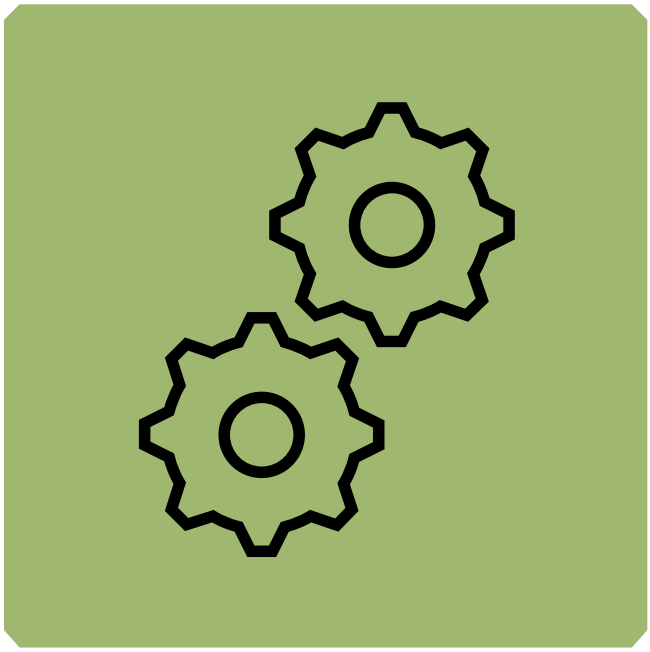
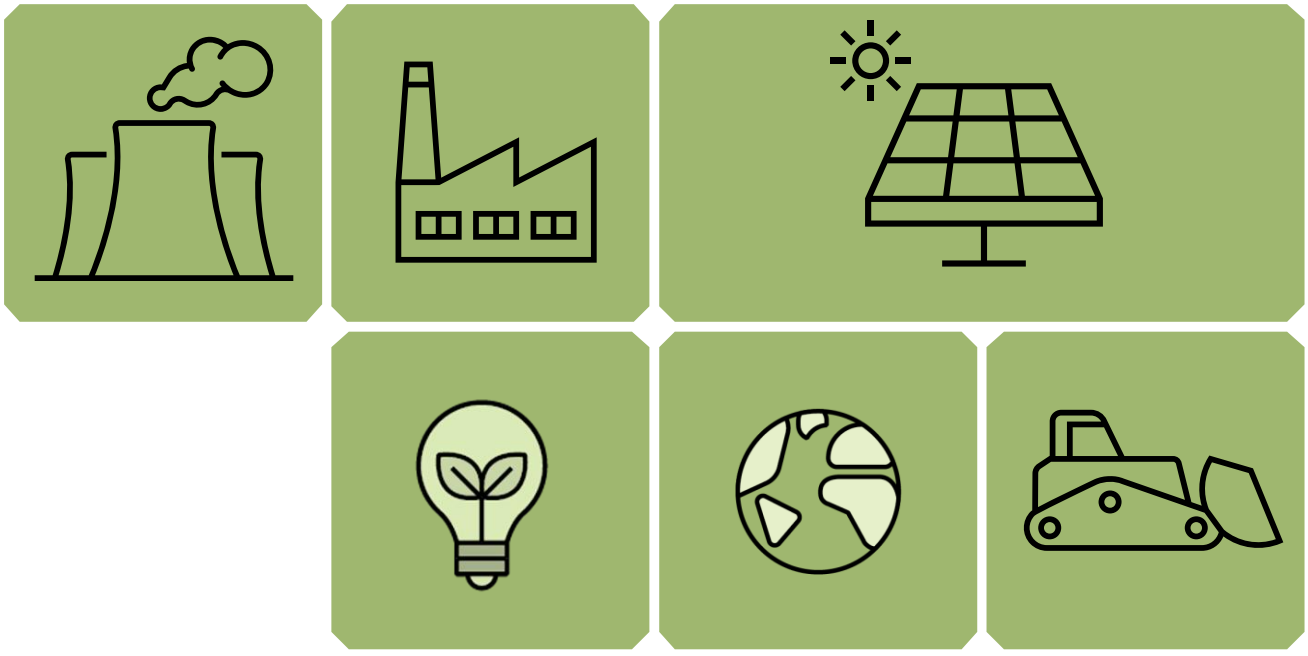
Australian Government
Clean Energy Regulator



Reporting energy production and consumption guideline

August 2025



National Greenhouse and Energy Reporting

Contents

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 (see 2.26 of the NGER Regulations): • 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.
Fuel	A substance mentioned at items 1–57 in Schedule 1 of the NGER Regulations.
GJ	Gigajoules
kWh	Kilowatt-hours
NGER	National Greenhouse and Energy Reporting
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
NGER legislation	The NGER Act, the NGER Regulations and the NGER Measurement Determination
NGER Measurement Determination	National Greenhouse and Energy Reporting (Measurement) Determination 2008
NGER Regulations	National Greenhouse and Energy Reporting Regulations 2008
MW	Megawatts
Production of Energy	In relation to a facility, means the (see 2.25 of the NGER Regulations): • extraction or capture of energy from natural sources for final consumption by or from the operation of the facility, or for use other than in the operation of the facility • manufacture of energy by the conversion of energy from one form to another form for final consumption by or from the operation of the facility, or for use other than in the operation of the facility.
t CO_2-e	Tonnes of carbon dioxide equivalence

Terms in NGER legislation may have specific meanings within the law. These key words and phrases are normally identified under a heading such as Definitions, Interpretation or Dictionary or in other parts of the document.

For more information on interpreting legislation see Federal Register of Legislation - Understanding Legislation[1].

[1] https://www.legislation.gov.au/help-and-resources/understanding-legislation/reading-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 2024–25 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] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme

2024–25 updates

Changes in this document for the 2024–25 reporting year:

- Minor stylistic and formatting changes have been made to this document

Read about the changes to the NGER Legislation for the 2024–25 reporting period[6].

1. Introduction

Reporting of energy production and consumption data is required under the NGER Act. This guideline provides information to assist registered corporations to report their energy production and consumption data.

Registered corporations must submit annual reports to CER. Corporations reporting under:

- Section 19 of the NGER Act (controlling corporations) must report scope 1 and scope 2 emissions, energy production and energy consumption data for their corporate group, where one or more of the thresholds under section 13 of the NGER Act are met.
- Section 22G and section 22X of the NGER Act (reporting transfer certificate (RTC) holders or group members that have entered into 22X agreements) must report scope 1 and scope 2 emissions[7], energy production and energy consumption data for the facilities that their RTC or 22X agreements relate to.

This information must be provided so that data on energy flows and transformations occurring throughout the economy can be captured. This includes the initial extraction and own-use of energy, and the transformation of energy occurring within and between facilities.

Under section 24 of the NGER Act, CER is required to publish the annual scope 1 and scope 2 greenhouse gas emissions and the net energy consumption totals of a registered corporation's group, provided the group's facilities emitted at least 50,000 tonnes of carbon dioxide equivalence (t CO_2-e) in the relevant year.

1.1. What is energy production and consumption?

This guideline reflects the estimation and reporting of energy consumption and energy production at the date of publication. Reporters must ensure they report energy consumption and energy production in accordance with the requirements of the NGER Act, NGER Regulations and the NGER Measurement Determination in effect at the time of reporting. If there is any doubt regarding obligations for the estimation and reporting of energy consumption or energy production, or the currency of this guideline, contact us[8].

A number of relevant definitions from the NGER legislation are summarised below:

[6] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme/report-emissions-and-energy/amendments
[7] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme/about-emissions-and-energy-data/emissions-and-energy-types#types-of-emissions
[8] https://cer.gov.au/about-us/contact-us

- ‘Fuel’ means a substance mentioned at items 1–57 in Schedule 1 of the NGER Regulations landfill biogas.
- ‘Energy’ includes the fuels and other energy commodities listed in Schedule 1 of the NGER Regulations.
- ‘Production of energy’ means the (see 2.25 of the NGER Regulations):
  - extraction or capture of energy from natural sources for final consumption by or from the operation of the facility, or for use other than in the operation of the facility
  - manufacture of energy by the conversion of energy from one form to another form for final consumption by or from the operation of the facility, or for use other than in the operation of the facility.
- ‘Consumption of energy’, in relation to a facility, means the use or disposal of energy from the operation of the facility, including (see 2.26 of the NGER Regulations6):
  - own-use
  - losses in extraction, production, and transmission.

> Note: ‘use’ includes the consumption of energy in the conversion of one form to another form (i.e. energy transformations).
>
> Energy conversion occurs, under NGER legislation, whenever a fuel or energy commodity listed in Schedule 1 of the NGER Regulations becomes another fuel or energy commodity listed in Schedule 1. In some cases, conversion may not involve any change to the chemical composition of the fuel or energy commodity.
>
> For example, when you inject ‘coal seam methane that is captured for combustion’ into a transmission pipeline it is considered to have been converted to ‘natural gas distributed in a pipeline’. Even though there may have been no change to the chemical composition of the energy commodity in this instance, this is considered to have been converted from one energy commodity to another under Schedule 1 of the NGER Regulations.

Reporters should be aware that the NGER legislation definitions of ‘energy’, ‘energy production’ and ‘energy consumption’ may differ from the common uses of these terms. Under the NGER legislation, the production and consumption of energy are treated as the production and consumption of any of the fuel or energy commodities listed in Schedule 1 of the NGER Regulations. This differs from other concepts of energy. For example, the heat produced from burning coal may be more commonly thought of as energy, rather than the coal itself.

Energy production and consumption are only reported for those fuels and energy commodities that are listed in Schedule 1 of the NGER Regulations and for which there are applicable methods in Chapter 6 of the NGER Measurement Determination. If a fuel or energy commodity does not have an accompanying method, the legislation does not require the associated energy production and consumption to be reported.

The requirements for reporting different fuel types and energy commodities are detailed in the following sections.

1.1. Primary and secondary fuels and energy commodities

For energy reporting purposes, fuels and energy commodities must be categorised as either primary or secondary:

- ‘Primary fuel or energy commodity’ means a fuel or energy commodity extracted or captured from natural sources with minimal processing and includes the fuels and energy commodities listed in Schedule 1 of the NGER Regulations as being primary fuels or energy commodities. A primary fuel or energy commodity cannot be produced from another primary fuel or energy commodity or itself.
- ‘Secondary fuel or energy commodity’ means a fuel or energy commodity produced by converting energy from one form (usually a primary fuel or energy commodity) to another form for consumption, and includes the fuels and energy commodities mentioned in Schedule 1 of the NGER Regulations as being secondary fuels or energy commodities.

Schedule 1 of the NGER Regulations denotes whether each fuel or energy commodity is primary or secondary. However, some fuels or commodities are listed as “nomination required”. These require the reporter to determine and nominate whether they are primary or secondary fuels or commodities at the facility.

2. Reporting energy from production and consumption of fuels

All energy from fuel production must be reported. There is no minimum threshold for reporting energy from fuel production (see 4.19 of the NGER Regulations). It is necessary to report the amount of fuel consumed where the thresholds detailed in Table 1 – Thresholds for fuel production and consumption are met or exceeded (see sections 2.2, 2.18, 2.39 and 2.68 of the NGER Measurement Determination).

Table 1 – Thresholds for fuel production and consumption.

Fuel Type	Fuel produced	Fuel consumed by combustion (applies to separate instance of a source)	Fuel consumed without combustion (applies to each individual fuel type)
Solid fuel	No threshold	1 tonne	20 tonnes
Liquid fuel	No threshold	1 kilolitre, or 5 kilolitres for petroleum based oils (other than petroleum based oil use as fuel) and petroleum based greases	15 kilolitres
Gaseous fuel	No threshold	1000 cubic metres	13,000 cubic metres

2.1. Reporting energy from production and consumption of biomethane

Biomethane is reportable under NGER for the first time in NGER reporting year 2022-23. See Reporting blended fuels, other fuel mixes, bitumen and explosives guideline[9] for more information on how to report energy from the production of biomethane from biogas, and combustion of biomethane as a fuel.

2.2. Energy production and consumption of certain gases that have been captured for combustion

If force is applied by use of a machine, such as a compressor, extraction fan, blower or pump, to create differential pressure to capture:

- landfill biogas
- coal mine waste gas
- coal seam methane
- sludge biogas
- a biogas other than landfill biogas and sludge biogas,

and it is captured in a pipe and the gas subsequently used, flared, vented, leaked, or otherwise disposed of, then:

- energy production must be reported for the facility that operates the gas well or pipe in which the gas is initially captured
- energy consumption must be reported for the facility that uses, flares, vents, leaks, or otherwise disposes of the gas.

This is because the gas is considered to have been 'injected into a pipeline' pursuant to the definition of 'captured for combustion' under 1.03 of the NGER Regulations. Gas captured for combustion meets the definition of 'energy' in section 7 of the NGER Act if it falls within one of following fuel types in Schedule 1 of the NGER Regulations:

- Item 18 – coal seam methane that is captured for combustion
- Item 19 – coal mine waste gas that is captured for combustion
- Item 28 – landfill biogas that is captured for combustion
- Item 29 – sludge biogas that is captured for combustion
- Item 30 – a biogas that is captured for combustion other than those mentioned in items 28, 29 and 29A.
- Energy production must be reported for capturing the gas. This is because, in accordance with 2.25 of the NGER Regulations, it was:
  - » derived from the 'capture of energy from natural sources', and
  - » consumed 'by or from the operation of the facility or for use other than in the operation of the facility.'

[9] https://cer.gov.au/document_page/reporting-blended-fuels-other-fuel-mixes-bitumen-and-explosives-guideline

- Energy consumption must be reported for use or disposal of the gas because it is a fuel type listed in Schedule 1 of the NGER Regulations. When reporting emissions in the Emissions and Energy Reporting System (EERS) from fuel combustion, flaring, or venting and leakage, the appropriate fuel type must be selected (see items 18, 19, 28, 29, and 30 listed above).

Please refer to the:

- Estimating emissions and energy from coal mining guideline[10] for specific guidance for coal mining and coal mine waste gas management activities
- Estimating emissions and energy from solid waste and landfill biogas management guideline[11] for specific guidance for solid waste and landfill biogas management activities.

[10] https://cer.gov.au/document_page/estimating-emissions-and-energy-coal-mining-guideline
[11] https://cer.gov.au/document_page/estimating-emissions-and-energy-solid-waste-and-landfill-biogas-management-guideline

Example 1

This example demonstrates the circumstances where coal mine waste gas is, and is not, reportable as energy production.

- Drained coal mine waste gas is reportable as energy production:
  - When force is applied by use of a machine, such as a compressor, extraction fan, blower, or pump, to create differential pressure to capture coal mine waste gas into a pipe (e.g. a drainage gas well). This applies irrespective of whether the gas is subsequently vented, flared, leaked, or transferred to another facility.
  - When the gas is combusted for energy purposes, e.g. to drive an electricity generator, even if force was not applied to inject it into a pipeline.
- Drained coal mine waste gas is not reportable as energy production:
  - When the gas is drained into gas well pipes by using only the natural force of the decreasing atmospheric pressure and the gas is not used for energy purposes (i.e. when the gas is flared or vented). This may include 'underground in seam' pre--drainage gas wells.

This guidance has been in place for 2017–18 reporting onwards.

Energy production is considered to occur at the moment and location that the gas is 'injected into a pipeline', irrespective of any downstream uses. In this case, the location is the gas well pipe. As soon as coal mine waste gas is forced into a gas well pipe by use of a machine that creates differential pressure, such as a compressor, extraction fan, blower, or pump, it becomes 'energy'.

There is no minimum reporting threshold for energy production from extraction or drainage of coal mine waste gas, therefore all quantities of coal mine waste gas captured for combustion gas must be reported as produced.

Example 2

This example demonstrates how to report energy consumption and production for injection of coal seam methane into a natural gas transmission pipeline.

When coal seam methane is injected into a natural gas transmission pipeline, it is considered to be converted from 'coal seam methane captured for combustion' to 'Natural gas transmitted or distributed in a pipeline'.

As outlined in the NGER Measurement Determination, reportable energy sources for injecting coal seam methane into a natural gas transmission pipeline include:

- Consumption (without combustion) of 'coal seam methane that is captured for combustion'.
- Production of 'natural gas transmitted or distributed in a pipeline' from the consumed 'coal seam methane that is captured for combustion'.

Note: If the activity is not evidenced by invoices, leakages can be estimated using industry practice under measurement criterion BBB. This may include, for example, estimating leakages by subtracting the energy exiting the pipeline system from the energy entering the pipeline system.

Example 3

This example demonstrates the circumstances where energy production and consumption is reportable for landfill biogas, sludge biogas or, biogas other than landfill biogas and sludge biogas.

- Landfill biogas, sludge biogas or, biogas other than landfill biogas and sludge biogas gas is reportable as energy production:
  - When force is applied by use of a machine, such as a compressor, extraction fan, blower, or pump, to create differential pressure to capture landfill biogas, sludge biogas or, biogas other than landfill biogas and sludge biogas into a pipe. This applies irrespective of whether the gas is subsequently vented, flared, leaked, or transferred to another facility.
  - When the gas is combusted for energy purposes, for example, to drive an electricity generator, even if a force was not applied to inject it into a pipeline.
- Landfill biogas, sludge biogas or, biogas other than landfill biogas and sludge biogas is not reportable as energy production:
  - When the gas is drained into pipes under only natural force and the gas not later combusted.

If landfill biogas, sludge biogas or, biogas other than landfill biogas and sludge biogas (which has been produced) is injected into a natural gas supply pipeline an energy transformation occurs at the point of injection. Since there has been an energy transformation, consumption (not combusted) of landfill biogas and the production of an equal gigajoule quantity of the fuel type 'natural gas transmitted or distributed in a pipeline' must be reported.

Facilities which acquire natural gas from a network which has had biogas injected into it are required to report all consumption under the fuel type 'natural gas transmitted or distributed **in** a pipeline'.

2.3. Estimating energy content of fuel produced

In accordance with sections 6.2 and 6.3 of the NGER Measurement Determination, energy content of fuel produced should be estimated with reference to the equation below:

$$Z_i = Q_i \times EC_i$$

where:

Z_i = the energy content of fuel type (***i***) produced during the year and measured in gigajoules (GJ).

Q_i = the quantity of fuel type (***i***) produced during the year, and must be measured for the 3 different fuel types as follows:

- if the energy is a solid fuel[12] or gaseous fuel — in accordance with industry practice, or
- if the energy is a liquid fuel — by either of the following:
  - » using bulk filling meters corrected to 15° Celsius
  - » by the physical measurement of the fuel corrected to its notional volumetric equivalent at a temperature of 15° Celsius.

EC_i = the energy content factor of fuel type (***i***) in GJ either:

- as listed within Schedule 1 of the NGER Measurement Determination
- determined in accordance with Divisions 2.2.3 and 2.2.4 (solid fuels), Divisions 2.3.3 and 2.3.4 (gaseous fuels) or Divisions 2.4.3 and 2.4.4 (liquid fuels)
- for electricity in kilowatt-hours (kWh), equal to 0.0036
- for fuels measured in GJ, equal to 1.

2.4. Estimating energy content of fuel consumed

In accordance with section 6.5 of the NGER Measurement Determination, the energy content of fuel consumed should be estimated with reference to the equation below. It is important to note that EERS will automatically estimate and report energy consumption when emissions from fuel combustion is reported.

$$Z_i = Q_i \times EC_i$$

where:

Z_i = the energy content of fuel type (*i*) consumed during the year and measured in GJ.

Q_i = the quantity of fuel type (***i***) consumed during the year, and must be measured for the 3 different fuel types as follows:

- for a solid fuel: Part 2.2 of the NGER Measurement Determination
- for a gaseous fuel: Part 2.3 of the NGER Measurement Determination
- for a liquid fuel: Part 2.4 of the NGER Measurement Determination.

EC_i = the energy content factor of fuel type (***i***) and must be measured for the 3 different fuel types as follows:

- for a solid fuel, in gigajoules per tonne (GJ/t):
  - » as mentioned in Part 1 of Schedule 1 of the NGER Measurement Determination; or
  - » as estimated by analysis of the fuel in accordance with the standard indicated for that energy content factor in Schedule 2 of the NGER Measurement Determination or an equivalent standard.
- for a gaseous fuel, in gigajoules per cubic metre (GJ/m^3):
  - » as mentioned in Part 2 of Schedule 1 of the NGER Measurement Determination; or
  - » estimated by analysis under Subdivision 2.3.3.2 of the NGER Measurement Determination.

[12] If the fuel is coal, the quantity must be estimated based on saleable coal.

- for a for gaseous fuels measured in GJ:
  - » equal to 1.
- for a liquid fuel, in gigajoules per kilolitre (GJ/kL):
  - » as mentioned in Part 3 of Schedule 1 for stationary energy purposes
  - » as mentioned in Division 4.1 in Part 4 of Schedule 1 of the NGER Measurement Determination for transport energy purposes
  - » estimated by analysis under Subdivision 2.4.3.2.

3. Reporting energy from production and consumption of energy commodities

3.1. Sulphur, uranium and hydrogen

The requirement to report the production and consumption of the energy commodities hydrogen, sulphur and uranium does not apply where the hydrogen, uranium, or sulphur is naturally present within another fuel or energy commodity listed in Schedule 1 of the NGER Regulations.

If you are uncertain about how this requirement applies to your activities, please contact us for further information. Methods exist for estimating energy production and consumption of sulphur, uranium and hydrogen under subsections 6.3(3) and 6.5(4) of the NGER Measurement Determination. The energy content is to be worked out as follows:

$$Z = Q \times EC$$

where:

$Z =$ the energy content of sulphur, uranium or hydrogen (whichever is applicable) produced or consumed during the year and measured in GJ.

$Q =$ the quantity of sulphur, uranium or hydrogen (whichever is applicable) produced or consumed during the year and must be measured in tonnes. The quantity produced must be estimated according to industry practice (see section 6.2 of the NGER Measurement Determination).

$EC_i =$ the energy content factor of sulphur, uranium or hydrogen (whichever is applicable) in accordance with Part 7 in Schedule 1 of the NGER Measurement Determination.

> Note: There is no threshold for the reporting of sulphur, uranium, and hydrogen energy production and energy consumption.

3.2. Requirements for reporting solar, wind, water and geothermal energy commodities

Production of the following energy commodities is not reportable:

- solar energy for electricity generation

- wind energy for electricity generation
- water energy for electricity generation
- geothermal energy for electricity generation.

For these 4 energy commodities, energy consumption must only be reported where they are used to produce electricity in a generating unit with a maximum capacity of 0.5 megawatts (MW) or more and that generates more than 100,000 kWh in a reporting year. When these conditions are met or exceeded, the energy content of the consumed energy commodity is taken to be equal to the energy content of the electricity produced. Therefore, it is assumed that there is a 100% conversion of energy between the energy consumed to generate electricity and the electricity produced.

Please note: EERS was updated for the 2019–20 reporting year (and onwards) so that it automatically reports an amount of consumption of the relevant primary energy commodity, which is equal to the reported amount of production of electricity from solar, wind, water or geothermal energy is reported. That means that if you input production of electricity from solar, wind, water or geothermal energy into EERS, then you must not separately input consumption of solar, wind, water or geothermal energy. This is illustrated in Example 4.

Example 4

A wind farm generates 1,000,000 kWh of electricity. The reporter inputs 1,000,000 kWh into EERS as electricity produced using wind generation:

EERS then records:

- 1,000,000 kWh (3600 GJ) of electricity produced using wind generation
- 3,600 GJ of consumption of the primary energy commodity 'wind energy for electricity generation'.

These values will be included in the NGER report generated by EERS.

The reporter does not need to input consumption of 'wind energy for electricity generation', because it has automatically been recorded by EERS.

See 'Reporting consumption of renewable energy commodities for electricity generation' in the NGER quick help topics[13] for guidance on automated reporting of these activities in EERS.

[13] https://cer.gov.au/document_page/nger-quick-help-topics

4. Reporting production and consumption of electricity

Electricity production and consumption must be reported at a facility if it exceeds the thresholds listed in 4.19, 4.20 and 4.22 of the NGER Regulations, and section 2.68 of the NGER Measurement Determination, summarised in Table 2 – Thresholds for reporting electricity production and consumption.

Table 2 – Thresholds for reporting electricity production and consumption.

Electricity production threshold	Each generating unit that has the capacity to produce 0.5 MW or more of electricity. Generates more than 100,000 kWh of electricity per generating unit in the reporting period.
Electricity consumption thresholds	Each generating unit that has the capacity to produce 0.5 MW or more of electricity. Generates more than 100,000 kWh of electricity per generating unit in the reporting period. For all other electricity consumption, the threshold is electricity consumption at a facility of at least 20,000 kWh in the reporting period (for example purchased electricity).

Electricity production that falls below the thresholds for electricity production does not need to be reported (see 4.19 of the NGER Regulations). The example below shows how the above thresholds are used when reporting electricity production at a facility.

Example 5

A mining facility has 4 diesel powered electricity generators. Two of these generators have the capacity to produce of 0.2 MW and generate 70,000 kWh and 110,000 kWh respectively in the reporting year. The remaining 2 generators each have the capacity to produce 0.8 MW and generate 90,000 kWh and 140,000 kWh respectively in the reporting year.

The reporter need not report electricity production from the generators that have less than 0.5 MW capacity or generate 100,000 kWh or less in a reporting year. Therefore, only the electricity produced from the 0.8 MW capacity generator which produces 140,000 kWh must be reported.

As defined in section 6.3 of the NGER Measurement Determination, energy produced = quantity of electricity produced (kilowatt-hours) × energy content factor for electricity.

Therefore, in this case, reportable energy produced = 140,000 kWh × 0.0036 = 504 GJ.

Electricity consumed from an on-site generating unit needs to be reported if it meets the relevant threshold listed in Table 2 – Thresholds for reporting electricity production and consumption (see 4.22 of the NGER Regulations and section 2.68 of the NGER Measurement Determination). Conversely, electricity consumed from a generating unit that does not have the capacity to produce more than 0.5 MW of electricity does not need to be reported.

For all other electricity consumption (generally purchased electricity reported as scope 2 emissions), the consumption of energy must only be reported if the amount of electricity consumed exceeds 20,000 kWh.

If a reporter chooses to report activities relating to electricity production for use onsite which fall below the thresholds outlined in Table 2 – Thresholds for reporting electricity production and consumption, then all activities relating to electricity production should be reported. This ensures that all energy is accounted for. This would include the quantity of fuel or energy commodity consumed to produce the electricity, the quantity of electricity produced for use onsite and the quantity of electricity consumed onsite.

4.1. Estimating electricity production

Where electricity production is reported, it is necessary to also identify whether the electricity was produced using (see 4.20 of the NGER Regulations):

- thermal generation
- geothermal generation
- solar generation
- wind generation
- water generation
- biogas generation.

The report must also detail the amount and energy content of electricity that was produced for the following purposes:

- for use for the purposes of the facility (for use onsite)
- for use outside the operation of the facility other than for supply to an electricity transmission or distribution network
- for use outside the operation of the facility for supply to an electricity transmission or distribution network. Table 3 – Estimating electricity production below details how the amount of electricity produced for each of these purposes is determined (see section 6.2 of the NGER Measurement Determination).

Table 3 – Estimating electricity production.

Electricity produced:	For use for the purposes of the facility (for use onsite)	For supply to an electricity transmission or distribution network	For use outside the facility other than for supply to an electricity transmission or distribution network
Is equal to:	The electricity produced by the electricity generating unit/s as measured at the unit terminals (subject to the thresholds in Table 2 – Thresholds for reporting electricity production and consumption).	The electricity supplied to a transmission or distribution network measured at the network connection point*.	The amount of electricity supplied for use outside the operation of the facility that is not supplied to the network.
Minus:	The electricity supplied to a transmission or distribution network measured at the network connection point*.	Nil	Nil
Minus:	The amount of electricity supplied for use outside the operation of the facility that is not supplied to the network.	Nil	Nil
***Measured according to either:**	Chapter 7 of the National Electricity Rules set out in the *National Electricity (South Australia) Act 1996*, or Metering requirements applicable to the region in which the facility is located.		

Please note: EERS was updated for the 2019–20 reporting year (and onwards) so that it automatically reports an amount of consumption of electricity produced 'for use for the purposes of the facility (for use onsite)', which is equal to the reported amount of electricity produced 'for use for the purposes of the facility'. That means that if you input electricity produced 'for use for the purposes of the facility (for use onsite)' into EERS, then you must not separately input consumption of that electricity. This is illustrated in Example 6.

Example 6

The electricity produced by a facility includes 100,000 kWh of electricity produced 'for use for the purposes of the facility (for use onsite)'. The reporter inputs 100,000 kWh into EERS as electricity produced 'for use for the purposes of the facility'.

EERS then records:

- 100,000 kWh (360 GJ) of electricity produced 'for use for the purposes of the facility (for use onsite)'
- 100,000 kWh (360 GJ) of consumption of electricity produced 'for use for the purposes of the facility (for use onsite).

These values will be included in the NGER report generated by EERS.

The reporter correctly does not manually input consumption of electricity produced 'for use for the purposes of the facility (for use onsite)', because it has been automatically recorded by EERS.

See 'Reporting consumption of renewable energy commodities for electricity generation' in the NGER quick help topics[14] for guidance on automated reporting of this activity in EERS.

4.2. Estimating electricity consumption

The amount of electricity consumed from the operation of the facility must be evidenced by invoices, contractual arrangements, or industry metering records. If such evidence is unavailable, then it must be estimated in accordance with industry practice.

If electricity invoices do not match up with a given financial year, it remains at the discretion of the reporter how to split that consumption for accurate reporting. This is illustrated in Example 7.

[14] https://cer.gov.au/document_page/nger-quick-help-topics

Example 7

An NGER reporter receives an invoice for 20,000 kWh of purchased electricity for the period of 16 June to 15 July. The reporter may, at their discretion, report the electricity consumption in one of the following ways:

- allocate the entire electricity consumption (20,000 kWh) to the first NGER reporting year
- allocate the entire electricity consumption (20,000 kWh) to the subsequent NGER reporting year
- allocate the electricity consumption on a pro-rata basis based on the number of days. In this case, 15 days (50%) falls in June and 15 days (50%) falls in July. 50% of the electricity consumption (10,000 kWh) is allocated to the first NGER reporting year and 50% (10,000 kWh) is added to the subsequent NGER reporting year
- another method may be appropriate.

Other methods of apportioning electricity consumption may be appropriate, and justification of this decision is expected to be documented in accordance with record-keeping requirements outlined in Division 4.8 of the NGER Regulations. Further, the reporter should use consistent methodology for apportioning electricity consumption in subsequent NGER reporting years. CER encourages reporters to consider submitting their Basis of Preparation (or a summary thereof) with each year's NGER report to clarify key assumptions and decisions applied.

4.3. Cogeneration

The NGER Regulations define cogeneration as '*a process that combines the generation of heat and power to produce electricity and another product within one integrated production process*'. There are specific requirements outlined in the NGER Regulations and the NGER Measurement Determination pertaining directly to cogeneration (see 4.23 of the NGER Regulations and section 2.70 of the NGER Measurement Determination).

Cogeneration occurs when energy (other than electricity) is consumed and results in the production of electricity and another product (for example heat or steam). When this occurs, assuming that the appropriate thresholds have been met, it is necessary to separately report the amount of energy consumed to produce electricity and the amount of energy consumed to produce the other product.

The amount of electricity produced because of the cogeneration process is also required to be reported. However, it is not necessary to report the production of the other product if that product is heat.

Example 8

A facility operates a cogeneration plant that combusts 200,000 GJ of natural gas to generate electricity and steam. It is estimated that 50% of the combusted natural gas is consumed to generate electricity and 50% is consumed to produce steam. The reporter will need to report the combustion of 100,000 GJ of natural gas for the purpose of generating electricity and the combustion of 100,000 GJ for stationary energy purposes in the production of steam. The reporter is also required to report the production of electricity.

5. Reporting energy consumption from fugitive emissions including venting, flaring and leakage activities

Consumption of energy, in relation to a facility, also includes any disposal or loss of energy (see 2.26 of the NGER Regulations). It is therefore necessary to report the energy content of fuels that are disposed of or lost through fugitive emissions activities, including venting, flaring or leakage activities, where the energy consumed is a fuel listed in Schedule 1 of the NGER Regulations. Energy consumption from flaring, venting or leakage should be reported by selecting the relevant fuel type in EERS. Any energy consumption from fugitive emissions should be reported as energy consumed without combustion.

When flaring emission sources and activities are entered into the EERS, a reporter will be required to select the type of fuel and quantity of gas flared. When a fuel type is selected, a reporter will then be required to enter the energy content factor associated with the fuel. This may be the default energy content factor associated with the fuel (from Schedule 1 of the NGER Measurement Determination) or a facility-specific energy content factor.

EERS will automatically calculate the energy consumption associated with the quantity of the selected fuel type. The energy consumption will be categorised in the NGER report as 'energy consumed by means of combustion for purposes other than producing electricity, producing a chemical or metal product, or for transport'.

When energy is consumed through venting or leakage, the energy consumption must be reported in EERS through a separate activity from the venting or leakage emissions activity.

Please note where production of a fuel type occurs at a facility, any quantity of that fuel type consumed at the facility through venting, flaring or leakage activities should be included in the reported quantity of fuel type produced.

5.1. Estimating energy consumption from venting and flaring activities

The quantity and energy content of gases vented, and gases or liquids flared should be measured in the same way that other fuel consumption is estimated. See the Reporting energy from production and consumption of fuels section of this document for more information.

The approach to measuring the quantity of fuel vented or flared must be consistent with the requirements for measuring gaseous fuels in outlined in Division 2.3.6 of the NGER Measurement Determination and the general principles of emissions reporting detailed in section 1.13 of the NGER Measurement Determination.

Where sampling equipment does not meet the requirements for direct measurement of the quantity of gas, reporting corporations should use industry practice as described in section 2.38 of the NGER Measurement Determination.

Estimates of gas density must always be taken at standard temperature and pressure conditions which are specified in subsection 2.32 (7) of the NGER Measurement Determination and are as follows:

- air pressure of 101.325 kilopascals (kPa)
- air temperature of 15.0 degrees Celsius (°C) or 288 Kelvin (K)
- air density of 1.225 kilograms per cubic metre (kg/m^3).

Example 9

A facility flared 1,000,000 m^3 of unprocessed natural gas measured at standard conditions in accordance with Part 2.3 of the NGER Measurement Determination. As this use of gas constitutes consumption, it is necessary to report the associated energy consumption (Z_i) in accordance with the formula set out in section 6.5 of the NGER Measurement Determination.

$$\boldsymbol{Z_i = Q_i \times EC_i}$$

where:

$\boldsymbol{Z_i}$ = the energy content of fuel type (*i*) consumed and measured in GJ.

$\boldsymbol{Q_i}$ = the quantity of fuel type (*i*) consumed during the year which in this case is equal to 1,000,000 m^3.

$\boldsymbol{EC_i}$ = the energy content factor of fuel type (*i*), which in this case is equal to 39.3×10^{-3} GJ/m^3 as listed in Part 2 of Schedule 1 of the NGER Measurement Determination.

Consequently, the energy consumption associated with flaring at the facility is calculated as follows:

$$\boldsymbol{Z_i = Q_i \times EC_i = 1{,}000{,}000\ m^3 \times 39.3 \times 10^{-3}\ GJ/m^3 = 39{,}300\ GJ.}$$

Please note that reporting energy consumption from flaring is achieved in EERS by selecting the relevant fuel type when reporting flaring emissions. In this example, the flaring fuel type would be '21 – Unprocessed natural gas'.

6. Publication of energy production and consumption information

Under section 24 of the NGER Act, CER is required to publish the following information by 28 February each year:

- registered corporations – reported greenhouse gas emissions and net energy consumption for all registered corporations that meet the publication threshold
- reporting transfer certificate holders – reported greenhouse gas emissions and net energy consumption for reporting transfer certificate holders
- designated generation facilities – greenhouse gas emissions, energy production, primary fuel source, emissions intensity and grid connection information for facilities where the principal activity is electricity generation. Included in this publication for each facility is the already publicly available primary fuel source and grid connection information
- extract of the National Greenhouse and Energy Register by year – corporations registered under the NGER Act

The information is published on the NGER reporting data and registers[15] section of our website.

Under section 25 of the NGER Act, registered corporations may apply to have all or part of their reported greenhouse gas emissions and energy production and consumption totals withheld from publication.

7. Net energy consumption

Under 5.03 of the NGER Regulations, the equation for net energy consumption at the facility level is:

- net energy consumption (GJ) = total energy consumption (GJ) — energy content of secondary fuels and energy commodities produced (GJ).

In this formula:

- net energy consumption is measured in gigajoules (GJ)
- total energy consumption (GJ) is the total amount of energy consumed by a facility
- secondary fuels and energy commodities produced (GJ) is the total amount of secondary energy produced by a facility.

EERS automatically calculates net energy consumption for each facility based on reported energy production and consumption data. This is then aggregated to a total of net energy consumption for a controlling corporation. Only corporate **net** energy consumption figure will be published for reporters that have met the publication threshold for a reporting year. Energy consumption is not published.

More information

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[15] https://cer.gov.au/markets/reports-and-data/nger-reporting-data-and-registers