Carbon Credits (Carbon Farming Initiative—Aviation) Methodology Determination 2015

I, Greg Hunt, Minister for the Environment, make the following determination.

Dated 13 February 2015

Greg Hunt
Minister for the Environment

OPC60937 - A

Contents

Part 1—Preliminary

1 Name

This is the *Carbon Credits (Carbon Farming Initiative—Aviation) 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 the determination commences; and

(b) ends on the day before this determination would otherwise be repealed under subsection 50(1) of the *Legislative Instruments Act 2003*.

5 Definitions

In this determination:

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

application, for a project, means the application, made under section 22 of the Act, for declaration of the project as an eligible offsets project.

Australia, when used in a geographical sense, includes:

(a) the external Territories and the exclusive economic zone; and

(b) the airspace above the external Territories and the exclusive economic zone.

auxiliary equipment, in relation to an aircraft, means any vehicle, mobile equipment or other equipment used to power or operate or assist in powering or operating the aircraft, as long as it is doing so.

aviation project has the meaning given by subsection 7(2).

cruise, as a phase of aircraft operation:

(a) begins when the aircraft levels off at the initial cruising altitude; and

(b) ends when the aircraft reduces thrust to commence final descent into the arrival airport.

declaration, in relation to a project, means the declaration of the project as an eligible offsets project.

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

descent and landing, as a phase of aircraft operation:

(a) begins when the aircraft reduces thrust to commence final descent into the arrival airport; and

(b) ends at the end of the landing roll when the aircraft reaches the speed necessary to commence taxiing.

eligible renewable electricity:

(a) means renewable electricity generated from equipment installed as part of the project; but

(b) does not include renewable energy generated by equipment that under the legislative rules (if any) made for subparagraph 27(4A)(c)(ii) of the Act, must not be included in an eligible offsets project.

emissions intensity means emissions produced compared with service output (or work done).

modifying, in relation to an aircraft, includes:

(a) removing, adding or changing aircraft components; and

(b) changing the structure of the aircraft.

monitoring requirements means the requirements set out in section 26.

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*.

operational practices means the way the aircraft is operated including, but not limited to, terminal procedure design.

phase means one of the following phases of aircraft operation:

(a) cruise;

(b) descent and landing;

(c) take-off and climb;

(d) taxi in;

(e) taxi out;

(f) transit.

project activities has the meaning given by paragraph 7(1)(b).

route, for an aircraft, means a non-stop flight between 2 airports.

service unit, for a phase of aircraft operation, means a unit of measure set out for the phase in the table in clause 1 of Schedule 1.

take-off and climb, as a phase of aircraft operation:

(a) begins on the application of take-off thrust; and

(b) ends when the aircraft levels off at the initial cruising altitude.

taxable fuel:

(a) has the same meaning as in the *Fuel Tax Act 2006*; but

(b) does not include fuel for which fuel tax credits or a refund of excise or customs duty (however described) is given because the fuel is used for an international flight.

taxi in, as a phase of aircraft operation:

(a) begins at the end of the landing roll when the aircraft reaches the speed necessary to commence taxiing; and

(b) ends when the aircraft arrives at the final parking position prior to passengers or freight being offloaded (when the aircraft applies the park brake and shuts down any remaining engines with the first door/hold opened).

taxi out, as a phase of aircraft operation:

(a) begins when the aircraft's brakes are released from final parking position for departure to the runway; and

(b) ends on the application of take-off thrust.

transit, as a phase of aircraft operation:

(a) begins when taxi in ends; and

(b) ends when taxi out begins; and

(c) includes any movement of the aircraft between locations during that period.

vehicle includes aircraft.

6 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.

Note: This means that calculations using historical data for a reporting period may not be correct for later reporting periods because reference instruments have changed. Baseline calculations, for example, will have to be re-worked from one reporting period to another, as necessary.

(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—Aviation projects

7 Aviation projects

(1) For paragraph 106(1)(a) of the Act, this determination applies to an offsets project that:

(a) can reasonably be expected to result in eligible carbon abatement; and

(b) involves one or more of the following ***project activities***:

(i) modifying existing aircraft;

(ii) changing energy sources (fuels and electricity) or the mix of energy sources for aircraft;

(iii) changing operational practices in relation to aircraft.

(2) A project covered by subsection (1) is an ***aviation project***.

Part 3—Project requirements

8 Operation of this Part

For paragraph 106(1)(b) of the Act, this Part sets out requirements that must be met for an aviation project to be an eligible offsets project.

9 Individual aircraft

An aviation project must be used in relation to one or more individual aircraft.

10 Service units for phases of operation

(1) The application for the project must specify the service unit to be used for each phase for each aircraft in the project.

(2) The service unit must be:
  (a) of a kind set out in the table in clause 1 of Schedule 1 for the phase; and
  (b) for an individual aircraft—the same for each phase of a particular kind.

Note: Different equations are used for different service units: see subsection 18(3).

(3) In working out the carbon dioxide equivalent net abatement amount for each reporting period, the project must use service units as specified in the application.

(4) For an aircraft that carries both freight and passengers, passengers may be converted to weight at the rate of 100 kg per passenger (including checked and cabin baggage) if the conversion is used consistently in working out each carbon dioxide equivalent net abatement amount for all reporting periods for the project.

Note: This allows for the use of tonne kilometres in the cruise phase where passengers are carried.

11 Data from domestic activities only

The project must not use data from activities that use fuel that is not taxable fuel.

Note: This prevents abatement that is not eligible carbon abatement from being included in carbon dioxide equivalent net abatement amounts for projects.

12 Data from previous years

The project proponent must have the data, for each aircraft, for the year immediately before the commencement of the reporting period in which the aircraft is first included in the project that is required for the calculation of carbon dioxide equivalent net abatement amounts for the project.

Note: For the data from previous years required for calculating carbon dioxide equivalent net abatement amounts, see subsections 18(3) to (5).

13 Data from all affected phases must be included

(1) Carbon dioxide equivalent net abatement amounts must be worked out using data from all phases of aircraft operation affected by project activities.

(2) To avoid doubt, a phase of aircraft operation may be affected by project activities even if project activities are not applied, or are not intentionally applied, to the phase.

(3) Data from a phase of aircraft operation that is not affected by project activities need not be included for the purposes of working out carbon dioxide equivalent net abatement amounts.

14 Information to be included in application for declaration

(1) The application made under section 22 of the Act for the project must include descriptions of:

(a) the number and type of aircraft to be included in the project; and

(b) any auxiliary equipment to be included in the project; and

(c) the project activities involved; and

(d) the aircraft, phases and routes to which project activities will apply; and

(e) the service unit to be used for each phase for each aircraft included in the project.

Note: For ***project activities***, see subsection 7(1).

(2) The descriptions may be done by class, where appropriate, including by reference to aircraft type, phase or route.

Part 4—Net abatement amounts

Division 1—Operation of this Part

15 Operation of this Part

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

16 Overview of gases accounted for in abatement calculations

The following table provides an overview of the greenhouse gas abatement and emissions that are relevant to working out the carbon dioxide equivalent net abatement amount for an aviation project.

Greenhouse gas abatement and emissions

Item	Relevant calculation	Emissions source	Greenhouse gas
1	Baseline emissions	Fuel combustion	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)
2	Baseline emissions	Electricity consumption (as transport fuel)	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)
3	Project emissions	Fuel combustion	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)
4	Project emissions	Electricity consumption (as transport fuel)	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)

Division 2—Method for calculating net abatement amount

17 Summary

In this method, abatement is calculated for individual phases of aircraft operation for individual aircraft and then aggregated.

Abatement from each phase is calculated as a reduction in emissions intensity, where emissions intensity is the emissions per service unit. The service units allowed depend on the phase, and may be chosen to correspond with the project activity, for example as emissions per passenger kilometre or emissions per route.

For an individual aircraft on a particular phase, the emissions intensity is not expected to improve over time in the absence of the project.

If route is chosen as the service unit, baseline emissions for the phase for the route is set as the average historic emissions for the phase for the route multiplied by the number of times that route was flown in the project.

If hours using alternative energy source is chosen as the service unit, baseline emissions for the phase for the route is set as the historic emissions per hour for the baseline energy source. The baseline emissions is the baseline emissions intensity multiplied by the hours using the new energy source in the project.

If any other service unit is selected, the baseline emissions is set as the historic emissions per service unit of the phase on a route prior to the abatement activity being undertaken. The baseline emissions is the baseline emissions intensity multiplied by the project quantity of services on the phase on the route.

The abatement for the phase is the baseline emissions minus the project emissions. The abatement for an aircraft is the sum of abatement across all its phases in a reporting period. Where this results in negative abatement, the abatement is set as zero.

18 Net abatement amount

(1) The carbon dioxide equivalent net abatement amount for the aircraft in the project for the reporting period is worked out using the formula (***equation 1***):

$$A = \sum_{v} A_v$$

where:

A means the carbon dioxide equivalent net abatement amount for the aircraft in the project for the reporting period, in tonnes CO_2-e.

A_v means the carbon dioxide equivalent net abatement amount for aircraft v for the reporting period, in tonnes CO_2-e, worked out using equation 2.

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

$$A_v = \max\left(0, \sum_p A_{v,p}\right)$$

where:

A_v means the carbon dioxide equivalent net abatement amount for aircraft v for the reporting period, in tonnes CO_2-e.

$A_{v,p}$ means the carbon dioxide equivalent net abatement amount for aircraft v in phase p for the reporting period, in tonnes CO_2-e, worked out using equation 3, 4 or 5.

Note: For data that must be included in the calculation of net abatement amounts, see section 13.

(3) The carbon dioxide equivalent net abatement amount for aircraft v in phase p for the reporting period, in tonnes CO_2-e, is worked out as follows:

(a) for a service unit other than route or hours using alternative energy source for a phase mentioned in paragraph (c)—using the formula (***equation 3***):

$$A_{v,p} = \sum_r \left(E_{B,v,p,r} - E_{P,v,p,r}\right)$$

(b) for the service unit route—using the formula (***equation 4***):

$$A_{v,p} = \sum_r \left(\overline{E}_{B,v,p,r} \times n_{P,v,r} - E_{P,v,p,r}\right)$$

(c) for the service unit hours using alternative energy source—using the formula (***equation 5***):

$$A_{v,p} = \sum_r \left(I_{BES,v,p,r} - I_{PES,v,p,r}\right) \times t_{v,p,r}$$

where:

$A_{v,p}$ means the carbon dioxide equivalent net abatement amount for aircraft v in phase p for the reporting period, tonnes CO_2-e.

$E_{B,v,p,r}$ means the baseline emissions for aircraft v in phase p on route r, in tonnes CO_2-e, worked out using equation 6.

$E_{P,v,p,r}$ means project emissions for aircraft v in phase p on route r for the reporting period, in tonnes CO_2-e, worked out using equation 10.

$\overline{E}_{B,v,p,r}$ means the average baseline emissions for aircraft v in phase p on route r, in tonnes CO_2-e, worked out using equation 7.

$n_{P,v,r}$ means the number of times aircraft v flew on route r during the reporting period.

$I_{BES,v,p,r}$ means the emissions intensity of the baseline energy source used for aircraft v in phase p on route r in the year immediately before the commencement of the reporting period in which the aircraft is first included in the project, in tonnes CO_2-e per hour, worked out using equation 9.

$I_{PES,v,p,r}$ means the emissions intensity of the project energy source used for aircraft v in phase p on route r for the reporting period, in tonnes CO_2-e per hour, worked out using equation 9.

$t_{v,p,r}$ means the time, in hours, during which aircraft v in phase p on route r used an alternative energy source as part of a project activity during the reporting period, worked out in accordance with the monitoring requirements.

Note: If equation 3, 4 or 5 is used for a particular phase of aircraft operation for a particular aircraft for a reporting period, the equation will be used for that phase of aircraft operation for that aircraft for the remainder of the project: see subsection 10(2).

(4) The baseline emissions ($E_{B,v,p,r}$) for aircraft v in phase p on route r, in tonnes CO_2-e, is worked out using the formula (***equation 6***):

$$E_{B,v,p,r} = I_{B,v,p,r} \times Q_{S,v,p,r}$$

where:

$E_{B,v,p,r}$ means the baseline emissions for aircraft v in phase p on route r, in tonnes CO_2-e.

$I_{B,v,p,r}$ means the baseline emissions intensity for aircraft v in phase p on route r in the year immediately before the commencement of the reporting period in which the aircraft is first included in the project, in tonnes CO_2-e per service unit, worked out using equation 8.

$Q_{S,v,p,r}$ means quantity of service provided by aircraft v in phase p on route r during the reporting period, worked out in accordance with the monitoring requirements.

(5) The average baseline emissions ($\overline{E}_{B,v,p,r}$) for aircraft v in phase p on route r, in tonnes CO_2-e, is worked out using the formula (***equation 7***):

$$\overline{E}_{B,v,p,r} = \frac{E_{B,v,p,r}}{n_{B,v,r}}$$

where:

$\overline{E}_{B,v,p,r}$ means the average baseline emissions for aircraft v in phase p on route r, in tonnes CO_2-e.

$E_{B,v,p,r}$ means the baseline emissions for aircraft v in phase p on route r in the year immediately before the commencement of the reporting period in which the aircraft is first included in the project, in tonnes CO_2-e, worked out using equation 10.

$n_{B,v,r}$ means the number of times aircraft v flew on route r in the year immediately before the commencement of the reporting period in which the aircraft is first included in the project.

19 General equations

(1) The emissions intensity for an aircraft for a phase on a route, in tonnes CO_2-e per service unit, for a particular period is worked out using the formula (***equation 8***):

$$I = \frac{E}{Q_S}$$

where:

I means the emissions intensity for the aircraft for the phase on the route, in tonnes CO_2-e per service unit, for the period.

E means the total emissions for the aircraft for the phase on the route for the period, in tonnes CO_2-e, worked out using equation 10.

Q_S means quantity of service provided by the aircraft for the phase on the route during the period determined in accordance with the monitoring requirements.

(2) The emissions intensity for a particular energy source for an aircraft for a phase on a route, in tonnes CO_2-e per hour, for a particular period is worked out as follows (***equation 9***):

$$I = \frac{E}{t}$$

where:

I means the emissions intensity for the energy source for the aircraft for a phase on the route, in tonnes CO_2-e per hour, for the period.

E means the total emissions for the aircraft for the phase on the route when using the energy source for the period, in tonnes CO_2-e, worked out using equation 10.

t means the time in hours that the aircraft used the energy source in the phase on the route during the period determined in accordance with the monitoring requirements.

(3) The total emissions for an aircraft for a phase on a route for a particular period, in tonnes CO_2-e, is worked out using the formula (***equation 10***):

$$E = E_F + E_{EC}$$

where:

E means the total emissions for the aircraft for the phase on the route for the period, in tonnes CO_2-e.

E_F means the emissions for the aircraft for the phase on the route for the period from transport fuel use, in tonnes CO_2-e, worked out using equation 11.

E_{EC} means the emissions for the aircraft for the phase on the route for the period from consumed electricity used to operate the aircraft, in tonnes CO_2-e, worked out using equation 12.

(4) The emissions for an aircraft for a phase on a route for a particular period from transport fuel, in tonnes CO_2-e, is worked out using the formula (***equation 11***):

$$E_F = \sum_i \sum_j E_{F,i,j}$$

where:

E_F means the emissions for the aircraft for the phase on the route for the period from transport fuel, in tonnes CO_2-e.

$E_{F,i,j}$ means emissions for the aircraft and its auxiliary equipment for the phase on the route from fuel type i of greenhouse gas j, in tonnes CO_2-e, worked out using the formula:

$$E_{F,i,j} = \frac{Q_{F,i} \times EC_i \times EF_{i,j}}{1\,000}$$

where:

$Q_{F,i}$ means the quantity of fuel type i used to operate the aircraft and its auxiliary equipment for the phase on the route during the period in cubic metres, kilolitres or gigajoules determined in accordance with the monitoring requirements.

EC_i means the energy content factor in gigajoules per kilolitre or other appropriate units for fuel type i determined in accordance with the monitoring requirements.

$EF_{i,j}$ means the emissions factor in kilograms CO_2-e per gigajoule for each gas type j for combustion of fuel type i determined in accordance with the monitoring requirements.

(5) The emissions for an aircraft for a phase on a route for a particular period, from consumed electricity, in tonnes CO_2-e, is worked out using the formula (***equation 12***):

$$E_{EC} = \max(0, Q_{EC} - Q_{Ren}) \times \frac{EF_{EC}}{1\,000}$$

where:

E_{EC} means the emissions for the aircraft for the phase on the route for the period from consumed electricity, in tonnes CO_2-e.

Q_{EC} means the quantity of electricity used to power the aircraft and its auxiliary equipment for the phase on the route during the period, in kilowatt hours, determined in accordance with the monitoring requirements.

Q_{Ren} means the quantity of eligible renewable electricity used to power the aircraft and its auxiliary equipment for the phase on the route during the period, in kilowatt hours, determined in accordance with monitoring requirements.

EF_{EC} means:

(a) for electricity obtained from an electricity grid that is a grid in relation to which the NGA Factors document in force on the declaration day includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour; or

(b) for electricity obtained from an electricity grid not covered by paragraph (a) or from a source other than an electricity grid:

(i) if the supplier of the electricity is able to provide an emissions factor that reflects the emissions intensity of the electricity and is applicable

on the declaration day—that factor, in kilograms CO_2-e per kilowatt hour; or

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

(6) For subparagraph (b)(i) of the definition of $\boldsymbol{EF_{EC}}$ in subsection (5), 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.

Part 5—Reporting, record-keeping and monitoring requirements

Division 1—Offsets report requirements

20 Operation of this Part

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

Note: The offsets report requirements in this determination are in addition to any offsets report requirements set out in the Act, or in regulations or rules made under the Act.

21 Determination of certain factors and parameters

(1) If, in the circumstances described in paragraph 6(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 27 for the purpose of working out the carbon dioxide equivalent net abatement amount for an aviation 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.

22 Division of project into smaller projects

For subsection 77A(2) of the Act, the smallest part into which an aviation project may be divided for the purposes of giving the Regulator an offsets report in relation to the part is a part made up of a single aircraft.

Division 2—Record-keeping requirements

23 Operation of this Division

For paragraph 106(3)(c) of the Act, this Division sets out record-keeping requirements for an aviation project that is an eligible offsets project.

Note: The record-keeping requirements in this determination are in addition to any record-keeping requirements set out in the Act, or in regulations or rules made under the Act.

24 Record-keeping requirements

(1) The project proponent must keep the following records for each reporting period for each aircraft in the project during the reporting period:
  (a) the registration number and make of the aircraft;
  (b) any period for which the aircraft was not operational (including because the aircraft was sold or otherwise disposed of);
  (c) if the aircraft was sold or otherwise disposed of:
    (i) the date of the sale or disposal; and
    (ii) the reasons for the sale or disposal;
  (d) the project activities (if any) performed on the aircraft;
  (e) the phases and routes to which project activities were applied;
  (f) the phases not affected by project activities.

(2) If the project involves changing operational practices, the project proponent must keep the records for each reporting period that detail the changes to operational practices, including details of the aircraft, phases and routes to which the changes relate.

(3) If auxiliary equipment is used to power, operate or assist in powering or operating an aircraft in a phase affected by project activities, the project proponent must keep records that show whether or not the equipment was installed as part of the project.

Division 3—Monitoring requirements

25 Operation of this Division

For paragraph 106(3)(d) of the Act, this Division sets out requirements to monitor an aviation project that is an eligible offsets project.

Note: The monitoring requirements in this determination are in addition to any monitoring requirements set out in the Act, or in regulations or rules made under the Act.

26 Requirements to monitor certain parameters

(1) The project proponent for an aviation 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_S	Quantity of service	In accordance with Schedule 1	Monitored: (a) in accordance with industry practice for the service unit; or (b) using an on-board electronic recording device that monitors in the service unit used for the phase concerned. For taxi in and taxi out, and where kilometres are chosen as the service unit, the actual ground distance travelled must be used. Frequency—continuously
2	Q_F	The quantity of fuel	Kilolitres, cubic metres or gigajoules	For aircraft, measured using: (a) an on-board electronic recording device that monitors fuel use by phase; or (b) a commercial grade meter. For auxiliary equipment, measured using: (a) a commercial grade meter; or (b) relevant purchase records; or (c) if neither of the above are available, an estimate using relevant data for the equipment that is based on average fuel burn per hour. Frequency—continuously
3	Q_{EC}	The quantity of electricity used to power an aircraft and	Kilowatt hours. If Q_{EC} is measured in gigajoules, the quantity of kilowatt	Measured using: (a) a commercial grade meter; or (b) relevant purchase records.

Monitored parameters				
Item	**Para-meter**	**Description**	**Unit**	**Measurement procedure (including frequency as required)**
		its auxiliary equipment	hours must be calculated by dividing the amount of gigajoules by the conversion factor of 0.0036	Frequency—continuously
4	Q_{Ren}	The quantity of eligible renewable electricity used to power an aircraft and its auxiliary equipment	Kilowatt hours. If Q_{Ren} is measured in gigajoules, the quantity of kilowatt hours must be calculated by dividing the amount of gigajoules by the conversion factor of 0.0036	Measured using one or more of the following, or derived from measurements from one or more of the following using a mathematical formula with no observable loss of precision: (a) a commercial grade meter; (b) relevant generation records, such as records from an energy retailer or network operator; (c) an inverter that: (i) satisfies the requirements of Australian Standard AS 4777 as in force from time to time; or (ii) is on the list of approved inverters maintained by the Clean Energy Council, as it exists from time to time. (The list of approved inverters could in 2015 be viewed on the Clean Energy Council's website (http: //www.solaraccreditation.com.au)). Frequency—continuously
5	$EF_{i,j}$	Emission factor for gas type j released from the combustion of fuel type i	Kilograms CO_2-e per gigajoule	Worked out: (a) where j is methane—using the emission factor for methane released from the combustion of fuel type i set out in Part 3 or 4 of Schedule 1 to the NGER (Measurement) Determination; or (b) where j is nitrous oxide—using the emission factor for nitrous oxide released from the combustion of fuel type i in Part 3 or 4 of Schedule 1 to the NGER (Measurement) Determination; or (c) where j is carbon dioxide—using one of the following options: (i) using the emission factor for carbon dioxide released from the combustion of fuel type i set out in Part 3 or 4 of

Monitored parameters				
Item	**Para-meter**	**Description**	**Unit**	**Measurement procedure (including frequency as required)**
				Schedule 1 to the NGER (Measurement) Determination; (ii) in accordance with Division 2.4.3 of the NGER (Measurement) Determination; (iii) in accordance with Division 2.4.4 of the NGER (Measurement) Determination. However, the option used to work out EF_j where j is carbon dioxide, must be used for all vehicles in the project, and: (a) if the option in subparagraph (c)(ii) is used for a reporting period, then only an option in subparagraph (c)(ii) or (c)(iii) may be used for subsequent reporting periods; or (b) if the option in subparagraph (c)(iii) is used for a reporting period, then that option must be used for subsequent reporting periods. Frequency—in accordance with the NGER (Measurement) Determination
6	EC_i	Energy content factor for fuel type i	Gigajoules per kilolitre	One of the following: (a) using the energy content factor of fuel type i in Part 3 or 4 of Schedule 1 to the NGER (Measurement) Determination; (b) estimated by analysis in accordance with Subdivision 2.4.3.2 of the NGER (Measurement) Determination; (c) estimated by analysis in accordance with Division 2.4.4 of the NGER (Measurement) Determination. However, the option used to work out EC_i must be used for all vehicles that are part of the project, and: (a) if the option in paragraph (b) (above) is used for a reporting period, then only the option in paragraph (b) (above) or (c) may be used for subsequent reporting periods; or (b) if the option in paragraph (c) is used for a reporting period, then that option must be used for subsequent

Monitored parameters

Item	Para-meter	Description	Unit	Measurement procedure (including frequency as required)
				reporting periods. Frequency—in accordance with the NGER (Measurement) Determination
7	***t***	Time using alternative energy sources	Hours	Measured using: (a) a commercial grade meter; or (b) relevant purchase records; or (c) if neither of the above are available, an estimate using relevant data for the alternative energy source. Frequency—continuously

(2) Any equipment or device used to monitor a parameter must be calibrated by an accredited technician at intervals, and using methods, that are in accordance with the manufacturer's specifications.

Note: If subsection (1) requires a parameter to be monitored continuously, it must be monitored at intervals that are appropriate for substantiating the parameter.

(3) Monitoring under this section must be done in accordance with the appropriate measuring requirements.

(4) In this section:

appropriate measuring requirements, in relation to a measurement or estimate, means requirements that are consistent with:

(a) requirements that apply in relation to similar measurements or estimates under the NGER (Measurement) Determination; or

(b) relevant standards and other requirements under the *National Measurement Act 1960*.

27 Consequences of not meeting requirement to monitor certain parameters

(1) If, during a particular period (the ***non-monitored period***) in a reporting period, the project proponent for an aviation project fails to monitor a parameter as required by the monitoring requirements, the value of the parameter for the purpose of working out the activity abatement portions 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) Q_S; (b) Q_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

Consequence of not meeting requirement to monitor certain parameters		
Item	**Parameter**	**Determination of parameter for non-monitored period**
	(c) Q_{EC}; (d) t.	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.
2	If either of the following has been worked out in accordance with Division 2.4.3 or 2.4.4 of the NGER (Measurement) Determination (apart from during the non-monitored period): (a) $EF_{i,j}$; (b) EC_i.	The project proponent must use the estimate of the parameter where: (a) for any cumulative period of up to 3 months in any 12 months of a crediting period for the project—the factor for fuel type i and greenhouse gas j in Part 3 or 4 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 fuel type i and greenhouse gas j in Part 3 or 4 of Schedule 1 to the NGER (Measurement) Determination multiplied by 1.5.

(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:

(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.

Schedule 1—Service units

Note: See the definition of ***service unit*** in section 5.

1 Service units

The following table sets out service units for phases of aircraft operation.

Service units for phases of aircraft operation

Item	Phase	Service unit
1	Cruise	passenger hour, tonne hour or route
2	Descent and landing	hour or route
3	Take-off and climb	hour or route
4	Taxi in	kilometre, hour, route or hours using alternative energy source
5	Taxi out	kilometre, hour, route or hours using alternative energy source
6	Transit	hour, route or hours using alternative energy source