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

I, Josh Frydenberg, Minister for the Environment and Energy, make the following legislative instrument.

Dated   7 November 2016

Josh Frydenberg
Minister for the Environment and Energy

Contents

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

1 Name

This is the *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination Variation 2016*.

2 Commencement

This instrument commences on the day after it is registered.

3 Authority

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

4 Amendment of methodology determination

The *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination 2015* is amended as set out in Schedule 1.

Schedule 1—Amendments of the *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination 2015*

[1]   Paragraph 4(b)

Omit "*Legislative Instruments*", substitute "*Legislation*".

[2]   Section 5 (paragraph (b) of the definition of *coal mine waste gas*)

Repeal the paragraph, substitute:

(b) that:

   (i) is drained from an operating underground coal mine that is covered by a lease (however described) that authorises coal mining; or

   (ii) is conveyed in a ventilation air shaft, pipe or duct to the surface of an operating underground coal mine that is covered by a lease (however described) that authorises coal mining; and

(c) that is continuously maintained in gaseous form until release or conversion.

Note: Eligibility requirements to be a coal mine waste gas project require coal mine waste gas to be sourced from an operating underground coal mine. Use of coal mine waste gas from a decommissioned underground mine is excluded. See section 10.

[3]   Section 5 (definition of *combustion device*)

Repeal the definition.

[4]   Section 5

Insert in appropriate alphabetical positions:

collocated: a coal mine is *collocated* with another coal mine if:

(a) the boundaries of the leases (however described) that authorise coal mining at each mine overlap, touch or are no more than 10 kilometres apart; and

(b) each coal mine is identified in the application for the declaration of the project as an eligible offsets project.

combustion, of methane, means conversion of the methane using a process that requires the presence of oxygen and a flame; and *combust* has a corresponding meaning.

conversion device means a flaring device, a flameless oxidation device or an electricity production device.

conversion, of methane, means the application of a process in which the methane undergoes chemical reactions to produce an equivalent molar quantity of carbon dioxide; and *convert* has a corresponding meaning.

Note: Conversion may occur with or without the production of other chemical species and with or without the release of energy.

Combustion and flameless oxidation are both forms of conversion.

[5]   Section 5 (definition of *decommissioned underground coal mine*)

After the definition, insert:

Note: If one or more of these activities were conducted in the last 12 months, or are expected to occur in the future, the coal mine would not be a decommissioned underground coal mine.

[6]   Section 5 (definition of *electricity production device*)

Repeal the definition, substitute:

electricity production device means a device that produces electricity from combustion or flameless oxidation of methane.

[7]   Section 5 (definition of *existing electricity production device*)

Omit "combusted", substitute "converted".

[8]   Section 5 (definition of *existing flaring device*)

Repeal the definition, substitute:

existing flaring or flameless oxidation device, for a coal mine waste gas project, means a flaring or flameless oxidation device that existed, during all or part of the period between 24 April 2014 and the application time, at a location where some of the methane component of coal mine waste gas from the mine has been converted.

[9]   Section 5 (definition of *expansion flaring project*)

Repeal the definition, substitute:

expansion flaring or flameless oxidation project means a project that meets the requirements of section 13.

flameless oxidation, of methane, means conversion of the methane using flameless chemical oxidation.

Note: Flameless oxidation may occur with or without utilization of thermal energy and with or without a catalyst.

flameless oxidation device means a device for the flameless oxidation of methane other than a device that is directly associated with the operation of an electricity production device.

Note: A system of plant and equipment that oxidises ventilation air methane is an example of a flameless oxidation device.

[10]   Section 5 (definition of *flaring*)

Omit "gas", substitute "methane".

[11]   Section 5 (definition of *flaring device*)

Repeal the definition, substitute:

flaring device means a device that combusts methane, other than a device that is directly associated with the operation of an electricity production device.

[12]   Section 5 (definition of *installed flaring device*)

Repeal the definition, substitute:

installed flaring or flameless oxidation device, for a coal mine waste gas project, means a flaring or flameless oxidation device installed and operated as part of the project.

[13]   Section 5 (definition of *new flaring project*)

Repeal the definition, substitute:

new flaring or flameless oxidation project means a project that meets the requirements of section 12.

[14]   Section 5 (definition of *NGER report*)

Omit "or 22X", substitute "22X, or 22XB".

[15]   Section 5 (definition of *operating*)

Repeal the definition, substitute:

operating: a device for converting, or monitoring the conversion of, the methane component of coal mine waste gas is *operating* if it is being operated in accordance with:
  (a) the manufacturer's specifications for the device; and
  (b) the monitoring requirements.

[16]   Section 5 (definition of *recognised capacity*)

Repeal the definition, substitute:

recognised capacity of a device in a period means:
  (a) for a flaring or flameless oxidation device—the maximum volume of the methane component of coal mine waste gas capable of being converted by operating the device in the period worked out at the application time in accordance with subsection 42(3); or
  (b) for an electricity production device—the maximum amount of electricity capable of being produced from the conversion of the methane component

of coal mine waste gas by operating the device in the period worked out at the application time in accordance with subsection 43(3).

[17] Section 5

Insert in appropriate alphabetical position:

ventilation air methane means the methane contained within the ventilation air of an operating underground coal mine that would otherwise be released into the atmosphere with that air.

[18] Paragraphs 6(a) and (b)

After "destruction" (wherever occurring), insert "or conversion".

[19] Section 7

Omit "combustion" (wherever occurring), substitute "conversion".

[20] Section 8

Omit "combustion" (wherever occurring), substitute "conversion".

[21] Paragraph 10(1)(a)

Repeal the paragraph, substitute:
  (a) converts some or all of the methane component of coal mine waste gas drawn from an operating underground coal mine, or two or more collocated operating underground coal mines, by installing and operating one or more of the following:
     (i) a flaring device;
    (ii) a flameless oxidation device;
   (iii) an electricity production device; and

[22] Paragraphs 10(3)(a) and (b)

After "flaring" (wherever occurring), insert "or flameless oxidation".

[23] At the end of subsection 10(3)

Add:
        ; or
  (f) a ventilation air methane only project.

[24] Parts 3 and 4

Repeal the Parts, substitute:

Part 3—Project requirements

Division 1—General requirements

11 Operation of this Division

For paragraph 106(1)(b) of the Act, this Division sets out requirements that must be met for a coal mine waste gas project to be an eligible offsets project.

12 Requirements for a new flaring or flameless oxidation project

(1) This section sets out requirements for a new flaring or flameless oxidation project.

(2) The project must install and operate a flaring or flameless oxidation device.

(3) There must have been no material abatement from the conversion of the methane component of coal mine waste gas from the mine at the application time.

(4) Subsection (3) is satisfied if:
    (a) for the financial year in which the application is made—at the application time the project proponent has given the Regulator a declaration that no such material abatement has occurred; and
    (b) for all previous financial years for which there is a NGER report relating to the mine—the NGER report for the financial year shows that no such material abatement has occurred.

13 Requirements for an expansion flaring or flameless oxidation project

(1) This section sets out requirements for an expansion flaring or flameless oxidation project.

(2) The project must install and operate a flaring or flameless oxidation device.

(3) Some of the methane component of coal mine waste gas from the mine must have been converted at the application time.

(4) The proponent must have provided a statement at the application time as to:
    (a) the sum of the recognised capacity of all existing flaring or flameless oxidation devices and existing electricity production devices for the coal mine waste gas project at the point of the highest total recognised capacity of all of the existing devices in the period between 24 April 2014 and the application time; and
    (b) the recognised capacity of each existing device at that point.

14 Requirements for a new electricity production project

(1) This section sets out requirements for a new electricity production project.

(2) The project:
    (a) must install and operate an electricity production device; and

      (b) may install and operate a flaring or flameless oxidation device.

(3) There must have been no material abatement from the conversion of the methane component of coal mine waste gas from the mine at the application time.

(4) Subsection (3) is satisfied if:
      (a) for the financial year in which the application is made—at the application time the project proponent has given the Regulator a declaration that no such material abatement has occurred; and
      (b) for all previous financial years for which there is a NGER report relating to the mine—the NGER report for the financial year shows that no such material abatement has occurred.

15 Requirements for an expansion electricity production project

(1) This section sets out requirements for an expansion electricity production project.

(2) The project:
      (a) must install and operate an electricity production device; and
      (b) may install and operate a flaring or flameless oxidation device.

(3) Some of the methane component of coal mine waste gas from the mine must have been converted at the application time.

(4) The proponent must have provided a statement at the application time as to:
      (a) the sum of the recognised capacity of all existing flaring or flameless oxidation devices and existing electricity production devices for the coal mine waste gas project at the point of the highest total recognised capacity of all of the existing devices in the period between 24 April 2014 and the application time; and
      (b) the recognised capacity of each existing device at that point.

16 Requirements for a displacement electricity production project

(1) This section sets out requirements for a displacement electricity production project.

(2) The project:
      (a) must install and operate an electricity production device; and
      (b) may install and operate a flaring or flameless oxidation device.

(3) If some of the methane component of coal mine waste gas from the mine has been converted by one or more existing electricity production devices at the application time, the proponent must have provided a statement at the application time as to:
      (a) the sum of the recognised capacity of all existing electricity production devices for the coal mine waste gas project at the point of the highest total recognised capacity of all of the existing devices in the period between 24 April 2014 and the application time; and
      (b) the recognised capacity of each existing device at that point.

Note: Unlike a new electricity production project or an expansion electricity production project, the carbon dioxide equivalent net abatement amount for a displacement

electricity production project generally does not take into account abatement from the conversion of the methane component of coal mine waste gas. Only the abatement from displacing electricity is taken into account. The exception to this is abatement from the conversion of methane from a conversion device that uses ventilation air methane as its primary fuel source.

16A Requirements for a ventilation air methane only project

(1) This section sets out requirements for a ventilation air methane only project.

(2) The project:
   (a) must install and operate a conversion device that uses ventilation air methane as its primary fuel source; and
   (b) must meet the requirements for being:
      (i) a new flaring or flameless oxidation project; or
      (ii) an expansion flaring or flameless oxidation project; or
      (iii) a new electricity production project; or
      (iv) an expansion electricity production project.

Division 2—Additionality requirements

17 Requirements in lieu of regulatory additionality requirement

(1) For subparagraph 27(4A)(b)(ii) of the Act, a requirement in lieu of the regulatory additionality requirement for a coal mine waste gas project (other than a displacement electricity production project or ventilation air methane only project) is that the coal mine lease holder must have no existing regulatory obligation to destroy the methane component of coal mine waste gas from the mine.

(2) For subparagraph 27(4A)(b)(ii) of the Act, a requirement in lieu of the regulatory additionality requirement for a displacement electricity production project is that the project must install and operate an electricity production device.

(3) For subparagraph 27(4A)(b)(ii) of the Act, a requirement in lieu of the regulatory additionality requirement for a ventilation air methane only project is that the project must install and operate a conversion device.

Part 4—Net abatement amounts

Division 1—Operation of this Part

18 Operation of this Part

For paragraph 106(1)(c) of the Act, this Part specifies methods for working out the carbon dioxide equivalent net abatement amount for a reporting period for a coal mine waste gas project that is an eligible offsets project.

19 Overview of gases accounted for in abatement calculations

The following table provides an overview of the greenhouse gases and emissions sources that are relevant to working out the carbon dioxide equivalent net abatement amount for a coal mine waste gas project.

Greenhouse gases and emissions sources			
Item	**Relevant emissions calculation**	**Emissions source**	**Greenhouse gas**
1	Project abatement	Methane conversion	Methane (CH_4)
2	Project emissions	Fuel consumption	Carbon dioxide (CO_2)
			Methane (CH_4)
			Nitrous oxide (N_2O)
3	Project emissions	Methane conversion	Carbon dioxide (CO_2)
			Methane (CH_4)
			Nitrous oxide (N_2O)
4	Project emissions	Unburned methane	Methane (CH_4)

Division 2—New flaring or flameless oxidation project method

20 Summary

> The carbon dioxide equivalent net abatement for a new flaring or flameless oxidation project is the abatement achieved from installing and operating flaring or flameless oxidation devices less:
>   (a)   the emissions from operating the installed flaring or flameless oxidation devices; and
>   (b)   ancillary emissions of the project; and
>   (c)   any historic abatement.

21 Net abatement amount

(1)   The carbon dioxide equivalent net abatement amount for a new flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e, is worked out:

   (a) if there has been no historic abatement—using subsection (2); or

   (b) if there has been historic abatement that is not material abatement—using subsection (3).

No historic abatement

(2)   The carbon dioxide equivalent net abatement amount for the new flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 1*):

$$A_N = A_P$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the new flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e.

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 3.

Historic abatement that is not material abatement

(3)   The carbon dioxide equivalent net abatement amount for the new flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 2*):

$$A_N = A_P - A_H \times \frac{T}{365}$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the new flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e.

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 3.

A_H means the historic abatement from the conversion of the methane component of coal mine waste gas from the mine, in tonnes CO_2-e, worked out using equation 35.

T means the total number of days in the reporting period.

(4) The project emissions abated for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 3*):

$$A_P = M_{Com} - \left(E_{MD} + E_{An} \right)$$

where:

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e.

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 4.

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 5.

E_{An} means the ancillary project emissions for the reporting period, in tonnes CO_2-e, worked out using equation 36.

(5) The volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 4*):

$$M_{Com} = \gamma \times DE \times \sum_h Q_{CH_4,h}$$

where:

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

γ means the factor for converting a quantity of methane from cubic metres to tonnes CO_2-e in section 3.21 of the NGER (Measurement) Determination.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

$Q_{CH_4,h}$ means the volume of the methane component of coal mine waste gas sent to device h as part of the project in the reporting period, in cubic metres, worked out:
   (a) using equation 12; or
   (b) using an integrated monitoring system.

h means an installed flaring or flameless oxidation device.

(6) The emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 5*):

$$E_{MD} = \sum_h \sum_j E_{MD,h,j}$$

where:

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

$E_{MD,h,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by device h as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 13.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

h means an installed flaring or flameless oxidation device.

Division 3—Expansion flaring or flameless oxidation project method

22 Summary

> The carbon dioxide equivalent net abatement amount for an expansion flaring or flameless oxidation project is the abatement achieved from installing and operating flaring or flameless oxidation devices (subject to a baseline) less:
>
> (a) the emissions from operating the installed flaring or flameless oxidation devices; and
>
> (b) ancillary emissions of the project.
>
> The abatement achievable from existing flaring or flameless oxidation devices and existing electricity production devices is used to determine a baseline for working out the abatement achieved by the project. Only abatement above this baseline is counted as abatement achieved by the project.

23 Net abatement amount

(1) The carbon dioxide equivalent net abatement amount for an expansion flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 6*):

$$A_N = A_P$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the expansion flaring or flameless oxidation project for the reporting period, in tonnes CO_2-e.

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 7.

(2) The project emissions abated for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 7*):

$$A_P = M_{Com} - \left(E_{MD} + E_{An} \right)$$

where:

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e.

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 8.

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 9.

E_{An} means the ancillary project emissions for the reporting period, in tonnes CO_2-e, worked out under equation 36.

(3) The volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 8*):

$$M_{Com} = \gamma \times \sum_t \text{Maximum}[DE \times X_{Fl,t} + X_{Gen,t}, 0]$$

where:

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

γ means the factor for converting a quantity of methane from cubic metres to tonnes CO_2-e in section 3.21 of the NGER (Measurement) Determination.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

X_{Fl,t} means the volume of the methane component of coal mine waste gas sent to installed and existing flaring or flameless oxidation devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project, in cubic metres, worked out using equation 10.

X_{Gen,t} means the volume of the methane component of coal mine waste gas sent to existing electricity production devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project, in cubic metres, worked out using equation 11.

t means a time interval in the reporting period.

(4) The emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 9*):

$$E_{MD} = \sum_h \sum_j E_{MD,h,j}$$

where:

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

E_{MD,h,j} means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by device h as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 13.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

h means an installed flaring or flameless oxidation device.

24 Volume of methane sent to conversion devices

Methane sent to flaring or flameless oxidation devices

(1) The volume of the methane component of coal mine waste gas sent to installed and existing flaring or flameless oxidation devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project, in cubic metres, is worked out using the formula (*equation 10*):

$$X_{Fl,t} = \sum_h \left(Q_{CH_4,h,t} \times O_{h,t} \right) + \sum_m \left(Q_{CH_4,m,t} \times O_{m,t} \right) - B_{CH_4,Fl}$$

where:

$X_{Fl,t}$ means the volume of the methane component of coal mine waste gas sent to installed and existing flaring or flameless oxidation devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project, in cubic metres.

$Q_{CH_4,h,t}$ (or $Q_{CH_4,m,t}$) means the volume of the methane component of coal mine waste gas sent to device h (or m) as part of the project during time interval t, in cubic metres, worked out in accordance with the monitoring requirements.

$O_{h,t}$ (or $O_{m,t}$) means a binary function which has the value 1 if device h (or m) is operating during time interval t and 0 if it is not.

Note: *Operating* is defined in section 5.

$B_{CH_4,Fl}$ means the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project during time interval t, in cubic meters, worked out using equation 37.

h means an installed flaring or flameless oxidation device.

m means an existing flaring or flameless oxidation device.

t means a time interval in the reporting period.

Methane sent to electricity production devices

(2) The volume of the methane component of coal mine waste gas sent to existing electricity production devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project, in cubic metres, is worked out using the formula (*equation 11*):

$$X_{Gen,t} = \sum_n \frac{Q_{EG,n,t} \times F_{MWh \to GJ}}{Eff_n \times EC_{CMWG}} - B_{CH_4,Gen}$$

where:

$X_{Gen,t}$ means the volume of the methane component of coal mine waste gas sent to existing electricity production devices as part of the project during time

interval t less the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project, in cubic metres.

$Q_{EG,n,t}$ means the quantity of electricity produced by device n during time interval t, in megawatt hours, worked out in accordance with the monitoring requirements.

$F_{MWh \to GJ}$ has the value of 3.6.

Note: This is the factor converting energy in megawatt hours to gigajoules.

Eff_n means the electrical efficiency of device n, which, subject to subsection (4), has:

  (a) the value specified by the manufacturer of the device in the technical specifications for the equipment, with reference to Australian Standard AS 4594.1 or equivalent; or
  (b) the default value of 0.36.

EC_{CMWG} means the energy content factor of coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

$B_{CH_4,Gen}$ means the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project during time interval t, in cubic meters, worked out using equation 38.

n means an existing electricity production device.

(3) If the value of $X_{Gen,t}$ is greater than zero for time interval t, then the value of $X_{Gen,t}$ is taken to be zero for the time interval.

(4) The same value of Eff_n must be used for that parameter for all time intervals in all reporting periods.

Division 4—General calculations for flaring or flameless oxidation methods

25 Volume of methane sent to flaring or flameless oxidation device

The volume of the methane component of coal mine waste gas sent to device h as part of the project in the reporting period, in cubic metres, is worked out using the formula (*equation 12*):

$$Q_{CH_4,h} = \sum_t (Q_{CH_4,h,t} \times O_{h,t})$$

where:

$Q_{CH_4,h}$ means the volume of the methane component of coal mine waste gas sent to device h as part of the project in the reporting period, in cubic metres.

$Q_{CH_4,h,t}$ means the volume of the methane component of coal mine waste gas sent to device h as part of the project during time interval t, in cubic metres, worked out in accordance with the monitoring requirements.

$O_{h,t}$ means a binary function which has the value 1 if device h is operating during time interval t and 0 if it is not.

Note: *Operating* is defined in section 5.

h means an installed flaring or flameless oxidation device.

26 Emissions from a flaring or flameless oxidation device

The emissions of gas type j released from the conversion of the methane component of coal mine waste gas by flaring or flameless oxidation device h as part of the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 13*):

$$E_{MD,h,j} = \frac{Q_{CH4,h} \times EC_{CMWG} \times EF_j}{1000} \times DE$$

where:

$E_{MD,h,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by device h as part of the project in the reporting period, in tonnes CO_2-e.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

$Q_{CH_4,h}$ means the volume of the methane component of coal mine waste gas sent to device h as part of the project in the reporting period, in cubic metres, worked out:
  (a) for a new flaring or flameless oxidation project:
      (i) using equation 12; or
      (ii) using an integrated monitoring system; or
  (b) for an expansion flaring or flameless oxidation project—using equation 12.

EC_{CMWG} means the energy content factor of coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

EF_j means the emission factor for gas type j released from the conversion of the methane component of coal mine waste gas that is captured for conversion, in kilograms of CO_2-e per gigajoule, worked out in accordance with the monitoring requirements.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

h means an installed flaring or flameless oxidation device.

Division 5—New electricity production project method

27 Summary

> The carbon dioxide equivalent net abatement amount for a new electricity production project is the abatement achieved from installing and operating electricity production devices less:
>   (a) the emissions from operating the installed electricity production devices; and
>   (b) ancillary emissions of the project; and
>   (c) certain parameters associated with electricity production; and
>   (d) any historic abatement.

28 Net abatement amount

(1) The carbon dioxide equivalent net abatement amount for a new electricity production project for the reporting period, in tonnes CO_2-e, is worked out:
  (a) if there has been no historic abatement—using subsection (2); or
  (b) if there has been historic abatement that is not material abatement—using subsection (3).

No historic abatement

(2) The carbon dioxide equivalent net abatement amount for the new electricity production project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 14*):

$$A_N = A_P + A_G$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the new electricity production project, for the reporting period, in tonnes CO_2-e.

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 16.

A_G means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO_2-e, worked out using equation 28.

Historic abatement that is not material abatement

(3) The carbon dioxide equivalent net abatement amount for the new electricity production project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 15*):

$$A_N = A_P + A_G - A_H \times \frac{T}{365}$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the new electricity production project for the reporting period, in tonnes CO_2-e.

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 16.

A_G means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO_2-e, worked out using equation 28.

A_H means the historic abatement from the conversion of the methane component of coal mine waste gas from the mine, in tonnes CO_2-e, worked out using equation 35.

T means the total number of days in the reporting period.

(4) The project emissions abated for the reporting period, in tonnes CO_2-e, is worked out using the formula (**equation 16**):

$$A_P = M_{Com} - \left(E_{MD} + E_{An} \right)$$

where:

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e.

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 17.

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 18.

E_{An} means the ancillary project emissions for the reporting period, in tonnes CO_2-e, worked out using equation 36.

(5) The volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (**equation 17**):

$$M_{Com} = \gamma \times \sum_i Q_{CH_4,i} + \gamma \times DE \times \sum_h Q_{CH_4,h}$$

where:

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

γ means the factor for converting a quantity of methane from cubic metres to tonnes CO_2-e in section 3.21 of the NGER (Measurement) Determination.

$Q_{CH_4,i}$ means the volume of the methane component of coal mine waste gas sent to electricity production device i as part of the project in the reporting period, in cubic metres, worked out:
  (a) using equation 26; or
  (b) using an integrated monitoring system.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

$Q_{CH_4,h}$ means the volume of the methane component of coal mine waste gas sent to flaring or flameless oxidation device h as part of the project in the reporting period, in cubic metres, worked out:

   (a) using equation 12; or

   (b) using an integrated monitoring system.

i means an installed electricity production device.

h means an installed flaring or flameless oxidation device.

(6)   The emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 18*):

$$E_{MD} = \sum_i \sum_j E_{MD,i,j} + \sum_h \sum_j E_{MD,h,j}$$

where:

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

$E_{MD,i,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by electricity production device i as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 27.

$E_{MD,h,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by flaring or flameless oxidation device h as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 13.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

i means an installed electricity production device.

h means an installed flaring or flameless oxidation device.

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

Division 6—Expansion electricity production project method

29 Summary

> The carbon dioxide equivalent net abatement amount for an expansion electricity production project is the abatement achieved from installing and operating electricity production devices (subject to a baseline) less:
>
> > (a) the emissions from operating the installed electricity production devices; and
> >
> > (b) ancillary emissions of the project; and
> >
> > (c) certain parameters associated with electricity production.
>
> The abatement achievable from existing flaring or flameless oxidation devices and existing electricity production devices is used to determine a baseline for working out the abatement achieved by the project. Only abatement above this baseline is counted as abatement achieved by the project.

30 Net abatement amount

(1) The carbon dioxide equivalent net abatement amount for an expansion electricity production project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 19*):

$$A_N = A_P + A_G$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the expansion electricity production project for the reporting period, in tonnes CO_2-e.

A_P means the project emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 20.

A_G means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO_2-e, worked out using equation 28.

(2) The project emissions abated for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 20*):

$$A_P = M_{Com} - \left(E_{MD} + E_{An} \right)$$

where:

A_p means the project emissions abated for the reporting period, in tonnes CO_2-e.

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 21.

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, worked out using equation 22.

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

E_{An} means the ancillary project emissions for the reporting period, in tonnes CO_2-e, worked out using equation 36.

(3) The volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 21*):

$$M_{Com} = \gamma \times \sum_{t} \text{Maximum}\left[DE \times X_{Fl,t} + X_{Gen,t}, 0\right]$$

where:

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

γ means the factor for converting a quantity of methane from cubic metres to tonnes CO_2-e in section 3.21 of the NGER (Measurement) Determination.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

$X_{Fl,t}$ means the volume of the methane component of coal mine waste gas sent to installed and existing flaring or flameless oxidation devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project, in cubic metres, worked out using equation 23.

$X_{Gen,t}$ means the volume of the methane component of coal mine waste gas sent to installed and existing electricity production devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project, in cubic metres, worked out using equation 24.

t means a time interval in the reporting period.

(4) The emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 22*):

$$E_{MD} = \sum_{i} \sum_{j} E_{MD,i,j} + \sum_{h} \sum_{j} E_{MD,h,j}$$

where:

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e.

$E_{MD,i,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by electricity production device i as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 27.

$E_{MD,h,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by flaring or flameless oxidation device h as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 13.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

i means an installed electricity production device.

h means an installed flaring or flameless oxidation device.

31 Volume of methane sent to conversion devices

Methane sent to flaring or flameless oxidation devices

(1) The volume of the methane component of coal mine waste gas sent to installed and existing flaring or flameless oxidation devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project, in cubic metres, is worked out using the formula (*equation 23*):

$$X_{Fl,t} = \sum_m (Q_{CH_4,m,t} \times O_{m,t}) + \sum_h (Q_{CH_4,h,t} \times O_{h,t}) - B_{CH_4,Fl}$$

where:

$X_{Fl,t}$ means the volume of the methane component of coal mine waste gas sent to installed and existing flaring or flameless oxidation devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project, in cubic metres.

$Q_{CH_4,m,t}$ means the volume of the methane component of coal mine waste gas sent to device m as part of the project during time interval t, in cubic metres, worked out in accordance with the monitoring requirements.

$O_{m,t}$ means a binary function which has the value 1 if device m is operating during time interval t and 0 if it is not.

Note: *Operating* is defined in section 5.

$Q_{CH_4,h,t}$ means the volume of the methane component of coal mine waste gas sent to flaring or flameless oxidation device h as part of the project during time interval t, in cubic metres, worked out in accordance with the monitoring requirements.

$O_{h,t}$ means a binary function which has the value 1 if device h is operating during time interval t and 0 if it is not.

Note: *Operating* is defined in section 5.

$B_{CH_4,Fl}$ means the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project during time interval t, in cubic meters, worked out using equation 37.

m means an existing flaring or flameless oxidation device.

h means an installed flaring or flameless oxidation device.

t means a time interval in the reporting period.

Methane sent to electricity production devices

(3) The volume of the methane component of coal mine waste gas sent to installed and existing electricity production devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project, in cubic metres, is worked out using the formula (*equation 24*):

$$X_{Gen,t} = \sum_i \frac{Q_{EG,i,t} \times F_{MWh \to GJ}}{Eff_i \times EC_{CMWG}} + \sum_n \frac{Q_{EG,n,t} \times F_{MWh \to GJ}}{Eff_n \times EC_{CMWG}} - B_{CH_4,Gen}$$

where:

$X_{Gen,t}$ means the volume of the methane component of coal mine waste gas sent to installed and existing electricity production devices as part of the project during time interval t less the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project, in cubic metres.

$Q_{EG,i,t}$ (or $Q_{EG,n,t}$) means the quantity of electricity produced by device i (or n) during time interval t, in megawatt hours, worked out in accordance with the monitoring requirements.

$F_{MWh \to GJ}$ has the value of 3.6.

Note: This is the factor converting energy in megawatt hours to gigajoules.

Eff_i (or Eff_n) means the electrical efficiency of device i (or n), which, subject to subsection (4), has:
   (a) the value specified by the manufacturer of the device in the technical specifications for the equipment, with reference to Australian Standard AS 4594.1 or equivalent; or
   (b) the default value of 0.36.

EC_{CMWG} means the energy content factor of coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

$B_{CH_4,Gen}$ means the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project during time interval t, in cubic meters, worked out using equation 38.

i means an installed electricity production device.

n means an existing electricity production device.

(4) The same value of Eff_i and Eff_n must be used for that parameter for all time intervals in all reporting periods.

Division 7—Displacement electricity production project method

32 Summary

The carbon dioxide equivalent net abatement amount for a displacement electricity production project is the abatement achieved from installing and operating electricity production devices (subject to a baseline) less certain parameters associated with electricity production. However, unlike a new electricity production project or an expansion electricity production project, the carbon dioxide equivalent net abatement amount for a displacement electricity production project generally does not take into account abatement from the conversion of the methane component of coal mine waste gas. Only the abatement from displacing electricity is taken into account. The exception to this is abatement from the conversion of methane from a conversion device that uses ventilation air methane as its primary fuel source where no such device was previously installed.

The abatement achievable from existing electricity production devices (if any) is used to determine a baseline for working out the abatement achieved by the project. Only abatement above this baseline is counted as abatement achieved by the project.

33 Net abatement amount

(1) The carbon dioxide equivalent net abatement amount for a displacement electricity production project for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 25*):

$$A_N = A_G + A_{PVAM}$$

where:

A_N means the carbon dioxide equivalent net abatement amount for the displacement electricity production project for the reporting period, in tonnes CO_2-e.

A_G means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO_2-e, worked out using equation 28.

A_{PVAM} means:
   (a) if a conversion device that has been installed as part of the project uses ventilation air methane as its primary fuel source where previously no such devices existed—the project ventilation air methane emissions abated for the reporting period, in tonnes CO_2-e, worked out using equation 25A.
   (b) otherwise—zero.

(2) The project ventilation air methane emissions abated for the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 25A*):

$$A_{PVAM} = M_{Com} - (E_{MD} + E_{An})$$

where:

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

A_{PVAM} means the project ventilation air methane emissions abated for the reporting period, in tonnes CO_2-e.

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, by conversion devices that use ventilation air methane as their primary fuel source worked out using equation 25B.

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, by conversion devices that use ventilation air methane as their primary fuel source worked out using equation 25C.

E_{An} means the ancillary project emissions for the reporting period, in tonnes CO_2-e, worked out using equation 36.

(3) The volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, by conversion devices that use ventilation air methane as their primary fuel source is worked out using the formula (*equation 25B*):

$$M_{Com} = \gamma \times \sum_{k} Q_{CH_4,k} + \gamma \times DE \times \sum_{l} Q_{CH_4,l}$$

where:

M_{Com} means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, by conversion devices that use ventilation air methane as their primary fuel source.

γ means the factor for converting a quantity of methane from cubic metres to tonnes CO_2-e in section 3.21 of the NGER (Measurement) Determination.

$Q_{CH_4,k}$ means the volume of the methane component of coal mine waste gas sent to electricity production device k as part of the project in the reporting period, in cubic metres, worked out:
  (a) using equation 26; or
  (b) using an integrated monitoring system.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

$Q_{CH_4,l}$ means the volume of the methane component of coal mine waste gas sent to flameless oxidation device l as part of the project in the reporting period, in cubic metres, worked out:
  (a) using equation 12; or
  (b) using an integrated monitoring system.

k means an installed electricity production device that uses ventilation air methane as its primary fuel source.

l means an installed flameless oxidation device that uses ventilation air methane as its primary fuel source.

(4) The emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, by conversion devices that use ventilation air methane as their primary fuel source is worked out using the formula (*equation 25C*):

$$E_{MD} = \sum_{k} \sum_{j} E_{MD,k,j} + \sum_{l} \sum_{j} E_{MD,l,j}$$

where:

E_{MD} means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO_2-e, by conversion devices that use ventilation air methane as their primary fuel source.

$E_{MD,k,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by electricity production device k as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 27.

$E_{MD,l,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by flameless oxidation device l as part of the project in the reporting period, in tonnes CO_2-e, worked out using equation 13.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

k means an installed electricity production device that uses ventilation air methane as its primary fuel source.

l means an installed flameless oxidation device that uses ventilation air methane as its primary fuel source.

Division 7A—Ventilation air methane only project method

33A Summary

The carbon dioxide equivalent net abatement for a ventilation air methane only project is the abatement calculated for devices using only ventilation air methane. This is worked out using the other methods in this Part that would otherwise apply to the project but only taking into account conversion devices that use ventilation air methane as their primary fuel source.

33B Net abatement amount

(1) The carbon dioxide equivalent net abatement amount for a ventilation air methane only project for the reporting period, in tonnes CO_2-e, is worked out:

    (a) as if the project was:

        (i) a new flaring or flameless oxidation project covered by the method in Division 2 of this Part; or

        (ii) an expansion flaring or flameless oxidation project covered by the method in Division 3 of this Part; or

        (iii) a new electricity production project covered by the method in Division 5 of this Part; or

        (iv) an expansion electricity production project covered by the method in Division 6 of this Part; and

    (b) only taking into account conversion devices that use ventilation air methane as their primary fuel source.

Division 8—General calculations for electricity production methods

34 Volume of methane sent to conversion device

(1) The volume of the methane component of coal mine waste gas sent to device i as part of the project in the reporting period, in cubic metres, is worked out using the formula (*equation 26*):

$$Q_{CH_4,i} = \frac{Q_{EG,i} \times F_{MWh \to GJ}}{Eff_i \times EC_{CMWG}}$$

where:

$Q_{CH_4,i}$ means the volume of the methane component of coal mine waste gas sent to device i as part of the project in the reporting period, in cubic metres.

$Q_{EG,i}$ means the quantity of electricity produced by device i in the reporting period, in megawatt hours, worked out in accordance with the monitoring requirements.

$F_{MWh \to GJ}$ has the value of 3.6.

Note: This is the factor converting energy in megawatt hours to gigajoules.

Eff_i means the electrical efficiency of device i, which, subject to subsection (2), has:

   (a) the value specified by the manufacturer of the device in the technical specifications for the equipment, with reference to Australian Standard AS 4594.1 or equivalent; or
   (b) the default value of 0.36.

EC_{CMWG} means the energy content factor of coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

i means an installed electricity production device.

(2) The same value of Eff_i must be used for that parameter for all time intervals in all reporting periods.

35 Emissions

The emissions of gas type j released from the conversion of the methane component of coal mine waste gas by device i as part of the project in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 27*):

$$E_{MD,i,j} = \frac{Q_{CH_4,i} \times EC_{CMWG} \times EF_j}{1000}$$

where:

$E_{MD,i,j}$ means the emissions of gas type j released from the conversion of the methane component of coal mine waste gas by device i as part of the project in the reporting period, in tonnes CO_2-e.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

$Q_{CH_4,i}$ means the volume of the methane component of coal mine waste gas sent to device i as part of the project in the reporting period, in cubic metres, worked out:

   (a) for a new electricity production project:
      (i) using equation 26; or
      (ii) using an integrated monitoring system; or
   (b) for an expansion electricity production project—using equation 26.

EC_{CMWG} means the energy content factor of the coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

EF_j means the emission factor for gas type j released from the conversion of the methane component of coal mine waste gas that is captured for conversion, in kilograms of CO_2-e per gigajoule, worked out in accordance with the monitoring requirements.

Note: Gas type j is carbon dioxide, methane or nitrous oxide.

i means an installed electricity production device.

36 Displaced electricity emissions

(1) The displaced electricity emissions from electricity production in the reporting period, in tonnes CO_2-e, is worked out using the formula (*equation 28*):

$$A_G = NEG_P \times EF_{Elec}$$

where:

A_G means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO_2-e.

NEG_P means the net amount of electricity produced by the conversion of coal mine waste gas by installed and existing electricity production devices as part of the project in the reporting period, in megawatt hours, worked out using equation 29.

EF_{Elec} means:

   (a) for electricity supplied to an electricity grid that is a grid in relation to which the NGA Factors document, in force on the declaration day, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours); or

   (b) for electricity supplied otherwise than in paragraph (a) (whether to a grid or not):

      (i) if the receiver of the electricity is able to provide an emissions factor that reflects the emissions intensity of the displaced electricity (worked out in accordance with subsection (3)) and is applicable on the declaration day—that factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours); or

      (ii) otherwise—the emissions factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours), for

off-grid electricity included in the NGA Factors document in force on the declaration day; or

  (c) for electricity produced for the purposes of the mine or the project proponent:

   (i) if the project proponent is able to provide an emissions factor that reflects the emissions intensity of the displaced electricity (worked out in accordance with subsection (3)) and is applicable on the declaration day—that factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours); or

   (ii) otherwise—the emissions factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours), for off-grid electricity included in the NGA Factors document in force on the declaration day.

(2) For the definition of EF_{Elec} in subsection (1), *displaced electricity* is electricity that would have been produced for the receiver, the mine or the project proponent (as the case may be) if electricity had not instead been produced as part of the project.

(3) For subparagraphs (b)(i) and (c)(i) of the definition of EF_{Elec} in subsection (1), the emissions factor must:

  (a) be worked out on a sent-out basis; and

  (b) be worked out using a measurement or estimation approach that is consistent with the NGER (Measurement) Determination; and

  (c) if the displaced electricity would have been produced from more than one source—reflect the weighted average of the emissions intensity applicable on the declaration day of all the sources.

(4) The net amount of electricity produced by the conversion of coal mine waste gas by installed and existing electricity production devices as part of the project (*NEG$_P$*) in the reporting period, in megawatt hours, is worked out using the formula (*equation 29*):

$$NEG_P = TEG - \left(FSL + AUX + \left(DEG \times \left(1 - MLF \right) \right) \right)$$

where:

NEG$_P$ means the net amount of electricity produced by the conversion of coal mine waste gas by installed and existing electricity production devices as part of the project in the reporting period, in megawatt hours.

TEG means the total amount of electricity produced as part of the project in the reporting period, in megawatt hours, worked out using equation 30.

FSL means the amount of electricity produced using energy sources that are not coal mine waste gas by installed and existing electricity production devices as part of the project in the reporting period, in megawatt hours, worked out using equation 32.

AUX means the auxiliary loss for the project in the reporting period, in megawatt hours, worked out in accordance with the monitoring requirements.

DEG means the amount of electricity transmitted or distributed as part of the project in the reporting period (other than electricity used by installed and existing electricity production devices as part of the project or the local distribution network), in megawatt hours, worked out in accordance with the monitoring requirements.

MLF means the marginal loss factor for the project which is:
  (a) if the project is part of the national electricity market:
      (i) the factor published by the Australian Energy Market Operator Limited (ACN 072 010 327) that was valid for the most number of days in the reporting period; or
      (ii) if more than one factor satisfies subparagraph (i) in the reporting period—the average of all the factors that satisfy subparagraph (i) in the reporting period; or
  (b) in any other case:
      (i) the factor determined by the relevant authority of the State or Territory in which the device is located that was valid for the most number of days in the reporting period; or
      (ii) if more than one factor satisfies subparagraph (i) in the reporting period—the average of all the factors that satisfy subparagraph (i) in the reporting period.

(5) The following electricity is disregarded for the purposes of equation 29:
  (a) electricity that was not used to directly meet demand for electricity that would otherwise be supplied from:
      (i) an electricity grid (such as the grid that constitutes the national electricity market); or
      (ii) an electricity generator supplying electricity through a dedicated or shared power line.
  (b) electricity produced by a device where an approval to use coal mine waste gas as an energy source:
      (i) is required by a Commonwealth, State, Territory or local government authority; and
      (ii) the nominated person for the device is unable to give evidence of that approval.

(5A) For the purposes of the definition of FSL in subsection (4), energy sources that are not coal mine waste gas include:
  (a) coal mine waste gas sourced from an underground coal mine that:
      (i) is not part of the project; and
      (ii) does not transport the coal mine waste gas to the project through a dedicated pipe; and
  (b) coal mine waste gas sourced from an underground coal mine that:
      (i) is not part of the project; and
      (ii) could not be part of a coal mine waste gas project to which this determination applies.

(6) If the amount calculated using equation 29 exceeds 1 megawatt hour and results in an amount that is not a whole megawatt hour, the amount must be rounded down to the nearest megawatt hour.

37 Electricity produced by project

(1) The total amount of electricity produced as part of the project in the reporting period, in megawatt hours, is worked out using the formula (*equation 30*):

$$\text{TEG} = \sum_{t} \text{Maximum}[X_t, 0]$$

where:

TEG means the total amount of electricity produced as part of the project in the reporting period, in megawatt hours.

X_t means the amount of electricity produced by installed and existing electricity production devices as part of the project during time interval t less the baseline for electricity production for the project, in megawatt hours, worked out using equation 31.

(2) The amount of electricity produced by installed and existing electricity production devices as part of the project during time interval t less the baseline for electricity production for the project, in megawatt hours, is worked out using the formula (*equation 31*):

$$X_t = \sum_{i} Q_{EG,i,t} + \sum_{n} Q_{EG,n,t} - B_{EG}$$

where:

X_t means the amount of electricity produced by installed and existing electricity production devices as part of the project during time interval t less the baseline for electricity production for the project, in megawatt hours.

$Q_{EG,i,t}$ (or $Q_{EG,n,t}$) means the quantity of electricity produced by device i (or n) during time interval t in the reporting period, in megawatt hours, worked out in accordance with the monitoring requirements.

B_{EG} means the baseline for electricity production for the project, in megawatt hours, worked out using equation 34.

i means an installed electricity production device.

n means an existing electricity production device.

Note: For a new electricity production project there will be no device m and therefore no B_{EG}. This may also be the case for a displacement electricity production project.

38 Electricity produced by using fuel other than coal mine waste gas

(1) The amount of electricity produced using energy sources that are not coal mine waste gas by installed and existing electricity production devices as part of the project in the reporting period, in megawatt hours, is worked out using the formula (*equation 32*):

$$\text{FSL} = F_{GJ \rightarrow MWh} \times \sum_{f} Z_f$$

where:

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

FSL means the amount of electricity produced using energy sources that are not coal mine waste gas by installed and existing electricity production devices as part of the project in the reporting period, in megawatt hours.

$F_{GJ \rightarrow MWh}$ has the value of $^1/_{3.6}$.

Note: This is the factor converting energy in gigajoules to megawatt hours.

Z_f means the energy content of fuel type f that is not coal mine waste gas consumed in the reporting period, in gigajoules, worked out using equation 33.

(2) The energy content of fuel type f that is not coal mine waste gas consumed in the reporting period, in gigajoules, is worked out using the formula (*equation 33*):

$$Z_f = Q_{FSL,f} \times EC_{FSL,f}$$

where:

Z_f means the energy content of fuel type f that is not coal mine waste gas consumed in the reporting period, in gigajoules.

$Q_{FSL,f}$ means the quantity of fuel type f consumed by installed and existing electricity production devices as part of the project in the reporting period, in appropriate units, worked out in accordance with the monitoring requirements.

$EC_{FSL,f}$ means the energy content factor of fuel type f, in appropriate units, worked out in accordance with the monitoring requirements.

Note: *Energy* includes the fuels and energy commodities listed in Schedule 1 to the *NGER Regulations 2008*. See the definition of *energy* in section 7 of the *National Greenhouse and Energy Reporting Act 200*7 and regulation 2.03 of the *NGER Regulations 2008*.

39 Baseline for electricity production

(1) The baseline for electricity production for the project, in megawatt hours, is worked out using the formula (*equation 34*):

$$B_{EG} = \sum_n (Q_{Gen,Cap,n} \times AF_{Gen,n})$$

where:

B_{EG} means the baseline for electricity production for the project, in megawatt hours.

$Q_{Gen,Cap,n}$ means the recognised capacity of device n during time interval t, in megawatt hours, worked out at the application time in accordance with subsection (3).

$AF_{Gen,n}$ means the annual availability factor of device n which, subject to subsection (4) has:
   (a) the value calculated in accordance with the standard maintenance cycle specified by the manufacturer; or
   (b) the default value of 1.

n means an existing electricity production device.

(2) The summation over n is to be performed over all existing electricity production devices at the point of the highest total recognised capacity of all of the existing devices in the period between 24 April 2014 and the application time.

Note: The summation over m results in a fixed quantity and is the same for all equal time intervals.

(3) The recognised capacity of device n during time interval t is calculated by multiplying the manufacturer's specifications for the maximum electricity capable of being produced by operating the device per unit time, with the result expressed in megawatt hours.

(4) The same value of $AF_{Gen,n}$ must be used for that parameter for all time intervals in all reporting periods.

Division 9—General calculations for flaring or flameless oxidation and electricity production methods

40 Historic abatement

The ***historic abatement*** from the conversion of the methane component of coal mine waste gas from the mine, in tonnes CO_2-e, is worked out using the formula (***equation 35***):

$$A_H = \left(\gamma \times \frac{1000}{EC_{CWMG} \times \left(EF_{CO_2} + EF_{CH_4} + EF_{N_2O}\right) \times DE} - 1 \right) \times E_H$$

where:

A_H means the historic abatement from the conversion of the methane component of coal mine waste gas from the mine, in tonnes CO_2-e.

γ means the factor for converting a quantity of methane from cubic metres to tonnes CO_2-e in section 3.21 of the NGER (Measurement) Determination.

EC_{CMWG} means the energy content factor of coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

$EF_{CO_2}, EF_{CH_4}, EF_{N_2O}$ mean the emission factors for carbon dioxide, methane and nitrous oxide (respectively) released due to the combustion of coal mine waste gas in item 19 of Schedule 1 to the NGER (Measurement) Determination, in kilograms of CO_2-e per gigajoule.

DE means the factor for OF_{if} in section 3.14 of the NGER (Measurement) Determination.

E_H means the greater of:
   (a) the highest total emissions resulting from the combustion of the methane component of coal mine waste gas from the mine as reported in any NGER report relating to the mine covering an NGER reporting year before the application time, in tonnes CO_2-e (adjusted for any differences in CO_2-e between the NGER report and the end of the reporting period or the application time); and
   (b) the total emissions released as a result of the combustion of the methane component of coal mine waste gas from the mine, in tonnes CO_2-e (adjusted for any differences in CO_2-e between the NGER reporting year and the end of the reporting period or the application time), and determined in accordance with reporting requirements under the *National Greenhouse and Energy Reporting Act 2007* in the period between:
      (i) the start of the NGER reporting year during which the application for the declaration of the project as an eligible offsets project is made; and
      (ii) the application time.

Note 1:   If two or more collocated mines are part of the project, the NGER reports or calculation of emissions must include the emissions from all mines that are part of the project.

Note 2:   If the result of equation 35 is greater than 5 000 tonnes CO_2-e, there has been material abatement (see section 7) and the project cannot be a new flaring or flameless oxidation project or a new electricity production project.

41 Ancillary project emissions

(1) The ancillary project emissions for the reporting project, in tonnes CO_2-e, is worked out using the formula (*equation 36*):

$$E_{An} = (Q_{Elec} \times EF_{Elec}) + \sum_f \sum_j \frac{Q_{SE,f} \times EC_f \times EF_{f,j}}{1000}$$

where:

E_{An} means the ancillary project emissions for the reporting period, in tonnes CO_2-e.

Q_{Elec} means the quantity of electricity consumed from the operation of the project that is not produced by the project in the reporting period (if any), in megawatt hours, worked out in accordance with the monitoring requirements.

EF_{Elec} means:
  (a) for electricity obtained from an electricity grid that is a grid in relation to which the NGA Factors document, in force on the declaration day, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours); or
  (b) for electricity obtained otherwise (whether from a grid or not):
     (i) if the supplier of the electricity is able to provide an emissions factor that reflects the emissions intensity of the electricity (worked out in accordance with subsection (2)) and is applicable on the declaration day—that factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours); or
     (ii) otherwise—the emissions factor, in kilograms CO_2-e per kilowatt hour (or its equivalent of tonnes CO_2-e per megawatt hours), for off-grid electricity included in the NGA Factors document in force on the declaration day.

$Q_{SE,f}$ means the quantity of additional fuel type f that is not coal mine waste gas combusted for stationary energy purposes from the operation of the project in the reporting period (if any), in units appropriate for the application of the energy content factor (*EC_f*), worked out in accordance with the monitoring requirements.

EC_f means the energy content factor of fuel type f combusted for stationary energy purposes in Part 1, 2 or 3 (as appropriate) of Schedule 1 to the NGER (Measurement) Determination, in gigajoules per kilolitre (or other appropriate units).

$EF_{f,j}$ means the emission factor for each gas type j released due to the combustion of fuel type f for stationary energy purposes in Part 1, 2 or 3 (as appropriate) of Schedule 1 to the NGER (Measurement) Determination, in kilograms of CO_2-e per gigajoule of fuel type f.

Note: The emission factor incorporates relevant oxidisation factors for the gas type.

(2) For subparagraph (b)(i) of the definition of EF_{Elec} in subsection (1), the emissions factor must be worked out:

    (a) on a sent-out basis; and

    (b) using a measurement or estimation approach that is consistent with the NGER (Measurement) Determination.

(3) In working out the ancillary project emissions, the project proponent must include any emissions that are reasonably associated with any energy required for the collection, transport and conversion of the coal mine waste gas converted as part of the project.

(4) This includes any emissions resulting from the combustion of fossil fuel or the consumption of electricity purchased from a State, Territory or electricity grid by the following:

    (a) compressors, blowers or coal mine waste gas gathering systems;

    (b) transporting coal mine waste gas for the purposes of converting it as part of the project.

(5) However, emissions relating to equipment installed for the safety of the mine are not ancillary project emissions.

(6) If the project is an expansion electricity production project or expansion flaring or flameless oxidation project, in working out the ancillary project emissions for the project the proponent must include the proportion of emissions associated with the operation of the following:

    (a) installed flaring or flameless oxidation devices;

    (b) installed electricity production devices;

    (c) supporting equipment for those devices.

Note: The proportion of emissions associated with existing devices are not ancillary project emissions. This includes emissions from devices mentioned in paragraph (c) to the extent those emissions are associated with the operation of existing devices.

(7) If the project is a displacement electricity production project, in working out the ancillary project emissions for the project the proponent must include the proportion of emissions associated with the operation of the following:

    (a) installed flaring or flameless oxidation devices that use ventilation air methane as their primary fuel source;

    (b) installed electricity production devices that use ventilation air methane as their primary fuel source;

    (c) supporting equipment for those devices.

42 Baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices

(1) The baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project during time interval t, in cubic meters, is worked out using the formula (*equation 37*):

$$B_{CH_4,Fl} = \sum_m (Q_{Fl,Cap,m} \times AF_{Fl,m})$$

where:

$B_{CH_4,Fl}$ means the baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices for the project during time interval t, in cubic meters.

$Q_{Fl,Cap,m}$ means the recognised capacity of device m during time interval t, in cubic metres, worked out at the application time in accordance with subsection (3).

$AF_{Fl,m}$ means the annual availability factor of device m which, subject to subsection (4), has:
  (a) the value calculated in accordance with the standard maintenance cycle specified by the manufacturer; or
  (b) the default value of 1.

m means an existing flaring or flameless oxidation device.

(2) The summation over m is to be performed over all existing flaring or flameless oxidation devices at the point of the highest total recognised capacity of all of the existing devices in the period between 24 April 2014 and the application time.

Note: The summation over m results in a fixed quantity and is the same for all equal time intervals.

(3) The recognised capacity of device m during time interval t is calculated by:
  (a) multiplying the manufacturer's specifications for the maximum energy released per unit time by the time interval in appropriate units, with the result expressed in gigajoules; and
  (b) converting the result of paragraph (a) to cubic metres by multiplying it by the factor 37.7×10^{-3} gigajoules per cubic metre.

(4) The same value of $AF_{Fl,m}$ must be used for that parameter for all time intervals in all reporting periods.

43 Baseline for the methane component of coal mine waste gas sent to electricity production devices

(1) The baseline for the methane component of coal mine waste gas sent to electricity production devices for the project during time interval t, in cubic meters, is worked out using the formula (*equation 38*):

$$B_{CH_4,Gen} = \sum_n \left(\frac{Q_{Gen,Cap,n} \times F_{MWh \rightarrow GJ}}{Eff_n \times EC_{CMWG}} \times AF_{Gen,n} \right)$$

where:

$B_{CH_4,Gen}$ means the baseline for the methane component of coal mine waste gas sent to electricity production devices for the project during time interval t, in cubic meters.

$Q_{Gen,Cap,n}$ means the recognised capacity of device n during time interval t, in megawatt hours, worked out at the application time in accordance with subsection (3).

$F_{MWh \rightarrow GJ}$ has the value of 3.6.

Note: This is the factor converting energy in megawatt hours to gigajoules.

Eff_n means the electrical efficiency of device n, which, subject to subsection (4), has:

(a) the value specified by the manufacturer of the device in the technical specifications for the equipment, with reference to Australian Standard AS 4594.1 or equivalent; or

(b) the default value of 0.36.

EC_{CMWG} means the energy content factor of coal mine waste gas, in gigajoules per cubic metre, worked out in accordance with the monitoring requirements.

$AF_{Gen,n}$ means the annual availability factor of device n which, subject to subsection (4), has:

(a) the value calculated in accordance with the standard maintenance cycle specified by the manufacturer; or

(b) the default value of 1.

n means an existing electricity production device.

(2) The summation over n is to be performed over all existing electricity production devices at the point of the highest total recognised capacity of all of the existing devices in the period between 24 April 2014 and the application time.

Note: The summation over n results in a fixed quantity and is the same for all equal time intervals.

(3) The recognised capacity of device n during time interval t is calculated by multiplying the manufacturer's specifications for the maximum electricity capable of being produced by operating the device per unit time, with the result expressed in megawatt hours.

(4) The same value of $AF_{Gen,n}$ and Eff_n must be used for that parameter for all time intervals in all reporting periods.

[25] Subsection 47(1) (table)

Repeal items 1 to 13, substitute:

| 1 | $Q_{CH_4,h}$, $Q_{CH_4,i}$, $Q_{CH_4,k}$ or $Q_{CH_4,l}$ if worked out using an integrated monitoring system | Volume of the methane component of coal mine waste gas sent to device h, i, k or l as part of the project in the reporting period | m^3 | Estimated using an integrated monitoring system in accordance with:
(a) Subdivision 2.3.3.2 of the NGER (Measurement) Determination; and
(b) the AAA criterion in Division 2.3.6 of the NGER (Measurement) Determination; and
(c) subsections (2) and (3).
Frequency:
(d) the volume of coal mine waste gas sent to device h, i, k or l must be monitored at a frequency of at least once every 15 minutes, but not more frequent than once per second; and |

					(e) the fraction of the volume of coal mine waste gas that is methane must be monitored at a frequency of at least once a month

2	$Q_{CH_4,h,t}$ (or $Q_{CH_4,m,t}$)	Volume of the methane component of coal mine waste gas sent to device h (or m) as part of the project during time interval t	m^3		Estimated in accordance with:
					(a) Subdivision 2.3.3.2 of the NGER (Measurement) Determination; and
					(b) the AAA criterion in Division 2.3.6 of the NGER (Measurement) Determination; and
					(c) subsections (2) and (3).
					Frequency:
					(d) the volume of coal mine waste gas sent to device h (or m) must be monitored:
					    (i) at a frequency of at least once every 15 minutes, but not more frequent than once per second; and
					    (ii) at the same frequency as $O_{h,t}$ (or $O_{m,t}$); and
					(e) the fraction of the volume of coal mine waste gas that is methane must be monitored at a frequency of at least once a month

3	$Q_{EG,i}$	Quantity of electricity produced by device i in the reporting period	MWh		Estimated in accordance with Part 6.1 of the NGER (Measurement) Determination. Frequency—continuous
4	$Q_{EG,i,t}$ (or $Q_{EG,n,t}$)	Quantity of electricity produced by device i (or device n) during time interval t	MWh		Estimated in accordance with Part 6.1 of the NGER (Measurement) Determination. Frequency—continuous
5	$O_{h,t}$ (or $O_{m,t}$)	Binary function which has the value 1 if device h (or m) is operating during time interval t and 0 if it is not	N/A		Whether the device is operating is determined in accordance with: (a) for flaring devices—the manufacturer's specifications for the device at the commencement of the project and subsections (4) to (6); or (b) for electricity production or flameless oxidation devices—the manufacturer's specifications for the device at the commencement of the project; or Frequency—at least once every 15 minutes, but not more frequent than once per second, and at the same frequency as $Q_{CH_4,h,t}$ (or $Q_{CH_4,m,t}$)
6	EF_j (for equation 13)	Emission factor for gas type j	kg CO_2-e/GJ		Worked out:

| | | | | released from the conversion of the methane component of coal mine waste gas that is captured for conversion | (a) where j is methane—using the emission factor for methane released from the combustion of the methane component of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination; and |

released from the conversion of the methane component of coal mine waste gas that is captured for conversion

(a) where j is methane—using the emission factor for methane released from the combustion of the methane component of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination; and

(b) where j is nitrous oxide—using the emission factor for nitrous oxide released from the combustion of the methane component of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination; and

(c) where j is carbon dioxide—using one of the following options:
  (i) using the emission factor for carbon dioxide released from the combustion of the methane component of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination;
  (ii) in accordance with section 2.22 of the NGER (Measurement) Determination;
  (iii) in accordance with section 2.26 of the NGER (Measurement) Determination.

However, the option used to work out EF_j, where j is carbon dioxide, must be used for all installed devices that are part of the project and:

(d) if the option in subparagraph (c)(ii) is used in a reporting period, then only an option in subparagraph (c)(ii) or (iii) may be used in the next reporting period; and

(e) if the option in subparagraph (c)(iii) is used in a reporting period, then only that option may be used in any subsequent reporting period.

Frequency—in accordance with the NGER (Measurement) Determination

| 7 | EF_j (for equation 27) | Emission factor for gas type j released from the conversion of the methane component of coal mine waste gas that is | kg CO_2-e/GJ | Worked out: |

7 | EF_j (for equation 27) | Emission factor for gas type j released from the conversion of the methane component of coal mine waste gas that is | kg CO_2-e/GJ |

Worked out:

(a) where j is methane—using one of the following options:
  (i) using the emission factor for methane released from the combustion of the methane component of coal mine waste gas that is captured for

captured for conversion	combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination;
	(ii) using the emission factor that applies in estimating emissions of methane in section 2.27 of the NGER (Measurement) Determination; and
	(b) where j is nitrous oxide—using the emission factor for nitrous oxide released from the combustion of the methane component of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination; and
	(c) where j is carbon dioxide—using one of the following options:
	   (i) using the emission factor for carbon dioxide released from the combustion of the methane component of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination;
	   (ii) in accordance with section 2.22 of the NGER (Measurement) Determination;
	   (iii) in accordance with section 2.26 of the NGER (Measurement) Determination.
	
	However, the option used to work out EF_j, where j is methane, must be used for all installed electricity production devices and if the option in subparagraph (a)(ii) is used in a reporting period, then only that option may be used in any subsequent reporting period.
	
	However, the option used to work out EF_j, where j is carbon dioxide, must be used for all installed electricity production devices and:
	(d) if the option in subparagraph (c)(ii) is used in a reporting period, then only an option in subparagraph (c)(ii) or (iii) may be used in the next reporting period; and
	(e) if the option in subparagraph (c)(iii) is used in a reporting period, then only that option may be used in any subsequent reporting period.
	
	Frequency—in accordance with the NGER (Measurement) Determination

8	Q_{Elec}	Quantity of electricity consumed from the operation of the project that is not produced by the project in the reporting period (if any)	MWh	Evidenced by invoices, contractual arrangements or industry metering records. Frequency—continuous
9	$Q_{SE,f}$	Quantity of additional fuel type f that is not coal mine waste gas combusted for stationary energy purposes in the reporting period (if any)	Units appropriate for the application of the energy content factor (EC_f)	Estimated in accordance with Division 2.2.5, 2.3.6 or 2.4.6 (as appropriate) of the NGER (Measurement) Determination. Frequency—continuous
10	AUX	Auxiliary loss for the project in the reporting period	MWh	Estimated in accordance with Part 6.1 of the NGER (Measurement) Determination: (a) including the amount of electricity used to produce electricity and to operate and maintain electricity production devices that are part of the project; and (b) not including any electricity used for network support and control ancillary services. If the project also produces electricity using an energy source that is not coal mine waste gas, the project proponent may deduct auxiliary losses that are attributable to that source from the total auxiliary loss for the project proportionate to the amount of electricity produced from that source. Note: See regulation 16 of the *Renewable Energy (Electricity) Regulations 2001* in relation to working out the auxiliary loss from energy sources that are not eligible energy sources. Frequency—in accordance with the NGER (Measurement) Determination
11	DEG	Amount of electricity transmitted or distributed that is part of the project in the reporting period (other than electricity used by installed and existing	MWh	Monitored in accordance with the metering requirements applicable to the region where the project is located. Measured: (a) if the project is part of the national electricity market—at the metering point determined under the National Electricity Rules in force at the time of measurement; or (b) in any other case—at the metering point determined at the time of measurement

				by a relevant authority of the State or Territory where the project is located.
				If measured in gigajoules, the quantity of megawatt hours is calculated by dividing the amount in gigajoules by the conversion factor of 3.6.
				Frequency—continuous
12	$Q_{FSL,f}$	Quantity of fuel type f consumed as part of the project in the reporting period	Appropriate units	Estimated in accordance with section 6.5 of the NGER (Measurement) Determination. Frequency—as fuel is consumed
13	$EC_{FSL,f}$	Energy content factor of fuel type f	Appropriate units	Estimated in accordance with section 6.5 of the NGER (Measurement) Determination. Frequency—in accordance with the NGER (Measurement) Determination

[26]   Subsection 47(2)

Repeal the subsection and subsection heading, substitute:

$Q_{CH_4,h}$, $Q_{CH_4,i}$, $Q_{CH_4,k}$, $Q_{CH_4,l}$, $Q_{CH_4,h,t}$ or $Q_{CH_4,m,t}$

(2) To estimate $Q_{CH_4,h}$ (if worked out using an integrated monitoring system), $Q_{CH_4,i}$ (if worked out using an integrated monitoring system), $Q_{CH_4,k}$ (if worked out using an integrated monitoring system), $Q_{CH_4,l}$ (if worked out using an integrated monitoring system), $Q_{CH_4,h,t}$ or $Q_{CH_4,m,t}$ the project proponent must use:

(a) a flow computer to estimate the volume of coal mine waste gas sent to device h, m, k or l; and

(b) either of the following to measure the methane component of coal mine waste gas sent to device h, m, k or l;
   (i) a gas chromatograph;
   (ii) a gas analyser; and

(c) the standard conditions defined in subsection 2.32(7) of the NGER (Measurement) Determination.

[27]   Paragraph 47(3)(b)

Repeal the paragraph, substitute:

(b) the quantity of methane is adjusted by multiplying $Q_{CH_4,h}$, $Q_{CH_4,i}$, $Q_{CH_4,k}$, $Q_{CH_4,l}$, $Q_{CH_4,h,t}$ or $Q_{CH_4,m,t}$ by the factor $(1-U_h)$.

[28]   Subsection 47(5)

Before "device", insert "flaring".

[29]   Subsection 47(6)

Before "device is taken", insert "flaring".

[30]   Subsection 48(1) (table)

Repeal item 2, substitute:

| 2 | Each of the following:
(a) Q_{Elec};
(b) $Q_{SE,f}$;
(c) AUX;
(d) DEG;
(e) $Q_{FSL,f}$;
(f) $EC_{FSL,f}$ | The project proponent must make a conservative estimate of the parameter having regard to:
(a) any relevant measuring or estimation approaches or requirements that apply to the parameter under the NGER (Measurement) Determination; and
(b) any relevant historical data for the project; and
(c) any other data for the project that relates to the parameter; and
(d) any other matter the project proponent considers relevant |