



Australian Government
Clean Energy Regulator

NATIONAL GREENHOUSE AND ENERGY REPORTING

Emissions and Energy Threshold Calculator User Guide

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Important note

The factors and formulas in the Emissions and Energy Threshold Calculator (Threshold Calculator) are based on the [National Greenhouse and Energy Reporting \(Measurement\) Determination 2008](#)¹ (Measurement Determination). The Measurement Determination is updated periodically and users should note that some factors and formulas are different for earlier reporting years and may change in future years.

The Threshold Calculator is provided for information only and its use must not be construed as determinative of whether any of the thresholds for and legislative requirements under the [National Greenhouse and Energy Reporting Act 2007](#)² (NGER Act) and associated regulations have been met. The Threshold Calculator must not be used as a substitute for obtaining independent professional advice and/or undertaking independent investigations.

The Clean Energy Regulator (the agency) and the Australian Government (the custodians) will not be liable for any loss, damage, expense or cost incurred by any person or organisation arising out of the use of the Threshold Calculator, the information contained in, or derived from, the Threshold Calculator or the non-availability of the Threshold Calculator. The custodians do not warrant the accuracy, currency, reliability or completeness of the Threshold Calculator, and in no event will the custodians be liable for any direct, incidental or consequential loss or damage resulting from the use of the Threshold Calculator, or the information provided through the Threshold Calculator or the availability or non-availability of the Threshold Calculator.

¹ <https://www.legislation.gov.au/Series/F2008L02309>

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

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Introduction

The Threshold Calculator is a tool that enables operators to estimate emissions and energy consumption/production to assess if a controlling corporation could have an obligation to register and report under the NGER Act.

This guide aims to assist operators to use the Threshold Calculator by providing step-by-step instructions and relevant background information.

What does the Threshold Calculator do?

The Threshold Calculator can be used to obtain an estimate of scope 1 and scope 2 greenhouse gas emissions, energy production and energy consumption based on full or part-year data entered by the operator. The Threshold Calculator also considers other direct (scope 1) greenhouse gas emissions from non-combustion sources such as waste treatment. For some of these sources, the operator will need to directly enter an estimate of the greenhouse gas emissions.

How do I access the Threshold Calculator?

The [Threshold Calculator](#)³ can be accessed without a username or password. Users will remain anonymous and any data entered into the calculator for a specific session will only be retained if the user saves it onto their computer.

The Threshold Calculator has been designed to be compatible with supported versions of Microsoft Excel 2003 or later.

If you have issues accessing the Threshold Calculator, please call the agency on 1300 553 542 or email reporting@cleanenergyregulator.gov.au.

Feedback about the Threshold Calculator can be emailed to reporting@cleanenergyregulator.gov.au.

³ <http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators>

Greenhouse Gas and Energy Reporting

The two types of thresholds which trigger a liability under the NGER Act are 'facility' thresholds and 'corporate' thresholds. Both types have a greenhouse gas threshold and an energy threshold.

Table 1: Facility and corporate thresholds

Facility threshold	Corporate threshold
25,000 tonnes or more of total greenhouse gases (carbon dioxide equivalence (t CO ₂ -e)), or production or consumption of 100,000 gigajoules (GJ) or more of energy	50,000 tonnes or more of total greenhouse gases t CO ₂ -e, or production or consumption of 200,000 GJ or more of energy

Total annual emissions is the sum of the direct (scope 1) and indirect (scope 2) emissions.

Data outputs from the Threshold Calculator are presented as scope 1, scope 2, total annual emissions (with sulphur hexafluoride, perfluorocarbons and hydrofluorocarbons excluded), and/or annual energy consumed or produced.

Emissions data is separated into scope 1 and scope 2 emissions. Energy consumption and production are presented as a total only. Where part-year data has been reported, the Threshold Calculator will automatically display extrapolated full-year emissions and energy data in addition to the amount based on entered data.

If the facility and/or corporate thresholds are triggered by combined scope 1 and scope 2 emissions, energy production or energy consumption, registration under the NGER Act is required. If a user's assessment indicates that their facility and/or corporation may have had registration and reporting obligations for a previous reporting year, they must contact the agency on 1300 553 542 immediately.

See [About the National Greenhouse and Energy Reporting scheme](http://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme)⁴ for more information on the NGER Act, registration and reporting obligations.

⁴ <http://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme>

Using the Threshold Calculator

Start page

The Start page displays information about the Threshold Calculator and provides links to [resources](#) on the agency's website. Please read the information before entering any data.

Facility worksheets (Facility 1 to 6)

The Threshold Calculator allows the reporting of emissions and energy data for a maximum of six facilities. If you need to report for more than six facilities, please email the agency reporting@cleanenergyregulator.gov.au.

For each facility, you will need to select if you are reporting full year (default) or part-year data. If you are intending to enter part-year data, please enter the number of days in the field to the right of the drop-down menu.

The Threshold Calculator will calculate full-year data based on the amounts you have entered. The extrapolated data will appear in the Output screen.

Figure 1: Screenshot of facility reporting for full year



The screenshot shows a horizontal bar with three sections. The first section is light blue and labeled 'Operational Control'. The second section is a yellow dropdown menu currently showing 'Full year'. The third section is a yellow text field containing the number '365'.

Emissions and energy input

Data entry occurs under the following sources:

- **Transport fuel combustion:** covers the emissions and energy calculations for the combustion of fuels for transport activities. For example, fuels combusted in ships, planes, trains and road registered vehicles.
- **Non-transport fuel combustion:** describes the emissions and energy calculations for the combustion of fuels for non-transport activities. This includes fuels combusted in activities that do not meet the criteria of transport. For example, fuels in vehicles that are not road registered.
- **Purchased electricity:** if you purchase electricity that has been generated outside of your facility, (eg from the main grid in a state/territory) then you will need to enter the amount as purchased electricity. This will result in scope 2 emissions. If you consume electricity that has been produced onsite, the amount will be entered as consumed without combustion. There are no emissions associated with electricity that is consumed without combustion but the energy consumption is reported.
- **Consumed without combustion:** certain fuels and energy sources can be consumed without combustion. For example, natural gas can be consumed as a feedstock, solvents may be consumed in painting activities and electricity generated onsite is also consumed. There are no emissions from fuels and energy sources consumed without combustion but energy consumption is reported.
- **Electricity/energy produced:** the production of electricity and other energy products contributes to the reporting threshold of a facility/corporation and is, therefore, reportable. Energy sources include: electricity generated onsite, saleable coal, crude oil and other fuels and energy sources listed in the 'electricity/energy produced' drop-down menu.

- **Fugitive emissions (direct entry):** fugitive emissions are associated with a number of industry sectors including, but not limited to:

- » mining (eg methane released as part of coal extraction)
- » oil and gas (eg release of gas from venting), and
- » waste (eg emissions from decomposition of solid waste or from waste water treatment).

The Threshold Calculator is not capable of dealing with the complex calculations associated with estimating fugitive emissions so direct entry is the only option available. See [Forms and resources](#)⁵ for more calculators and guidance material to assist with calculating fugitive emissions.

Reporting under these sources is covered in more detail below.

Transport fuel combustion

Emissions and energy are calculated based on the amount of a particular transport fuel that has been combusted. The list of transport fuels is based on those listed in Schedule 1 of the Measurement Determination. You can choose up to seven transport fuels. If you need more transport fields, please email the agency reporting@cleanenergyregulator.gov.au.

Figure 2: Screenshot of transport fuels for combustion

TRANSPORT FUEL COMBUSTION	Amount
Select fuels below	Enter amount below
-	
Biodiesel	
Other biofuels	
Diesel oil (post-2004 vehicles)	
Diesel oil	
Diesel oil (Euro i)	
Diesel oil (Euro iii)	
Diesel oil (Euro iv or higher)	
-	

To commence, select the particular transport fuel from the drop-down menu.

If you select a liquid fuel then the Threshold Calculator will automatically select kilolitres (kL) as the unit of measurement. If you select a gaseous fuel then the Threshold Calculator will automatically select cubic metres (m³) as the unit of measurement. The units of measurement cannot be changed.

If you measure the amount of your gaseous fuels in GJ, use the gas conversion calculator (located in the Convert and Lookup screen) to convert the amount to m³ before entering the amount.

Next, enter the amount of fuel combusted in the Amount field. The Threshold Calculator will calculate the emissions and energy associated with the amount of fuel combusted.

⁵ <http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators>

Figure 3: Screenshot of transport fuel combustion calculations

Amount	Unit	Greenhouse gasses			Total scope 1 emissions (t CO ₂ -e)	Total energy (GJ) (Gigajoules)
		CO ₂	CH ₄	N ₂ O		
Enter amount below						
1000.000	kL	2,698	4	19	2,721	38,600
-	-					
-	-					
-	-					
-	-					
-	-					
Total Scope 1 transport emissions (t CO ₂ -e) and energy consumed (GJ)					2,721	38,600

Repeat the above for each transport fuel combusted at your facility.

Non-transport fuel combustion

Emissions and energy are calculated based on the amount of a particular non-transport fuel that has been combusted. The list of non-transport fuels is based on those listed in the Measurement Determination. You can choose up to seven fuels. If you need more fuel fields, please email the agency reporting@cleanenergyregulator.gov.au.

Figure 4: Screenshot of non-transport fuels for combustion

NON-TRANSPORT FUEL COMBUSTION

Select fuels below

-

Anthracite

Baqqasse

Biodiesel

Biomass municipal and industrial materials (RCPHE)

Bituminous coal

Blast furnace gas

Brown coal

-

Amount

Enter amount below

To commence, select the particular non-transport fuel from the drop-down menu.

If you select a liquid fuel then the Threshold Calculator will automatically select kL as the unit of measurement.

If you select a solid fuel then the Threshold Calculator will automatically select tonnes as the unit of measurement.

If you select a gaseous fuel then the Threshold Calculator will automatically select m3 as the unit of measurement. The units of measurement cannot be changed. If you measure the amount of your gaseous fuels in GJ, you can use the gas conversion calculator (located in the Convert and Lookup screen) to convert the amount to m3.

Next, enter the amount of fuel combusted in the Amount field. The Threshold Calculator will calculate the emissions and energy associated with the amount of fuel combusted.

Figure 5: Screenshot of non-transport fuel combustion calculations

Amount	Unit	Greenhouse gasses			Total scope 1 emissions (t CO ₂ -e)	Total energy (GJ) (Gigajoules)
		CO ₂	CH ₄	N ₂ O		
Enter amount below 1000.000	tonnes	2,430	1	5	2,436	27,000
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Total Scope 1 non-transport emissions (t CO ₂ -e) and energy consumed (GJ)					2,436	27,000

Repeat the above steps for each non-transport fuel combusted at your facility.

Purchased electricity

Purchased electricity is usually provided by the main electricity grid, that is, the grid that supplies the largest population in a state or territory. For example, the main grid in Western Australia is the South West Interconnected System.

To report the purchase of electricity, first select the state your facility is located in. Each state/territory has its own emission factor that reflects how electricity is generated.

Figure 6: Screenshot showing how to select state/territory emissions factors for purchased electricity

PURCHASED ELECTRICITY		Amount
Select state/territory below	Enter amount below	
-		
-		
New South Wales		
Australian Capital Territory		
Victoria		
Tasmania		
South Australia		
South West Western Australia		
Northern Territory		
	Amount	

The Threshold Calculator enables the operator to select electricity purchased either from the main grid in a state/territory or from another source.

If the facility/corporation purchases electricity from the main grid and also from a grid other than the main grid, select 'Not purchased from the main grid' using the drop-down menu.

If 'Not purchased from the main grid' has been selected, use the default emission factor or the one provided by the specific electricity grid supplier.

Figure 7: Screenshot showing how to select non-state/territory emissions factors for purchased electricity

PURCHASED ELECTRICITY		Amount
Select state/territory below	Enter amount below	
Victoria	1000000.000	
Not purchased from the main grid		
Australian Capital Territory		
Victoria		
Tasmania		
South Australia		
South West Western Australia		
Northern Territory		
Queensland		
Not purchased from the main grid	Amount	
	Enter amount below	

Figure 8: Screenshot of purchased electricity calculations

Amount	Unit	Emission factor EF	Total scope 2 emissions (t CO ₂ -e)	Total energy (GJ) (Gigajoules)
Enter amount below				
1000000.000	kWh	1.080	1,080	3,600
500000.000	kWh	0.640	320	1,800
Total Scope 2 emissions (t CO ₂ -e) and energy consumed (GJ)			1,400	5,400

Next, enter the amount of electricity purchased in the amount fields. Electricity is always reported in kilowatt hours (kWh). If you measure electricity in GJ, you can use the electricity conversion calculator (located in the Convert and Lookup screen) to convert the amount to kWh.

Consumed without combustion

A fuel or energy source can be consumed without combustion. This can occur when a fuel is used as a feedstock in a manufacturing process or renewable energy is consumed to generate electricity (eg wind power is consumed to drive turbines) to name just two examples.

There are no emissions associated with fuel or energy consumed without combustion. However, energy consumption is reportable and contributes to the overall emissions and energy consumption threshold of a facility/corporation.

Figure 9: Screenshot of fuels and other energy sources consumed without combustion

To commence, select the fuel/energy source from the drop-down menu.

If you select a liquid fuel then the Threshold Calculator will automatically select kL as the unit of measurement.

If you select a solid fuel then the Threshold Calculator will automatically select tonnes as the unit of measurement.

If you select a gaseous fuel then the Threshold Calculator will automatically select cubic metres (m3) as the unit of measurement.

If you select a renewable energy source used to generate electricity then the unit will be GJ.

The units of measurement cannot be changed. If you measure the amount of your gaseous fuels in GJ, you can use the gas conversion calculator (located in the Convert and Lookup screen) to convert the amount to m3.

Next, enter the amount of fuel/energy consumed in the Amount field. The Threshold Calculator will calculate the energy associated with the amount of fuel/energy consumed.

Figure 10: Screenshot of amount of fuel/energy

Amount	Unit	Total energy (GJ) (Gigajoules)
Enter amount below		
100000.000	GJ	100,000
-	-	
-	-	
Total energy consumed (GJ)		100,000

Electricity/Energy Produced

Energy production at a facility is reportable under the NGER legislation. Energy production can include electricity generated and either used by the facility or sent to a grid. Other energy production sources include saleable coal, crude oil and other fuels and energy sources listed in the electricity/energy produced drop-down menu.

There are no emissions associated with energy produced. However, energy production is reportable and contributes to a facility's reporting threshold.

Figure 11: Screenshot of types of energy (including electricity) can be produced

ELECTRICITY/ENERGY PRODUCED

Select energy product below

-
Diesel oil
Dry wood
Electricity
Ethane
Ethanol for use as a fuel in an internal combustion engine
Ethylene if used as a petrochemical feedstock - Non-energy product
Fuel oil
Other gaseous fossil fuels

Amount

Enter amount below

To commence, select the energy source from the drop-down menu.

The unit of measurement used by the calculator will depend on the type of fuel selected. The units of measurement cannot be changed. If you need to convert between GJ and either m3 or kWh, you can use the conversion calculators (located in the Convert and Lookup screen).

Next, enter the amount of electricity/energy produced in the 'Amount' field. The Threshold Calculator will calculate the energy associated with the amount of fuel/energy produced.

Figure 12: Screenshot of calculations for electricity/energy production

Amount	Unit	Total energy (GJ) (Gigajoules)
Enter amount below		
1000000.000	kWh	3,600
-	-	
-	-	
Total energy produced (GJ)		3,600

Fugitive emissions (Direct entry)

Fugitive emissions are associated with certain activities including, coal mining, oil and gas production and distribution and waste. The Threshold Calculator is not able to perform the calculations associated with fugitive emissions meaning that direct entry based upon measurement of the fugitive emissions is required.

To enter fugitive emissions, first type the type of gas in the appropriate field (optional). The Threshold Calculator permits the entry of two sources of fugitive emissions. If you need more fugitive emission sources, please email the agency reporting@cleanenergyregulator.gov.au.

Figure 13: Screenshot of fugitive emissions (direct entry)

Next, enter the amount of each greenhouse gas in tonnes of CO₂-e.

Figure 14: Screenshot of amount of greenhouse gas emissions calculations

Greenhouse gases (t CO ₂ -e)				Total scope 1 emissions (t CO ₂ -e)
CO ₂	CH ₄	N ₂ O		
Enter custom emissions				
0.000	791.000	0.000		791
0.000	0.000	0.000		0
Total Scope 1 emissions (t CO ₂ -e)				791

The Threshold Calculator will add up all the greenhouse gases from fugitive emissions and include them in the total scope 1 emissions from the facility/corporation.

Once all emissions and energy data has been entered for the facility, the Threshold Calculator will display the total emissions and energy consumed/produced as entered. In addition, if you have entered part-year data for emissions and energy reporting, the Threshold Calculator will display the full-year data based on the amounts you have entered for the period.

Figure 15: Screenshot of totals of facility emissions and energy consumed/produced

FACILITY SUMMARY		Reported emissions		Calculated full-year emissions	
Total Scope 1 emissions		6830	t CO ₂ -e	6830	t CO ₂ -e
Total Scope 2 emissions		830	t CO ₂ -e	830	t CO ₂ -e
TOTAL EMISSIONS		7661	t CO ₂ -e	7661	t CO ₂ -e
TOTAL ENERGY CONSUMED		83394	GJ	83394	GJ
TOTAL ENERGY PRODUCED		37700	GJ	37700	GJ

FACILITY REPORTING THRESHOLDS		Reported emissions		Calculated full-year emissions	
Total emissions threshold	0 t CO ₂ -e	7660.56		25,000 t CO ₂ -e	
Energy consumption threshold	0 GJ	83394.00		100,000 GJ	
Energy production threshold	0 GJ	37700.00		100,000 GJ	

The Threshold Calculator will also show a graphical display showing how close the facility is to triggering emissions and energy thresholds. The Threshold Calculator will also display a message if thresholds are close to being, or have been, met.

Repeat the above process for each facility.

Output

Based on the data entered, the Threshold Calculator will calculate and display the greenhouse gas emissions, measured in t CO₂-e and energy consumption/production for each facility. The data is presented as scope 1, scope 2, total emissions, energy produced and energy consumed.

Two tables are displayed on the 'Corporation Output' screen. The top table displays the emissions and energy data based on the data entered in the previous screens. The lower table displays the extrapolated full year data for all facilities. This will indicate the full year emission and energy data for facilities where part-year data has been entered.

Figure 16: Screenshot of emissions & energy totals for each facility

CORPORATION EMISSIONS & ENERGY CALCULATOR						
DATA AS ENTERED		Scope 1 emissions	Scope 2 emissions	TOTAL EMISSIONS	ENERGY CONSUMED	ENERGY PRODUCED
Facility 1		2,722	83,000	85,722	412,060	36,000
Facility 2		0	0	0	0	0
Facility 3		0	0	0	0	0
Facility 4		0	0	0	0	0
Facility 5		0	0	0	0	0
Facility 6		0	0	0	0	0
Total for corporation - as entered		2,722	83,000	85,722	412,060	36,000

FULL-YEAR DATA		Scope 1 emissions	Scope 2 emissions	TOTAL EMISSIONS	ENERGY CONSUMED	ENERGY PRODUCED
Facility 1		2,722	83,000	85,722	412,060	36,000
Facility 2		0	0	0	0	0
Facility 3		0	0	0	0	0
Facility 4		0	0	0	0	0
Facility 5		0	0	0	0	0
Facility 6		0	0	0	0	0
Total for corporation - full year		2,722	83,000	85,722	412,060	36,000

The Threshold Calculator will also display which thresholds have been triggered for each facility and the corporation. The Threshold Calculator will also show a graphical display showing how close the corporation is to triggering emissions and energy thresholds. The Threshold Calculator will also display a message if thresholds are close to being, or have been, met. The thresholds are based on full-year data as entered or full-year data extrapolated from entered part-year data.

Figure 17: Screenshot of annual reporting thresholds that have been met/exceeded

ANNUAL REPORTING THRESHOLDS		EMISSIONS THRESHOLD	ENERGY CONSUMED THRESHOLD	ENERGY PRODUCED THRESHOLD
Facility 1		Threshold met	Threshold met	Not met
Facility 2		Not met	Not met	Not met
Facility 3		Not met	Not met	Not met
Facility 4		Not met	Not met	Not met
Facility 5		Not met	Not met	Not met
Facility 6		Not met	Not met	Not met
Corporation		Threshold met	Threshold met	Not met

ANNUAL CORPORATE REPORTING THRESHOLDS			
Total emissions threshold	0 tCO ₂ -e	You may have triggered the emissions reporting threshold for the corporation. Please contact the Clean Energy Regulator	50,000 tCO ₂ -e
	85722.23		
Energy consumption threshold	0 GJ	You may have triggered the energy reporting threshold for the corporation. Please contact the Clean Energy Regulator	200,000 GJ
	412060.00		
Energy production threshold	0 GJ		200,000 GJ
	36000.00		

Next steps

The Threshold Calculator is for information only and its use must not be construed as determinative of whether any of the thresholds for and legislative requirements under NGER Act and the associated Regulations have been met. The Threshold Calculator must not be used as a substitute for obtaining independent professional advice and/or undertaking independent investigations.

If you have determined you are liable to report under the NGER Act, you must register with the agency. See [Register and deregister](#)⁶ for information on how to register.

⁶ <http://www.cleanenergyregulator.gov.au/NGER/Reporting-cycle/Register-and-deregister>



More information

See [About the National Greenhouse and Energy Reporting scheme](http://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme)⁷ for more information.

Please email the agency at reporting@cleanenergyregulator.gov.au or call 1300 553 542 within Australia during business hours (AEST) if you have any questions.

⁷ <http://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme>
