flaring or flameless oxidation devices by the letter m and existing electricity devices by the letter n throughout the method. This standardisation removes a potential source of confusion in the equations.

Part 3 Project requirements

14 Requirements for a new electricity production project

This section will be varied to allow projects to install conversion devices (e.g. flares or flameless oxidation devices) in new electricity production projects. This provision has been amended to allow projects to undertake both flaring and electricity generation activity within a single project. This allows for flaring to occur in situations where the quantities of methane available for conversion may be variable due to geological factors. For example, the quantity of methane available may exceed the maximum capacity of the electricity generation device but not be consistent enough to warrant installation of a larger capacity generator. In such cases, the excess methane is instead directed to a flaring system. In this manner, the additional abatement from the operation of the flare may be accounted for.

Consistent with paragraph 27(4A)(a) of the Act, any flares or flameless oxidation devices used for a project must be new (i.e. not pre-existing at the mine). It is further noted that flaring of methane is mandatory in some jurisdictions under certain circumstances. In these situations, flaring would not be considered additional for the purposes of paragraph 27(4A)(b) of the Act.

15 Requirements for an expansion electricity production project

This section will be varied to allow projects to install conversion devices (e.g. flares or flameless oxidation devices) in expansion electricity production projects. As with proposed amendments to section 14, this will allow projects to simultaneously generate electricity and flare or flamelessly oxidise methane. Any devices installed for such projects must be new to meet the requirements of paragraph 27(4A)(a) of the Act, and flaring must not be mandatory under state or territory law in order to be considered additional for the purposes of paragraph 27(4A)(b) of the Act.

16 Requirements for a displacement electricity production project

This section will be varied to allow projects to install conversion devices (e.g. flares) in displacement electricity production projects. As with proposed amendments to section 14, this will allow projects to simultaneously generate electricity and flare or flamelessly oxidise methane. Any devices installed for such projects must be new to meet the requirements of paragraph 27(4A)(a) of the Act, and flaring must not be mandatory under state or territory law in order, to be considered additional for the purposes of paragraph 27(4A)(b) of the Act.

16A Requirements for a ventilation air methane only project

This section introduces a new project type to cover projects which only operate ventilation air methane conversion devices. Projects which are eligible under this project type must:

- a) operate a ventilation air methane conversion device, and
- b) meet the eligibility requirements for one of the first four project types (new or expansion flaring or flameless oxidation or electricity production projects)

The inclusion of this project type supports projects which are under an obligation to flare or combust methane. Without this new project type, such projects would only be credited for the use of flameless oxidation devices if the project also operated electricity production devices.

17 Requirements in lieu of regulatory additionality requirement

As currently drafted, this section does not state a difference between an obligation to flare or combust methane from the mine generally (such as those imposed under state or territory law) and actions taken to flamelessly oxidise ventilation air methane. The variation will introduce a provision to distinguish the flameless oxidation of methane sourced from mine ventilation air where there may be an obligation to flare or combust methane from the mine generally (such as those imposed under state or territory law).

Part 4 Net abatement amounts

Division 2 New flaring or flameless oxidation project method

Question for public input

Revisions to sections 21, 23, and 30 below are drafted on the basis that the destruction efficiency of VAM oxidation devices is equivalent to that of a flaring system, as currently reflected in the NGER (Measurement) Determination. However, an alternative approach which requires proponents to demonstrate the destruction efficiency of the flameless

oxidation device/s that they use may lead to more accurate abatement calculation. The Department seeks evidence as to whether this alternative approach should be adopted.

21 Net abatement amount

This section will be varied to reflect the use of the default destruction efficiency (DE) for flaring and flameless oxidation devices.

Consistent with the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* [the NGER (Measurement) Determination], the Determination incorporates a DE for flaring devices of 0.98. The NGER (Measurement) Determination does not provide a separate DE for flameless oxidation devices. Accordingly, an equivalent DE of 0.98 has been used for such devices in the Determination. This is also consistent with previous industry reporting on VAM oxidation devices under the NGER (Measurement) Determination.

23 Net abatement amount

This section will be varied to reflect the use of the default destruction efficiency (DE) of flaring and flameless oxidation devices of 0.98.

26 Emissions from a flameless oxidation device

Section 26 of the Determination provides the methodology for calculating emissions arising from the combustion of coal mine waste gas for a project. Combustion or oxidation of methane in a flare or flameless oxidation device results in emissions of some amounts of nitrous oxide, as well as residue methane.

Question for public input

The following provision is drafted on the basis that nitrous oxide emissions from the use of VAM oxidation equipment is not material. Further evidence on this point is welcomed. Should this be considered a material source, evidence is also sought on how such emissions could be calculated for VAM oxidation devices.

28 Net abatement amount

Equations 17 and 18 of this section will be varied to enable the calculation and crediting of emissions abatement from flaring and flameless oxidation devices in new electricity production projects. The variation of these equations flow on from the changes to project reporting requirements which allow projects to install and operate conversion devices.

30 Net abatement amount

This section will be varied to reflect the use of the default destruction efficiency (DE) of flaring and flameless oxidation devices.

Equation 22 of this section will be varied to enable the calculation and crediting of emissions abatement from flaring and flameless oxidation devices in expansion electricity production projects. The variation of this equation flows on from the changes to project reporting requirements which allow projects to install and operate conversion devices.

31 Volume of methane sent to conversion devices

Equation 23 of this section will be varied to enable the calculation and crediting of emissions abatement from flaring and flameless oxidation devices in expansion electricity production projects. The variation of this equation flows on from the changes to project reporting requirements which allow projects to install and operate conversion devices. Subsection 31 (2) will be removed from the Determination to allow these calculations to apply.

33 Net abatement amount

This section will be significantly varied to include emissions abatement from ventilation air methane devices. A new variable is added to equation 25 to include abatement of ventilation air methane emissions into displacement electricity production projects. Calculations for ventilation air methane emissions abatement are similar to calculations for new electricity production projects (i.e. equations 16-18 are similar to new equations 25A-25C).

Division 7A Ventilation air methane only method

This division introduces a new project type so that projects can be credited only for the abatement resulting from the operation of ventilation air methane conversion devices. Abatement for this project type is calculated as if the project was one of the first four project types – a new or an expansion flaring or flameless oxidation project or a new or an expansion electricity production project.

The inclusion of this project type supports projects which are under a general obligation to flare or combust methane, but under no particular obligation to combust VAM. Without this new project type, such projects would only be credited for the use of flameless oxidation devices if the project also operated electricity production devices and was a displacement electricity production project.

36 Displaced electricity emissions

This section will be varied to clarify the types of electricity generation which are eligible for displacement electricity production projects. In particular, it clarifies how a project needs to replace existing demand for electricity and which coal mine waste gas may be included.

Electricity demand

Subsection 36(5) will be varied to clarify that electricity to be displaced by the project will be disregarded if it is not used to meet demand that would otherwise have been supplied from an electricity grid or an electricity generator supplying electricity through a dedicated or shared power line.

For example, displacement of electricity occurs where the electricity generated by the project's devices removes the need for a coal mining operation to source electricity from a grid or another power station. This can include cases where energy generated by the project that is in excess of the coal mining operation's requirements is exported back to a grid or to another facility.

Relevant coal mine waste gas

A new subsection, subsection 36(5A), clarifies that electricity generated from energy sources other than eligible coal mine waste gas may include certain ineligible forms of coal mine waste gas. Electricity from other energy sources is deducted from the amount of energy

produced by the project in equation 29 and therefore does not create eligible abatement under the method.

In particular, the subsection clarifies coal mine waste gas that:

a) has been sourced from coal mines that are not part of the project and could not be part of the project in the future; or

b) has been sourced from coal mines that are not part of the project and the gas is not supplied through a dedicated pipeline;

is not an eligible source of energy for the purpose of equation 29.

Accordingly, use of coal mine waste gas transported in a pipeline from an adjoining or nearby coal mine is permitted provided that other mine is also eligible to be part of the project.

Because the method's capacity to calculate forms of abatement from displaced energy are limited to energy supplied from the eligible sources above, other forms of energy displacement are not covered by the abatement calculations. Applying the current equations to other forms of energy displacement would not correctly calculate the net abatement amount as the appropriate loss and displacement factors are not considered or provided for.

Note that net electricity produced by coal mine waste gas devices is the electricity produced by devices minus the electricity imported from other sources.

40 Historical abatement

This section will be varied to reflect the latest global warming potential (GWP) for methane. As currently allowed in the Determination, historical abatement was calculated based on a GWP of 21. As GWPs are subject to change in response to new scientific evidence, it is appropriate that this factor be revised to allow future updates to be incorporated into the calculations, without seeking further revisions to the Determination. Accordingly, the varied provision makes reference to relevant section of the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* containing emissions factors calculated using the current GWPs specified in table R2.02 of the *National Greenhouse and Energy Reporting Regulations 2008*.

As noted above, references to *combustion* in the section will be retained to ensure consistency with reports provided under *National Greenhouse and Energy Reporting Act 2007*. As such, a change in terminology would invalidate these references to combustion in the section.

47 Monitoring requirements

A condition was added so that it is explicit that the reporting requirements set out under s2.32 (7) of the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* apply to the monitoring of coal mine waste gas volume parameters.