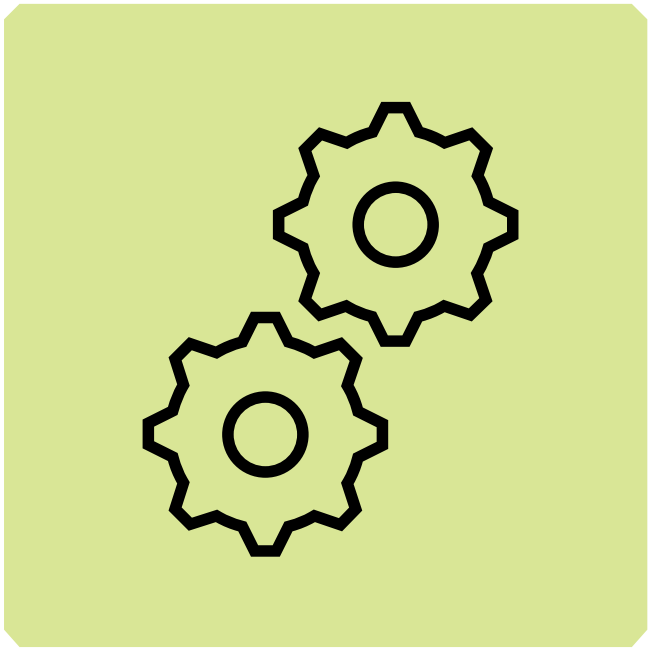
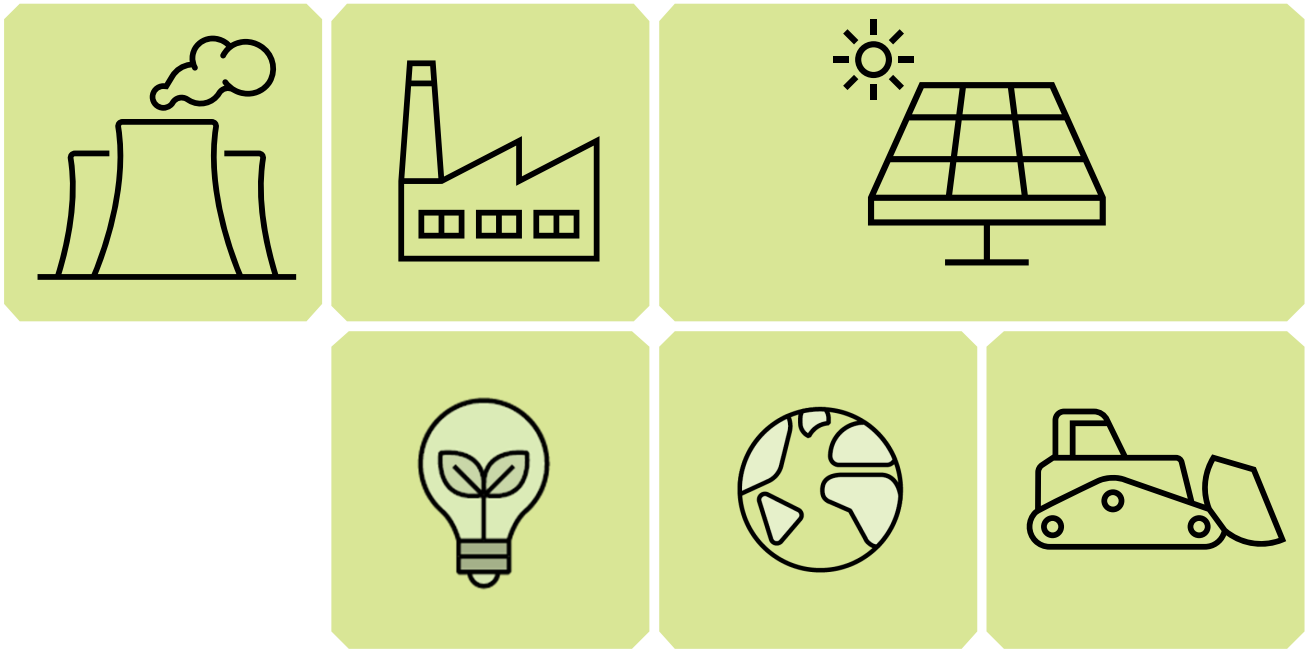
Australian Government
Clean Energy Regulator



Voluntary market-based scope 2 emissions guideline

June 2024



CLEAN ENERGY REGULATOR

Contents

Definitions and abbreviations

Term	Meaning
Department	Department of Climate Change, Energy, the Environment and Water. Federal department who is the policy agency for the NGER Legislation.
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].
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
MWh	Megawatt hours
t CO_2-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.

[1] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme/assess-your-obligations#n3-1

Disclaimer

The Clean Energy Regulator (CER) developed this guideline 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 2023–24 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. The CER encourages all users of this guidance to seek independent legal advice before taking any action or decision based on this guidance.

The 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, the 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/C2007A00175/latest/versions
[3] https://www.legislation.gov.au/F2008L02230/latest/versions
[4] https://www.legislation.gov.au/F2008L02309/latest/versions
[5] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme

1. Introduction

1.1. Focus of this guideline

This guideline is to help NGER reporters understand the voluntary **market-based** method for estimating Scope 2 emissions. This method is available from the 2023–24 reporting period.

This guideline provides:

- an overview of the market-based and location-based scope 2 emissions accounting methods
- instructions on reporting and a note on data publication
- an explanation of the location-based and market-based formulas for scope 2 emissions
- examples that show how to use the market-based formula for scope 2 emissions.

1.2. Defining scope 1 and scope 2 emissions

Scope 1 and scope 2 emissions are explained on our website[6].

1.3. Methods used to estimate scope 2 emissions in the National Greenhouse and Energy Reporting (NGER) Scheme

Most methods for estimating emissions under the National Greenhouse and Energy Reporting (NGER) Scheme are location-based methods. This means that the emissions are tied to a time and physical location where the greenhouse gas was released into the atmosphere. Location-based emissions estimation methods are based on onsite consumption multiplied by industry averages and typically do not reflect a company's decision to purchase renewable energy or products.

Location-based and market-based accounting methods are distinct and complementary approaches for estimating emissions. For scope 2 emissions, they are different ways of accounting for the indirect emissions from the consumption of electricity. Together, these methods provide a more complete picture of emissions from electricity use.

The mandatory location-based method for estimating scope 2 emissions uses an average emissions intensity for grids where the electricity consumption occurs[7].

From 1 July 2023, in addition to reporting scope 2 emissions using the location-based method, NGER reporters have **the option to additionally** report using the market-based method for estimating scope 2 emissions, allowing NGER reporters to reflect their incentivisation of renewable electricity generation. This is the first time that a market-based emissions accounting method has been available under the NGER Scheme.

The market-based scope 2 emissions method is similar to the reporting of scope 2 emissions available under the Corporate Emissions Reduction Transparency (CERT) report. The CERT report is a voluntary initiative for controlling corporations that meet the NGER Scheme publication thresholds[8] to provide additional

[6] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme/about-emissions-and-energy-data/emissions
[7] GHG Protocol Scope 2 Guidance: https://ghgprotocol.org/scope-2-guidance
[8] https://cer.gov.au/schemes/national-greenhouse-and-energy-reporting-scheme/about-emissions-and-energy-data

contextual information about their net emissions position, renewable electricity use, carbon offsets and progress towards their climate-related commitments. You can read more about the CERT report on our website[9]. Do not use the CERT methodology for NGER reporting.

2. Instructions on reporting and a note on data publication

The National Greenhouse and Energy Reporting (Measurement) Amendment (2023 Update) Determination 2023 introduced the voluntary market-based method for scope 2 emissions in section 7.4 of the Measurement Determination.

If you choose to use this method, you must estimate market-based scope 2 emissions from the operation of the facility under section 7.4 of the Measurement Determination. **Do not** follow the method described in the CERT Guidelines.

Each year, the CER is required to publish reported emissions and energy data in line with section 24 of the NGER Act. From 1 July 2023, this includes publication of an additional market-based scope 2 emissions total, where this data is voluntarily reported. The publication of voluntarily provided market-based scope 2 totals will first apply to the 2023–24 NGER Data Publication which will be released in February 2025.

To ensure the data we publish is meaningful for data users and can be compared with mandatorily reported location-based scope 2 emissions, the CER will publish additional, contextual information regarding the proportion of facilities that you have reported a market-based total for.

For example, if you only report market-based scope 2 emissions for a portion of facilities under your operational control, we may include the proportion of facilities which reported under the market-based method for the corporate group.

2.1. Evidence to support market-based scope 2 emissions reporting

As part of our report assessment process, we may ask you to provide evidence of your voluntarily surrendered LGCs and purchased GreenPower electricity (as per subsection 7.4(5) of the Measurement Determination) after you submit your NGER report. Alternatively, you may wish to supply this as an attachment as part of your NGER report submission.

For voluntarily surrendered LGCs, this evidence may include the serial number range for the LGCs, as recorded in the REC Registry.

The serial number should include the following information about the **LGC generation** contained in the 'certificate number':

- registered person ID (the ID of the user that creates the LGCs, as recorded in the REC registry)
- accreditation code
- generation year.

[9] https://cer.gov.au/markets/reports-and-data/corporate-emissions-reduction-transparency-report

The evidence should also include the following information about the **voluntary LGC surrender**:

- volume of certificates surrendered
- evidence of surrenders made by a third party on behalf of the corporation if not clearly stated in the comments section of the relevant registry.

You must also keep the following evidence:

- a receipt or statement confirming the purchase of GreenPower electricity from accredited GreenPower Providers
- records to support your claims of values used in the market-based scope 2 emissions formula for the quantity of electricity:
  - » purchased or acquried (Q)
  - » exempt from the Renewable Energy Target (RET) liability (Qexempt).

The requirements for record keeping are outlined in section 22 of the NGER Act[10].

3. Explanation of the methods for estimating scope 2 emissions in NGER

3.1. Mandatory location-based method

The location-based formula estimates scope 2 emissions by applying a grid-based emissions factor to the amount of electricity purchased, acquired or lost from:

- the main electricity grid[11], as per section 7.2 of the Measurement Determination (Method A1)
- an electricity transmission network or distribution network other than the main electricity grid, as per section 7.3 of the Measurement Determination (Method A2)

$$scope\ 2\ emissions\ (Y) = Quantity\ of\ electrity\ (Q) \times \frac{Emissions\ Factor\ (EF)}{1{,}000}$$

Where:

- Y is calculated in tonnes carbon dioxide equivalence (t CO_2-e)
- Q is measured in kilowatt-hours (kWh)
- The emissions factor is the scope 2 location-based factor for a given state or territory as mentioned in Part 6 of Schedule 1 of the NGER Measurement Determination

[10] https://www.legislation.gov.au/C2007A00175/latest/versions
[11] The 'main electricity grid' is defined in subsection 7.2(4) of the Measurement Determination

3.2. Voluntary market-based method

You can estimate market-based scope 2 emissions from purchased or acquired electricity that was consumed from the operation of a facility during a year using this formula:

$$Y = ((Q - Q_{exempt}) \times (1 - (RPP + JRPP)) + (Q_{exempt} \times (1 - JRPP)) - (REC_{surr} - REC_{onsite}) \times 1000) \times \frac{RMF}{1000}$$

Table 1: Parameters used in the market-based method for scope 2 emissions

Variable	Explanation	Units
Y	The estimated market-based scope 2 emissions. • *EERS will calculate the estimate based on the information you enter.*	t CO_2-e
	These variables are determined and provided by you	
Q	The quantity of electricity purchased or acquired from an electricity transmission or distribution network during the year and consumed from the operation of the facility. • *The electricity may be purchased or acquired from:* » *the main electricity grid, or* » *an electricity transmission or distribution network other than the main electricity grid.* • *The market-based method is only concerned with electricity purchased or acquired. The market-based method is not applicable for estimating emissions from the loss of electricity for facility with a principal activity that is attributable to electricity transmission (ANZSIC code 262) or electricity distribution (ANZSIC code 263) industry sector.*	kWh
Q_{exempt}	The quantity of electricity exempt from Renewable Energy Target (RET) liability. • *If you do not know your Q_{exempt} value, it is unlikely you have one. Read more about exemptions from the RET liability*[12] • *Exemption certificates are issued in megawatt hour (MWh). Please convert MWh to kilowatt hour (kWh) before using the amount of Q_{exempt} in the formula* • *Q_{exempt} should correspond to the NGER reporting year* • *Q_{exempt} should be allocated to the NGER facility that purchased or acquired electricity that was exempt from the RET liability. For example, an NGER facility conducting EITE activities that are exempt from the RET liability should be the NGER facility to report Q_{exempt}.*	kWh

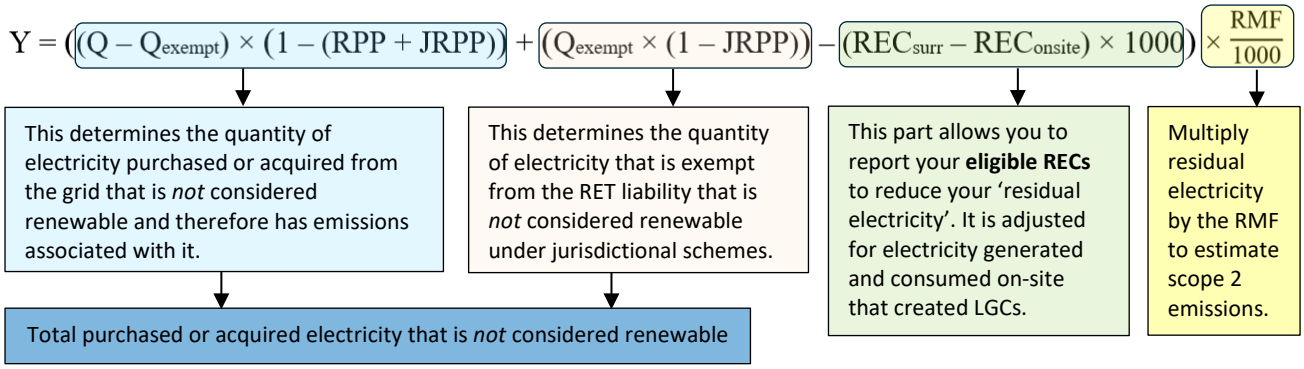
[12] https://cer.gov.au/schemes/renewable-energy-target/renewable-energy-target-liability-and-exemptions

RECsurr	The number of **eligible** renewable energy certificates (RECs) voluntarily surrendered in the reporting year. • You must **only** include eligible LGCs and GreenPower electricity purchases. See Table 2 below for more information on eligible renewable energy certificates in NGER. • In EERS you will provide the LGC (equivalents) and GreenPower electricity (equivalents) as separate parameters.	equivalent to MWh
REConsite	The number of **eligible** renewable energy certificates (RECs) that have been or will be issued for electricity produced on-site during the year and consumed from the operation of the facility. • *The 'year' refers to the NGER reporting year.* • *You can read more about creating LGCs here.*	equivalent to MWh
This variable is not determined by you but is dependent on your facility location		
JRPP	The jurisdictional renewable power percentage for the applicable period, activity and state or territory. It is the number of eligible renewable energy certificates (RECs) surrendered by or on behalf of the jurisdictional authority divided by total electricity consumption in the jurisdiction. • *The ACT is currently the only state with a JRPP. The JRPP for the ACT for the 2023–24 reporting period is 74.13% as published in the National Greenhouse Accounts Factors: 2023*[13]. • *If your facility is in the ACT, enter '74.13' into the JRPP field in EERS. Do not enter 74.13% or 0.7413.*	n/a
These variables are not provided by you and are already populated in EERS		
RPP	The RET renewable power percentage for the applicable period (averaged across the adjacent calendar years) as published by the Clean Energy Regulator[14].	n/a
RMF	The scope 2 residual mix factor as mentioned in Part 6 of Schedule 1 of the Measurement Determination. • *You can read more about how DCCEEW calculate the RMF in the National Greenhouse Accounts Factors: 2023*[13].	kg CO_2-e / kWh

[13] https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-accounts-factors-2023
[14] https://cer.gov.au/schemes/renewable-energy-target/renewable-energy-target-liability-and-exemptions/renewable-power-percentage

3.2.1. Understanding the market-based formula for scope 2 emissions

The market-based method of estimating scope 2 emissions subtracts eligible renewable energy purchases from the total quantity of purchased or acquired electricity that is *not* considered renewable before applying an emissions factor to the residual electricity. The emissions factor for the market-based formula is the residual mix factor (RMF). More detail on each term is contained in table 1.



3.2.2. What is an eligible renewable energy certificate (REC) in NGER?

The table below defines an 'eligible REC' for RECsurr, REConsite and JRPP in the market-based scope 2 emissions formula.

Table 2: Conditions for eligible renewable energy certificate

Eligible REC type	Conditions for eligibility
Large-scale generation certificate (*LGC*)	• Cannot be an 'ineligible REC' (see below). • Must be voluntarily surrendered through the REC Registry[15] during the reporting year. For example, for the 2023–24 NGER reporting year, LGCs must be surrendered between 1 July 2023 and 30 June 2024 to be eligible
GreenPower electricity purchase	• Purchased from an accredited GreenPower Provider.

3.2.3. What is an 'ineligible renewable energy certificate' in NGER?

- An LGC surrendered to meet a liable entity's obligations for that compliance year under the Renewable Energy (Electricity) Act 2000
- an incorrectly created or cancelled LGC
- an LGC that is voluntarily surrendered and has a generation date of more than 36 months prior to the end of the reporting year.

Small-scale technology certificates (STCs) cannot be reported under the voluntary market-based scope 2 emissions method under the NGER Scheme.

[15] https://rec-registry.gov.au/rec-registry/app/home

3.2.4. Examples of using the market-based formula to estimate scope 2 emissions

Example 1

A controlling corporation is responsible for NGER reporting for a facility located in Queensland. During the NGER reporting year the facility consumed 11,000,000 kWh of electricity from the grid It did not generate electricity on-site and none of the electricity it consumed from the grid was exempt from the Renewable Energy Target liability. The company purchased and voluntarily surrendered 3,000 LGCs and has a receipt from an accredited GreenPower provider for a purchase of 100 MWh of GreenPower electricity.

In this example:

Reporter-specific quantities	Default quantities
Q = 11,000,000 kWh **Q_{exempt} = 0 kWh** **LGCsurr = 3000 (as it shows in EERS)** **GREENsurr = 100 (as it shows in EERS)** **REC_{surr} = 3,000 + 100** **= 3,100** **REC_{onsite} = 0**	RPP = (RPP 2023 + RPP 2024) / 2 = (0.1896 + 0.1848) / 2 = 0.1872 JRPP = 0, because the facility is not in ACT RMF = 0.81 kg CO_2-e / kWh from Part 6 of Schedule 1 of the NGER Measurement Determination

$$Y = \left[(Q - Q_{exempt}) \times (1 - (RPP + JRPP)) + \left(Q_{exempt} \times (1 - JRPP)\right) - (REC_{surr} - REC_{onsite}) \times 1000\right] \times \frac{RMF}{1000}$$

$$= \left[(11{,}000{,}000 - 0) \times \left(1 - (0.1872 + 0)\right) + \left(0 \times (1 - 0)\right) - (3{,}100 - 0) \times 1000\right] \times \frac{0.81}{1000}$$

$$= [(11{,}000{,}000) \times (0.8128) + (0) - (3{,}100{,}000)] \times \frac{0.81}{1000}$$

$$= [5{,}840{,}800] \times \frac{0.81}{1000}$$

$$= 4{,}731 \text{ t } CO_2\text{-e}^{16}$$

[16] Rounded to the nearest whole number as per section 1.16 of the NGER Measurement Determination

Example 2

A company has 2 facilities. Facility 1 is in the Australian Capital Territory. Facility 2 is in New South Wales.

During the NGER reporting year **Facility 1**:

- Consumed 14,000,000 kWh of electricity from the grid.
- Did not purchase GreenPower electricity from an accredited GreenPower provider.
- Generated 1,000,000 kWh (1,000 MWh) of electricity from on-site renewable electricity sources, which created 1,000 LGCs. The facility consumed 600,000 kWh of this electricity and exported 400,000 kWh to the grid. The facility voluntarily surrendered 600 of the 1,000 LGCs to cover the electricity it generated and consumed and sold the remaining 400 LGCs to a third party.

During the NGER reporting year, **Facility 2**:

- Consumed 9,000,000 kWh of electricity from the grid, including a purchase of 1,000,000 kWh of GreenPower electricity from an accredited GreenPower provider. 5,000,000 kWh of the consumed electricity was exempt from the Renewable Energy Target (RET) liability as the facility was an emissions-intensive trade-exposed facility.
- Did not generate any on-site renewable electricity.

During the NGER reporting year, the **company**:

- Purchased and voluntarily surrendered 4,000 LGCs. This was in addition to the 600 LGCs voluntarily surrendered to cover the amount of electricity generated and consumed on-site that created LGCs.
- Chose to allocate 1,000 of its purchased and voluntarily surrendered LGCs to Facility 1 and 3,000 LGCs to Facility 2.

All LGCs were correctly created and had a generation date within 36 months before the end of the NGER reporting period. The RPP is 0.1872 and the RMF is 0.81 kg CO_2-e / kWh for all facilities as per Example 1.

	Facility 1	**Facility 2**	**Controlling corporation**
State emissions attributed to	ACT	NSW	n/a
Q (kWh)	14,000,000	9,000,000	23,000,000
Qexempt (kWh)	0	5,000,000	5,000,000
RECsurr (LGC) ***(LGCsurr in EERS)***	= 600 + 1000 = 1,600	3,000	4,600

RECsurr (GreenPower) ***(GREENsurr in EERS)***	0	1,000	1,000
RECsurr ***(total)***	1,600	4,000	5,600
REConsite	600*	0	600*
JRPP	74.13%**	0	n/a
Y (t CO_2-e)[16]	1	3,433	3,434

*This is 600 and not 1,000 because 600 represents the portion of electricity that was produced on-site and then consumed on-site where LGCs were created for this electricity

**The ACT JRPP (74.13%) has been represented as 0.7413 in the calculations below for Facility 1. The ACT JRPP should be entered into EERS as '74.13' for 2023–24.

Facility 1 market-based scope 2 emissions:

$$Y = \left[(Q - Q_{exempt}) \times (1 - (RPP + JRPP)) + \left(Q_{exempt} \times (1 - JRPP)\right) - (REC_{surr} - REC_{onsite}) \times 1000\right] \times \frac{RMF}{1000}$$

$$= [(14{,}000{,}000 - 0) \times \left(1 - (0.1872 + 0.7413)\right) + \left(0 \times (1 - 0.7413)\right) - (1{,}600 - 600) \times 1000] \times \frac{0.81}{1000}$$

$$= [(1{,}001{,}000) + (0) - (1{,}000{,}000)] \times \frac{0.81}{1000}$$

$$= 1 \text{ t } CO_2\text{-e}$$

Facility 2 market-based scope 2 emissions:

$$Y = [(Q - Q_{exempt}) \times (1 - (RPP + JRPP)) + \left(Q_{exempt} \times (1 - JRPP)\right) - (REC_{surr} - REC_{onsite}) \times 1000] \times \frac{RMF}{1000}$$

$$= [(9{,}000{,}000 - 5{,}000{,}000) \times \left(1 - (0.1872 + 0)\right) + \left(5{,}000{,}000 \times (1 - 0)\right) - (4{,}000 - 0) \times 1000] \times \frac{0.81}{1000}$$

$$= [(4{,}000{,}000) \times (0.8128) + \left(5{,}000{,}000 \times (1)\right) - (4{,}000) \times 1000] \times \frac{0.81}{1000}$$

$$= [(3{,}251{,}200) + (5{,}000{,}000) - 4{,}000{,}000] \times \frac{0.81}{1000}$$

$$= [4{,}251{,}200] \times \frac{0.81}{1000}$$

$$= 3443 \text{ t } CO_2\text{-e}$$

The corporate total for market-based scope 2 emissions is **3,434 t CO_2-e.**

4. More information

Contact CER for more information. Email reporting@cleanenergyregulator.gov.au or call 1300 553 542 within Australia.