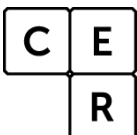
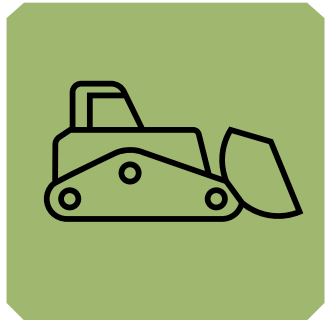
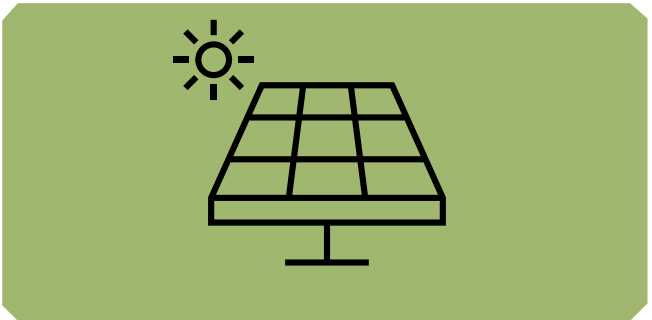
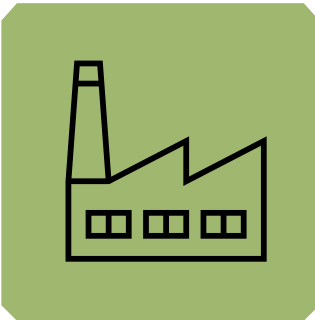
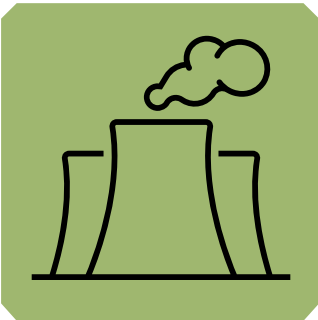


Reporting Uncertainty Guideline

July 2023





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Definitions and abbreviations

Term	Meaning
CO₂	Carbon dioxide
CO₂-e	Carbon dioxide equivalence
EERS	The Clean Energy Regulator’s Emissions and Energy Reporting System, which is used for National Greenhouse and Energy Reporting (NGER) reporting.
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i>
NGER Legislation	NGER Act, NGER Measurement Determination and NGER Regulations
NGER Measurement Determination	National Greenhouse and Energy Reporting (Measurement) Determination 2008
NGER Regulations	National Greenhouse and Energy Reporting Regulations 2008
Scope 1 emissions	The release of greenhouse gas into the atmosphere as a direct result of an activity or series of activities (including ancillary activities) that constitute the facility.
Scope 2 emissions	The release of greenhouse gas into the atmosphere as a direct result of one or more activities that generate electricity, heating, cooling or steam that is consumed by the facility but that do not form part of the facility.
t CO₂-e	Tonnes carbon dioxide equivalence
Uncertainty protocol	The document titled: ‘GHG Protocol guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty’ (September 2003 v1.0) issued by the ‘World Resources Institute’ and the ‘World Business Council for Sustainable Development’.

Please refer to Division 2 of the NGER Act, 1.03 of the NGER Regulations and Division 1.1.2 of the NGER Measurement Determination for defined terms in NGER Legislation.



Disclaimer

This guideline has been developed by the Clean Energy Regulator (CER) to assist entities to comply with their reporting obligations under the [National Greenhouse and Energy Reporting Act 2007](#)¹ (NGER Act) and associated legislation.

This guideline only applies to the 2022–23 NGER reporting year and should be read in conjunction with the NGER Act, [National Greenhouse and Energy Regulations 2008](#)² (NGER Regulations), and [National Greenhouse and Energy Reporting \(Measurement\) Determination 2008](#)³ (NGER Measurement Determination), as in force for this reporting period. These laws and their interpretation are subject to change, which may affect the accuracy of the information contained in the guideline.

The guidance provided in this document is not exhaustive, nor does it consider all circumstances applicable to all entities. This guidance is not intended to comprehensively deal with its subject area, and it is not a substitute for independent legal advice. Although entities are not bound to follow the guidance provided in this document, they must ensure they meet their obligations under the [National Greenhouse and Energy Reporting \(NGER\) scheme](#)⁴ at all times. CER encourages all users of this guidance to seek independent legal advice before taking any action or decision based on this guidance.

CER and the Australian Government will not be liable for any loss or damage from any cause (including negligence) whether arising directly, incidentally, or as consequential loss, out of or in connection with, any use of this guideline or reliance on it, for any purpose.

If an entity chooses to meet their obligations under the NGER scheme in a manner that is inconsistent with the guidance provided in this document, CER, or an independent auditor, may require the entity to demonstrate that they are compliant with requirements of the NGER Act, NGER Regulations, and/or the NGER Measurement Determination. Entities are responsible for determining their obligations under the law and for applying the law to their individual circumstances.

¹ <https://www.legislation.gov.au/Series/C2007A00175>

² <https://www.legislation.gov.au/Series/F2008L0223>

³ <https://www.legislation.gov.au/Series/F2008L02309>

⁴ <http://www.cleanenergyregulator.gov.au/NGER/Pages/default.aspx>



2022–23 updates

- Minor stylistic and formatting changes have been made to guidance provided in this document for the 2022–23 reporting year.

1. Introduction

Corporations registered under the NGER Act must submit annual reports to CER.

Corporations reporting under section 19 of the NGER Act ('controlling corporations') must report on their corporate group's scope 1 and scope 2 emissions, energy production and energy consumption where one or more of the thresholds under section 13 of the NGER Act are met.

Corporations reporting under section 22G and section 22X of the NGER Act (Reporting Transfer Certificate Holders and responsible members) must also report scope 1 and scope 2 emissions, energy production and energy consumption data.

A report under section 19, 22G or 22X of the NGER Act with scope 1 emissions of more than 25 kilotonnes of CO₂-e from the combustion of a fuel type or from a source other than fuel combustion at a facility must include an assessment of uncertainty associated with the combustion of the fuel type or the source.

Scope 1 emissions are the release of greenhouse gases into the atmosphere as a direct result of an activity, or series of activities (including ancillary activities) that constitute the facility. Sources are defined in section 1.10 of the NGER Measurement Determination, and fuel types are set out in Schedule 1 of the NGER Regulations.

This guide provides information about the reporting requirements for uncertainty under the NGER Act. This includes information about:

- background to reporting uncertainty
- reporting requirements
- methods available for uncertainty calculation
- how to report uncertainty using the Emissions and Energy Reporting System (EERS).

2. What is uncertainty?

Uncertainty can be described as the amount of variation in a numerical result consistent with observations. Statistical uncertainty, as measured under NGER legislation, accounts for the level of uncertainty that may be attributed to sampling and statistical variation.

Uncertainty is to be reported at the 95% confidence level. For example, an uncertainty assessment of 7% identifies that with 95% confidence the true value of scope 1 emissions is within 7% of the reported value. From basic statistical principles, the reported figure is more likely to lie near the true value than at the outer limits of the uncertainty range.

3. What is uncertainty used for?

The uncertainty data provided under NGER legislation will help inform the uncertainty estimates published in Australia's National Greenhouse Accounts, including:



- meeting Australia's reporting commitments under the United Nations Framework Convention on Climate Change (UNFCCC)
- tracking progress against Australia's targets under various international agreements
- informing policymakers and the public.

The uncertainty data can also assist corporations in understanding the uncertainties associated with their emission estimates, informing their allocation of resources and their choice of methods under the NGER legislation. It is important to note that the reported uncertainty data is not published annually under section 24 of the NGER Act.

See the [Department of Climate Change, Energy, the Environment and Water website](#) for more information about National Greenhouse Accounts.

4. Uncertainty reporting requirements

4.08 and 4.17A of the NGER Regulations detail the thresholds for reporting uncertainty associated with estimated scope 1 emissions from combustion of a fuel type, or from a source other than combustion, at a facility. Uncertainty must be reported for a facility if the scope 1 emissions from the combustion of an energy type or for a source are 25,000 tonnes carbon dioxide equivalence (t CO₂-e) or more in a reporting year. Uncertainty is not required to be aggregated to the facility and corporation or group levels.

The requirement to report uncertainty applies to a network or pipeline facility that is defined under 4.28 of the NGER Regulations, that is, a network or pipeline that crosses a state or territory boundary.

The requirement to report uncertainty does not apply to facility aggregates reported under 4.25 of the NGER Regulations, estimates of scope 1 emissions reported as a percentage under 4.26 of the NGER Regulations, or emissions reported as incidental under 4.27 of the NGER Regulations.

Note: Make sure that reporting uncertainty is the last thing you do in EERS, before generating your report. If any activities relevant to uncertainty reporting are adjusted, uncertainty will need to be re-calculated.

5. How to assess uncertainty

Uncertainty is required to be assessed in accordance with Chapter 8 of the NGER Measurement Determination. Part 8.3 of the NGER Measurement Determination sets out how to assess uncertainty where Method 1 is used to estimate scope 1 emissions. Part 8.4 of the NGER Measurement Determination sets out the requirements for assessing uncertainty where Method 2, 3 or 4 is used to estimate scope 1 emissions.

5.1. Assessing uncertainty where Method 1 is used to estimate emissions

Part 8.3 of the NGER Measurement Determination provides default statistical uncertainty levels which can be used to calculate the uncertainty for emissions estimated using Method 1. Default uncertainty levels in the NGER Measurement Determination are either aggregated uncertainty levels or uncertainty levels for parameters needed to calculate the emissions, such as energy content or emission factor.



Part 8.3 also allows uncertainty levels to be worked out in accordance with the [GHG Protocol guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty](#)⁵ (September 2003 v1.0), also known as the 'uncertainty protocol'.

Records should be kept regarding how your uncertainty was determined in a manner compliant with section 22 of the NGER Act.

5.2. Assessing uncertainty where Method 2, 3 or 4 is used to estimate emissions

Part 8.4 of the NGER Measurement Determination sets out how to assess uncertainty where Method 2, 3 or 4 is used to estimate scope 1 emissions. This requires uncertainty to be assessed in accordance with the uncertainty protocol. The key difference compared to assessing uncertainty for estimations using Method 1 is that the parameter uncertainties should be estimated directly rather than taken from the default tables in Sections 8.6 to 8.10 of the NGER Measurement Determination. Techniques for estimating these parameters are given in section 7 of the uncertainty protocol. Also, further guidance and discussion on calculation of uncertainty is given in the uncertainty protocol.

Generally, the uncertainties estimated under Methods 2, 3, and 4 are likely to be lower than those calculated under Method 1. This indicates that emissions estimates using the higher Methods are more accurate than emissions estimates using Method 1. The main reason for this is that in Method 1, default emission factors are used and there is significant uncertainty around these defaults. Higher Methods of analysis require direct analysis of the fuel giving a much more accurate estimation of the carbon content of fuels and hence the associated emissions.

Records should be kept regarding how your uncertainty was determined in a manner compliant with section 22 of the NGER Act.

⁵ https://ghgprotocol.org/sites/default/files/standards_supporting/Quantitative%20Uncertainty%20Guidance.pdf



6. Reporting uncertainty in the Emissions and Energy Reporting System

To report uncertainty in EERS, reporters must first ensure all relevant activity data has been entered into EERS.

To report uncertainty, click on the 'Data Entry' tab and then click on the 'Report Uncertainty' button found under the 'Small Facilities Percentages' function:

Figure 1: 'Report Uncertainty' button.

The screenshot shows the EERS interface with the following components:

- Navigation tabs: EERS Home, Data Entry, Reports, Entity access.
- User info: Signed in as Exec firstname Exec surname SprintOneUAT-BJCRMO, Logout.
- Client Portal Home: Emissions and Energy Reporting System.
- Corporate Structure: Organisation Legal Name, Hide Corporate Structure, Edit Reporting Entity Information.
- Emissions and Energy Summary Table: GREENHOUSE GAS EMISSIONS (t CO₂-e), ENERGY PRODUCED AND ENERGY CONSUMED (GJ), GREENHOUSE GAS SCOPE 1 EMISSIONS BY GAS (t CO₂-e).
- Facilities: Facility 1, Facility 2.
- Favourites: There is no favourite entity.
- Search: Search for an entity: [input] Search.
- Buttons: Add Entity, Small Facilities Percentages, Report Uncertainty (circled in red), Hide Corporate Structure, Exit.

The 'Facility Uncertainty' reporting screen will appear (see Figure 2). This shows all sources and fuels that exceed the uncertainty reporting threshold for each facility.

The Facility Uncertainty reporting screen includes an 'Auto-calculate' function where Method 1 has been used to estimate scope 1 emissions. When selected, the 'Auto-calculate' function calculates uncertainty using default values from the NGER Measurement Determination for the fuel type or source.

Reporters can choose which Method 1 fuel or source items they want to exclude from auto-calculation by unselecting the auto-calculate function (see Figure 2). Note that the auto-calculate function will only be available where only Method 1 was used to estimate emissions for the fuel and source item.

To return to the Reporting Entity Information screen, click the 'Exit' button.

Note: When using the auto-calculate function, EERS will only calculate the uncertainty after clicking the 'Auto-calculate' button (See Figure 2).



Once calculated, the uncertainty will be displayed in the 'Uncertainty %' column. Please check that uncertainty has been calculated successfully by the auto-calculate function. If not, repeat the process.

Figure 2: 'Facility Uncertainty' screen with 'Auto-calculate' function.

Source	Method(s) used	Emission (tCO ₂ -e)	Uncertainty %	Auto-calculate	User input
Decommissioned underground mines	Method 1	27,455		<input checked="" type="checkbox"/>	
Bituminous coal	Method 1	121,811		<input checked="" type="checkbox"/>	

Fuel	Method(s) used	Emission (tCO ₂ -e)	Uncertainty %	Auto-calculate	User input
Natural gas distributed in a pipeline	Method 1 and 2	95,288			

To enter, modify or remove any reported uncertainty value, click the edit symbol in the 'User input' column. This will open the 'Add/modify entry—Uncertainty' screen (shown in **Error! Reference source not found.**).

On this screen, reporters should enter the uncertainty related to the fuel or source in the 'Uncertainty Percentage' field on the left-hand side of the screen. Reporters may choose to use CER's [Uncertainty Calculator](http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators)⁶ to calculate and report uncertainty in accordance with the NGER Measurement Determination. See chapter 6.1 of this guideline.

⁶ <http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators>



Figure 3: 'Add/modify—Uncertainty' entry screen.

EERS Home
Data Entry
Reports
Entity access
Signed in as Exec firstname Exec surname SprintOneUAT-BJCRMO
Logout

Add / modify entry – Uncertainty
?

Facility	Facility 1
Source	Fuel combustion
Fuel Type	Bituminous coal

Activity Description	Source	Method	Criterion	CO ₂	N ₂ O	CH ₄	HFCs	SFs	PFCs	Total
	Emissions released from fuel use by certain industries (including electricity generation)	Method 1	A	121,500	270	41	0	0	0	121,811
Total										121,811

Uncertainty Percentage * %

Save
Exit

CER Hotline: 1300 553 542 (within Australia)
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Note: Make sure that reporting uncertainty is the last thing you do in EERS, before generating your report. If any activities relevant to uncertainty reporting are adjusted, uncertainty will need to be re-calculated.

6.1. NGER Uncertainty Calculator

CER has provided a spreadsheet tool that can help reporters assess uncertainty. The Uncertainty Calculator and the NGER Uncertainty Calculator User Guide can be downloaded from the [Calculators](#)⁷ page of our website.

Note: It is not compulsory to use the Uncertainty Calculator. Reporters may use their own method, in line with the requirements of the NGER Measurement Determination.

6.2 Assessing uncertainty for industrial process sources with no default uncertainty levels

The table below specifies industrial process sources that do not have default uncertainty levels in the NGER Measurement Determination. If emissions from these sources involve the combustion of a fuel, then default fuel combustion uncertainty factors may be used for emissions attributable to each fuel. Otherwise, the auto-calculate uncertainty function will use a default uncertainty value of 10% for the source in accordance with the 'worksheet' of the uncertainty protocol.

⁷ <http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators>



Table 1: Sources without default uncertainty values in the NGER Measurement Determination.

Source
Sodium cyanide production
Soda ash production
Ammonia production
Hydrogen production
Carbide production
Chemical or mineral production (other than carbide production) using a carbon reductant or carbon anode
Iron, steel or other metal production using an integrated metalworks
Ferroalloys production
Aluminium production (where the activity is the production of baked carbon anodes)
Other metals production



7. More information and references

This guideline has been provided by CER, to assist in the consistent accounting and reporting of greenhouse gas emissions, energy consumption and energy production using the NGER legislation.

More information

For more information, please contact CER:

Email: reporting@cleanenergyregulator.gov.au

Phone: 1300 553 542 within Australia

Website: www.cleanenergyregulator.gov.au

Guidelines

See our [Guidelines](#)⁸ for guidance on:

- defining a facility
- measurement criteria
- reporting energy production and consumption.
- estimating emission and energy from coal mining guideline
- estimating emission and energy from industrial processes.

⁸ <https://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Guidelines>