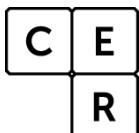
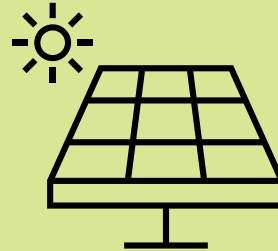
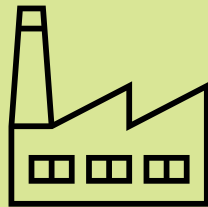
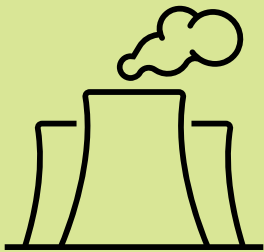


Guideline – reporting petroleum-based oils and greases (other than petroleum-based oils and greases used as fuel)

July 2023





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Definitions and Abbreviations

Term	Meaning
Consumption of energy	In relation to a facility, means the use or disposal of energy from the operation of the facility, including (as per 2.26 of the NGER Regulations): <ul style="list-style-type: none"> » own-use » losses in extraction, production and transmission.
EERS	Emissions and Energy Reporting System
Energy	Includes the fuels and other energy commodities listed in Schedule 1 of the NGER Regulations.
Facility	Has the meaning given by section 9 of the NGER Act. For more information on defining a facility under the NGER scheme, see What is a Facility ¹ .
Fuel	A substance mentioned at items 1–57 in Schedule 1 of the NGER Regulations.
kL	Kilolitres
L	Litres
NGER	National Greenhouse and Energy Reporting
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i>
NGER Measurement Determination	National Greenhouse and Energy Reporting (Measurement) Determination 2008
NGER Regulations	National Greenhouse and Energy Reporting Regulations 2008
PBO	Petroleum-based oils
PBG	Petroleum-based greases
Reporter	An entity required to report emissions and energy production and consumption to the Clean Energy Regulator under section 19, 22G, or 22X of the NGER Act
Scope 1 emissions	Means 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.

¹ <https://www.cleanenergyregulator.gov.au/NGER/Reporting-cycle/Assess-your-obligations/Reporting-thresholds#n3-1>



t CO₂-e

Tonnes carbon dioxide equivalence

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](#)² (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](#)³ (NGER Regulations), and [National Greenhouse and Energy Reporting \(Measurement\) Determination 2008](#)⁴ (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](#)⁵ 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.

² <https://www.legislation.gov.au/Series/C2007A00175>

³ <https://www.legislation.gov.au/Series/F2008L0223>

⁴ <https://www.legislation.gov.au/Series/F2008L02309>

⁵ <http://www.cleanenergyregulator.gov.au/NGER/Pages/default.aspx>



2022–23 updates

Changes in this document for the 2022–23 reporting year:

- Minor stylistic and formatting changes have been made throughout this guidance document
- Page 3: Added definition of ‘facility’
- Pages 9 and 10: updated wording on measurement criterion AAA in accordance with the NGER Measurement Determination.

1. Introduction

This document aims to assist NGER reporters in reporting emissions and energy consumption associated with use of petroleum-based oils (PBOs) and petroleum-based greases (PBGs) as lubricants under the NGER Act. PBOs and PBGs used as lubricants are considered to have undergone a degree of oxidation and are therefore reported under the ‘fuel combustion’ source. The consumption of PBOs and PBGs as lubricants (other than used as a fuel) needs to be reported at a facility if one or more separate instances of the source combusts more than 5 kilolitres (kL) of PBO or PBG during a reporting year. The methods for reporting PBOs and PBGs used as lubricants are listed under section 2.40A of the NGER Measurement Determination.

It is important to note that PBOs and PBGs used for all purposes, including transport, should be reported under the NGER Legislation, however this document only covers the use of PBOs and PBGs as lubricants and does not cover the use of PBOs and PBGs used as fuel. If the PBO or PBG is used as a fuel, or if the amount is less than 5 kL for a separate instance of a source, then emissions arising from that source are not reportable using the methods listed under section 2.40A of the NGER Measurement Determination. Where a PBO is used as a fuel, reporters should consider reporting consumption of item 41—fuel oil, or another appropriate item listed in Schedule 1 of the NGER Regulations.

If there is any doubt regarding obligations for the estimation and reporting of PBOs or PBGs, or the currency of this guideline, [contact CER](#)⁶. General NGER reporting aspects across industry sectors, such as defining facilities or using the Emissions and Energy Reporting System (EERS), are not covered in this guideline. See [forms and resources](#)⁷ for more guidance.

2. What are petroleum-based oils and petroleum-based greases?

PBOs and PBGs are identified as an energy type under Schedule 1 of the NGER Regulations and in the NGER Measurement Determination. The quantity of PBOs and PBGs consumed at a facility must be measured and, providing thresholds are met, included in reports submitted in compliance with the NGER Act. Measuring the quantity of PBOs and PBGs allows the emissions released from the consumption of the fuel to be estimated. Subject to 1.03 of the NGER Regulations:

Petroleum-based oils are defined in 1.03 of the NGER Regulations as:

- a) oils (including lubricants or fluids but not greases) derived from petroleum and their synthetic equivalents

⁶ <http://www.cleanenergyregulator.gov.au/About/Contact-us>

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



- b) oils (including lubricants, fluids and greases) derived from petroleum and their synthetic equivalents, if recycled for use as oils.

Petroleum-based greases are defined in 1.03 of the NGER Regulations as:

- a) petroleum-based greases and their synthetic equivalents
- b) oils (including lubricants, fluids and greases) derived from petroleum and their synthetic equivalents, if recycled for use as greases.

3. When are petroleum-based oils and petroleum-based greases consumed?

2.26 of the NGER Regulations states that:

- ‘Consumption of energy’, in relation to a facility, means the use or disposal of energy from the operation of the facility including own-use and losses in extraction, production and transmission.

This definition is taken to mean that PBOs and PBGs are to be considered ‘consumed’ when the oil or grease is applied or used in the operation of a facility in a manner consistent with their intended use. The amounts of PBO and PBG energy consumption that must be reported, are not affected by oxidation levels or any amounts of PBO and PBG that are recovered from the facility and transferred offsite. For example, the total volume of a PBO lubricant added into the transmission of a heavy vehicle is considered to have been consumed, and energy consumption must be reported for the total volume.

PBOs and PBGs are subject to oxidation during use as lubricants, and should therefore be reported under fuel combustion, which accounts for the energy consumption as described above.

4. When do petroleum-based oils and petroleum-based greases (other than PBOs and PBGs used as fuel) need to be reported?

Reports submitted under sections 19, 22G and 22X of the NGER Act are required to include any PBO or PBG consumption during the reporting year from the operation of the facility(s) covered by the reports. Such reports must include the amount and energy content of the PBOs and PBGs consumed by:

- combustion, if the amount exceeds 5 kL as described in Part 2.4 of the NGER Measurement Determination
- any other means, if the amount exceeds 15 kL as described in Part 2.7 of the NGER Measurement Determination.

5. Estimating emissions from the use of PBOs and PBGs (other than PBOs and PBGs used as fuel)

Division 2.4.5A of the NGER Measurement Determination provides 3 methods for estimating emissions of carbon dioxide released from the use of PBOs and PBGs as lubricants in the operation of a facility. There is no estimation methodology for emissions of methane and nitrous oxide from the consumption of PBOs and PBGs as lubricants.

Section 2.40A (2) also provides for incidental reporting of emissions of PBOs and PBGs where, a method other than those described in the NGER Measurement Determination may be used that is consistent with



the principles in section 1.13 of the NGER Measurement Determination. See the [Aggregated facility reporting percentage estimates and incidental emissions and energy⁸](#) guideline.

Method 1

Method 1 provides for generalised emissions estimates from the use of PBOs and PBGs (other than PBOs and PBGs used as fuel). Under Method 1, reporters can use emission factors described in Part 3 of Schedule 1 of the NGER Measurement Determination or determine their own facility specific emission factors. Method 1 assumes a default oxidation factor approximately equal to 0.20 for petroleum-based oils and 0.05 for petroleum-based greases. This means that approximately 20% of the PBOs and 5% of the PBGs used in the facility (for example, in the transmission of a heavy vehicle) is assumed to be combusted. Reporters should consider if this is the most appropriate oxidation factor in their circumstances.

Method 1 is described in subsection 2.48A (1) of the NGER Measurement Determination:

$$E_{pogco2} = Q_{pog} \times EC_{pogco2} \times \frac{EF_{pogco2oxec}}{1\ 000}$$

Where:

E_{pogco2} is the amount of carbon dioxide released from the consumption of PBOs or PBGs from the operation of the facility during the year measured in tonnes carbon dioxide equivalence (t CO₂-e).

Q_{pog} is the quantity of PBOs or PBGs consumed from the operation of the facility, estimated in accordance with Division 2.4.6 of the NGER Measurement Determination.

EC_{pogco2} is the energy content factor of PBOs or PBGs measured in gigajoules per kilolitre (GJ/kL) as mentioned in Part 3 of Schedule 1 of the NGER Measurement Determination.

$EF_{pogco2oxec}$ is the emission factor for carbon dioxide released from the operation of the facility during the year (which includes the effect of an oxidation factor) measured in kilograms CO₂-e per gigajoule (kg CO₂-e/GJ) of PBO or PBG consumed as mentioned in Part 3 of Schedule 1 of the NGER Measurement Determination, or as calculated through the equations below.

Facility specific oxidation and emission factor calculations

To account for PBO and PBG that has been recovered at the facility and transferred offsite, a facility specific emission factor can be developed under section 2.48A (2) (b) of the NGER Measurement Determination as follows:

$$EF_{pogco2oxec} = OF_{pog} \times EF_{pogco2ec}$$

Where:

OF_{pog} is the estimated oxidation factor for PBOs or PBGs (to be determined according to equation 2 below).

$EF_{pogco2ec}$ is 69.9.

⁸ <http://www.cleanenergyregulator.gov.au/DocumentAssets/Pages/Aggregated-facility-reporting-percentage-estimates-and-incidental-emissions-and-energy-guideline.aspx>



The facility specific oxidation factor is determined under section 2.48A (3) of the NGER Measurement Determination.

$$OF_{pog} = \frac{Q_{pog} - Oil\ Transferred\ Offsite_{pog}}{Q_{pog}}$$

Where:

Q_{pog} is the quantity of PBOs or PBGs consumed from the operation of the facility, estimated in accordance with Division 2.4.6 of the NGER Measurement Determination.

$Oil\ Transferred\ Offsite_{pog}$ is the quantity of oils, derived from PBOs or PBGs, transferred outside the facility, and estimated in accordance with Division 2.4.6 of the NGER Measurement Determination.

Method 2

Method 2 is the same as Method 1, but a facility specific emission factor $EF_{pogco2ec}$ must be determined in accordance with Division 2.4.3 of the NGER Measurement Determination.

Method 3

Method 3 is the same as Method 1, but the facility specific emission factor $EF_{pogco2ec}$ must be determined in accordance with Division 2.4.4 of the NGER Measurement Determination.

6. Measurement criteria for the quantity of PBOs and PBGs consumed

Reporters must measure quantities consumed or transferred offsite, as noted in the above equations, in accordance with Division 2.4.6 of the NGER Measurement Determination. This Division describes 4 criteria for measurement of liquid fuels. The NGER Measurement Determination categorises PBOs and PBGs as liquid fuels. Accordingly, the measurement methodologies provided in Division 2.4.6, adapted to measurement of PBOs and PBGs are as follows:

- Criterion A: the amount of PBOs or PBGs delivered for the facility during the year as evidenced by invoices issued by the vendor of the PBO or PBGs.
- Criterion AA: the amount of PBOs or PBGs combusted from the operation of the facility during the year based on amounts delivered during the year (evidenced by invoices) as adjusted for the estimated change in the quantity of the stockpile of PBOs or PBGs for the facility during the year.
- Criterion AAA: the measurement during the year of the PBOs or PBGs combusted from the operation of the facility. The measurement must be carried out:
 - at the point of combustion at ambient temperatures and converted to standard temperatures, using measuring equipment calibrated to a measurement requirement, or
 - at ambient temperatures and converted to standard temperatures, at the point of sale of the PBOs or PBGs, using measurement equipment calibrated to a measurement requirement.

The above point relating to the 'point of sale of the PBOs or PBGs' is only available if:

- the change in the stockpile of the PBOs or PBGs for the facility for the year is less than 1% of total combustion on average for the facility during the year, and



- the stockpile of the PBOs or PBGs for the facility at the beginning of the year is less than 5% of the total combustion from the operation of the facility for the year.
- Criterion BBB: is the estimation of the combustion of a PBO or PBG for the year using accepted industry measuring devices or, in the absence of such measuring devices, in accordance with industry practice if the equipment used to measure consumption of the fuel is not calibrated to a measurement requirement.

Criterion A, AA, or AAA must be used if the acquisition of the PBOs or PBGs involves a commercial transaction.

Criterion AA and AAA

If, during a year, criterion AA, or criterion AAA using paragraph 2.52(2) (a) of the NGER Measurement Determination (that is, measuring at the point of consumption or transfer), is used to estimate the quantity of PBOs or PBGs combusted then, in each year following that year, that same criterion must be used

Criterion AAA or BBB must be used if the acquisition of the PBOs or PBGs does not involve a commercial transaction.

In accordance with the general principles of emissions reporting outlined in section 1.13 of the NGER Measurement Determination, reporters must demonstrate that they have followed one of these criteria when estimating the amount of PBOs and PBGs consumed in or transferred from the facility.

7. More information

Email: reporting@cleanenergyregulator.gov.au

Phone: 1300 553 542 within Australia

Website: www.cleanenergyregulator.com.au