

EXPLANATORY STATEMENT

Issued by authority of the Minister for Climate Change and Energy

National Greenhouse and Energy Reporting Act 2007

*National Greenhouse and Energy Reporting (Measurement) Amendment
(2023 Update) Determination 2023*

Background

The National Greenhouse and Energy Reporting (NGER) Scheme is Australia's national system for reporting greenhouse gas emissions, energy consumption and energy production by Australian corporations.

The NGER Scheme is a key data source which supports Australia's international and domestic reporting obligations and informs domestic climate and energy policies. Emissions reported under the NGER Scheme underpin the operation of the Safeguard Mechanism.

NGER Scheme legislation includes:

- the *National Greenhouse and Energy Reporting Act 2007* (the Act);
- the *National Greenhouse and Energy Reporting Regulations 2008* (the NGER Regulations); and
- the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (the Measurement Determination).

Overview of the Measurement Determination

The Measurement Determination was made under section 10 of the Act, which provides for the Minister to determine methods, or criteria for methods, for the measurement of (a) greenhouse gas emissions; (b) the production of energy; and (c) the consumption of energy. It provides the technical detail of methods for the estimation of greenhouse gas emissions and the production and consumption of energy within the NGER Scheme.

The structure of the Measurement Determination reflects the framework of the *2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories*, as adopted by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement, and includes emissions from:

- the combustion of fuel for energy;
- the extraction, production, flaring, processing and distribution of fossil fuels, and from carbon capture and storage;

- industrial processes where a mineral, chemical or metal product is formed using a chemical reaction that generates greenhouse gases as a by-product, as well as emissions of hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF6) resulting from their use by certain industries; and
- waste disposal – either in landfill, as management of wastewater or from waste incineration.

The scope of the Measurement Determination does not include land-based emissions covered by the IPCC categories ‘Agriculture’ and ‘Land Use, Land Use Change and Forestry’.

The NGER Scheme is regularly reviewed by the Department for opportunities to improve the accuracy of estimates while being cognisant of reporting burden.

The NGER Scheme is administered by the Clean Energy Regulator (CER). Further information on NGER reporting is available at the [CER’s website](#).

Methods of measurement

The Measurement Determination provides a hierarchy of emissions reporting methods to accommodate the circumstances of individual reporters:

- Method 1 typically specifies the use of default emission factors to estimate emissions based on those used in Australia’s National Greenhouse Gas Inventory;
- Method 2, where available, is a facility-specific method, for example using industry sampling and Australian or international standards to provide more accurate estimates of emissions at facility level;
- Method 3, where available, is a higher-level facility-specific method, for instance using Australian or international standards for both sampling and analysis of fuels and raw materials;
- Method 4, where available, provides for direct monitoring of emission systems, either on a continuous or periodic basis.

The Measurement Determination draws on existing estimation practices wherever possible, including through the use of data collected for commercial, taxation or other regulatory purposes, with the aim of maximising the use of readily validated data and minimising administrative burdens on reporters.

Purpose and operation

The purpose of the *National Greenhouse and Energy Reporting (Measurement) Amendment (2023 Update) Determination 2023* (the Update Determination) is to:

- Introduce an optional, supplementary ‘market-based’ method for determining indirect emissions from the consumption of electricity (‘scope 2’ emissions);

- Update Method 1 used to calculate emissions from Queensland open cut mines to reflect improvements in data availability and align the method with the National Greenhouse Gas Inventory;
- Update Methods 1 and 2 for the estimation of methane released from landfills;
- Add two new biofuels, *renewable diesel* and *renewable aviation kerosene* as reportable fuels under the NGER Scheme; and
- Make other minor amendments.

The Update Determination will commence on 1 July 2023 and apply to the 2023-24 and subsequent financial years. It will affect NGER Scheme reports to be submitted by corporations by 31 October 2024.

Further details of the Update Determination are outlined in [Attachment A](#).

The Update Determination is a legislative instrument for the purposes of the *Legislation Act 2003*.

A statement of the Update Determination's compatibility with human rights is set out in [Attachment B](#).

Consultation

The substance of the amendments made by the Update Determination was released for [public consultation](#) from 3 April to 28 April 2023. 47 submissions were received, with each of the proposed updates receiving support from a majority of submissions which commented on it. Following consultation, the new market-based method for estimating scope 2 emissions was revised to increase its clarity, and additional amendments to section 5.15C were included to revise the calculation of maximum methane collection efficiency at landfills in line with industry and environmental regulatory practice.

Regulatory Impact

The regulatory impacts of the Update Determination have been assessed as not requiring a Regulation Impact Statement by the Office of Impact Assessment (ref OIA23-04928).

Overview

An overview of amendments made by the Update Determination is provided below. Further background on the technical development and rationale of the amendments may be found in the [consultation paper](#) which was released with an exposure draft of the amendments for public consultation.

Optional, supplementary market-based method for calculating scope 2 emissions from electricity consumption

Item 17 inserts a new method (method B) into Chapter 7 of the Measurement Determination for the market-based estimation of scope 2 emissions from the consumption of electricity.

The market-based method is voluntary, with existing location-based methods under sections 7.2 and 7.3 (methods A1 and A2) remaining compulsory for facilities meeting the threshold specified in subsection 7.1(2). Only the location-based methods are to be used for the purpose of calculating whether a controlling corporation's group meets a threshold for a financial year under section 13 of the Act.

The market-based method takes account of acquisitions of renewable electricity as represented by surrender of Renewable Energy Certificates (REC_{surr} in the new section 7.4). Large-scale Generation Certificates created under the Renewable Energy Target scheme are specified as eligible certificates. A purchase of GreenPower electricity from an accredited GreenPower Provider is also considered as an eligible certificate. The portion of a reporter's electricity consumption represented by surrendered certificates is deducted from the quantity of electricity purchased or acquired (Q) and effectively assigned a zero emission factor. Emissions from any residual electricity consumption are calculated through application of a 'residual mix factor' (RMF).

Reporters must add back into their electricity consumption the quantity of electricity represented by certificates issued for electricity produced on-site during the year and consumed from the operation of the facility (REC_{onsite}); this prevents double counting of the renewable electricity by both the reporter and any other reporters who may claim the resulting certificate in their own market-based emissions estimates. Appropriate adjustments are also made to exclude from Q the portion of electricity represented by LGC certificates surrendered as part of the national Renewable Power Percentage under the RET scheme (RPP), or the Jurisdictional Renewable Power Percentage in the Australian Capital Territory (JRPP). The deduction in respect of the RPP (as set under the RET scheme) is not made in respect of any portion of an entity's electricity consumption which is exempt from obligations under the RET scheme (Q_{exempt}).

Update to Method 1 used to calculate fugitive methane emissions from Queensland open cut mines

Item 9 updates the emission factor in section 3.20 of the Measurement Determination to calculate fugitive emissions of methane under Method 1 for open cut coal mines.

This update aligns with method developments applied in the National Greenhouse Gas Inventory.

Update to Methods 1 and 2 for the estimation of methane emissions released from landfills (other than from flaring of methane)

Part 5.2 of the Measurement Determination provides methods for estimating emissions from the decomposition of organic material in landfill and in biological treatment of solid waste.

Under current section 5.4, a maximum value of 75% is imposed on the collection efficiency (that is, the proportion of generated methane captured for combustion, flaring or transfer offsite) reflected in a facility's estimates under Method 1 for emissions of methane from a landfill (other than emissions from flaring). Item 14 of the Update Determination amends this section so that the maximum collection efficiency applicable under the Method 1 calculation is as calculated under section 5.15C (Equation – collection efficiency limit at landfill in a particular reporting year).

Under current section 5.15C, the maximum collection efficiency is calculated by reference to four categories of landfill management techniques. In order of increasing effectiveness, the categories are A2 (which represents areas without active gas collection and is assigned a maximum collection efficiency of 0%), A3 (which represents areas with daily soil cover and active gas collection and is assigned a maximum collection efficiency of 60%), A4 (which broadly represents areas with intermediate cover and is assigned a collection efficiency of 75%) and A5 (which broadly represents areas with final cover and is assigned a collection efficiency of 95%). Item 16 amends subsection 5.15C(1) to update categories A4 and A5. Both categories are amended to be less prescriptive and to include intermediate (A4) and final (A5) cover types that are consistent with relevant State or Territory guidelines. Category A5 is amended to explicitly exclude phytocaps, reflecting the current lack of academic literature on landfill gas capture efficiencies demonstrated by phytocaps in Australia.

Under current subsection 5.15C(2) a default collection efficiency of 75% is imposed when a landfill operator is unable to specify the areas for the factors A2, A3, A4 and A5 in subsection 5.15C(1). Item 16 amends this default value to 60% to better align with 5.15C(1) as amended.

Together, these items update Methods 1 and 2 for estimating emissions of methane from landfills to better reflect modern industry practice and environmental regulation.

Renewable diesel and renewable aviation kerosene

The Update Determination prescribes technical parameters to be used for reporting emissions and energy information in relation to two new biofuels within the NGER Scheme: *renewable diesel* and *renewable aviation kerosene*.

These fuels are defined by associated amendments to the NGER Regulations.

A zero carbon dioxide emission factor is assigned to the combustion of these fuels, consistent with existing treatment of other biogenic fuels under the NGER Scheme. Methane and nitrous oxide emission factors and the energy contents for these fuels are the same as those specified for their fossil equivalents (*diesel oil* and *kerosene for use as fuel in an aircraft*).

Documents incorporated by reference

The Measurement Determination specifies the use of technical standards in the measurement of emissions and energy. The prescription of commercial technical standards is a necessary part of technical regulatory regimes such as the NGER Scheme in order to achieve accurate and consistent measurement by regulated entities. Reporters meeting NGER reporting thresholds (specified by section 13 of the NGER Act) are corporate entities who regularly use such standards in their commercial activities and for other regulatory purposes. Such standards are incorporated consistently with section 14 of the *Legislation Act 2003*. Subsection 1.9(4) of the Measurement Determination sets out a general rule that such documents are those in force on 1 January 2020.

The Measurement Determination allows flexibility in the application of some standards. For example, sections 2.12, 2.24 and 2.26 allow the use of standards which are equivalent to those specified to be used by reporters where this suits their needs.

Items 4 and 6 of the Update Determination prescribe standards for the sampling and analysis of the new fuels *renewable diesel* and *renewable aviation kerosene*. Standards prescribed for these fuels are the same as those standards already prescribed under the Measurement Determination in relation of their fossil equivalents (*diesel oil* and *kerosene for use as fuel in an aircraft*).

Section 1.9 of the Measurement Determination includes definitions of relevant categories of standards referenced in the Measurement Determination. These definitions, and relevant websites to obtain access to the standards, are as follows:

ASTM followed by a number (for example, ASTM D6347/D6347M-99) means a standard of that number issued by ASTM International and, if a date is included, of that date. Their website is: <https://www.astm.org/>

CEN/TS followed by a number (for example, CEN/TS 15403) means a technical specification (TS) of that number issued by the European Committee for Standardization and, if a date is included, of that date. Their website is: <https://www.cencenelec.eu/>

GPA followed by a number means a standard of that number issued by the Gas Processors Association and, if a date is included, of that date. Their standards can be obtained from: <https://ihsmarkit.com/products/gpa-standards.html>

ISO followed by a number (for example, ISO 10396:2007) means a standard of that number issued by the International Organization of Standardization and, if a date is included, of that date. Their website is: <https://www.iso.org/>

Standards are available for purchase through commercial websites such as <https://www.saiglobal.com/> or <https://webstore.ansi.org/>. Some standards are available through public libraries, such as the National Library of Australia. Interested persons may also enquire with the department to arrange a viewing of prescribed technical standards at the department's offices in Canberra, by appointment.

Item 16 of the Update Determination incorporates the document *Siting, design, operation and rehabilitation of landfills* (Publication 788.3), published by Environment Protection Authority Victoria, for use in determining types of landfill

covers represented by the categories A4 and A5 in section 5.15C of the Measurement Determination. At the time of the making of this instrument, this document is freely available via the website of the Environment Protection Authority Victoria at the following link: <https://www.epa.vic.gov.au/about-epa/publications/788-3>.

ATTACHMENT A

National Greenhouse and Energy Reporting (Measurement) Amendment (2023 Update) Determination 2023

Section 1 – Name of Determination

This section provides that the title of the Instrument is the *National Energy Reporting (Measurement) Amendment (2023 Update) Determination 2023*.

Section 2 – Commencement

This section provides for the amendments to commence on 1 July 2023.

Section 3 – Authority

This section outlines that the Update Determination is made under subsection 10(3) of the Act. The power to make legislative instruments under this subsection includes the power to amend or revoke instruments that have already been made, with any doubt about this resolved by subsection 33(3) of the *Acts Interpretation Act 1901*.

Section 4 – Schedules

The amendments to the Measurement Determination are outlined at Schedule 1.

Schedule 1 – Amendments

Item	Item name	Description of Amendment
1.	Section 1.8	Provides that <i>biodiesel</i> , <i>renewable diesel</i> and <i>renewable aviation kerosene</i> have the meaning given by the NGER Regulations. Inserts definitions of <i>gross vehicle mass</i> , <i>heavy duty vehicle</i> , <i>light duty vehicle</i> and <i>wet weight</i> to remove ambiguity as to the meaning of these terms within the Measurement Determination.
2.	Subsection 2.20(2) (paragraph (c) of the definition of <i>transport energy purposes</i>)	Repeals the former paragraph (c) of the definition of <i>transport energy purposes</i> ‘(c) marine navigation’ and substitutes it with a new paragraph ‘(c) waterborne transport’ to remove ambiguity as to the meaning of this term. ‘Transport energy purposes’ are intended to include all waterborne transport, not just transport at sea.
3.	Subsection 2.41(2) (paragraph (c) of the definition of <i>transport energy purposes</i>)	See item 2 above.
4.	Subsection 2.45(1) (after table item 20)	Prescribes standards for analysing samples of <i>renewable diesel</i> and <i>renewable aviation kerosene</i> for the purpose of reporting emissions using Method 2 for estimating emissions of carbon dioxide from the combustion of liquid fuels. Prescribed standards are as for <i>diesel oil</i> and <i>kerosene for use as fuel in an aircraft</i> .
5.	Subsection 2.45(1) (table item 22)	Repeals the former table item 22 and substitutes a new table item 22 reflecting the insertion of table items 20A and 20B by item 4 above.
6.	Subsection 2.47(3) (after table item 20)	Prescribes standards for sampling <i>renewable diesel</i> and <i>renewable aviation kerosene</i> for the purpose of reporting emissions using Method 3 for estimating emissions of carbon dioxide from the combustion of liquid fuels. Prescribed standards are as for <i>diesel oil</i> and <i>kerosene for use as fuel in an aircraft</i> .
7.	Subsection 2.47(3) (table item 22)	Repeals the former table item 22 and substitutes a new table item 22 reflecting the insertion of table items 20A and 20B by item 6 above.

Item	Item name	Description of Amendment
8.	Subparagraph 2.67A(b)(ii)	Editorial correction to remove an unneeded word 'the'.
9.	Section 3.20 (paragraph (c) of the definition of EF _j)	Updates the emission factor to be used under Method 1 for estimating fugitive emissions of methane from the extraction of coal from open cut mines in Queensland.
10.	Subsection 3.54(2)	Editorial correction so that the provision refers to the correct subparagraph.
11.	Subparagraph 3.88N(1)(c)(ii)	Editorial correction.
12.	Section 3.88 (the section 3.88 inserted by item 62 of Schedule 1 to the <i>National Greenhouse and Energy Reporting (Measurement) Amendment Determination 2010 (No. 1)</i>)	Editorial correction to renumber the provision.
13.	Sections 4.85 and 4.89	Repeals Method 1 for estimating emissions of tetrafluoromethane and hexafluoroethane in aluminium production. These methods are redundant as they are not available to be used to estimate emissions of these gases from aluminium production (see subsections 4.84(1) and 4.88(1) of the Measurement Determination).
14.	Subsections 5.4(2) to (5)	Updates the formula under Method 1 for estimating methane released from landfills (other than from flaring of methane) to increase the maximum methane collection efficiency for the landfill, which is now calculated under section 5.15C.
15.	Sections 5.4A, 5.4B, 5.4C, 5.4D, 5.13, and 5.15	Replaces references to subsection 5.4(5) wherever occurring with references to subsection 5.4(4) to reflect the amendment made by item 14 above.
16.	Subsection 5.15C	Updates the definitions of categories A4 and A5 to better reflect modern industry practice and environmental regulation. Updates the equation to be applied in subsection (3) to calculate collection efficiency

Item	Item name	Description of Amendment
		where a landfill operator is unable to specify the areas to which different categories of management techniques are applied.
17.	Chapter 7	Introduces an optional, supplementary market-based method (method B) for the estimation of scope 2 emissions from purchased or acquired electricity.
18.	Subsection 8.6(1) (table item 30)	Editorial correction so that the table item refers to the correct table item numbers.
19.	Subsection 8.6(1) (after table item 50)	Prescribes the energy content uncertainty and carbon dioxide emission factor uncertainty to be used when reporting emissions from combustion of <i>renewable diesel</i> and <i>renewable aviation kerosene</i> using Method 1. Energy content uncertainty factors are as for <i>diesel oil</i> and <i>kerosene for use in an aircraft</i> . Carbon dioxide uncertainty factors are not applicable as these fuels are assigned a carbon dioxide emission factor of zero by items 22 to 26 below.
20.	Subsection 8.6(1) (table item 52)	Repeals the former table item 52 and substitutes a new table item 52 that accounts for the newly inserted table items 50A and 50B.
21.	After section 9.15	Provides that amendments made by this instrument apply in relation to reporting for the financial year 2023-24 and later financial years.
22.	Part 2 of Schedule 1 (table item 17, column 2)	Amends table item 17, column 2 to specify that item 17 applies to the fuel <i>natural gas transmitted or distributed in a pipeline</i> . This amendment is consistent with previous amendments to the NGER Regulations and clarifies that this fuel covers natural gas wherever occurring in the supply chain. Amendments with identical effect are made throughout the Update Determination.
23.	Part 3 of Schedule 1 (after table item 50)	Specifies the energy content factor and carbon dioxide, methane and nitrous oxide emission factors for the new fuels <i>renewable diesel</i> and <i>renewable aviation kerosene</i> when they are combusted for stationary energy purposes. The carbon dioxide emission factor is zero consistent with other biogenic fuels; other

Item	Item name	Description of Amendment
		parameters are as for <i>diesel oil</i> and <i>kerosene for use as fuel in an aircraft</i> respectively.
24.	Part 3 of Schedule 1 (table item 52)	Repeals the former table item 52 and substitutes a new table item 52 that accounts for the newly inserted table items 50A and 50B.
25.	Division 4.1 of Schedule 1 (after table item 59)	Specifies the energy content factor and carbon dioxide, methane and nitrous oxide emission factors for the new fuels <i>renewable diesel</i> and <i>renewable aviation kerosene</i> when they are combusted for transport energy purposes. The carbon dioxide emission factor is zero consistent with other biogenic fuels; other parameters are as for <i>diesel oil</i> and <i>kerosene for use as fuel in an aircraft</i> respectively.
26.	Division 4.1 of Part 4 of Schedule 1 (table item 61)	Repeals the former table item 61 and substitutes a new table item 61 that accounts for the newly inserted table items 59A and 59B.
27.	Division 4.2 of Schedule 1 (after table item 65)	Specifies the energy content factor and carbon dioxide, methane and nitrous oxide emission factors for the new fuel <i>renewable diesel</i> when it is combusted for transport energy purposes for post-2004 vehicles. The carbon dioxide emission factor is zero consistent with other biogenic fuels; other parameters are as for <i>diesel oil</i> .
28.	Division 4.3 of Schedule 1 (table)	Specifies the energy content factor and carbon dioxide, methane and nitrous oxide emission factors for the new fuel <i>renewable diesel</i> when it is combusted for transport energy purposes for certain trucks. The carbon dioxide emission factor is zero consistent with other biogenic fuels; other parameters are as for <i>diesel oil</i> for the relevant heavy vehicle design standard.
29.	Part 6 of Schedule 1	Updates the emission factors applicable when using the location-based method under section 7.2 to estimate scope 2 emissions from the consumption of electricity from the main grid in a State or Territory. Specifies the residual mix factor (RMF) for use in estimating scope 2 emissions from purchased or acquired electricity using the market-based method (method B) under section 7.4.

Item	Item name	Description of Amendment
30.	Part 2 of Schedule 3 (table item 17A, column 2)	See description of item 21 above.
31.	Part 3 of Schedule 3 (after table item 52)	Specifies the carbon content for the new fuels <i>renewable diesel</i> and <i>renewable aviation kerosene</i> , which is zero for both fuels as for other biogenic fuels.
32.	Part 2 of Schedule 4	Replaces the unit of energy “megajoule” with the unit of energy “gigajoule” wherever occurring in Part 2 of Schedule 4 of the Measurement Determination. This brings the Part into consistency with unit convention applied elsewhere within the Measurement Determination (in particular section 1.15(3)).
33.	After Part 6 of Schedule 4	<p>Specifies information which must be reported under subsection 4.17B(2) of the NGER Regulations by reporters using the market-based method in section 7.4 (method B) to estimate scope 2 emissions.</p> <p>The following values must be reported when using this method:</p> <ul style="list-style-type: none"> • Q (the quantity of electricity purchased or acquired from an electricity transmission network or distribution network during the year and consumed from the operation of the facility measured in kilowatt hours); • Q_{exempt} (the quantity of electricity exempt from Renewable Energy Target (RET) liability, measured in kilowatt hours); • REC_{surr} (the number of eligible Renewable Energy Certificates voluntarily surrendered in the reporting year equivalent to megawatt hours); and • REC_{onsite} (the number of eligible Renewable Energy Certificates that have been or will be issued for electricity produced on-site during the year and consumed from the operation of the facility equivalent to megawatt hours).
34.	Amendments of listed provisions—Valves—leaker	Editorial correction.

Item	Item name	Description of Amendment
35.	Amendments of listed provisions—Natural gas transmitted or distributed in a pipeline	See description of item 21.

Statement of Compatibility with Human Rights

Prepared in accordance with Part 3 of the Human Rights (Parliamentary Scrutiny) Act 2011

National Greenhouse and Energy Reporting (Measurement) Amendment (2023 Update) Determination 2023

This Legislative Instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

Overview of the Legislative Instrument

The *National Greenhouse and Energy Reporting (Measurement) Amendment (2023 Update) Determination 2023* makes minor amendments to the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* in order to:

- Introduce an optional, supplementary ‘market-based’ method for determining indirect emissions from the consumption of electricity (‘scope 2’ emissions);
- Update Method 1 used to calculate emissions from Queensland open cut mines to reflect improvements in data availability and align the method with the National Greenhouse Gas Inventory;
- Update Methods 1 and 2 for the estimation of methane released from landfills;
- Add two new reportable biofuels, renewable diesel and renewable aviation kerosene; and
- Make other minor amendments.

Human rights implications

This Legislative Instrument does not engage any of the applicable human rights or freedoms.

Conclusion

This Legislative Instrument is compatible with human rights as it does not raise any human rights issues.

The Hon Chris Bowen MP
Minister for Climate Change and Energy