Carbon Credits (Carbon Farming Initiative—Aggregated Small Energy Users) Methodology Determination 2015

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

Dated 25 March 2015

Greg Hunt

Greg Hunt
Minister for the Environment

Federal Register of Legislative Instruments F2015L00345

Contents

Part 1—Preliminary

1 Name

This is the *Carbon Credits (Carbon Farming Initiative—Aggregated Small Energy Users) 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(b) ends on the day before this determination would otherwise be repealed under subsection 50(1) of the *Legislative Instruments Act 2003*.

5 Definitions

In this determination:

accredited statistician means a person accredited as a statistician by the Statistical Society of Australia Inc.

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

affected by attrition has the meaning given by subsection 16(2).

aggregated small energy users project has the meaning given by section 9.

control group means the group of sites in a population that is used for determining a baseline against which emissions of greenhouse gas at sites in the treatment group are to be compared.

counterfactual scenario means a scenario in which no sites in the treatment group in a population receive treatment.

explanatory variable means a factor that:

(a) may influence the consumption of natural gas, or electricity from an electricity grid, at a site; and

(b) is capable of being accurately measured at the site; and

(c) is reasonably expected not to be affected by treatment targeted at the site.

Note: An explanatory variable must be monitored in accordance with section 73.

government program or scheme has the meaning given by subsection 24(3).

initial selection has the meaning given by subsection 15(1).

measured energy consumption has the meaning given by section 6.

measurement period, in relation to a population, means a period:

(a) during which the consumption of natural gas, or electricity from an electricity grid, is measured at sites in the population; and

(b) that starts:

(i) for the first measurement period for the population—on the start day for the measurement period chosen by the project proponent for the project under section 17; and

(ii) for a subsequent measurement period for the population—immediately after the end of the previous measurement period for the population; and

(c) that is:

(i) for all measurement periods for the population except for the last measurement period in the crediting period for the project—1 year; and

(ii) for the last measurement period for the population—at least 1 year but less than 2 years; and

(d) that covers the same period of time as:

(i) a reporting period; or

(ii) the first half, or second half, of a reporting period.

Note: There may be 2 measurement periods for a population in a reporting period.

monitoring requirements means the requirements set out in Subdivision B of Division 4 of Part 5.

National Energy Retail Law means the National Energy Retail Law, as in force from time to time, set out in the Schedule to the *National Energy Retail Law (South Australia) Act 2011* (SA).

natural gas has the meaning given by the *National Greenhouse and Energy Reporting Regulations 2008*.

new site has the meaning given by subsection 64(5).

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-monitored period has the meaning given by subsection 74(1).

population means a set of sites.

pre-treatment period, in relation to a population, means a period, prior to the start of the first measurement period for the population, for which there is data about measured energy consumption for the sites in the population.

random selection method means a selection method under which each site in a population has the same chance as any other site in the population of being selected for the treatment group or control group (or neither) in the population, and includes a restricted random selection method.

Note: An example of a restricted random selection method is a method where a population is first stratified according to a variable that influences energy consumption.

relevant pre-treatment period, in relation to a population, means:

(a) in relation to a measurement period of 1 year—the pre-treatment period chosen under subsection 18(2) for the population; and

(b) if the last measurement period for the population in the crediting period for the project will be longer than 1 year—the pre-treatment period the project proponent for the project chose or otherwise used for the population under subsection 18(4) or (5).

site means a premises:

(a) that is located in Australia; and

(b) that is occupied by a small energy user; and

(c) where the consumption of natural gas, or electricity from an electricity grid, can be measured in accordance with the monitoring requirements.

small energy user means:

(a) a household; or

(b) a small business; or

(c) any other energy user with annual energy consumption that is similar to a household or small business.

sub-method means one of the following:

(a) sub-method 1 set out in Division 4 of Part 4;

(b) sub-method 2 set out in Division 5 of Part 4;

(c) sub-method 3 set out in Division 6 of Part 4.

subsequent selection has the meaning given by subsection 15(2).

treatment has the meaning given by section 7.

treatment group means the group of sites in a population to which treatment may be targeted.

Note: If a site is selected for the treatment group, the site must be included in the treatment group for the purposes of Part 4 (unless this determination specifies otherwise) regardless of whether treatment was actually targeted at the site: see subsection 15(4) and subparagraph 34(1)(b)(i).

6 Meaning of *measured energy consumption*

(1) For a measurement period, ***measured energy consumption***, in relation to a site, means:

(a) the electricity consumed, from an electricity grid, at the site during the measurement period; or

(b) natural gas consumption at the site during the measurement period;

that is monitored in accordance with the monitoring requirements.

(2) For a pre-treatment period, ***measured energy consumption***, in relation to a site, means:

(a) the electricity consumed, from an electricity grid, at the site during the pre-treatment period; or

(b) natural gas consumption at the site during the pre-treatment period;

that was monitored in accordance with subsection (3).

(3) For energy consumption during a pre-treatment period, the energy consumption must have been monitored using:

(a) billing data that is derived from data that was collected in accordance with paragraphs 71(2)(a) and (b); or

(b) a method other than billing data, if the energy consumption meets the requirements of subsection 72(3) or paragraph 72(4)(a).

7 Meaning of *treatment*

(1) ***Treatment*** means the offering, promoting, providing, or facilitating the providing of, goods or services, for the purposes of the project, that are:

(a) designed to reduce emissions of greenhouse gas from the consumption of natural gas, or electricity from an electricity grid; and

(b) satisfy subsection (2).

(2) Each good or service must involve:

(a) information about:

(i) opportunities to reduce emissions from energy consumption; or

(ii) behaviour in relation to energy consumption; or

(b) installing, modifying, removing or replacing any of the following at a site in a population:

(i) energy-consuming equipment;

(ii) equipment that generates electricity for consumption at the site;

(iii) building components or other equipment not mentioned in subparagraph (i) and (ii); or

(c) changing how energy-consuming equipment at a site is controlled or operated; or

(d) changing the energy sources used by energy-consuming equipment at a site.

8 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 this determination specifies otherwise.

Part 2—Aggregated small energy users projects

9 Aggregated small energy users projects

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

(a) the project involves targeting treatment to small energy users within a population;

(b) the project involves using a control group within the population to test whether, and by how much, emissions of greenhouse gas have been reduced in a treatment group within the population;

(c) each good or service in the treatment could reasonably be expected to result in eligible carbon abatement.

Note: Treatment may involve directly providing goods or services, or may involve promoting or providing information to encourage small energy users to take up particular goods or services: see section 7. The treatment offered may vary between sites in a population.

(2) A project covered by subsection (1) is an ***aggregated small energy users project***.

Part 3—Project requirements

Division 1—Operation of this Part

10 Operation of this Part

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

Division 2—General requirements

11 Information to be included in application for declaration

The application under section 22 of the Act in relation to the project must include a description of:

(a) the goods or services to be offered as treatment under the project; and

(b) the sites or types of sites that are or will be included in the populations in the project.

12 Legal right to access and use data about energy consumption

If the project proponent for the project uses data, about energy consumption for a site in a population in the project, to calculate the carbon dioxide equivalent net abatement amount for the project in accordance with Part 4, the project proponent must have a legal right to:

(a) access the data; and

(b) use the data for that purpose.

Note: If there is more than one project proponent for a project, it is not necessary for each project proponent to have a legal right to access and use the data. A project proponent is required to have that legal right only if the project proponent will access and use the data to calculate the carbon dioxide equivalent net abatement amount for the project.

13 Project proponent not to be actively involved in decision-making

(1) The project proponent for the project must not be in a position to make decisions about the following:

(a) how much energy is consumed at a site in a population in the project;

(b) the installation, replacement or removal of energy-consuming equipment at the site;

(c) changes to the shell of a building at the site.

(2) However, subsection (1) does not apply to:

(a) the targeting of treatment to the site; or

(b) activities relating to supplying energy to the site.

Example: Disconnecting an energy service because of non-payment.

Division 3—Making choices for the project

Subdivision A—Populations and selecting sites

14 Choosing populations

(1) Before the start of the first measurement period for any population in the project, the project proponent for the project must choose one or more populations for the project.

Note: A project may include more than one population.

(2) All of the sites in a particular population must be either:
(a) identified sites; or
(b) sites of a particular type.

Note 1: Identified sites may be identified by reference to their address.

Note 2: An example of a type of site is sites that are household customers of a particular retailer in a particular State. A population may consist of more than one type of site.

(3) If the project proponent chooses a population that does not consist of a set of identified sites, it must be clear, at all relevant times between when the population is chosen and the end of the crediting period for the project, whether a particular site is or is not part of the population.

(4) Subject to section 16, the population must remain the same between when the population is chosen and the end of the crediting period for the project.

Note: If the population consists of a set of sites of a particular type, the sites within the population may change as sites become that type of site or cease to be that type of site.

(5) The project proponent may add a population to the project after the project has started, but the population must be chosen before the first measurement period for that population starts.

(6) Once a population is chosen, other choices may be made under this Division that relate to the population.

15 Selecting sites for a control group or treatment group

(1) Before the start of the first measurement period for a population in the project, the project proponent for the project must select sites in the population for the control group and the treatment group using a random selection method (the ***initial selection***).

Note 1: The control group and treatment group may include a different number of sites.

Note 2: Using a random selection method, sites may be selected for the treatment group, and all remaining sites are selected by default for the control group, or vice versa. Alternatively, sites may be selected for the treatment group, other sites may be selected for the control group, and all remaining sites are not selected for either group.

(2) If the project proponent adds sites (the ***subsequent selection***) to the control or treatment group after the initial selection for the population;
(a) each of those sites in the subsequent selection must be:

(i) added at the start of a measurement period for the population; and

(ii) selected using a random selection method; and

(b) the ratio of the number of sites selected in the subsequent selection for the control group relative to the number of sites selected in the subsequent selection for the treatment group must be the same as the ratio for the initial selection.

(3) An accredited statistician must certify that the selecting of sites was done in accordance with this section.

(4) Subject to section 16, if a site is selected for the control group or treatment group, the site must be retained in that group until the end of the crediting period for of the project.

16 Sites affected by attrition

(1) If a site in a population in the project is affected by attrition during the crediting period for the project, the site must be excluded from the population on and after the day the site becomes affected by attrition, until the end of the crediting period for the project.

Note: For the purposes of Part 4, sites may be excluded from the beginning of a measurement period: see section 35.

(2) A site is ***affected by attrition*** if:

(a) the consumption of natural gas, or electricity from an electricity grid, (or both) by a small energy user at the site has been measured as part of the project through one or more metered accounts relating to that user, and one or more of those metered accounts is terminated, resulting in data about energy consumption at the site ceasing to be available for at least one energy source chosen for the site under section 20; or

(b) for a reason beyond the control of the project proponent for the project:

(i) the occupant of the site makes a written request to the project proponent that data about the occupant's energy consumption not be used for the purpose of calculating the carbon dioxide equivalent net abatement amount for the project; or

(ii) the project proponent otherwise ceases to have a legal right to access and use data about energy consumption from an energy source chosen for the site under section 20; or

(c) for a site in a population that consists of sites of a particular type—the site ceases to be a type of site in the population.

Note 1: Reasons for terminating a metered account include switching to a different energy retailer, disconnecting the service, or relocating to a different site.

Note 2: If a site ceases to be one type of site in the population, but is a site of a different type in the population, the site is not affected by attrition.

Subdivision B—Measurement periods and pre-treatment periods

17 Choosing the start day for the first measurement period

(1) Before the initial selection for a population in the project, the project proponent for the project must choose a start day for the first measurement period for the population.

(2) The start day for the first measurement period must be a day that occurs on or after the start of the crediting period for the project.

Note: The start day for the second or subsequent measurement period is immediately after the end of the previous measurement period for the population: see the definition of ***measurement period*** in section 5.

18 Choosing start day and end day for pre-treatment periods

(1) This section applies if the project proponent for the project chooses to use sub-method 2 or 3 for the purposes of working out abatement for a population in the project under Part 4.

For measurement periods of 1 year

(2) Before the initial selection for a population in the project, the project proponent must choose the start day and end day for the pre-treatment period that will be used in relation to every measurement period for the population that is 1 year.

(3) For sub-method 2, the pre-treatment period chosen under subsection (2) must be 12 months.

For measurement periods longer than 1 year

(4) For sub-method 2, if the last measurement period for the population in the crediting period for the project will be longer than 1 year:

(a) before the initial selection for the population, the project proponent must choose the start day and end day for the pre-treatment period that will be used in relation to that measurement period; and

(b) the pre-treatment period must:

(i) cover the same dates of a year as are covered by the measurement period in a later year; and

(ii) include the start day of the pre-treatment period chosen under subsection (2) for the measurement periods that are 1 year.

Example: For subparagraph (b)(i), if the measurement period starts on 6 January 2016 and ends on 17 February 2017, the pre-treatment period must start on 6 January in a year and end on 17 February the next year.

(5) For sub-method 3, if the last measurement period for the population in the crediting period for the project will be longer than 1 year, the project proponent:

(a) must use the pre-treatment period, chosen under subsection (2) for the population, for the measurement period; or

(b) before the initial selection for the population, must choose the start day and end day for the pre-treatment period that will be used in relation to that measurement period.

Subdivision C—Sub-methods and explanatory variables

19 Choosing a sub-method and explanatory variables

Before the initial selection for a population in the project, the project proponent for the project must choose:

(a) the sub-method that will be used to work out the abatement for the population for the measurement periods for the project; and

(b) if sub-method 3 is chosen for the population—the explanatory variables (if any) that will be used for the factor $OtherVariables_{s,k}$ in section 58 for the population for the measurement periods for the project.

Subdivision D—Sources of energy

20 Choosing energy sources

(1) By the time of the initial selection for a population in the project, the project proponent for the project must have chosen, for each site that is in the population at that time, whether to measure the consumption of natural gas, or electricity from an electricity grid, (or both) at the site.

(2) By the time of a subsequent selection for a population in the project, the project proponent for the project must have chosen, for each site in the population at that time for which an energy source has not been chosen, whether to measure the consumption of natural gas, or electricity from an electricity grid, (or both) at the site.

(3) The choice under subsection (1) or (2) must not be based on whether the site will be selected for the control group or treatment group in the population.

Division 4—Treatment and activities of the project proponent

Subdivision A—Dealing with control group and treatment group differently

21 Dealing with control group and treatment group differently

(1) The project proponent for the project must not deal with sites in the control group differently from sites in the treatment group if the differential dealing is likely to have more than a minor or trivial effect on the carbon dioxide equivalent net abatement amount calculated for the project.

(2) However, subsection (1) does not apply to:
  (a) the targeting of treatment to sites; and
  (b) the requirements set out in Subdivision B.

22 Offering goods or services to cause higher energy consumption at sites in control group

The project proponent for the project must not offer, or cause to be offered, goods or services to sites in the control group in a population in the project if:
  (a) offering the goods or services is likely to result in higher consumption of natural gas, or electricity from an electricity grid, at sites in the control group than would otherwise have occurred; and
  (b) the goods or services are offered:
    (i) to a greater proportion of the control group than the treatment group in the population; or
    (ii) in equal proportion to the control group and the treatment group in the population, but the basis for choosing which sites receive the offer is different for the control group than the treatment group.

Example: Promoting to sites in the control group the installation of energy-consuming equipment that may increase consumption of natural gas, or electricity from an electricity grid, at those sites.

23 Offering goods or services to control group that would usually be offered

The project proponent for the project must not withhold, or cause to be withheld, goods or services from sites in the control group in a population in the project if:
  (a) the goods or services relate to supplying energy; and
  (b) the goods or services would usually be provided by the project proponent as part of usual business practices of supplying energy; and
  (b) the goods or services are withheld:
    (i) from a greater proportion of the control group than the treatment group in the population; or
    (ii) in equal proportion to the control group and the treatment group in the population, but the basis for choosing from which sites the goods or services are withheld is different for the control group than the treatment group.

Example: Not providing a leaflet on energy efficiency that the project proponent usually provides as part of usual business practices.

24 Promoting government programs disproportionately to treatment group

(1) The project proponent for the project must not:
  (a) offer goods or services that are funded or supported under:
    (i) a government program or scheme; or
    (ii) another eligible offsets project; or
  (b) advise or facilitate the uptake of goods or services that are funded or supported under a government program or scheme or another eligible offsets project; or
  (c) cause the offer, advice or facilitation to be given;
in the circumstances mentioned in subsection (2).

(2) The circumstances are:
  (a) the offer, advice or facilitation is given to:
    (i) a greater proportion of the treatment group in a population in the project than the control group in the population; or
    (ii) an equal proportion of the treatment group in a population in the project and the control group in the population, but the basis for choosing which sites receive the offer, advice or facilitation is different for the control group than the treatment group; and
  (b) the goods or services mentioned in paragraph (1)(a) are likely to result in lower consumption of natural gas, or electricity from an electricity grid, at sites in the treatment group than would otherwise have occurred.

(3) In this section:

government program or scheme means:
  (a) a government program or scheme, specified in legislative rules (if any) made under subparagraph 27(4A)(c)(ii) of the Act, under which an offsets project must not receive funding or support for activities undertaken as part of that project; or
  (b) a government program or scheme that funds or supports an activity that, under legislative rules (if any) made for subparagraph 27(4A)(c)(ii) of the Act, must not be included in an eligible offsets project.

25 Measuring energy consumption

(1) The project proponent for the project must not change, or cause to be changed:
  (a) the method under section 71 or 72 by which energy consumption is monitored at sites in the control group or treatment group; or
  (b) the metering arrangements for monitoring energy consumption at a site;
if subsection (2) applies.

(2) This subsection applies if:
  (a) the change mentioned in subsection (1) is likely to:

(i) result in higher measured energy consumption at sites in the control group than would otherwise have occurred; or

(ii) result in lower measured energy consumption at sites in the treatment group than would otherwise have occurred; and

(b) the change occurs at:

(i) a greater proportion of sites in the control group than sites in the treatment group, or vice versa; or

(ii) an equal proportion of sites in the control group and treatment group, but the basis for choosing the sites at which the change occurs is different for the control group than the treatment group.

(3) However, the treatment under the project may include replacing an existing meter at a site with a different kind of meter.

Subdivision B—Other requirements

26 Occupants of sites in control group not to be informed of their role

(1) Occupants of sites in the control group in a population in the project must not be informed that those sites are being used to calculate a baseline for the project.

(2) However, subsection (1) does not apply to an occupant if:

(a) the person informing the occupant is required by law to do so; or

(b) the occupant requests information about how data about the occupant's energy consumption is used.

27 Promoting to treatment group the switch to using different energy source

The project proponent for the project must not promote, to sites in the treatment group in a population in the project, the switch:

(a) from using electricity from an electricity grid to using natural gas, or vice versa, unless the consumption of both natural gas, and electricity from an electricity grid, has been chosen to be measured for all sites in the population under section 20; or

(b) to a non-renewable energy source other than natural gas or electricity from an electricity grid.

28 Increase in energy prices for treatment group

The project proponent for the project must not increase, or cause an increase in, prices for natural gas, or electricity from an electricity grid, for occupants of sites in the treatment group in a population in the project if it can reasonably be concluded that a reason for increasing the prices is to produce carbon abatement for the project.

Note: Energy prices include fixed energy prices (such as a connection fee and the fixed rate per day) and variable components of energy prices (such as the rate based on actual consumption, discounts and penalties).

29 Decrease in energy prices for control group

The project proponent for the project must not decrease, or cause a decrease in, prices for natural gas, or electricity from an electricity grid, for occupants of sites in the control group in a population in the project if it can reasonably be concluded that a reason for decreasing the prices is to increase the carbon dioxide equivalent net abatement amount calculated for the project.

30 Disposing of removed or replaced energy-consuming equipment

(1) This section applies if the project proponent for the project, the project proponent's agent, or a person contracted by the project proponent, (the ***relevant person***):

(a) removes energy-consuming equipment, that is not being directly replaced, as part of the treatment under the project; or

(b) delivers, installs, or facilitates the delivery or installation of, energy-consuming equipment (the ***new equipment***) as part of the treatment under the project.

(2) The relevant person must take reasonable steps to ensure that the energy-consuming equipment that is being removed under paragraph (1)(a), or any energy-consuming equipment that is being replaced by the new equipment under paragraph (1)(b), is:

(a) disposed of; and

(b) not refurbished, re-used or sold.

(3) However, the energy-consuming equipment that is being removed or replaced may be sold to a third party to be broken down and recycled as described in subsection (4).

(4) This section does not prevent the equipment being broken down into components and those components being recycled.

Part 4—Net abatement amount

Division 1—Preliminary

31 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 aggregated small energy users project that is an eligible offsets project.

32 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 an aggregated small energy users project.

Greenhouse gases and emissions sources

Item	Relevant emissions calculation	Emissions source	Greenhouse gas
1	Pre-treatment emissions for a site	Natural gas consumption	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)
2	Pre-treatment emissions for a site	Electricity consumed from an electricity grid	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)
3	Measurement period emissions for a site	Natural gas consumption	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)
4	Measurement period emissions for a site	Electricity consumed from an electricity grid	Carbon dioxide (CO_2) Methane (CH_4) Nitrous oxide (N_2O)

Division 2—Requirements relating to calculating net abatement

33 Operation of this Division

This Division sets out requirements relating to working out the carbon dioxide equivalent net abatement amount for a reporting period for an aggregated small energy users project under this Part.

34 General requirements

Using things chosen or selected

(1) For the purposes of this Part, the project proponent for the project:
  (a) may choose not to calculate abatement for a population in the project for a measurement period in the reporting period; and
  (b) for each population for which abatement is calculated for a measurement period in the reporting period—must use the following things chosen or selected:
    (i) all of the sites selected for the control group or treatment group in a population under section 15, unless this determination specifies otherwise;
    (ii) the first measurement period and the pre-treatment periods chosen under sections 17 and 18;
    (iii) the sub-method chosen for each population under paragraph 19(a);
    (iv) if sub-method 3 was chosen for a population—the explanatory variables (if any) chosen under paragraph 19(b) for the population;
    (v) data about energy consumption from the source or sources chosen under section 20.

Pro-rataing data for a whole measurement period

(2) If:
  (a) there is available data about energy consumption at a site in a population in the project for time periods; and
  (b) the time periods do not start and end on the same days as a measurement period in the reporting period starts and ends; and
  (c) together the time periods cover the measurement period;

the project proponent for the project may, for the purposes of this Part, pro-rata the data for a time period based on the number of days in the time period that are days in the measurement period.

Example: A measurement period in relation to a site starts on 1 July 2015 and ends on 30 June 2016. There is data about energy consumption at the site for the time period starting on 1 June 2015 and ending on 31 December 2015, and for the time period starting on 1 January 2016 and ending on 30 November 2016. The data for the first time period can be pro-rated to work out the energy consumption for 1 July 2015 to 31 December 2015, and the data for the second time period can be pro-rated to work out the energy consumption for 1 January 2016 to 30 June 2016.

Pro-rataing data for part of a measurement period

(3) If:

(a) for the purposes of this Part, data about measured energy consumption at a site in a population in the project will be used for only part of a measurement period in the reporting period (the ***partial measurement period***); and

(b) there is available data about energy consumption at the site for time periods; and

(c) the time periods do not start and end on the same days as the partial measurement period starts and ends; and

(d) together the time periods cover the partial measurement period;

the project proponent for the project may, for the purposes of this Part, pro-rata the data for a time period based on the number of days in the time period that are days in the partial measurement period.

Note: Data about measured energy consumption at a site may be used for only part of a measurement period if the site is affected by attrition during the measurement period.

Pro-rataing data for a pre-treatment period

(4) If:

(a) there is available data about the consumption of natural gas, or electricity from an electricity grid, at a site in a population in the project for time periods; and

(b) the time periods do not start and end on the same days as the relevant pre-treatment period for the population starts and ends; and

(c) together the time periods cover the pre-treatment period;

the project proponent for the project may, for the purposes of this Part, pro-rata the data for a time period based on the number of days in the time period that are days in the pre-treatment period.

35 Excluding sites affected by attrition from the beginning of measurement period

For all sites that are:

(a) in the control group or treatment group in the population in the project; and

(b) affected by attrition during a measurement period in the reporting period;

the project proponent for the project may exclude the sites from the relevant group from the beginning of the measurement period for the purposes of this Part.

Note: The project proponent must treat all sites mentioned in this section in the same way i.e. by excluding them all from the beginning of the measurement period, or including each site until the site is affected by attrition (under section 16).

36 Requirements for sub-methods 2 and 3

If sub-method 2 or 3 is used to work out the abatement for a population in the project for the reporting period, the data on measured energy consumption at a site in the population in a pre-treatment period must cover the same energy

sources as that covered by data on measured energy consumption at the site in the measurement periods in the reporting period.

Division 3—Method for calculating net abatement amount

37 Summary

The carbon dioxide equivalent net abatement amount for a project for a reporting period is calculated by aggregating the abatement for each population in the project for each measurement period in the reporting period.

38 Carbon dioxide equivalent net abatement amount

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

$$A = \sum_{m}\sum_{p} A_{p,m}$$

where:

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

m means a measurement period in the reporting period.

p means a population in the project.

$A_{p,m}$ means the abatement for a population in the project for a measurement period in the reporting period, in tonnes CO_2-e, worked out in accordance with the following table.

Working out abatement for a population for a measurement period

Item	If abatement for the population is worked out using ...	and the result, for the population, of ...	is that the null hypothesis ...	abatement for the population for the measurement period ...
1	sub-method 1	hypothesis test 1	can be rejected	is worked out using equation 3.
2	sub-method 1	hypothesis test 1	cannot be rejected	has the value of zero.
3	sub-method 2	hypothesis test 2	can be rejected	is worked out using equation 8.
4	sub-method 2	hypothesis test 2	cannot be rejected	has the value of zero.
5	sub-method 3	hypothesis test 3	can be rejected	is worked out using equation 14.
6	sub-method 3	hypothesis test 3	cannot be rejected	has the value of zero.

Division 4—Time-aggregated emissions in measurement periods—sub-method 1

Subdivision A—Summary

39 Summary

Using sub-method 1, abatement for a population in a measurement period is calculated by comparing mean daily emissions of greenhouse gas at sites in each of the control group and treatment group in the population. If the mean daily emissions at sites in the treatment group are lower than for sites in the control group by a statistically significant amount, abatement for the population is calculated by multiplying the difference in mean daily emissions at sites in the control and treatment groups by the number of days for which there is data about measured energy consumption at sites in the treatment group.

Subdivision B—Calculating abatement for a population

40 Difference between control group emissions and treatment group emissions

The statistical significance (if any) of a difference between:

(a) the mean daily emissions of greenhouse gas at sites in the treatment group in a population in the project in a measurement period in the reporting period; and

(b) the mean daily emissions of greenhouse gas at sites in the control group in the population in the measurement period;

is worked out using the hypothesis test (***hypothesis test 1***):

$$H_0 : \varphi_T = E_T$$

$$H_{alt} : \varphi_T > E_T$$

$$\text{Calculate } t = \left(E_C - E_T \right) / \left(sd \times \sqrt{\frac{fpc_T}{N_T} + \frac{fpc_C}{N_C}} \right)$$

$$\text{Reject } H_0 \text{ if } t > T_{(p = 0.95)}$$

where:

H_0 means the hypothesis (the ***null hypothesis***) that there is no difference between:

(a) the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period; and

(b) the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period under a counterfactual scenario.

Note: For the definition of ***counterfactual scenario***, see section 5.

φ_T means the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period, in tonnes CO_2-e per day, under a counterfactual scenario.

E_T means the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period, in tonnes CO_2-e per day, worked out using equation 5.

H_{alt} means the hypothesis (the ***alternative hypothesis***) that the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period under a counterfactual scenario is greater than the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period.

t means the test statistic for a single-sample t-test.

E_C means the mean daily emissions of greenhouse gas at sites in the control group in the measurement period, in tonnes CO_2-e per day, worked out using equation 4.

sd means the standard deviation of mean daily emissions of greenhouse gas at sites in the control group in the measurement period, weighted by the number of days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part, worked out using equation 2.

fpc_T means the finite population correction when using the mean daily emissions of greenhouse gas in the measurement period at sites in the control group and sites in the treatment group under a counterfactual scenario to predict the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period under a counterfactual scenario, as follows:

(a) if the project proponent for the project chooses to use a finite population correction:

$$\text{fpc}_T = \frac{N - N_T}{N - 1}$$

(b) if the project proponent for the project chooses not to use a finite population correction:

$$\text{fpc}_T = 1$$

N_T means the number of sites included in the treatment group for all or part of the measurement period.

fpc_C means the finite population correction for estimating the mean daily emissions of greenhouse gas in the measurement period at sites in the control group and sites in the treatment group under a counterfactual scenario, using the mean daily emissions of greenhouse gas at sites in the control group in the measurement period, as follows:

(a) if the project proponent for the project chooses to use a finite population correction:

$$fpc_C = \frac{N - N_C}{N - 1}$$

(b) if the project proponent for the project chooses not to use a finite population correction:

$$fpc_C = 1$$

N_C means the number of sites included in the control group for all or part of the measurement period.

$T_{(p = 0.95)}$ means:

(a) for degrees of freedom less than 2 400—the value from the standard t distribution table with (N_C - 1) degrees of freedom and probability 0.95; or

(b) for degrees of freedom exceeding 2 400—the value of 1.6449.

Note: The 0.95 values of the test statistic are from the upper 5 percentage points of the distribution.

N means the number of sites that are in the control group or treatment group in the population for all of part of the measurement period.

41 Standard deviation of mean daily emissions for control group

The standard deviation of mean daily emissions of greenhouse gas at sites in the control group in a population in the project in a measurement period in the reporting period, weighted by the number of days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part, is worked out using the formula (***equation 2***):

$$sd = \sqrt{\left\{\sum_s f_s \times \left(\frac{E_s}{D_s} - E_C\right)^2\right\} \times \frac{N_C}{N_C - 1}}$$

where:

sd means the standard deviation of mean daily emissions of greenhouse gas at sites in the control group in a measurement period, weighted by the number of days in the measurement period for which there is data about measured energy consumption at sites in the control group, that is used for the purpose of this Part.

s means a site in the control group.

f_s means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part, as a proportion of the sum of all the days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part, as follows:

$$f_s = \frac{D_s}{\sum_s D_s}$$

E_s means the emissions of greenhouse gas at site s in the measurement period, in tonnes CO_2-e, worked out using equation 6.

D_s means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

E_C means the mean daily emissions of greenhouse gas at sites in the control group in the measurement period, in tonnes CO_2-e per day, worked out using equation 4.

N_C means the number of sites included in the control group for all or part of the measurement period.

42 Abatement for a population in a measurement period

The abatement for a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 3***):

$$A_{p,m} = \left(E_C - E_T \right) \times \sum_s D_s$$

where:

$A_{p,m}$ means the abatement for the population for the measurement period, in tonnes CO_2-e.

E_C means the mean daily emissions of greenhouse gas at sites in the control group in the population in the measurement period, in tonnes CO_2-e per day, worked out using equation 4.

E_T means the mean daily emissions of greenhouse gas at sites in the treatment group in the population in the measurement period, in tonnes CO_2-e per day, worked out using equation 5.

s means a site in the treatment group in the population.

D_s means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

Subdivision C—Calculating mean daily emissions for a group

43 Mean daily emissions for control group

The mean daily emissions of greenhouse gas at sites in the control group in a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 4***):

$$E_C = \frac{\sum_s E_s}{\sum_s D_s}$$

where:

E_C means the mean daily emissions of greenhouse gas at sites in the control group in the measurement period, in tonnes CO_2-e per day.

s means a site in the control group.

E_s means the emissions of greenhouse gas at site s in the measurement period, in tonnes CO_2-e, worked out using equation 6.

D_s means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

44 Mean daily emissions for treatment group

The mean daily emissions of greenhouse gas at sites in the treatment group in a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 5***):

$$E_T = \frac{\sum_s E_s}{\sum_s D_s}$$

where:

E_T means the mean daily emissions of greenhouse gas at sites in the treatment group in the measurement period, in tonnes CO_2-e per day.

s means a site in the treatment group.

E_s means the emissions of greenhouse gas at site s in the measurement period, in tonnes CO_2-e, worked out using equation 6.

D_s means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

Subdivision D—Calculating site emissions

45 Site emissions in a measurement period

(1) The emissions of greenhouse gas at a site in a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 6***):

$$E_s = Q_{E,s} \times \frac{EF_E}{1\,000} + \sum_j \left(Q_{Gas,s} \times \frac{EF_{Gas,j}}{1\,000} \right)$$

where:

E_s means the emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e.

$Q_{E,s}$ means the amount of electricity consumed, from an electricity grid, at the site in the measurement period, in kilowatt hours, monitored in accordance with the monitoring requirements.

EF_E means:

(a) if the site is connected to an electricity grid that is a grid in relation to which the NGA Factors document, in force on the day the project is declared to be an eligible offsets project, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour; or

(b) if the site is connected to an electricity grid not covered by paragraph (a)—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 day the project is declared to be an eligible offsets project.

j means a type of greenhouse gas emitted from the combustion of natural gas at the site in the measurement period.

$Q_{Gas,s}$ means the amount of natural gas consumed at the site in the measurement period, in gigajoules, monitored in accordance with the monitoring requirements.

$EF_{Gas,j}$ means the emissions factor for natural gas and greenhouse gas type j, in kilograms CO_2-e per gigajoule, specified in Schedule 1 to the NGER (Measurement) Determination.

(2) If only the consumption of electricity is measured at the site in the measurement period, then the value of $Q_{Gas,s}$ is taken to be zero for that period.

(3) If only the consumption of natural gas is measured at the site in the measurement period, then the value of $Q_{E,s}$ is taken to be zero for that period.

Division 5—Time-aggregated emissions in measurement periods and pre-treatment periods—sub-method 2

Subdivision A—Summary

46 Summary

Using sub-method 2, abatement for a population in a measurement period is calculated by comparing:

(a) the change, between the relevant pre-treatment period and the measurement period, in mean daily emissions of greenhouse gas at sites in the treatment group in the population; and

(b) the change, between the relevant pre-treatment period and the measurement period, in mean daily emissions of greenhouse gas at sites in the control group in the population.

If the difference in the change in emissions is statistically significant, abatement for the population is calculated by multiplying that difference by the number of days for which there is data about measured energy consumption at sites in the treatment group.

Subdivision B—Calculating abatement for a population

47 Difference between change in control group emissions and change in treatment group emissions

The statistical significance (if any) of a difference, for a measurement period in the reporting period, between:

(a) the change, between the relevant pre-treatment period and the measurement period, in mean daily emissions of greenhouse gas at sites in the treatment group in a population in the project; and

(b) the change, between the relevant pre-treatment period and the measurement period, in mean daily emissions of greenhouse gas at sites in the control group in the population;

is worked out using the hypothesis test (***hypothesis test 2***):

$$H_0 : \Delta\varphi_T = \Delta E_T$$

$$H_{alt} : \Delta\varphi_T > \Delta E_T$$

$$\text{Calculate } t = \left(\Delta E_C - \Delta E_T\right) / \left(sd \times \sqrt{\frac{fpc_T}{N_T} + \frac{fpc_C}{N_C}}\right)$$

$$\text{Reject } H_0 \text{ if } t > T_{(p = 0.95)}$$

where:

$\boldsymbol{H_0}$ means the hypothesis (the ***null hypothesis***) that there is no difference between:

(a) the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group; and

(b) the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group under a counterfactual scenario.

Note: For the definition of ***counterfactual scenario***, see section 5.

$\Delta\boldsymbol{\varphi_T}$ means the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group, in tonnes CO_2-e per day, under a counterfactual scenario.

$\Delta\boldsymbol{E_T}$ means the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group, in tonnes CO_2-e per day, worked out using equation 10.

$\boldsymbol{H_{alt}}$ means the hypothesis (the ***alternative hypothesis***) that the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group under a counterfactual scenario is greater than the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group.

t means the test statistic for a single-sample t-test.

$\Delta\boldsymbol{E_C}$ means the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the control group, in tonnes CO_2-e per day, worked out using equation 9.

sd means the standard deviation of the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the control group, weighted by the number of days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part, worked out using equation 7.

$\boldsymbol{fpc_T}$ means the finite population correction when using the change in mean daily emissions of greenhouse gas, between the pre-treatment period and the measurement period, at sites in the control group and sites in the treatment group under a counterfactual scenario to predict the change in mean daily emissions of greenhouse gas at sites in the treatment group under a counterfactual scenario, as follows:

(a) if the project proponent for the project chooses to use a finite population correction:

$$\mathrm{fpc}_T = \frac{N - N_T}{N - 1}$$

(b) if the project proponent for the project chooses not to use a finite population correction:

$$fpc_T = 1$$

N_T means the number of sites included in the treatment group for all or part of the measurement period.

fpc_C means the finite population correction for estimating the change in mean daily emissions of greenhouse gas, between the pre-treatment period and the measurement period, at sites in the control group and sites in the treatment group under a counterfactual scenario, using the change in mean daily emissions of greenhouse gas at sites in the control group, as follows:

(a) if the project proponent for the project chooses to use a finite population correction:

$$fpc_C = \frac{N - N_C}{N - 1}$$

(b) if the project proponent for the project chooses not to use a finite population correction:

$$fpc_C = 1$$

N_C means the number of sites included in the control group for all or part of the measurement period.

$T_{(p = 0.95)}$ means:

(a) for degrees of freedom less than 2 400—the value from the standard t distribution table with (N_C - 1) degrees of freedom and probability 0.95; or

(b) for degrees of freedom exceeding 2 400—the value of 1.6449.

Note: The 0.95 values of the test statistic are from the upper 5 percentage points of the distribution.

N means the number of sites that are in the control group or treatment group in the population for all of part of the measurement period.

48 Standard deviation of change in mean daily emissions for control group

The standard deviation of the change, between the relevant pre-treatment period and a measurement period in the reporting period, in the mean daily emissions of greenhouse gas at sites in the control group in a population in the project, weighted by the number of days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part, is worked out using the formula (***equation 7***):

$$sd = \sqrt{\left\{\sum_s f_s \times \left(\frac{\Delta E_s}{D_{M,s}} - \Delta E_C\right)^2\right\} \times \frac{N_C}{N_C - 1}}$$

where:

sd means the standard deviation of the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the control group, weighted by the number of days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part.

s means a site in the control group.

f_s means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part, as a proportion of the sum of all the days in the measurement period for which there is data, about measured energy consumption at sites in the control group, that is used for the purposes of this Part, as follows:

$$f_s = \frac{D_{M,s}}{\sum_s D_{M,s}}$$

ΔE_s means the change, between the pre-treatment period and the measurement period, in the emissions of greenhouse gas at site s, in tonnes CO_2-e, adjusted for any difference between those periods in the number of days for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part. This is worked out using equation 11.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

ΔE_C means the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the control group, in tonnes CO_2-e per day, worked out using equation 9.

N_C means the number of sites included in the control group for all or part of the measurement period.

49 Abatement for a population in a measurement period

The abatement for a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 8***):

$$A_{p,m} = \left(\Delta E_C - \Delta E_T \right) \times \sum_s D_{M,s}$$

where:

$A_{p,m}$ means the abatement for the population for the measurement period, in tonnes CO_2-e.

ΔE_C means the change, between the relevant pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the control group in the population, in tonnes CO_2-e per day, worked out using equation 9.

ΔE_T means the change, between the relevant pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group in the population, in tonnes CO_2-e per day, worked out using equation 10.

s means a site in the treatment group in the population.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

Subdivision C—Calculating the change in emissions between periods for a group

50 Change in mean daily emissions for control group

The change, between the relevant pre-treatment period and a measurement period in the reporting period, in the mean daily emissions of greenhouse gas at sites in the control group in a population in the project is worked out using the formula (***equation 9***):

$$\Delta E_C = \frac{\sum_s \Delta E_s}{\sum_s D_{M,s}}$$

where:

ΔE_C means the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the control group, in tonnes CO_2-e per day.

s means a site in the control group.

ΔE_s means the change, between the pre-treatment period and the measurement period, in the emissions of greenhouse gas at site s, in tonnes CO_2-e, adjusted for any difference between those periods in the number of days for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part. This is worked out using equation 11.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

51 Change in mean daily emissions for treatment group

The change, between the relevant pre-treatment period and a measurement period in the reporting period, in the mean daily emissions of greenhouse gas at sites in the treatment group in a population in the project is worked out using the formula (***equation 10***):

$$\Delta E_T = \frac{\sum_s \Delta E_s}{\sum_s D_{M,s}}$$

where:

ΔE_T means the change, between the pre-treatment period and the measurement period, in the mean daily emissions of greenhouse gas at sites in the treatment group, in tonnes CO_2-e per day.

s means a site in the treatment group.

ΔE_s means the change, between the pre-treatment period and the measurement period, in the emissions of greenhouse gas at site s, in tonnes CO_2-e, adjusted for any difference between those periods in the number of days for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part. This is worked out using equation 11.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

Subdivision D—Calculating the change in site emissions between periods

52 Change in site emissions

The change, between the relevant pre-treatment period and a measurement period in the reporting period, in the emissions of greenhouse gas at a site in a population in the project, adjusted for any difference between those periods in the number of days for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part, is worked out using the formula (***equation 11***):

$$\Delta E_s = E_{M,s} - E_{P,s} \times \left(\frac{D_{M,s}}{D_P} \right)$$

where:

ΔE_s means the change, between the pre-treatment period and the measurement period, in the emissions of greenhouse gas at the site, in tonnes CO_2-e, adjusted for any difference between those periods in the number of days for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part.

$E_{M,s}$ means the emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e, worked out using equation 12.

$E_{P,s}$ means the emissions of greenhouse gas at the site in the pre-treatment period, in tonnes CO_2-e, worked out using equation 13.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part.

D_P means the number of days in the pre-treatment period.

Subdivision E—Calculating site emissions

53 Site emissions in a measurement period

(1) The emissions of greenhouse gas at a site in a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 12***):

$$E_{M,s} = Q_{E,M,s} \times \frac{EF_E}{1\,000} + \sum_j \left(Q_{Gas,M,s} \times \frac{EF_{Gas,j}}{1\,000} \right)$$

where:

$E_{M,s}$ means the emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e.

$Q_{E,M,s}$ means the amount of electricity consumed, from an electricity grid, at the site in the measurement period, in kilowatt hours, monitored in accordance with the monitoring requirements.

EF_E means:

(a) if the site is connected to an electricity grid that is a grid in relation to which the NGA Factors document, in force on the day the project is declared to be an eligible offsets project, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour; or

(b) if the site is connected to an electricity grid not covered by paragraph (a)—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 day the project is declared to be an eligible offsets project.

j means a type of greenhouse gas emitted from the combustion of natural gas at the site in the measurement period.

$Q_{Gas,M,s}$ means the amount of natural gas consumed at the site in the measurement period, in gigajoules, monitored in accordance with the monitoring requirements.

$EF_{Gas,j}$ means the emissions factor for natural gas and greenhouse gas type j, in kilograms CO_2-e per gigajoule, specified in Schedule 1 to the NGER (Measurement) Determination.

(2) If only the consumption of electricity is measured at the site in the measurement period, then the value of $Q_{Gas,M,s}$ is taken to be zero for that period.

(3) If only the consumption of natural gas is measured at the site in the measurement period, then the value of $Q_{E,M,s}$ is taken to be zero for that period.

54 Site emissions in a pre-treatment period

(1) The emissions of greenhouse gas at a site in a population in the project in a pre-treatment period is worked out using the formula (***equation 13***):

$$E_{P,s} = Q_{E,P,s} \times \frac{EF_E}{1\,000} + \sum_j \left(Q_{Gas,P,s} \times \frac{EF_{Gas,j}}{1\,000} \right)$$

where:

$E_{P,s}$ means the emissions of greenhouse gas at the site in the pre-treatment period, in tonnes CO_2-e.

$Q_{E,P,s}$ means the amount of electricity consumed, from an electricity grid, at the site in the pre-treatment period, in kilowatt hours, that was monitored in accordance with subsection 6(3).

EF_E means:

(a) if the site is connected to an electricity grid that is a grid in relation to which the NGA Factors document, in force on the day the project is declared to be an eligible offsets project, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour; or

(b) if the site is connected to an electricity grid not covered by paragraph (a)—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 day the project is declared to be an eligible offsets project.

j means a type of greenhouse gas emitted from the combustion of natural gas at the site in the pre-treatment period.

$Q_{Gas,P,s}$ means the amount of natural gas consumed at the site in the pre-treatment period, in gigajoules, that was monitored in accordance with subsection 6(3).

$EF_{Gas,j}$ means the emissions factor for natural gas and greenhouse gas type j, in kilograms CO_2-e per gigajoule, specified in Schedule 1 to the NGER (Measurement) Determination.

(2) If only the consumption of electricity is measured at the site in the pre-treatment period, then the value of $Q_{Gas,P,s}$ is taken to be zero for that period.

(3) If only the consumption of natural gas is measured at the site in the pre-treatment period, then the value of $Q_{E,P,s}$ is taken to be zero for that period.

Division 6—Calculation of abatement from regression modelling—sub-method 3

Subdivision A—Summary

55 Summary

Using sub-method 3, calculating abatement for a population in a measurement period involves estimating the effect of treatment on mean daily emissions of greenhouse gas at sites in the population, using a linear regression model that relates mean daily emissions at sites during the measurement period to a number of independent variables. Variables used in the regression analysis include the mean daily emissions at sites in the relevant pre-treatment period, and whether the site is in the treatment group in the population. The regression is weighted by the number of days in the measurement period for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part.

If the estimated treatment effect is statistically significant, abatement for the population is calculated by multiplying the negative of the estimated treatment effect by the number of days for which there is data about measured energy consumption at sites in the treatment group in the population.

Subdivision B—Calculating abatement for a population

56 Statistical significance of treatment effect

The statistical significance (if any) of the estimated treatment effect on a site in a population in the project in a measurement period in the reporting period is worked out using the hypothesis test (***hypothesis test 3***):

$$H_0 : \beta = 0$$

$$H_{alt} : \beta < 0$$

$$\text{Calculate } t = \frac{\beta_E}{se(\beta_E)}$$

$$\text{Reject } H_0 \text{ if } t < T_{(p = 0.05)}$$

where:

H_0 means the hypothesis (the ***null hypothesis***) that the targeting of the treatment to the site has no effect on average daily emissions of greenhouse gas at the site.

β means the effect, on average daily emissions of greenhouse gas at the site in the measurement period, of targeting treatment to the site in the measurement period.

H_{alt} means the hypothesis (the ***alternative hypothesis***) that the targeting of the treatment to the site reduces average daily emissions of greenhouse gas at the site.

t means the test statistic for a single-sample t-test.

β_E means the estimated effect, on average daily emissions of greenhouse gas at the site in the measurement period, of targeting treatment to the site in the measurement period, worked out using regression equation 1.

$se(\beta_E)$ means the standard error of β_E.

$T_{(p = 0.05)}$ means:

(a) for degrees of freedom less than 2 400—the value from the standard t distribution table with $(N_C + N_T - (v + 1))$ degrees of freedom and probability 0.05; or

(b) for degrees of freedom exceeding 2 400—the value of -1.6449.

Note: The 0.05 values of the test statistic are from the lower 5 percentage points of the distribution.

N_C means the number of sites included in the control group for all or part of the measurement period.

N_T means the number of sites included in the treatment group for all or part of the measurement period.

v means the number of independent variables used in regression equation 1.

Note: There may be more than one independent variable used for $W_{s,t}$ and there may be more than one explanatory variable used for $OtherVariables_{s,k}$. Each variable used is a separate independent variable.

57 Abatement for a population in a measurement period

The abatement for a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 14***):

$$A_{p,m} = -\beta_E \times \sum_s D_{M,s}$$

where:

$A_{p,m}$ means the abatement for the population in the measurement period, in tonnes CO_2-e.

β_E means the estimated effect, on average daily emissions of greenhouse gas at a site in the population in a measurement period, of targeting treatment to the site in the measurement period, in tonnes CO_2-e, worked out using regression equation 1.

s means a site in the treatment group in the population.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

Subdivision C—Estimating the effect of treatment

58 Regression analysis

(1) The estimated effect, on average daily emissions of greenhouse gas at a site in a population in the project in a measurement period in the reporting period, of targeting treatment to the site in the measurement period is worked out using a linear regression model (***regression equation 1***):

$$DE_{M,s} = \alpha + \beta T_s + \delta DE_{P,s} + \Sigma \lambda_t W_{s,t} + \Sigma \gamma_k OtherVariables_{s,k}$$

where:

$DE_{M,s}$ means the mean daily emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e per day, worked out using equation 15.

α means the intercept for the regression model.

Note: This is the value that mean daily consumption of energy would have at a site for which all independent variables have the value of zero.

β means the coefficient for T_s.

Note: This is the amount by which mean daily emissions of greenhouse gas are different at a site in the treatment group compared to a site that is not in the treatment group, all other things being equal.

T_s means the independent variable that captures whether the site is in the treatment group, which has:

(a) if the site is in the treatment group in the population—a value of 1; and
(b) if the site is in the control group in the population—a value of 0.

δ means the coefficient for $DE_{P,s}$.

$DE_{P,s}$ means the independent variable that captures the mean daily emissions of greenhouse gas at the site in the relevant pre-treatment period, in tonnes CO_2-e per day, worked out using equation 16.

λ_t means the coefficient for $W_{s,t}$ for a time period in the measurement period.

$W_{s,t}$ means independent variables, each of which:

(a) indicates whether there is data about measured energy consumption, that is used for the purposes of this Part, at the site for a time period in the measurement period; and
(b) has:
  (i) if there is data for the site in the time period that is used for the purposes of this Part—a value of 1; and
  (ii) if there is not data for the site in the time period that is used for the purposes of this Part—a value of 0.

γ_k means the coefficient for the kth OtherVariable.

$OtherVariables_{s,k}$ means one or more explanatory variables, monitored in accordance with the monitoring requirements.

Note: The explanatory variables must be chosen before the initial selection for the population: see section 19.

(2) For $W_{s,t}$:

(a) the variables must only be included in the regression model if:

(i) there are sites affected by attrition in the population in the measurement period; and

(ii) the variables can be estimated for the entire measurement period and for time periods in the measurement period that are contiguous and do not overlap; and

(b) the change in the number of sites for which there is data about measured energy consumption, that is used for the purposes of this Part, must, as closely as is possible, be the same for each time period.

(3) The regression model used for the purposes of subsection (1) must:

(a) be a least squares regression model; and

(b) be weighted by the number of days in the measurement period for which there is data, about measured energy consumption at the site, that is used for the purposes of this Part; and

(c) use data for all sites that are in the control group or treatment group in the population in the relevant pre-treatment period and the measurement period, unless this determination specifies otherwise; and

(d) relate average daily emissions of greenhouse gas for the site in the measurement period to several independent variables; and

(e) include an independent variable that captures whether the site is in the treatment group; and

(f) include an independent variable that captures mean daily emissions of greenhouse gas in the relevant pre-treatment period.

Subdivision D—Calculating mean daily site emissions

59 Mean daily site emissions in a measurement period

The mean daily emissions of greenhouse gas at a site in a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 15***):

$$DE_{M,s} = \frac{E_{M,s}}{D_{M,s}}$$

where:

$DE_{M,s}$ means the mean daily emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e per day.

$E_{M,s}$ means the emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e, worked out using equation 17.

$D_{M,s}$ means the number of days in the measurement period for which there is data, about measured energy consumption at site s, that is used for the purposes of this Part.

60 Mean daily site emissions in a pre-treatment period

The mean daily emissions of greenhouse gas at a site in a population in the project in a pre-treatment period is worked out using the formula (***equation 16***):

$$DE_{P,s} = \frac{E_{P,s}}{D_P}$$

where:

$DE_{P,s}$ means the mean daily emissions of greenhouse gas at the site in the pre-treatment period, in tonnes CO_2-e per day.

$E_{P,s}$ means the emissions of greenhouse gas at the site in the pre-treatment period, in tonnes CO_2-e, worked out using equation 18.

D_P means the number of days in the pre-treatment period.

Subdivision E—Calculating site emissions

61 Site emissions in a measurement period

(1) The emissions of greenhouse gas at a site in a population in the project in a measurement period in the reporting period is worked out using the formula (***equation 17***):

$$E_{M,s} = Q_{E,M,s} \times \frac{EF_E}{1\,000} + \sum_j \left(Q_{Gas,M,s} \times \frac{EF_{Gas,j}}{1\,000} \right)$$

where:

$E_{M,s}$ means the emissions of greenhouse gas at the site in the measurement period, in tonnes CO_2-e.

$Q_{E,M,s}$ means the amount of electricity consumed, from an electricity grid, at the site in the measurement period, in kilowatt hours, monitored in accordance with the monitoring requirements.

EF_E means:

(a) if the site is connected to an electricity grid that is a grid in relation to which the NGA Factors document, in force on the day the project is declared to be an eligible offsets project, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour; or

(b) if the site is connected to an electricity grid not covered by paragraph (a)—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 day the project is declared to be an eligible offsets project.

j means a type of greenhouse gas emitted from the combustion of natural gas at the site in the measurement period.

$Q_{Gas,M,s}$ means the amount of natural gas consumed at the site in the measurement period, in gigajoules, monitored in accordance with the monitoring requirements.

$EF_{Gas,j}$ means the emissions factor for natural gas and greenhouse gas type j, in kilograms CO_2-e per gigajoule, specified in Schedule 1 to the NGER (Measurement) Determination.

(2) If only the consumption of electricity is measured at the site in the measurement period, then the value of $Q_{Gas,M,s}$ is taken to be zero for that period.

(3) If only the consumption of natural gas is measured at the site in the measurement period, then the value of $Q_{E,M,s}$ is taken to be zero for that period.

62 Site emissions in a pre-treatment period

(1) The emissions of greenhouse gas at a site in a population in the project in a pre-treatment period is worked out using the formula (***equation 18***):

$$E_{P,s} = Q_{E,P,s} \times \frac{EF_E}{1\,000} + \sum_j \left(Q_{Gas,P,s} \times \frac{EF_{Gas,j}}{1\,000} \right)$$

where:

$E_{P,s}$ means the emissions of greenhouse gas at the site in the pre-treatment period, in tonnes CO_2-e.

$Q_{E,P,s}$ means the amount of electricity consumed, from an electricity grid, at the site in the pre-treatment period, in kilowatt hours, that was monitored in accordance with subsection 6(3).

EF_E means:

(a) if the site is connected to an electricity grid that is a grid in relation to which the NGA Factors document, in force on the day the project is declared to be an eligible offsets project, includes an emissions factor—that factor, in kilograms CO_2-e per kilowatt hour; or

(b) if the site is connected to an electricity grid not covered by paragraph (a)—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 day the project is declared to be an eligible offsets project.

j means a type of greenhouse gas emitted from the combustion of natural gas at the site in the pre-treatment period.

$Q_{Gas,P,s}$ means the amount of natural gas consumed at the site in the pre-treatment period, in gigajoules, that was monitored in accordance with subsection 6(3).

$EF_{Gas,j}$ means the emissions factor for natural gas and greenhouse gas type j, in kilograms CO_2-e per gigajoule, specified in Schedule 1 to the NGER (Measurement) Determination.

(2) If only the consumption of electricity is measured at the site in the pre-treatment period, then the value of $Q_{Gas,P,s}$ is taken to be zero for that period.

(3) If only the consumption of natural gas is measured at the site in the pre-treatment period, then the value of $Q_{E,P,s}$ is taken to be zero for that period.

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

63 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 aggregated small energy users project that is an eligible offsets project.

64 Offsets report requirements

(1) If the offsets report about the project is for the first reporting period for the project, the report must include:
  (a) the number of relevant populations in the project in the reporting period; and
  (b) a description of each of those populations; and
  (c) for each site in a control group or treatment group in one of those populations:
    (i) an address, in the form approved by the Regulator; and
    (ii) which of the control group and treatment group the site was selected for; and
    (iii) which population the site is in; and
  (d) a description of the goods or services that were targeted to each treatment group in one of those populations during the measurement periods in the reporting period as part of the treatment under the project.

(2) If the offsets report about the project is for the second, or a subsequent, reporting period for the project, the report must include:
  (a) the following for each new site:
    (i) an address, in the form approved by the Regulator;
    (ii) which of the control group and treatment group the site was selected for;
    (iii) which population the site is in; and
  (b) a description of the goods or services that:
    (i) were targeted to each treatment group in a relevant population in the project during the measurement periods in the reporting period as part of the treatment under the project; and
    (ii) are different from the goods or services described in previous offsets reports for the project.

(3) If a site in a control group or treatment group in a relevant population in the project in a reporting period is affected by attrition during the reporting period, the offsets report for the reporting period must include:

(a) the address of the site; and
(b) which of the control group and treatment group the site was selected for.

(4) If the value of an explanatory variable is determined under section 74 for the purpose of working out the carbon dioxide equivalent net abatement amount for the project for a reporting period, the offsets report about the project for the reporting period must include the following information:
(a) the start and end of the non-monitored period for which the value of the explanatory variable was determined;
(b) the reasons why the project proponent for the project failed to monitor the explanatory variable as required by the monitoring requirements;
(c) the value of the explanatory variable and how that value was determined.

(5) In this section:

new site, in relation to a reporting period, means a site that:
(a) is included in the control group or treatment group in a relevant population in the project in the reporting period; and
(b) was not included in the control group or treatment group in a relevant population in the project in the previous reporting period.

relevant population, in relation to a project and a reporting period, means a population in the project that is included in calculations for the carbon dioxide equivalent net abatement amount for the project for the reporting period.

Division 2—Notification requirements

65 Operation of this Division

For paragraph 106(3)(b) of the Act, this Division sets out notification requirements for an aggregated small energy users project that is an eligible offsets project.

66 Notification requirements

If:

(a) the project proponent for the project decides, as part of the treatment under the project, to offer, promote, provide, or facilitate the providing of, goods or services; and

(b) that treatment:

(i) was not described in the application under section 22 of the Act in relation to the project; and

(ii) has not been the subject of a previous notification under this section;

the project proponent must notify the Regulator of that treatment at least 30 days before that treatment starts.

Division 3—Record keeping requirements

67 Operation of this Division

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

68 Record keeping requirements

Choices and certification

(1) The project proponent for the project must keep a record:
  (a) in relation to each choice made under Division 3 of Part 3 (including evidence of the day of the decision); and
  (b) of any certification given by an accredited statistician under subsection 15(3).

Information about sites

(2) The project proponent must also keep a record of the following information about sites:
  (a) the address, in the form approved by the Regulator, of every site that is or has been included in a population in the project;
  (b) for a site that is affected by attrition in the population during the project—the day the site was affected by attrition and the circumstances in which the attrition occurred;
  (c) for a site added to the population during the project—the circumstances in which the site was added.

Disposal of equipment and building components

(3) If, as part of the treatment under the project, the project proponent, the project proponent's agent, or a person contracted by the project proponent:
  (a) removes energy-consuming equipment (the ***removed equipment***) that is not being directly replaced; or
  (b) delivers, installs, or facilitates the delivery or installation of, energy-consuming equipment, and that equipment replaces other energy-consuming equipment (the ***replaced equipment***);

the project proponent must also keep a record of evidence that the removed equipment, or replaced equipment, was disposed of in accordance with relevant Commonwealth, State or Territory legislative requirements.

(4) If:
  (a) as part of the treatment under the project, the project proponent, the project proponent's agent, or a person contracted by the project proponent, (the ***relevant person***) removes a building component or other equipment that is not removed equipment or replaced equipment; and
  (b) the relevant person disposes of the building component or other equipment;

the project proponent must also keep a record of evidence that the disposal of the building component or other equipment was in accordance with relevant Commonwealth, State or Territory legislative requirements.

Division 4—Monitoring requirements

Subdivision A—Preliminary

69 Operation of this Part

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

(a) requirements to monitor an aggregated small energy users project that is an eligible offsets project (see Subdivision B); and

(b) certain consequences if the project proponent for the project fails to monitor the project as required (see Subdivision C).

Subdivision B—Monitoring requirements

70 Monitoring energy consumption

(1) The energy consumption from the energy source or sources chosen for a site in a population in the project under section 20 must be monitored for the site for all time periods in the crediting period for the project for which the site is part of the control group or treatment group in the population.

(2) However, there is no requirement to monitor energy consumption:

(a) at a site from the time the site is affected by attrition; or

(b) for a measurement period at sites in a population in the project if abatement for the population will not be calculated for that measurement period under Part 4.

71 Monitoring energy consumption using billing data

(1) This section applies if the project proponent for the project monitors energy consumption at a site in a population in the project using billing data.

Note: See section 34 in relation to pro-rataing data about energy consumption.

(2) The project proponent must monitor the site's energy consumption using billing data that is derived from data that is collected in accordance with:

(a) the National Energy Retail Rules made under the National Energy Retail Law, as that law applies in the jurisdiction where the site is located; and

(b) the law regulating the supply of the energy to retail customers in that jurisdiction.

72 Monitoring energy consumption other than using billing data

(1) This section applies if the project proponent for the project monitors energy consumption at a site in a population in the project using a method other than using billing data.

Note: See section 34 in relation to pro-rataing data about energy consumption.

(2) The project proponent must monitor the site's energy consumption that:

(a) is either:

(i) electricity consumed, from an electricity grid, at the site, measured in kilowatt hours; or

(ii) natural gas consumption at the site, measured in gigajoules; and

(b) meets the requirements of subsection (3) or (4).

Note: The project proponent does not itself need to measure the energy consumption but may access data from another party, such as a metering company, that measures the energy consumption.

(3) Energy consumption meets this requirement if it is measured and estimated in accordance with:

(a) the National Energy Retail Rules made under the National Energy Retail Law, as that law applies in the jurisdiction where the site is located; and

(b) the law regulating the supply of the energy to retail customers in that jurisdiction.

(4) Energy consumption meets this requirement if:

(a) it is measured in accordance with a metering arrangement that complies with the relevant requirements of the National Measurement Institute, including requirements in relation to meters; and

(b) the installing and reading of meters, and the measuring, estimating and checking of the energy consumption, was done:

(i) without bias as to whether the site is in the control group or the treatment group in a population; and

(ii) by a person who had no knowledge of whether the site is in that control group or treatment group.

73 Monitoring explanatory variables for sub-method 3

(1) This section applies if the project proponent for the project will use sub-method 3 to calculate the abatement for a population in the project under Part 4.

(2) The project proponent must monitor the explanatory variables (if any) the project proponent has chosen for the population for the purposes of using that sub-method, using data collected by the project proponent or by a third party.

(3) If the project proponent monitors the explanatory variable using data collected by the project proponent, the explanatory variable must be monitored as follows:

(a) the variable must be measured accurately; and

(b) the variable must be measured in accordance with industry practice (if any); and

(c) the variable must be measured for each site in the population for all time periods in the crediting period for the project for which the site is part of the control group or treatment group in the population; and

(d) if the variable is monitored from a place other than the site for which the variable is being monitored—the measurements for the variable must closely reflect the measurements that would be expected if the variable were monitored at the site.

Example: If the variable relates to weather, the place at which the variable is monitored must experience similar weather conditions to the site for which the variable is being monitored.

(4) If the project proponent monitors the explanatory variable using data collected by a third party, the project proponent must use data about the variable:
   (a) that is collected accurately and in accordance with industry practice (if any); and
   (b) for each site in the population for all time periods in the crediting period for the project for which the site is part of the control group or treatment group in the population; and
   (c) if the data was collected at a place other than the site for which the variable is being monitored—that reflects, as closely as possible, the data that would be expected if the data were collected at the site.

(5) However, there is no requirement to monitor the explanatory variable for a measurement period at sites in a population in the project if abatement for the population will not be calculated for that measurement period under Part 4.

Subdivision C—Consequences of failing to monitor the project as required

74 Consequences of not monitoring explanatory variable as required

(1) This section applies if, during a particular period (the ***non-monitored period***) in a reporting period, the project proponent for an aggregated small energy users project fails to monitor an explanatory variable for a site in a population as required by the monitoring requirements.

(2) The value of the explanatory variable for the purpose of working out the carbon dioxide equivalent net abatement amount for the reporting period is to be determined for the site for the non-monitored period in accordance with the following:
   (a) industry practice (if any);
   (b) any relevant historical values for that variable for the site;
   (c) any other data that relates to the explanatory variable;
   (d) any other matter the project proponent considers relevant.

(3) 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 an explanatory variable 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.

Part 6—Dividing an aggregated small energy users project

75 Operation of this Part

For subsection 77A(2) of the Act, this Part sets out requirements for dividing an aggregated small energy users project that is an eligible offsets project.

76 Requirements for division of project

(1) The project may only be divided into parts if the project consists of 2 or more populations.

(2) If the project is divided into parts, each part must consist of one or more whole populations.