



# **Carbon Credits (Carbon Farming Initiative— Coal Mine Waste Gas) Methodology Determination 2015**

made under the

*Carbon Credits (Carbon Farming Initiative) Act 2011*

## **THIS IS A DRAFT**

This document illustrates the changes that will be made to the *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination 2015* by the *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination Variation 2021*.



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# Contents

## Contents i

<b>Part 1—Preliminary</b>	<b>1</b>
1 Name of determination	1
2 Commencement	1
3 Authority	1
4 Duration	1
5 Definitions	1
6 Meaning of <i>existing regulatory obligation</i>	5
7 Meaning of <i>material abatement</i>	6
8 Meaning of <i>integrated monitoring system</i>	6
9 References to factors and parameters from external sources	6
<b>Part 2—Coal mine waste gas projects</b>	<b>7</b>
10 Coal mine waste gas projects	7
<b>Part 3—Project requirements</b>	<b>8</b>
<b>Division 1—General requirements</b>	<b>8</b>
11 Operation of this Division	8
12 Requirements for a new flaring or flameless oxidation project	8
13 Requirements for an expansion flaring or flameless oxidation project	8
14 Requirements for a new electricity production project	9
15 Requirements for an expansion electricity production project	9
16 Requirements for a displacement electricity production project	9
16A Requirements for a ventilation air methane only project	10
16B Requirements for a transitioning electricity production project	10
16C Requirements for a transitioning displacement electricity production project	11
<b>Division 2—Additionality requirements</b>	<b>12</b>
16D Operation of this Division	12
16E Requirement in lieu of newness requirement for certain former RET projects	12
17 Requirements in lieu of regulatory additionality requirement	12
<b>Division 3—Crediting period</b>	<b>13</b>
17A Crediting period for certain projects	13
<b>Part 4—Net abatement amounts</b>	<b>14</b>
<b>Division 1—Operation of this Part</b>	<b>14</b>
18 Operation of this Part	14
19 Overview of gases accounted for in abatement calculations	14
<b>Division 2—New flaring or flameless oxidation project method</b>	<b>15</b>
20 Summary	15
21 Net abatement amount	15
<b>Division 3—Expansion flaring or flameless oxidation project method</b>	<b>18</b>
22 Summary	18
23 Net abatement amount	18
24 Volume of methane sent to conversion devices	20

---

<b>Division 4—General calculations for flaring or flameless oxidation methods</b>	<b>22</b>
25 Volume of methane sent to flaring or flameless oxidation device	22
26 Emissions from a flaring or flameless oxidation device	22
<b>Division 5—New electricity production project method</b>	<b>24</b>
27 Summary	24
28 Net abatement amount	24
<b>Division 6—Expansion electricity production project method</b>	<b>27</b>
29 Summary	27
30 Net abatement amount	27
31 Volume of methane sent to conversion devices	29
<b>Division 7—Displacement electricity production project method</b>	<b>32</b>
32 Summary	32
33 Net abatement amount	32
<b>Division 7A—Ventilation air methane only project method</b>	<b>35</b>
33A Summary	35
33B Net abatement amount	35
<b>Division 7B—Transitioning electricity production project method</b>	<b>36</b>
33C Summary	36
33D Net abatement amount	36
<b>Division 7C—Transitioning displacement electricity production project method</b>	<b>39</b>
33E Summary	39
33F Net abatement amount	39
<b>Division 8—General calculations for electricity production methods</b>	<b>40</b>
34 Volume of methane sent to conversion device	40
35 Emissions	40
36 Displaced electricity emissions	41
37 Electricity produced by project	44
38 Electricity produced by using fuel other than coal mine waste gas	46
39 Baseline for electricity production	47
<b>Division 9—General calculations for flaring or flameless oxidation and electricity production methods</b>	<b>49</b>
40 Historic abatement	49
41 Ancillary project emissions	50
42 Baseline for the methane component of coal mine waste gas sent to flaring or flameless oxidation devices	52
43 Baseline for the methane component of coal mine waste gas sent to electricity production devices	53
<b>Part 5—Reporting, record-keeping and monitoring requirements</b>	<b>55</b>
<b>Division 1—Offsets report requirements</b>	<b>55</b>
44 Operation of this Division	55
45 Determination of certain factors and parameters	55
<b>Division 2—Monitoring requirements</b>	<b>56</b>
46 Operation of this Division	56
47 Monitoring requirements	56

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## Part 1—Preliminary

### 1 Name of determination

This determination is the *Carbon Credits (Carbon Farming Initiative—Coal Mine Waste Gas) Methodology Determination 2015*.

### 2 Commencement

This determination commences on the day after it is registered.

### 3 Authority

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

### 4 Duration

This determination remains in force for the period that:

- (a) begins when this determination commences; and
- (b) ends on the day before this determination would otherwise be repealed under subsection 50(1) of the *Legislation Act 2003*.

### 5 Definitions

In this determination:

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

**application time**, for a project, means the time of application for the declaration of the project as an eligible offsets project.

**coal mine waste gas** means a substance:

- (a) that consists of:
  - (i) naturally occurring hydrocarbons; or
  - (ii) a naturally occurring mixture of hydrocarbons and non-hydrocarbons; and
- (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.

**coal mine waste gas project** has the meaning given by section 10.

**coal seam methane** means a substance that:

- (a) consists of:
  - (i) naturally occurring hydrocarbons; or
  - (ii) a naturally occurring mixture of hydrocarbons and non-hydrocarbons;  
and
- (b) consists mainly of methane; and
- (c) is drained from a coal seam; and
- (d) is not coal mine waste gas.

**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.

**declaration day**, for a project, means the day the project is declared to be an eligible offsets project.

**decommissioned underground coal mine** means an underground coal mine where the following activities have not occurred for at least 12 months and are not expected to occur in the future:

- (a) coal production;
- (b) drainage of methane from the mine (including pre-draining activities);
- (c) active mine ventilation, including the operation of ventilation fans at the mine.

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.



***displacement electricity production project*** means a project that meets the requirements of section 16.

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

***eligible renewable energy source*** has the meaning given by the RE(E) Act.

***existing electricity production device*** for a coal mine waste gas project means an electricity production 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.

***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.

***existing regulatory obligation*** has the meaning given by section 6.

***expansion electricity production project*** means a project that meets the requirements of section 15.

***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.

***flaring*** means the combustion of methane for a purpose other than producing energy.

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

***former RET electricity production device*** for a coal mine waste gas project means an electricity production device that:

- (a) existed, during all or part of the period between 24 April 2014 and the application time for the project, at a location where some of the methane component of coal mine waste gas from the mine has been converted; and

(b) was among the components of an electricity generation system existing at the location on 31 December 2020 that were taken to be a power station for the purposes of the RE(E) Act which was, at that date, an accredited power station within the meaning of that Act.

**historic abatement** means an amount worked out under section 40.

**installed electricity production device** for a coal mine waste gas project means an electricity production device installed and operated as part of the project.

**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.

**integrated monitoring system** has the meaning given by section 8.

**material abatement** has the meaning given by section 7.

**monitoring requirements** means the requirements set out in section 47.

**National Electricity Rules** means the National Electricity Rules, as in force from time to time, made under the National Electricity Law set out in the Schedule to the *National Electricity (South Australia) Act 1996* (SA).

**network support and control ancillary services** has the same meaning as in the National Electricity Rules.

**new electricity production project** means a project that meets the requirements of section 14.

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

**NGA Factors document** means the document entitled “National Greenhouse Accounts Factors”, published by the Department and as in force from time to time.

**NGER (Measurement) Determination** means the *National Greenhouse and Energy Reporting (Measurement) Determination 2008*.

**NGER Regulations** means the *National Greenhouse and Energy Reporting Regulations 2008*.

**NGER report** means a report provided under section 19, 22E, 22G, 22X, or 22XB of the *National Greenhouse and Energy Reporting Act 2007*.

**non-monitored period** has the meaning given by subsection 48(1).

**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.

**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).

**RE(E) Act** means the *Renewable Energy (Electricity) Act 2000*.

**transitioning displacement electricity production project** means a project that meets the requirements of section 16C.

**transitioning electricity production project** means a project that meets the requirements of section 16B.

**underground coal mine** means a mine that allows the extraction of coal by mining at depth, after entry by shaft, adit or drift, without the removal of overburden.

**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.

## 6 Meaning of existing regulatory obligation

- (1) A coal mine lease holder has an **existing regulatory obligation** to destroy the methane component of coal mine waste gas drawn from an operating underground coal mine in relation to a coal mine waste gas project if at the application time:
- (a) a law of a State or Territory requires the gas to be destroyed, converted, beneficially used, stored, transferred to another person or offered for sale (or any combination of these); or
- (b) a law of a State or Territory prohibits the release of the gas from the mine without destruction, conversion, beneficial use, storage, transfer to another person or offering the gas for sale (or any combination of these); or
- (c) a law of a State or Territory restricts the release of gas from the mine where flaring, alternative uses of, or other dealings with, the gas are practical, feasible or safe.
- Note: In 2019 an example of paragraph (c) is section 318CO of the *Mineral Resources Act 1989* (Qld).
- (2) For subsection (1), disregard any provision of a law of a State or Territory that authorises the release of the gas for use in a greenhouse abatement scheme.

## 7 Meaning of *material abatement*

If the historic abatement from the conversion of the methane component of coal mine waste gas from a mine worked out under section 40 is greater than 5 000 tonnes of CO<sub>2</sub>-e, there has been *material abatement* from the conversion of the methane component of coal mine waste gas from the mine.

## 8 Meaning of *integrated monitoring system*

An *integrated monitoring system* is a system:

- (a) consisting of a device or group of devices; and
- (b) that simultaneously monitors:
  - (i) the volume of coal mine waste gas sent to a conversion device; and
  - (ii) whether the conversion device is operating; and
- (c) that monitors the fraction of the volume of coal mine waste gas sent to the conversion device that is methane.

Note: *Operating* is defined in section 5.

## 9 References to factors and parameters from external sources

- (1) If a calculation in this determination includes a factor or parameter that is defined or calculated by reference to another instrument or writing, the factor or parameter to be used for a reporting period is the factor or parameter referred to in, or calculated by reference to, the instrument or writing as in force at the end of the reporting period.
- (2) Subsection (1) does not apply if:
  - (a) the determination specifies otherwise; or
  - (b) it is not possible to define or calculate the factor or parameter by reference to the instrument or writing as in force at the end of the reporting period.

## Part 2—Coal mine waste gas projects

### 10 Coal mine waste gas projects

- (1) For paragraph 106(1)(a) of the Act, this determination applies to an offsets project that:
  - (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~~
    - (i) by installing and operating one or more of the following:
      - (A) a flaring device;
      - (B) a flameless oxidation device;
      - (C) an electricity production device; or
    - (ii) by operating a former RET electricity production device; and
  - (b) does not involve the capture or use of coal seam methane; and
  - (c) does not involve the capture or use of coal mine waste gas drawn from a decommissioned underground coal mine.
- (2) A project covered by subsection (1) is a ***coal mine waste gas project***.
- (3) A coal mine waste gas project that is an eligible offsets project may be:
  - (a) a new flaring or flameless oxidation project; or
  - (b) an expansion flaring or flameless oxidation project; or
  - (c) a new electricity production project; or
  - (d) an expansion electricity production project; or
  - (e) a displacement electricity production project; or
  - (f) ventilation air methane only project; or
  - (g) a transitioning electricity production project; or
  - (h) a transitioning displacement electricity production project.

## **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, **an expansion electricity production project or a transitioning 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.

### **16B Requirements for a transitioning electricity production project**

- (1) This section sets out requirements for a transitioning electricity production project.
- (2) The project must:
  - (a) involve operating a former RET electricity production device; and
  - (b) not use an eligible renewable energy source to produce electricity.
- (3) The project may operate an existing flaring or flameless oxidation device.
- (4) The project proponent must have provided a statement at the application time:
  - (a) that the project will be a transitioning electricity production project; and
  - (b) identifying each former RET electricity production device and existing flaring or flameless oxidation device that will be operated as part of the project.



### **16C Requirements for a transitioning displacement electricity production project**

- (1) This section sets out requirements for a transitioning displacement electricity production project.
- (2) The project must:
  - (a) involve operating a former RET electricity production device; and
  - (b) not use an eligible renewable energy source to produce electricity.
- (3) The project may operate an existing flaring or flameless oxidation device.
- (4) The project proponent must have provided a statement at the application time:
  - (a) that the project will be a transitioning displacement electricity production project; and
  - (b) identifying each former RET electricity production device and existing flaring or flameless oxidation device that will be operated as part of the project.

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

## Division 2—Additionality requirements

### 16D Operation of this Division

For subsection 27(4A) of the Act, this Division sets out:

- (a) a requirement in lieu of the newness requirement for certain coal mine waste gas projects that formerly operated under the Renewable Energy Target Scheme (section 16E); and
- (b) requirements in lieu of the regulatory additionality requirement for certain coal mine waste gas projects (section 17).

### 16E Requirement in lieu of newness requirement for certain former RET projects

- (1) For subparagraph 27(4A)(a)(ii) of the Act, the substituted newness requirement is in lieu of the newness requirement for:
  - (a) a transitioning electricity production project; or
  - (b) a transitioning displacement electricity production project.
- (2) A coal mine waste gas project referred to in subsection (1) meets the substituted newness requirement if the project concerned involves the operation of a former RET electricity production device that is not operated as part of another coal mine waste gas project.

### 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~~, or transitioning displacement electricity production 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.
- (2A) For subparagraph 27(4A)(b)(ii) of the Act, a requirement in lieu of the regulatory additionality requirement for a transitioning displacement electricity production project is that the project must operate a former RET electricity production device that is not operated as part of another coal mine waste gas project.
- (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.

## **Division 3—Crediting period**

### **17A Crediting period for certain projects**

- (1) For paragraph 69(3)(b) of the Act, the period of 12 years is specified for a coal mine waste gas project that is:
  - (a) a new flaring or flameless oxidation project; or
  - (b) an expansion flaring or flameless oxidation project; or
  - (c) a new electricity production project; or
  - (d) an expansion electricity production project; or
  - (e) a displacement electricity production project; or
  - (f) a ventilation air methane only project.
  
- (2) For paragraph 69(3)(b) of the Act, the period of 5 years is specified for a coal mine waste gas project that is:
  - (a) a transitioning electricity production project; or
  - (b) a transitioning displacement electricity production project.

## 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.

<b>Greenhouse gases and emissions sources</b>			
<b>Item</b>	<b>Relevant emissions calculation</b>	<b>Emissions source</b>	<b>Greenhouse gas</b>
1	Project abatement	Methane conversion	Methane (CH <sub>4</sub> )
2	Project emissions	Fuel consumption	Carbon dioxide (CO <sub>2</sub> ) Methane (CH <sub>4</sub> ) Nitrous oxide (N <sub>2</sub> O)
3	Project emissions	Methane conversion	Carbon dioxide (CO <sub>2</sub> ) Methane (CH <sub>4</sub> ) Nitrous oxide (N <sub>2</sub> O)
4	Project emissions	Unburned methane	Methane (CH <sub>4</sub> )

## 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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, is worked out using the formula (*equation 3*):

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

where:

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 5.

$E_{An}$  means the ancillary project emissions for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$\gamma$  means the factor for converting a quantity of methane from cubic metres to tonnes CO<sub>2</sub>-e in section 3.21 of the NGER (Measurement) Determination.

$DE$  means the factor for OF<sub>if</sub> 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<sub>2</sub>-e, is worked out using the formula (**equation 5**):

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

where:

***E<sub>MD</sub>*** means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-e.

***E<sub>MD,h,j</sub>*** 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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 7.

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

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

where:

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 9.



$E_{An}$  means the ancillary project emissions for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$\gamma$  means the factor for converting a quantity of methane from cubic metres to tonnes CO<sub>2</sub>-e in section 3.21 of the NGER (Measurement) Determination.

$DE$  means the factor for OF<sub>if</sub> 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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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*):

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

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.

$F_{MWh \rightarrow GJ}$  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.

$B_{CH_4,Gen}$  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:

- (a) in the case of a transitioning electricity production project—an existing flaring or flameless oxidation device; or
- (b) in the case of any other coal mine waste gas project—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<sub>2</sub>-e, is worked out using the formula (*equation 13*):

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

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<sub>2</sub>-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~~ **for a coal mine waste gas project other than an expansion 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<sub>2</sub>-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<sub>if</sub> in section 3.14 of the NGER (Measurement) Determination.

$h$  means:

- (a) **in the case of a transitioning electricity production project—an existing flaring or flameless oxidation device; or**
- (b) **in the case of any other coal mine waste gas project—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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 16.

$A_G$  means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 16.

$A_G$  means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, is worked out using the formula (*equation 16*):

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

where:

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 18.

$E_{An}$  means the ancillary project emissions for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e.

$\gamma$  means the factor for converting a quantity of methane from cubic metres to tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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.



## 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<sub>2</sub>-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<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 20.

$A_G$  means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 28.

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

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

where:

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 22.

$E_{An}$  means the ancillary project emissions for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-e, is worked out using the formula (**equation 21**):

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

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<sub>2</sub>-e.

$\gamma$  means the factor for converting a quantity of methane from cubic metres to tonnes CO<sub>2</sub>-e in section 3.21 of the NGER (Measurement) Determination.

$DE$  means the factor for OF<sub>if</sub> 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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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**):

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

where:

$X_{FI,t}$  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.

$B_{CH_4,FI}$  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**):

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

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.

$F_{MWh \rightarrow GJ}$  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 **or a transitioning 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<sub>2</sub>-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<sub>2</sub>-e.

$A_G$  means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 25A.
- (b) otherwise—zero.

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

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

where:

*A<sub>PVAM</sub>* means the project ventilation air methane emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e.

*M<sub>Com</sub>* means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-e, by conversion devices that use ventilation air methane as their primary fuel source worked out using equation 25B.

*E<sub>MD</sub>* means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-e, by conversion devices that use ventilation air methane as their primary fuel source worked out using equation 25C.

*E<sub>An</sub>* means the ancillary project emissions for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-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<sub>Com</sub>* means the volume of the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-e in section 3.21 of the NGER (Measurement) Determination.

*Q<sub>CH<sub>4</sub>,k</sub>* 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<sub>if</sub> in section 3.14 of the NGER (Measurement) Determination.

*Q<sub>CH<sub>4</sub>,l</sub>* 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<sub>2</sub>-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<sub>MD</sub>*** means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-e, by conversion devices that use ventilation air methane as their primary fuel source.

***E<sub>MD,k,j</sub>*** 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<sub>2</sub>-e, worked out using equation 27.

***E<sub>MD,l,j</sub>*** 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<sub>2</sub>-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<sub>2</sub>-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 7B—Transitioning electricity production project method

### 33C Summary

The carbon dioxide equivalent net abatement amount for a transitioning electricity production project is the abatement achieved from operating a former RET electricity production device less:

- (a) the emissions from operating the former RET electricity production device; and
- (b) ancillary emissions of the project; and
- (c) certain parameters associated with electricity production.

### 33D Net abatement amount

- (1) The carbon dioxide equivalent net abatement amount for a transitioning electricity production project for the reporting period, in tonnes CO<sub>2</sub>-e, is worked out using the formula (*equation 25D*):

$$A_N = A_P + A_G$$

where:

$A_N$  means the carbon dioxide equivalent net abatement amount for the transitioning electricity production project, for the reporting period, in tonnes CO<sub>2</sub>-e.

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 25E.

$A_G$  means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 28.

- (2) The project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-e, is worked out using the formula (*equation 25E*):

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

where:

$A_P$  means the project emissions abated for the reporting period, in tonnes CO<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 25F.

$E_{MD}$  means the emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 25G.

$E_{An}$  means the ancillary project emissions from the project for the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 36.

- (3) The volume of the methane component of coal mine waste gas converted by the transitioning electricity production project in the reporting period, in tonnes CO<sub>2</sub>-e, is worked out using the formula (*equation 25F*):

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

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<sub>2</sub>-e.

$\gamma$  means the factor for converting a quantity of methane from cubic metres to tonnes CO<sub>2</sub>-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 a former RET 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<sub>if</sub> 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 a former RET electricity production device operated as part of the project.

$h$  means an existing flaring or flameless oxidation device.

- (4) The emissions from the methane component of coal mine waste gas converted by the project in the reporting period, in tonnes CO<sub>2</sub>-e, is worked out using the formula (*equation 25G*):

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

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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-e, worked out using equation 13.

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

$i$  means a former RET electricity production device operated as part of the project.

$h$  means an existing flaring or flameless oxidation device operated as part of the project.

## **Division 7C—Transitioning displacement electricity production project method**

### **33E Summary**

The carbon dioxide equivalent net abatement amount for a transitioning displacement electricity production project is the abatement achieved from operating a former RET electricity production device less certain parameters associated with electricity production.

However, unlike a new electricity production project, an expansion electricity production project or a transitioning electricity production project, the carbon dioxide equivalent net abatement amount for a transitioning displacement electricity production project 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.

### **33F Net abatement amount**

The carbon dioxide equivalent net abatement amount for a transitioning displacement electricity production project for the reporting period, in tonnes CO<sub>2</sub>-e, is worked out using the formula (*equation 25H*):

$$A_N = A_G$$

where:

$A_N$  means the carbon dioxide equivalent net abatement amount for the displacement electricity production project for the reporting period, in tonnes CO<sub>2</sub>-e.

$A_G$  means the displaced electricity emissions from electricity production in the reporting period, in tonnes CO<sub>2</sub>-e, worked out using equation 28.

## 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*):

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

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.

$F_{MWh \rightarrow GJ}$  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:

- (a) in the case of a transitioning electricity production project—a former RET electricity production device operated as part of the project; or
- (b) in the case of any other coal mine waste gas project—an installed electricity production device.

~~*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<sub>2</sub>-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<sub>2</sub>-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 **or transitioning 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<sub>2</sub>-e per gigajoule, worked out in accordance with the monitoring requirements.

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

**$i$**  means:

- (a) in the case of a transitioning electricity production project—a former RET electricity production device operated as part of the project; or
- (b) in the case of any other coal mine waste gas project—an installed electricity production device.

~~$i$  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<sub>2</sub>-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<sub>2</sub>-e.

$NEG_P$  means the net amount of electricity produced by the conversion of coal mine waste gas by ~~installed and existing~~ **relevant** 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~~ **at the end of the reporting period**, includes an emissions factor—that factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-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 **at the end of the reporting period** ~~on the declaration day~~—that factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-e per megawatt hours); or
    - (ii) otherwise—the emissions factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-e per megawatt hours), for off-grid electricity included in the NGA Factors document in force ~~on the declaration day~~ **at the end of the reporting period**; 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 **at the end of the reporting period** ~~on the declaration day~~—that factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-e per megawatt hours); or
    - (ii) otherwise—the emissions factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-e per megawatt hours), for off-grid electricity included in the NGA Factors document in force ~~on the declaration day~~ **at the end of the reporting period**.
- (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 **at the end of the reporting period** ~~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~~ **relevant** electricity production devices as part of the project (*NEG<sub>p</sub>*) 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<sub>p</sub>* means the net amount of electricity produced by the conversion of coal mine waste gas by ~~installed and existing~~ **relevant** 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~~ **relevant** 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~~ **relevant** 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.

**(7) In this section:**

***relevant electricity production devices* means:**

- (a) in the case of a transitioning electricity production project or a transitioning displacement electricity production project—former RET electricity production devices operated as part of the project; or
- (b) in the case of any other coal mine waste gas project—installed electricity production devices and existing electricity production devices operated as part of the project.

### **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***):

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

where:

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

$X_t$  means:

- (a) in the case of a transitioning electricity production project or a transitioning displacement electricity production project—the amount of electricity produced by a former RET electricity production devices operated as part of the project, during time interval  $t$ , worked out using equation 30A; or
- (b) in the case of any other coal mine waste gas project—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.

- (1A) The amount of electricity produced by former RET electricity production devices operated as part of the project during time interval  $t$ , in megawatt hours, is worked out using the formula (*equation 30A*):

$$X_t = \sum_i Q_{EG,i,t}$$

where:

$X_t$  means the amount of electricity produced by former RET electricity production devices operated as part of the project during time interval  $t$ , in megawatt hours.

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

$i$  means a former RET electricity production device.

- (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~~ **relevant** electricity production devices as part of the project in the reporting period, in megawatt hours, is worked out using the formula (*equation 32*):

$$FSL = F_{GJ \rightarrow MWh} \times \sum_f Z_f$$

where:

$FSL$  means the amount of electricity produced using energy sources that are not coal mine waste gas by ~~installed and existing~~ **relevant** 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~~ **relevant** 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 2007* and regulation 2.03 of the *NGER Regulations 2008*.

(3) In this section:

**relevant electricity production devices** means:

- (a) in the case of a transitioning electricity production project or a transitioning displacement electricity production project—former RET electricity production devices operated as part of the project; or
- (b) in the case of any other coal mine waste gas project—installed electricity production devices and existing electricity production devices operated as part of the project.

### 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<sub>2</sub>-e, is worked out using the formula (*equation 35*):

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

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<sub>2</sub>-e.

$\gamma$  means the factor for converting a quantity of methane from cubic metres to tonnes CO<sub>2</sub>-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<sub>2</sub>-e per gigajoule.

$DE$  means the factor for OF<sub>if</sub> 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<sub>2</sub>-e (adjusted for any differences in CO<sub>2</sub>-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<sub>2</sub>-e (adjusted for any differences in CO<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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<sub>2</sub>-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~~ **at the end of the reporting period**, includes an emissions factor—that factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-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 **at the end of the reporting period** ~~on the declaration day~~—that factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-e per megawatt hours); or
  - (ii) otherwise—the emissions factor, in kilograms CO<sub>2</sub>-e per kilowatt hour (or its equivalent of tonnes CO<sub>2</sub>-e per megawatt hours), for off-grid electricity included in the NGA Factors document in force ~~on the declaration day~~ **at the end of the reporting period**.

$Q_{SE,f}$  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).

$EF_{fj}$  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<sub>2</sub>-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*):

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

where:

$B_{CH_4,FI}$  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.

$Q_{FI,Cap,m}$  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).

$AF_{FI,m}$  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  $37.7 \times 10^{-3}$  gigajoules per cubic metre.
- (4) The same value of  $AF_{FI,m}$  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.

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

Note Other reporting, record keeping and monitoring requirements are set out in regulations and rules made under the Act.

### **Division 1—Offsets report requirements**

#### **44 Operation of this Division**

For paragraph 106(3)(a) of the Act, this Division sets out information that must be included in an offsets report about a coal mine waste gas project that is an eligible offsets project.

#### **45 Determination of certain factors and parameters**

- (1) If, in the circumstances described in paragraph 9(2)(b), a factor or parameter is defined or calculated for a reporting period by reference to an instrument or writing as in force from time to time, the offsets report about the project for the reporting period must include the following information for the factor or parameter:
  - (a) the versions of the instrument or writing used;
  - (b) the start and end dates of each use;
  - (c) the reasons why it was not possible to define or calculate the factor or parameter by reference to the instrument or writing as in force at the end of the reporting period.
  
- (2) If a parameter is determined under section 48 for the purpose of working out the carbon dioxide equivalent net abatement amount for a coal mine waste gas project for a reporting period, the offsets report about the project for the reporting period must include the following information for the parameter:
  - (a) the name of the parameter;
  - (b) the start and end dates of the non-monitored period for which the parameter was determined;
  - (c) the value of the parameter and how that value was calculated;
  - (d) the reasons why the project proponent failed to monitor the parameter as required by the monitoring requirements.

## Division 2—Monitoring requirements

### 46 Operation of this Division

For paragraph 106(3)(d) of the Act, this Division sets out:

- (a) requirements to monitor a coal mine waste gas project that is an eligible offsets project (see section 47); and
- (b) certain consequences if the project proponent fails to monitor the project as required (see section 48).

### 47 Monitoring requirements

- (1) The project proponent for a coal mine waste gas project must monitor a parameter set out in an item of the following table in accordance with the instructions in the item.

Monitored parameters				
Item	Parameter	Description	Unit	Measurement procedure (including frequency as required)
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	$m^3$	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).

Part 5 – Reporting, record-keeping and monitoring requirements

<b>Monitored parameters</b>				
<b>Item</b>	<b>Parameter</b>	<b>Description</b>	<b>Unit</b>	<b>Measurement procedure (including frequency as required)</b>
		project during time interval t		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 released from the conversion	kg CO <sub>2</sub> -e/GJ	Worked out: (a) where j is methane—using the emission factor for methane released from the combustion of the methane component

<b>Monitored parameters</b>				
<b>Item</b>	<b>Parameter</b>	<b>Description</b>	<b>Unit</b>	<b>Measurement procedure (including frequency as required)</b>
		of the methane component of coal mine waste gas that is captured for conversion		<p>of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination; and</p> <p>(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</p> <p>(c) where j is carbon dioxide—using one of the following options:</p> <p>(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;</p> <p>(ii) in accordance with section 2.22 of the NGER (Measurement) Determination;</p> <p>(iii) in accordance with section 2.26 of the NGER (Measurement) Determination.</p> <p>However, the option used to work out <math>EF_j</math>, where j is carbon dioxide, must be used for all installed devices that are part of the project and:</p> <p>(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</p> <p>(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.</p> <p>Frequency—in accordance with the NGER (Measurement) Determination</p>
7	$EF_j$ (for equation 27)	Emission factor for gas type j	kg CO <sub>2</sub> -e/GJ	Worked out:



Part 5 – Reporting, record-keeping and monitoring requirements

<b>Monitored parameters</b>				
<b>Item</b>	<b>Parameter</b>	<b>Description</b>	<b>Unit</b>	<b>Measurement procedure (including frequency as required)</b>
		released from the conversion of the methane component of coal mine waste gas that is captured for conversion		<p>(a) where j is methane—using one of the following options:</p> <ul style="list-style-type: none"> <li>(i) 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;</li> <li>(ii) using the emission factor that applies in estimating emissions of methane in section 2.27 of the NGER (Measurement) Determination; and</li> </ul> <p>(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</p> <p>(c) where j is carbon dioxide—using one of the following options:</p> <ul style="list-style-type: none"> <li>(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;</li> <li>(ii) in accordance with section 2.22 of the NGER (Measurement) Determination;</li> <li>(iii) in accordance with section 2.26 of the NGER (Measurement) Determination.</li> </ul> <p>However, the option used to work out <math>EF_j</math>, where j is methane, must be used for all <del>installed</del> relevant electricity production devices and if the option in subparagraph (a)(ii) is used in a reporting</p>

Part 5 – Reporting, record-keeping and monitoring requirements

Monitored parameters				
Item	Parameter	Description	Unit	Measurement procedure (including frequency as required)
				<p>period, then only that option may be used in any subsequent reporting period.</p> <p>However, the option used to work out <math>EF_j</math>, where <math>j</math> is carbon dioxide, must be used for all <del>installed</del> relevant electricity production devices and:</p> <p>(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</p> <p>(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.</p> <p>Frequency—in accordance with the NGER (Measurement) Determination</p>
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

Part 5 – Reporting, record-keeping and monitoring requirements

Monitored parameters				
Item	Parameter	Description	Unit	Measurement procedure (including frequency as required)
				<p>(b) not including any electricity used for network support and control ancillary services.</p> <p>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.</p> <p>Note: See regulation 16 of the <i>Renewable Energy (Electricity) Regulations 2001</i> in relation to working out the auxiliary loss from energy sources that are not eligible energy sources.</p> <p>Frequency—in accordance with the NGER (Measurement) Determination</p>
11	DEG	<p>Amount of electricity transmitted or distributed that is part of the project in the reporting period (other than electricity used by <del>installed and existing electricity production devices</del> <b>installed electricity production devices or former RET electricity production devices, and all existing electricity production devices</b>, as part of the project or the local</p>	MWh	<p>Monitored in accordance with the metering requirements applicable to the region where the project is located.</p> <p>Measured:</p> <p>(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</p> <p>(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.</p> <p>If measured in gigajoules, the quantity of megawatt hours is calculated by dividing the amount in gigajoules by the conversion factor of 3.6.</p> <p>Frequency—continuous</p>

Part 5 – Reporting, record-keeping and monitoring requirements

Monitored parameters				
Item	Parameter	Description	Unit	Measurement procedure (including frequency as required)
		distribution network)		
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
14	$EC_{CMWG}$ (other than for equation 27)	Energy content factor of coal mine waste gas	GJ/m <sup>3</sup>	Estimated using the energy content factor of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination. Frequency—in accordance with the NGER (Measurement) Determination
15	$EC_{CMWG}$ (for equation 27)	Energy content factor of coal mine waste gas	GJ/m <sup>3</sup>	Either: (a) using the energy content factor of coal mine waste gas that is captured for combustion in item 19 of Schedule 1 to the NGER (Measurement) Determination; or (b) by analysis in accordance with Subdivision 2.3.3.2 of the NGER (Measurement) Determination. However, the option used to work out $EC_{CMWG}$ must be used for all <del>installed</del> relevant electricity production devices and if the option in paragraph (b) 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

$$Q_{CH_4,h}, Q_{CH_4,i}, Q_{CH_4,k}, Q_{CH_4,b}, Q_{CH_4,h,t} \text{ or } Q_{CH_4,m,t}$$

- (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.
- (3) However, if a gas analyser is used:
- (a) the maximum upper bound percentage uncertainty, expressed as a decimal fraction ( $U_h$ ), associated with the measurement of the fraction of the volume of coal mine waste gas that is methane that is sent to each device h must be calculated according to standard methods; and
  - (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  $(1-U_h)$ .

$O_{h,t}$  (or  $O_{m,t}$ )

- (4) Subject to subsections (5) and (6), the project proponent may use one of the following methods to measure whether flaring device h (or m) is operating in time interval t:
- (a) temperature measurement;
  - (b) a UV detection sensor coupled to a flare management system;
  - (c) another internationally recognised apparatus for monitoring the operation of a flaring device.
- (5) If temperature measurement is used, then the flaring device is taken not to be operating in a time interval if:
- (a) there is no record of the temperature of the exhaust gas of the flare for the time interval; or
  - (b) the recorded temperature is less than 500°C for any period in the time interval.
- (6) If a UV detection sensor or another internationally recognised apparatus is used, then the flaring device is taken not to be operating in a time interval if:
- (a) there is no record of the operation of the device for the time interval or;
  - (b) the operation of the device falls below one of the following operational thresholds for any period in the time interval;
    - (i) if the manufacturer has specified an operational threshold for the device—that threshold;
    - (ii) otherwise—the internationally recognised standard for the device.

(7) In this section:

**relevant electricity production devices** means:

- (a) in the case of a transitioning electricity production project or a transitioning displacement electricity production project—all former RET electricity production devices operated as part of the project; or
- (b) in the case of any other coal mine waste gas project—all installed electricity production devices for the project.

#### 48 Consequence of failure to monitor certain parameters

- (1) If, during a particular period (the *non-monitored period*) in a reporting period, a project proponent for a coal mine waste gas project fails to monitor a parameter as required by the monitoring requirements, the value of the parameter for the purpose of working out the carbon dioxide equivalent net abatement amount for the reporting period is to be determined for the non-monitored period in accordance with the following table.

Consequence of not meeting requirement to monitor certain parameters		
Item	Parameter	Determination of parameter for non-monitored period
1	Each of the following: (a) $EF_j$ (for equations 13 and 27); (b) $EC_{CMWG}$ (for equation 27)	The parameter is: (a) for any cumulative period of up to 3 months in any 12 months of a crediting period for the project—the factor for the gas set out in item 19 of Schedule 1 to the NGER (Measurement) Determination multiplied by 1.1; and (b) for any period in excess of that 3 months—the factor for the gas set out in item 19 of Schedule 1 to the NGER (Measurement) Determination multiplied by 1.5
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

**(1A) The project proponent must make all practicable efforts to minimise the non-monitored period during a reporting period.**

- (2) To avoid doubt, this section does not prevent the Regulator from taking action under the Act, or regulations or rules made under the Act, in relation to the project proponent's failure to monitor a parameter as required by the monitoring requirements.

Note: Examples of action that may be taken include the following:

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

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- (a) if the failure constitutes a breach of a civil penalty provision in section 194 of the Act (which deals with project monitoring requirements), the Regulator may apply for a civil penalty order in respect of the breach;
- (b) if false or misleading information was given to the Regulator in relation to the failure, the Regulator may revoke the project's section 27 declaration under regulations or rules made for the purposes of section 38 of the Act;
- (c) if the giving of false or misleading information in relation to the failure led to the issue of Australian carbon credit units, the Regulator may require all or some of those units to be relinquished under section 88 of the Act.