



Carbon Credits (Carbon Farming Initiative— Land and Sea Transport) Methodology Determination 2015

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

Dated 13 February 2015

Greg Hunt
Minister for the Environment

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Part 1—Preliminary

1 Name

This is the *Carbon Credits (Carbon Farming Initiative—Land and Sea Transport) 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- (b) ends on the day before this determination would otherwise be repealed under subsection 50(1) of the *Legislative Instruments Act 2003*.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*.

aggregated individual vehicles project means a project that meets the requirements of section 14.

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

appropriate measuring requirements has the meaning given by subsection 33(4).

articulated trucks, as a vehicle category, means vehicles:

- (a) built primarily for transporting goods; and
- (b) that consist of:
 - (i) a prime mover with no significant carrying area; and
 - (ii) at times, one or more trailers linked to the prime mover and each other by turntable devices.

Australia, when used in a geographical sense, includes the external Territories and the exclusive economic zone.

buses, as a vehicle category, means passenger vehicles with 10 or more seats, including the driver's seat.

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business unit means a part of a transport operation that is, to some extent, administered separately.

coastal shipping, as a vehicle category, means vessels for transporting goods.

common control, in relation to groups of vehicles, means the groups of vehicles are:

- (a) owned by the same person; or
- (b) dealt with as if they were owned by the same person.

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.

decline rate, for a service unit for a vehicle category, means the rate set out in the table in clause 1 of Schedule 2.

diesel passenger rail, as a vehicle category means rolling stock that uses diesel fuel to transport passengers on a heavy rail system.

duty cycle, for a vehicle, means the kind of work done by the vehicle taking into account the factors that materially affect emissions intensity, such as:

- (a) the purposes for which the vehicle is used; and
- (b) types of goods carried; and
- (c) areas or routes of operation.

dwt_{nmi} means dead weight tonne nautical miles.

electric passenger rail, as a vehicle category, means rolling stock that uses electricity to transport passengers on a heavy rail system.

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).

ferries, as a vehicle category, means vessels for transporting passengers within a city or region.

Green Vehicle Guide means the information published on the Green Vehicle Guide website (<http://www.greenvehicleguide.gov.au>) from time to time.

group of vehicles project means a project that meets the requirements of section 11.

heavy rail system means a rail network with the following features:

- (a) exclusive rights-of-way;
- (b) sophisticated signalling;
- (c) high platform loading;
- (d) capacity for the following:
 - (i) high volumes of traffic;
 - (ii) multi-car units;
 - (iii) high speeds;
 - (iv) rapid acceleration.

land and sea transport project has the meaning given by subsection 7(3).

light passenger rail, as a vehicle category, means rolling stock:

- (a) in the nature of street-cars (such as trams and monorails); and
- (b) for transporting passengers over short distances; and
- (c) with semi-exclusive or exclusive rights of way; and
- (d) of a kind that is often operated by line-of-sight.

light vehicles, as a vehicle category:

- (a) means vehicles with:
 - (i) fewer than 10 seats (including the driver's seat); and
 - (ii) a gross vehicle mass of less than 3.5 tonnes; and
- (b) includes two-wheeled machines, cars, station wagons, four-wheel drive vehicles, utes, vans, mini buses and campervans.

mobile equipment means off-road self-propelled machinery that is not covered by another vehicle category.

modification, in relation to a vehicle, includes:

- (a) the removal or addition of vehicle components; and
- (b) changes to the structure of the vehicle.

monitoring requirements means the requirements set out in section 33.

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*.

non-freight-carrying trucks, as a vehicle category:

- (a) means specialist motor vehicles or motor vehicles fitted with special purpose equipment with little or no goods carrying capacity; and
- (b) includes waste collection vehicles, ambulances, cherry pickers, fire trucks and tow trucks.

operational practices include, but are not limited to, the following:

- (a) driver training;
- (b) route scheduling;
- (c) vehicle maintenance scheduling.

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original duty cycle, for a vehicle, means the duty cycle for the vehicle in the year used to determine historic emissions intensity for the vehicle (see subsection 24(1)).

pkm means passenger kilometres.

pnmi means passenger nautical miles.

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

rail freight, as a vehicle category, means rolling stock for transporting goods.

reference group, for a vehicle *v* in relation to a year, means all other vehicles that:

- (a) were in the same transport operation or business unit as vehicle *v* in the year; and
- (b) were of the same vehicle category or vehicle sub-category as vehicle *v*; and
- (c) had duty cycles comparable with the duty cycle of vehicle *v*.

related groups, of vehicles, has the meaning given by subsection 11(5).

replacement vehicle means a vehicle that:

- (a) replaced a vehicle (the **replaced vehicle**) in a project during the reporting period concerned; and
- (b) was not, before the replacement, subject to the operational control of the person who controlled the replaced vehicle.

rigid trucks, as a vehicle category:

- (a) means motor vehicles:
 - (i) built primarily for transporting goods; and
 - (ii) exceeding 3.5 tonnes gross vehicle mass; and
- (b) includes trucks covered by paragraph (a) with tow bars, draw bars or other non-turntable coupling device at the rear of the vehicle.

service unit means a unit of measure set out in the table in clause 1 of Schedule 1.

sub-group has the meaning given by subsection 11(3).

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 voyage.

tkm means tonne kilometres.

tnmi means tonne nautical miles.

transport operation means transport services operated by:

- (a) a business, whether or not as the primary activity of the business; or
- (b) a State or Territory.

vehicle includes the following:

- (a) rolling stock;
- (b) vessels;
- (c) mobile equipment.

vehicle category means a category set out in the table in clause 1 of Schedule 1 in the column headed “Vehicle category”.

vehicle sub-category means vehicles within a vehicle category that can be identified as a sub-category of the vehicle category, for the purposes of a land and sea transport project, on the basis of one or more of the following:

- (a) type of vehicle;
- (b) gross vehicle mass;
- (c) passenger or freight capacity.

vkt means vehicle kilometres travelled.

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—Land and sea transport projects

7 Land and sea transport 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) replacing vehicles;
 - (ii) modifying existing vehicles;
 - (iii) changing energy sources (fuels and electricity) or the mix of energy sources for vehicles;
 - (iv) changing operational practices.
- (2) The vehicles may be land vehicles, marine vessels or a combination of both.
- (3) A project covered by subsection (1) is a *land and sea transport project*.
- (4) A land and sea transport project may be one of the following:
 - (a) a group of vehicles project;
 - (b) an aggregated individual vehicles project.

Part 3—Project requirements

Division 1—General requirements

8 Operation of this Part

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

Note: General requirements for land and sea transport projects are set out in this Division, and additional requirements are set out:

- (a) for a group of vehicles project—in Division 2; and
- (b) for an aggregated individual vehicles project—in Division 3.

9 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.

10 Data from previous years

The project proponent must have the data from previous years, for the group of vehicles or individual vehicles and any equipment concerned, 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:

- (a) for a group of vehicles project—see subsections 21(4) and (5); and
- (b) for an aggregated individual vehicles project—see subsections 24(4) to (6).

Division 2—Requirements for group of vehicles projects

11 Group of vehicles

- (1) A group of vehicles project must be used in relation to a group of vehicles.
- (2) The group of vehicles must be made up of one or more sub-groups.
- (3) Each **sub-group** must include all the vehicles of the same vehicle category used from time to time by:
 - (a) a transport operation; or
 - (b) a business unit.
- (4) A vehicle must not be moved to or from a related group of vehicles for the dominant purpose of producing carbon abatement for the project.
- (5) Vehicles are in **related groups** if they are subject to common control.

Note: This rule is to prevent vehicles being replaced vehicles by no more than moving them within an organisation or between related organisations.
- (6) The project must not be used for mobile equipment.

12 Information to be included in application for declaration

- (1) The application for a group of vehicles project must include descriptions of the following:
 - (a) the sub-groups to be covered by the project, including the vehicle categories and an estimate of the number of vehicles in each sub-group;
 - (b) the transport operations or business units concerned;
 - (c) the duty cycles of the vehicles to be covered by the project;
 - (d) the project activities for each sub-group.

Note: For **project activities**, see subsection 7(1).
- (2) The application must also set out:
 - (a) the service unit to be used for each sub-group; and
 - (b) any intended use of the Green Vehicle Guide (including a statement about why fuel consumption cannot be measured).
- (3) The descriptions required by paragraphs (1)(c) and (d) may be done by class, where appropriate, including by reference to vehicle categories, transport operations or business units.

13 Service units

If the project uses a service unit for a vehicle category for one reporting period, the project must use the same service unit for the vehicle category for every other reporting period.

Division 3—Requirements for aggregated individual vehicles projects

14 Aggregated individual vehicles

- (1) An aggregated individual vehicles project must be used in relation to one or more individual vehicles.
- (2) The project must not be used for light vehicles.

15 Information to be included in application for declaration

- (1) The application for an aggregated individual vehicles project must include descriptions of the following:
 - (a) the duty cycles of the vehicles;
 - (b) the project activities involved.

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

- (2) The application must also set out:
 - (a) an estimate of the number and categories of vehicles to be included in the project; and
 - (b) the service unit to be used for each vehicle.
- (3) The descriptions required by paragraphs (1)(a) and (b) may be done by class, where appropriate, including by reference to vehicle categories.

16 Service units

- (1) If the project uses a service unit for a vehicle for one reporting period, the project must use the same service unit for the vehicle for every other reporting period.
- (2) For a vehicle that carries both freight and passengers, passengers may be converted to weight at the rate of 78kg per passenger if the conversion is used consistently in working out each carbon dioxide equivalent net abatement amount for all reporting periods for the project.

Part 4—Net abatement amounts

Division 1—Operation of this Part

17 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 a land and sea transport project that is an eligible offsets project.

18 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 a land and sea transport 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 ₂ O)
2	Baseline emissions	Electricity consumption (as transport fuel)	Carbon dioxide (CO ₂) Methane (CH ₄) Nitrous oxide (N ₂ O)
3	Project emissions	Fuel combustion	Carbon dioxide (CO ₂) Methane (CH ₄) Nitrous oxide (N ₂ O)
4	Project emissions	Electricity consumption (as transport fuel)	Carbon dioxide (CO ₂) Methane (CH ₄) Nitrous oxide (N ₂ O)

Division 2—Group of vehicles projects

19 Operation of this Division

This Division specifies the method for working out the carbon dioxide equivalent net abatement amount for a reporting period for a land and sea transport project that is a group of vehicles project.

20 Project summary—group of vehicles

Proponents undertaking this project treat all vehicles of the same vehicle category in a transport operation or business unit as a sub-group. Monitoring and treatment is conducted at the sub-group level.

The baseline scenario is that emissions intensity will either improve or stay constant within a sub-group, depending on the vehicle category. To set the baseline for each sub-group, a decline rate based on the vehicle category and service unit is applied to the historic emissions intensity of the sub-group, to account for business-as-usual improvements.

Some proponents may not be able to monitor fuel use (for example, hire car and fleet car companies). In this instance, and for the vehicle category of light vehicles only, the baseline emissions intensity can be set using the Green Vehicle Guide. The result of not being able to monitor fuel data is that the only project activity able to be credited is vehicle replacement. The emissions intensity in a particular period for the sub-group is set as the average emissions intensity of the vehicles within the sub-group, based on their make, model and year.

The baseline emissions for a vehicle sub-group are calculated as the baseline emissions intensity multiplied by project quantity of service. The net abatement amount is the baseline emissions minus the project emissions. Where this calculation results in negative abatement, it is set to zero for that sub-group. Total net abatement is the aggregation of all vehicle sub-group net abatements.

21 Net abatement amount—group of vehicles

- (1) The carbon dioxide equivalent net abatement amount for the group of vehicles for the reporting period, in tonnes CO₂-e, is worked out using the formula (*equation 1*):

$$A = \sum_c A_c$$

where:

A means the carbon dioxide equivalent net abatement amount for the group of vehicles for the reporting period, in tonnes CO₂-e.

Part 4 Net abatement amounts

Division 2 Group of vehicles projects

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A_c means the carbon dioxide equivalent net abatement amount for vehicle sub-group c for the reporting period, in tonnes CO₂-e, worked out using equation 2.

- (2) The carbon dioxide equivalent net abatement amount for vehicle sub-group c for the reporting period, in tonnes CO₂-e, is worked out using the formula (**equation 2**):

$$A_c = \max\left(0, E_{B,c} - E_{P,c}\right)$$

A_c means the carbon dioxide equivalent net abatement amount for vehicle sub-group c for the reporting period, in tonnes CO₂-e.

$E_{B,c}$ means baseline emissions for vehicle sub-group c for the reporting period, in tonnes CO₂-e, worked out using equation 3.

$E_{P,c}$ means project emissions for vehicle sub-group c for the reporting period, in tonnes CO₂-e, worked out using equation 16.

- (3) The baseline emissions for vehicle sub-group c for the reporting period, in tonnes CO₂-e, is worked out using the formula (**equation 3**):

$$E_{B,c} = I_{B,c} \times Q_{S,c}$$

$E_{B,c}$ means baseline emissions for vehicle sub-group c for the reporting period, in tonnes CO₂-e.

$I_{B,c}$ means the baseline emissions intensity, in tonnes CO₂-e per service unit, for the vehicles in vehicle sub-group c for the reporting period worked out using equation 4.

$Q_{S,c}$ means the quantity of service for the vehicles in vehicle sub-group c for the reporting period, in service units, determined in accordance with the monitoring requirements.

- (4) The baseline emissions intensity, in tonnes CO₂-e per service unit, for the vehicles in vehicle sub-group c for the reporting period is worked out using the formula (**equation 4**):

$$I_{B,c} = I_{H,c} \times D_c^y$$

where:

$I_{B,c}$ means the baseline emissions intensity, in tonnes CO₂-e per service unit, for the vehicles in vehicle sub-group c for the reporting period.

$I_{H,c}$ means the historic emissions intensity, in tonnes CO₂-e per service unit, for vehicles in vehicle sub-group c worked out using equation 5.

D_c means the decline rate for the service unit for vehicle sub-group c determined in accordance with the table in clause 1 of Schedule 2.

y means the year of the project in which the reporting period ends (where the first year after the declaration of the project is 1, the second year after the declaration of the project is 2, and so on).

- (5) The historic emissions intensity, in tonnes CO₂-e per service unit, for the vehicles in vehicle sub-group c is worked out using the formula (*equation 5*):

$$I_{H,c} = \min(I_{c,y})$$

$$y \in \{0, -1, -2\}$$

where:

$I_{H,c}$ means the historic emissions intensity, in tonnes CO₂-e per service unit, for the vehicles in vehicle sub-group c.

$I_{c,y}$ means emissions intensity, in tonnes CO₂-e per service unit, for the vehicles in vehicle sub-group c in year y where:

- (a) θ is the year immediately before the declaration of the project; and
- (b) I is worked out for the vehicles in the vehicle sub-group using equation 14 or 15, as required.

Division 3—Aggregated individual vehicles projects

22 Operation of this Division

This Division specifies the method for working out the carbon dioxide equivalent net abatement amount for a reporting period for a land and sea transport project that is an aggregated individual vehicles project.

23 Project summary—aggregated individual vehicles

Proponents undertaking this project monitor and treat vehicles individually. The resulting abatement from the individual vehicles is then aggregated. The baseline scenario for an individual vehicle is dependent on project activity, vehicle category and data availability.

For an individual vehicle, the baseline scenario is that its emissions intensity will not improve without treatment. The baseline is therefore set as the historic emissions intensity of the vehicle prior to the abatement activity being undertaken.

If the vehicle is replaced, then the baseline scenario is that the vehicle would be replaced with one that is similar to it or other comparable vehicles in the operation or business unit. The baseline is therefore set at the lower of the following:

- (a) the historic emissions intensity of the vehicle being replaced;
- (b) the emissions intensity of a reference group comprised of vehicles in the same category or sub-category within the same transport operation or business unit.

If the vehicle is a ship that must comply with Annex VI of the International Convention for the Prevention of Pollution from Ships, then the baseline emissions intensity is set as the required Energy Efficiency Design Index, as this effectively acts as a regulatory baseline.

Vehicle baseline emissions are calculated as the baseline emissions intensity multiplied by the quantity of services. The vehicle net abatement amount is the vehicle baseline emissions minus the vehicle project emissions. Where this results in negative abatement, the abatement is set at zero for that vehicle.

Vehicle net abatement amounts are then aggregated across all vehicles in the project to derive the total net abatement amount.

24 Net abatement amount—aggregated individual vehicles

- (1) The carbon dioxide equivalent net abatement amount for the vehicles in the project for the reporting period, in tonnes CO₂-e, is worked out using the formula (*equation 6*):

$$A = \sum_v A_v$$

where:

A means the carbon dioxide equivalent net abatement amount for the vehicles in the project for the reporting period, in tonnes CO₂-e.

A_v means the abatement for vehicle v for the reporting period, in tonnes CO₂-e, worked out as follows:

(a) if either:

- (i) vehicle v retained its original duty cycle for 80% or more of the reporting period; or
- (ii) vehicle v is a replacement vehicle that has the same duty cycle as the vehicle it replaced, and the replaced vehicle is sold or disposed of within 90 days before or after the replacement vehicle is first used in the project;

using the formula:

$$A_v = \max\left(0, E_{B,v} - E_{P,v}\right)$$

(b) if either:

- (i) vehicle v has changed its original duty cycle for more than 20% of the reporting period; or
- (ii) vehicle v is a replacement vehicle but subparagraph (a)(ii) does not apply;

using the formula:

$$A_v = 0$$

where:

$E_{B,v}$ means the baseline emissions for vehicle v , in tonnes CO₂-e, worked out using equation 7.

$E_{P,v}$ means project emissions for vehicle v for the reporting period, in tonnes CO₂-e, worked out using equation 16.

- (2) The baseline emissions for vehicle v , in tonnes CO₂-e, is worked out using the formula (**equation 7**):

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

where:

$E_{B,v}$ means the baseline emissions for vehicle v , in tonnes CO₂-e.

$I_{B,v}$ means the baseline emissions intensity, in tonnes CO₂-e per service unit, for vehicle v for the reporting period worked out using equation 8, 9 or 10, as required.

$Q_{S,v}$ means quantity of service provided by vehicle v during the reporting period, in service units, determined in accordance with the monitoring requirements.

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- (3) The baseline emissions intensity, in tonnes CO₂-e per service unit, for vehicle v for the reporting period is worked out as follows:
- (a) if vehicle v is a ship that must comply with the Energy Efficiency Design Index (EEDI) under the *Navigation Act 2012*, the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and Marine Order 97—using the formula (**equation 8**);

$$I_{B,v} = \min\left(I_{Reg,v}, I_{H,v}\right)$$

- (b) if vehicle v is not a replacement vehicle and not covered by paragraph (a)—using the formula (**equation 9**);

$$I_{B,v} = I_{H,v}$$

- (c) if vehicle v is a replacement vehicle not covered by paragraph (a)—using the formula (**equation 10**);

$$I_{B,v} = \min\left(I_{R,v}, I_{H,Rep}\right)$$

where:

I_{B,v} means the baseline emissions intensity, in tonnes CO₂-e per service unit, for vehicle v for the reporting period.

I_{H,v} means the historic emissions intensity, in tonnes CO₂-e per service unit, for vehicle v worked out using equation 11.

I_{H,Rep} means the historic emissions intensity, in tonnes CO₂-e per service unit, of the vehicle replaced by vehicle v worked out using equation 12.

I_{R,v} means the emissions intensity, in tonnes CO₂-e per service unit, for the reference group for vehicle v worked out using equation 13.

I_{Reg,v} is worked out using the formula:

$$I_{Reg,v} = \frac{I_{EEDI} \times 10^{-6}}{EF_{i,CO_2} \times F_{nmi}} \times \sum_j EF_{ij}$$

where:

I_{Reg,v} means the regulatory baseline emissions intensity, in tonnes CO₂-e per service unit, for replacement ships.

I_{EEDI} means the emissions intensity, in grams CO₂ per tonne-nautical mile, of the EEDI target for vehicle v when it becomes a replacement ship set as set out in Regulation 21 of Annex VI of the International Convention for the Prevention of Pollution from Ships.

EF_{i,CO2} means the emissions factor in kilograms of CO₂-e per gigajoule for fuel type i for CO₂ determined in accordance with the monitoring requirements.

F_{nmi} means:

- (a) if service units are in nautical miles—1; or
 (b) if service units are in kilometres—1.852.

$EF_{i,j}$ means the emissions factor in kilograms of CO₂-e per gigajoule for fuel type i for each gas type j determined in accordance with the monitoring requirements.

- (4) The historic emissions intensity, in tonnes CO₂-e per service unit, for vehicle v is worked out using the formula (**equation 11**):

$$I_{H,v} = \min\left(I_{v,y}\right)$$

$$y \in \{0, -1, -2\}$$

where:

$I_{H,v}$ means the historic emissions intensity, in tonnes CO₂-e per service unit, for vehicle v .

$I_{v,y}$ means the emissions intensity, in tonnes CO₂-e per service unit, for vehicle v in year y where:

- (a) θ is the year immediately before the commencement of the reporting period in which the vehicle is first included in the project; and
(b) I is worked out for vehicle v using equation 14.

- (5) The historic emissions intensity, in tonnes CO₂-e per service unit, of the vehicle replaced by vehicle v is worked out using the formula (**equation 12**):

$$I_{H,Rep} = \min\left(I_{Rep,y}\right)$$

$$y \in \{0, -1, -2\}$$

where:

$I_{H,Rep}$ means the historic emissions intensity, in tonnes CO₂-e per service unit, of the vehicle replaced by vehicle v .

$I_{Rep,y}$ means the emissions intensity, in tonnes CO₂-e per service unit, for the vehicle replaced by vehicle v in year y where:

- (a) θ is the year immediately before the commencement of the reporting period in which the vehicle is first included in the project; and
(b) I is worked out for vehicle v using equation 14.

- (6) The emissions intensity, in tonnes CO₂-e per service unit, for the reference group for vehicle v is worked out using the formula (**equation 13**):

$$I_{R,v} = \min\left(\text{average}\left(I_{r,y}\right)\right)$$

$$y \in \{0, -1, -2\}$$

where:

$I_{R,v}$ means the emissions intensity, in tonnes CO₂-e per service unit, for the reference group for vehicle v .

Part 4 Net abatement amounts

Division 3 Aggregated individual vehicles projects

Section 24

$I_{r,y}$ means the emissions intensity, in tonnes CO₂-e per service unit, for vehicle r in the reference group in year y where:

- (a) θ is the year immediately before the commencement of the reporting period in which the vehicle is first included in the project; and
- (b) I is worked out for vehicle r using equation 14.

Division 4—Calculating emissions intensity (I)

25 Calculating emissions intensity (I)

- (1) The emissions intensity, in tonnes CO₂-e per service unit, for a vehicle or vehicles in a vehicle category for a particular period is worked out as follows:
- (a) unless paragraph (b) applies—using the formula (*equation 14*):

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

- (b) for light vehicles where fuel consumption cannot be measured—using the formula (*equation 15*):

$$I = \left(\frac{\sum_v \left(I_{GVGComb,v} \times 10^{-6} \times \frac{\sum_j EF_{i,j,v}}{EF_{i,CO_2}} \right)}{n} \right) + \left(\frac{\left(\sum_v I_{GVGElec,v} \times 10^{-6} \right)}{n} \times EF_{EC} \right)$$

where:

I means the emissions intensity, in tonnes CO₂-e per service unit, for the vehicle or vehicles in the vehicle category for the period.

E means the total emissions for the vehicle or vehicles in the vehicle category for the period, in tonnes CO₂-e, worked out using equation 16.

Q_s means quantity of service provided by the vehicle or vehicles in the vehicle category during the period determined in accordance with the monitoring requirements.

I_{GVGComb,v} means the emissions intensity, in grams CO₂ per kilometre, as set out for the vehicle in the Green Vehicle Guide in the column headed “CO₂ g/km Comb” for vehicle v for the period.

I_{GVGElec,v} means:

- (a) the energy consumption for vehicle v, in watt hours per kilometre, as set out for the vehicle in the Green Vehicle Guide in the column headed “Energy Consumption (Wh/km)”; or
- (b) there is no energy consumption for vehicle v set out as mentioned in paragraph (a)—0.

EF_{i,j,v} means the emissions factor in kilograms of CO₂-e per gigajoule for each gas type j for fuel type i for vehicle v determined in accordance with the monitoring requirements.

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EF_{i,CO_2} means the emissions factor in kilograms of CO₂-e per gigajoule for carbon dioxide for fuel type *i* determined in accordance with the 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 CO₂-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 CO₂-e per kilowatt hour; or
 - (ii) otherwise—the emissions factor, in kilograms CO₂-e per kilowatt hour, for off-grid electricity included in the NGA Factors document in force on the declaration day.

n means the number of light vehicles in the project.

Note 1: The use of the Green Vehicle Guide to determine emissions intensity prevents crediting of any activity other than vehicle replacement.

Note 2: Where vehicles in the group do not have corresponding $I_{GVGComb,v}$ data, then the vehicles must be excluded from the calculations.

- (2) The total emissions for a vehicle or vehicles for a particular period, in tonnes CO₂-e, is worked out using the formula (**equation 16**):

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

where:

E means the emissions for the vehicle or vehicles for the period in tonnes CO₂-e.

E_F means the emissions for the vehicle or vehicles for the period from transport fuel use, in tonnes CO₂-e, worked out using equation 17.

E_{EC} means the emissions for the vehicle or vehicles for the period from consumed electricity used to operate the vehicle or vehicles, in tonnes CO₂-e, worked out using equation 18.

- (3) The emissions for a vehicle or vehicles in a vehicle category for a particular period from transport fuel used to operate the vehicles, in tonnes CO₂-e, is worked out using the formula (**equation 17**):

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

where:

E_F means the emissions for the vehicle or vehicles for the period from transport fuel used to operate the vehicles, in tonnes CO₂-e.

$E_{F,i,j}$ means emissions for the vehicle or vehicles from fuel type *i* of greenhouse gas *j*, in tonnes CO₂-e, worked out using the formula:

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

where:

$Q_{F,i}$ means the quantity of fuel type i used to power or operate the vehicle or vehicles 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 the monitoring requirements.

Note: If $Q_{F,i}$ is measured in gigajoules, then $EC_i = 1$.

EF_{ij} means the emissions factor in kilograms of CO₂-e per gigajoule for each gas type j for fuel type i determined in accordance with the monitoring requirements.

- (4) The emissions for a vehicle or vehicles in a vehicle category for a particular period from consumed electricity used to operate the vehicles, in tonnes CO₂-e, is worked out using the formula (*equation 18*):

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

where:

E_{EC} means the emissions for the vehicle or vehicles for the period from consumed electricity used to operate the vehicles, in tonnes CO₂-e.

Q_{EC} means the quantity of electricity used to operate or power the vehicle or vehicles during the period in kilowatt hours, determined in accordance with the monitoring requirements.

Q_{Ren} means the quantity of eligible renewable electricity used to operate or power the vehicle or vehicles during the period in kilowatt hours, determined in accordance with the 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 CO₂-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 CO₂-e per kilowatt hour; or
 - (ii) otherwise—the emissions factor, in kilograms CO₂-e per kilowatt hour, for off-grid electricity included in the NGA Factors document in force on the declaration day.

Part 4 Net abatement amounts

Division 4 Calculating emissions intensity (I)

Section 25

- (5) For subparagraph (b)(i) of the definition of EF_{EC} in subsections (1) and (4), 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

26 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 a land and sea transport 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.

27 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 34 for the purpose of working out the carbon dioxide equivalent net abatement amount for a land and sea transport 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.

28 Use of Green Vehicle Guide

If the Green Vehicle Guide is used in relation to a vehicle for working out the carbon dioxide equivalent net abatement amount for the reporting period, the offsets report must:

- (a) include the details (make, model and fuel type) of the vehicle; and
- (b) if the vehicle is replaced during the reporting period—show that the vehicle was replaced and include the details (make, model and fuel type) of the replacement vehicle; and

Part 5 Reporting, record-keeping and monitoring requirements

Division 1 Offsets report requirements

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- (c) if the vehicle replaced another vehicle during the reporting period—show that the vehicle replaced another vehicle and include the details (make, model and fuel type) of the vehicle that was replaced.

29 Division of project into smaller projects

For subsection 77A(2) of the Act, the smallest part into which a land and sea transport project may be divided for the purposes of giving the Regulator an offsets report in relation to the part is:

- (a) for a group of vehicles project—a sub-group; or
- (b) for an aggregated individual vehicles project—a part made up of a single vehicle.

Division 2—Record-keeping requirements

30 Operation of this Division

For paragraph 106(3)(c) of the Act, this Division sets out record-keeping requirements for a land and sea transport 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.

31 Record-keeping requirements

- (1) The project proponent must keep the following records for each reporting period for each vehicle in the project during the reporting period:
 - (a) the registration number, vehicle category, fuel type, passenger or freight capacity and duty cycle for the vehicle;
 - (b) any period for which the vehicle was not operational (including because the vehicle was sold or otherwise disposed of);
 - (c) if the vehicle 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 vehicle.
- (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.
- (3) If the project is a group of vehicles project, the project proponent must keep records:
 - (a) about the composition of the group and sub-groups in terms of vehicle categories in sufficient detail to support the decline rates used for the project; and
 - (b) if a vehicle moved into or from the project during the period—about:
 - (i) when the movement occurred; and
 - (ii) whether the movement was to or from a related group; and
 - (iii) the reasons for the movement.
- (4) If the project is an aggregated individual vehicles project and a vehicle in the project is replaced, the project proponent must keep records about the replacement, including records about:
 - (a) vehicles associated with the replacement; and
 - (b) when the replacement occurred; and
 - (c) the reasons for the replacement; and
 - (d) the sale or disposal of the vehicle that was replaced; and
 - (e) the reference group for the vehicle.

Note: Records kept for the purposes of paragraph (c) could include records of executive decisions.

Part 5 Reporting, record-keeping and monitoring requirements

Division 2 Record-keeping requirements

Section 31

- (5) If a vehicle (the *first vehicle*) or piece of equipment other than a vehicle is used to power, operate or assist in powering or operating a vehicle in the project, the project proponent must keep records that show whether or not the first vehicle or piece of equipment was installed as part of the project.

Division 3—Monitoring requirements

32 Operation of this Division

For paragraph 106(3)(d) of the Act, this Division sets out requirements to monitor a land and sea transport 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.

33 Requirements to monitor certain parameters

- (1) The project proponent for a land and sea transport 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	Para-meter	Description	Unit	Measurement procedure (including frequency as required)
1	Q_S	Quantity of service	In accordance with Schedule 1	Monitored in accordance with industry practice for the service unit. Frequency—continuously
2	Q_F	The quantity of fuel	Kilolitres, cubic metres or gigajoules	Measured using: (a) a commercial grade meter; or (b) relevant purchase records. Frequency—continuously
3	Q_{EC}	The quantity of electricity used to operate or power a vehicle or vehicles	Kilowatt hours. If Q_{EC} 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: (a) a commercial grade meter; or (b) relevant purchase records. Frequency—continuously
4	Q_{Ren}	The quantity of eligible renewable electricity used to operate or power a vehicle or vehicles	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

Part 5 Reporting, record-keeping and monitoring requirements

Division 3 Monitoring requirements

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Monitored parameters				
Item	Parameter	Description	Unit	Measurement procedure (including frequency as required)
				<p>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.</p> <p>(The list of approved inverters could in 2015 be viewed on the Clean Energy Council's website (http://www.solaraccreditation.com.au)).</p> <p>Frequency—continuously</p>
5	$EF_{i,j}$	Emission factor for gas type j released from the combustion of fuel type i	kg CO ₂ -e/GJ	<p>Worked out:</p> <p>(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</p> <p>(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</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 fuel type i set out in Part 3 or 4 of Schedule 1 to the NGER (Measurement Determination);</p> <p>(ii) in accordance with Division 2.4.3 of the NGER (Measurement Determination);</p> <p>(iii) in accordance with Division 2.4.4 of the NGER (Measurement Determination).</p> <p>However, the option used to work out EF_j where j is carbon dioxide, must be used for all vehicles in the project, and:</p> <p>(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</p>

Monitored parameters				
Item	Para- meter	Description	Unit	Measurement procedure (including frequency as required)
				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	GJ/kL	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 reporting periods. Frequency—in accordance with the NGER (Measurement) Determination

- (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:

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- (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*.

34 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 a land and sea 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 ; (c) Q_{EC} .	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.
2	If either of the following has been worked out in accordance with Division 2.4.3 or 2.4.4 of 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.

Clause 1

Schedule 1—Service unitsNote: See the definition of *service unit* in section 5.**1 Service units**

The following table sets out service units (dwt nmi, pkm, pnmi, tkm, tnmi or vkt) for vehicle categories for land and sea transport projects.

Service units for vehicle categories for land and sea transport projects			
Item	Vehicle category	Group of vehicles project	Aggregated individual vehicles project
1	Light vehicles	vkt	n/a
2	Rigid trucks	vkt or tkm	vkt or tkm
3	Articulated trucks	vkt or tkm	vkt or tkm
4	Buses	vkt or pkm	vkt or pkm
5	Non-freight-carrying trucks	vkt or m ³ km	vkt or m ³ km
6	Rail freight	tkm	tkm
7	Electric passenger rail	pkm	pkm
8	Light passenger rail	pkm	pkm
9	Diesel passenger rail	pkm	pkm
10	Coastal shipping	tkm or tnmi	tkm or dwt nmi
11	Ferries	pkm or tnmi	pkm or pnmi
12	Mobile equipment (all)	n/a	km or tkm

Schedule 2—Decline rates

Note: See the definition of *decline rate* in section 5.

1 Decline rates for group of vehicles projects

The following table sets out decline rates for vehicles in a group of vehicles project.

Decline rates for vehicles in a group of vehicles project			
Item	Vehicle category	Service unit	Decline rate
1	Light vehicles	vkt	0.992
2	Rigid trucks	vkt	0.996
3	Rigid trucks	tkm	0.984
4	Articulated trucks	vkt or tkm	1.000
5	Buses	vkt or pkm	1.000
6	Non-freight-carrying trucks	vkt or m ³ km	0.985
7	Rail freight	tkm	0.990
8	Electric passenger rail	pkm	0.980
9	Light passenger rail	pkm	0.990
10	Diesel passenger rail	pkm	0.980
11	Coastal shipping	tkm or tnmi	1.000
12	Ferries	pkm or pnmi	0.979