



PUBLIC DISCLOSURE STATEMENT

AGL ENERGY LIMITED

PRODUCT CERTIFICATION

SOLAR SYSTEMS

CY2022

Australian Government
Climate Active
Public Disclosure Statement



| | |
|---------------------------------|--|
| NAME OF CERTIFIED ENTITY | AGL Energy Limited |
| REPORTING PERIOD | 1 January 2022 – 31 December 2022 (arrears) |
| DECLARATION | <p>To the best of my knowledge, the information provided in this public disclosure statement is true and correct and meets the requirements of the Climate Active Carbon Neutral Standard.</p> <p>Name of signatory: Ryan Warburton Position of signatory: General Manager, Commercial & Industrial Customers Date: 21/12/2023 Sign:</p>  |



Australian Government
**Department of Climate Change, Energy,
the Environment and Water**

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Version March 2023.



1.CERTIFICATION SUMMARY

| | |
|------------------------|--|
| TOTAL EMISSIONS OFFSET | 2,239 tCO ₂ -e |
| THE OFFSETS USED | 95% VERs, 5% ACCUs |
| RENEWABLE ELECTRICITY | N/A |
| CARBON ACCOUNT | Prepared by: Pangolin Associates |
| TECHNICAL ASSESSMENT | 14/04/2021 Adina Cirtog, Pangolin Associates Next technical assessment due: 14/04/2024 |

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2. CARBON NEUTRAL INFORMATION

Description of certification

This public disclosure statement supports the carbon neutral product certification for the supply and installation of **solar systems** provided by **AGL Energy Services Pty Limited**, or **AGL Electricity (VIC) Pty Limited** (through its subsidiary businesses Epho Holding Pty Ltd and SEGH Pty Limited and their subsidiary entities), all being subsidiary entities of AGL Energy Limited (AGL). This includes the Life Cycle Assessment of the solar installation and quantification of Scope 1, 2 and 3 emissions associated with the retail operations component.

The emissions reported here are for CY2022 which is the second year of certification.

In June 2021, AGL launched a certified Carbon Neutral Solar product to all AGL residential customers and to opt-in business customers.

Solar systems are sold to residential customers as part of a solar and battery bundle.

“Climate Active certification makes it easier for consumers to make a conscious decision to identify and choose electricity, gas and telecommunications products that are making a difference.”

Scope

‘Solar product’ includes all components and services associated with the supply and installation of solar systems sold by AGL Energy Limited’s subsidiary businesses. Prior to 2 June 2022, Solar systems for business customers were sold by **AGL Energy Services Pty Limited** or **AGL Electricity (VIC) Pty Limited** (through its subsidiary businesses Epho Holding Pty Ltd and SEGH Pty Limited and their subsidiary entities). As of 2 June 2022, all sales for business customers were sold under the **Sustainable Business Energy Solutions Pty Ltd entity trading as AGL Energy Solutions** (this entity was formerly Solgen Energy Pty Ltd, a subsidiary of SEGH Pty Limited). For residential customers, Solar systems are sold as part of a solar and battery bundle by **AGL Energy Services Pty Limited**.

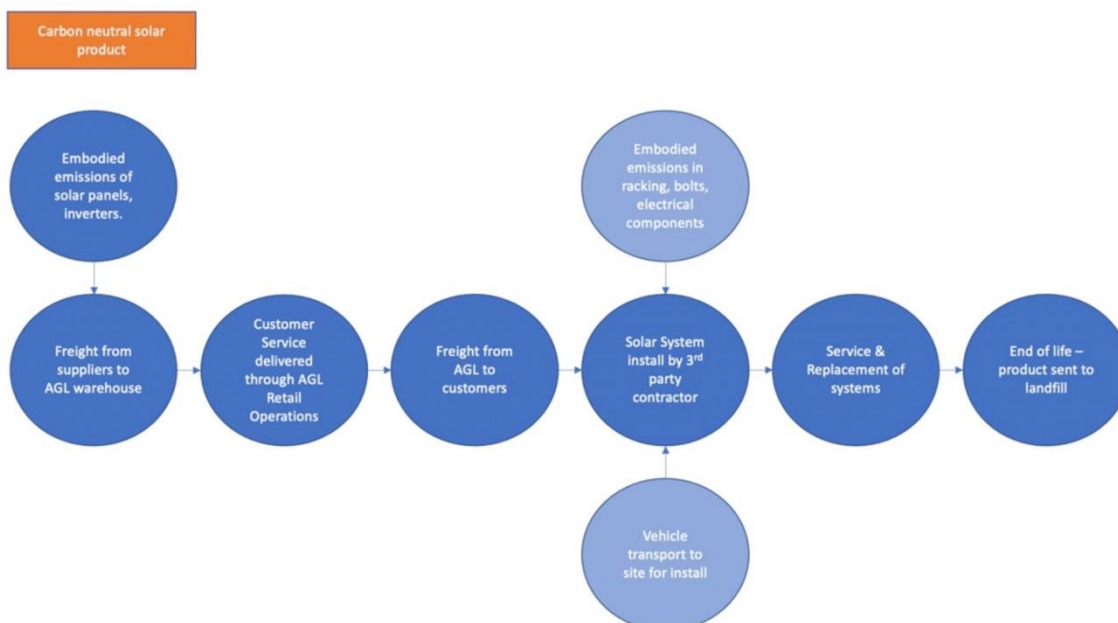
Product description

Our certified Carbon Neutral Solar product is provided to all AGL residential customers and to business customers who opt-in. Solar systems are sold to residential customers as part of a solar and battery bundle.

Functional unit

A functional unit of ‘one kWp of solar PV system installed’ will be used as a quantifiable reference to the associated greenhouse gas emissions for the Solar product. The life cycle assessment was conducted over the product warranty of the solar system (which is assumed to be ten years).

Solar Product Process Map



Organisation description

AGL Energy Limited (AGL) operates Australia's largest electricity generation portfolio, with an operated generation capacity of 10,010 MW¹ (as at 31 December 2022), which accounts for approximately 20% of the total generation capacity within Australia's National Electricity Market. We are also the country's largest publicly-listed operator of renewable generation and storage assets².

AGL has a proud 185 year history of innovation and a passionate belief in progress – human and technological.

We deliver around 4.3³ million gas, electricity, and telecommunications services to our residential, small and large business, and wholesale customers across Australia.

AGL includes related bodies corporate such as:

- Data and Telecommunications providers, including **Southern Phone Company Limited**, which trades as **AGL Telecommunications** and as **Southern Phone Company** and sells telecommunications products under both brands.
 - **Southern Phone Company** is one of the largest providers of fixed line, mobile and Internet communications services in regional Australia. Formed in 2002 with a vision to provide regional communities with affordable telecommunications services, SPC now serves a national customer base, and operates out of its metropolitan and regional offices.
 - **AGL Telecommunications** launched its first telecommunications products, offering Internet services in November 2020, followed by mobile SIM plans in February 2021.

- New energy providers - **AGL Energy Services Pty Ltd** sells energy solutions to residential and customers including solar and battery bundles and battery storage. It also sells Power Factor Correction under the AGL ElectroServ brand. **Sustainable Business Energy Solutions Pty Ltd trading as AGL Energy Solutions (SBES)**, which sells energy solutions to business customers including solar, battery storage, stand alone power systems, energy efficient lighting and Power Factor Correction. SBES operates in all Australian states and territories and offers an end-to-end design, project management and installation service for all energy solutions sold.
- Energy retailers – **AGL Sales Pty Limited; AGL South Australia Pty Limited; AGL Retail Energy Limited (“AGL energy retail entities”), Powerdirect Pty Ltd, Perth Energy Pty Ltd.**
 - **AGL energy retail entities** provide gas and electricity services to residential and business customers across New South Wales, Victoria, South Australia, Queensland and Western Australia. Offering a range of energy plans to suit varying preferences, customers can sign up to our products and services via our digital channels (AGL Website, AGL App, My Account) or by calling the AGL Contact Centre.
 - **Powerdirect Pty Ltd** provides electricity services in South Australia, New South Wales, South East Queensland, and Victoria.
 - **Perth Energy** services contestable gas and electricity customers connected to the Western Power and ATCO gas networks in Western Australia including regional areas such as Albany, Geraldton and Kalgoorlie.

¹ Capacity as at 31 December 2022 (<https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/media-centre/2023/230209-agl-hy23-result-presentation.pdf>). Note that subsequent to this AGL closed the Liddell Power Station in April 2023

² As at September 2022. See AGL's Climate Transition Action Plan, available at: <https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/sustainability/ctap.pdf>.

³ Number of services as disclosed in AGL's Half Year Financial Results on 9 February 2023. See <https://www.agl.com.au/content/dam/digital/agl/documents/about-agl/media-centre/2023/230209-agl-hy23-result-presentation.pdf>

3. EMISSIONS BOUNDARY

Inside the emissions boundary

All emission sources listed in the emissions boundary are part of the carbon neutral claim.

Quantified emissions have been assessed as 'attributable processes' of a product or service. These attributable processes are services, materials and energy flows that become the product or service, make the product or service and carry the product or service through its life cycle. These attributable emissions have been quantified in the carbon inventory.

Non-quantified emissions have been assessed as attributable and are captured within the emissions boundary, but are not measured (quantified) in the carbon inventory. All material emissions are accounted for through an uplift factor. Further detail is available at Appendix C.

Outside the emissions boundary

Non-attributable emissions have been assessed as not attributable to a product or service. They can be **optionally included** in the emissions boundary and therefore have been offset, or they can be listed as outside of the emissions boundary (and are therefore not part of the carbon neutral claim). Further detail is available at Appendix D.

Inside emissions boundary

Quantified

Embodied emissions of solar panels

Embodied emissions of parts used in installation (racking, bolts etc.)

End of life emissions in product disposal

Freight

Fuel used in transport for install and maintenance

AGL Retail Operations

Climate Active carbon neutral products/services

Electricity use

Employee commute

Working from home

Transport fuels used in fleet vehicles

Waste

Water use

Business flights

Business accommodation

Telecommunications

IT Equipment

Printing & Stationery

Paper

Advertising

Stationery

Travel Expenses

Catering & Entertainment

Postage & Couriers

Refrigerants

Non-quantified

N/A

Optionally included

N/A

Outside emission boundary

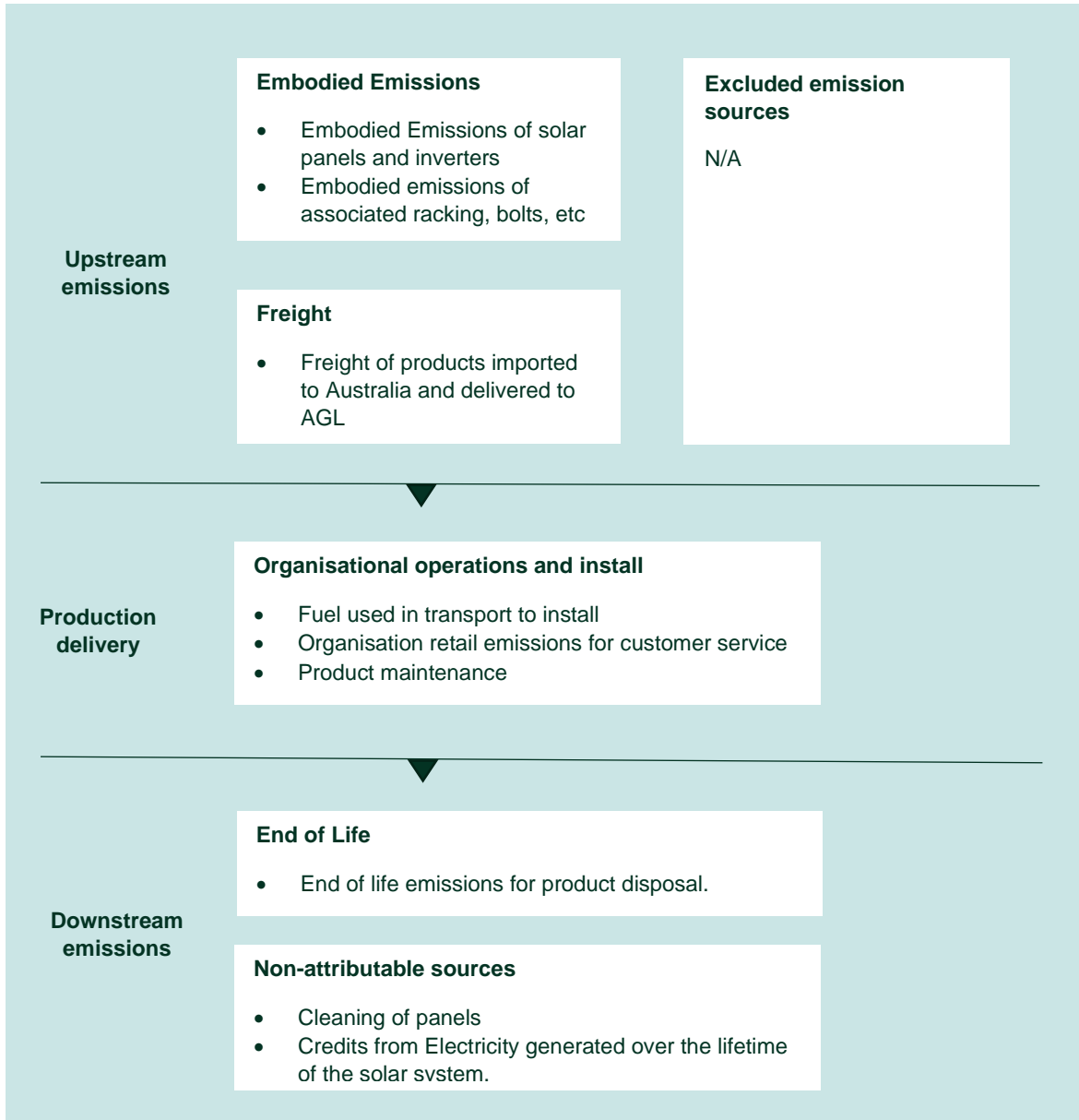
Non-attributable

Credits from Electricity generated over the lifetime of the solar system.

Cleaning of the panels.

Product process diagram

The following diagram is cradle to grave.



4. EMISSIONS REDUCTIONS

Emissions reduction strategy

Proudly Australian for 185 years, AGL supplies energy and other essential services to residential, small and large businesses and wholesale customers. We operate Australia's largest private electricity generation portfolio with a total installed capacity of 10,010 MW¹ (as at 31 December 2022), which accounts for approximately 20% of the total generation capacity within Australia's National Electricity Market (NEM). We are also the operator of the largest portfolio of renewable generation and storage assets of any ASX-listed company².

We have a strong track record in delivering action on climate change and the energy transition and provide a range of products and services to help our customers decarbonise their businesses and homes.

We are committed through our Climate Transition Action Plan to do the following:

- The targeted closure of Loy Yang A Power Station by the end of FY35⁴. This targeted exit from coal-fired generation, up to a decade earlier than previously announced, would avoid up to 200 MtCO₂e³ of greenhouse gases being emitted compared to the previous Loy Yang A Power Station closure date⁵.
- Annual greenhouse gas emissions reduction⁶ by at least 17% by FY24⁷ following the closure of Liddell Power Station in April 2023.
- Annual greenhouse gas emissions reduction⁶ by at least 52% by FY35⁷ following the closure of the Bayswater Power Station by 2033.
- Net Zero for operated Scope 1 and 2 greenhouse gas emissions following the closure of all AGL's coal-fired power stations.
- Decarbonisation pathway development to achieve our ambition of being Net Zero for Scope 3 greenhouse gas emissions by 2050.
- Seek to supply our customer demand with ~12 GW of additional renewable and firming capacity, requiring a total investment of up to \$20 billion⁸ before 2036. Our initial target is to have up to 5 GW of new renewables and firming capacity in place by 2030, funded from a combination of assets on our balance sheet, offtakes and via partnerships.

Together with our ambition to invest in new renewable and firming capacity, we have brought forward the targeted closure dates for AGL's coal-fired power stations to support the transition to a lower carbon world aligned with the Paris Agreement⁹ goals.

Our plan recognises that a balance needs to be struck between responsible transition and rapid decarbonisation to keep Australia's electricity supply secure, reliable and affordable. We are committed to working constructively with our stakeholders, including government, our people and the communities in which we operate, to lead a responsible and orderly transition.

The baseline year for AGL's Scope 1 and 2 emissions reduction targets as outlined in our Climate Transition Action Plan ([Climate Transition Action Plan \(agl.com.au\)](https://www.agl.com.au/Climate-Transition-Action-Plan)) is FY19.

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4. The ability for AGL to execute on this target will be subject to uncertainties and risks, as described on page 12 of AGL's Climate Transition Action Plan.
 5. Maximum emissions avoidance estimated based on maximum annual output from Loy Yang A Power Station over the FY36 - FY46 period.
 6. Operated Scope 1 and 2 greenhouse gas emissions, as reported under the National Greenhouse and Energy Reporting Act 2007, against a FY19 baseline.
 7. FY24 and FY35 represent the first full financial years where no emissions from Liddell and Bayswater power stations occur following the closure of these power stations in April 2023 (FY23) and CY33 (FY34) respectively.
 8. Based on capital cost estimates from AEMO Inputs, Assumptions and Scenarios Workbook, June 2022, adjusted for AGL views where considered appropriate.
 9. Based on scenario modelling of the National Electricity Market (NEM) undertaken by ACLL Allen (as outlined in Appendix A of AGL's Climate Transition Action Plan) utilising a carbon budget for the NEM which is consistent with limiting global temperature increases to well below two degrees Celsius above pre-industrial levels.

Emissions reduction actions

AGL's emission reduction actions are led by the closure of our coal-fired power stations as outlined in our Climate Transition Action Plan (CTAP) released in September 2022. The relevant closures are anticipated to be undertaken in stages to 2036 and are not aptly defined as standalone annual initiatives.

In April 2022 AGL removed Liddell Unit 3 from service, followed by Units 1, 2 and 4 in April 2023 leading to the subsequent closure of the coal-fired Liddell Power Station.

5. EMISSIONS SUMMARY

Emissions over time

C&I Solar

| Emissions since base year | | |
|---------------------------|---------------------------|---|
| | Total tCO ₂ -e | Emissions intensity of the functional unit (kg CO ₂ -e/kW installed) |
| Base year/Year 1: CY2021 | 131.78 | 3.95 |
| Year 2: CY2022 | 469.22 | 1.76 |

Residential Solar (when supplied as part of a solar battery bundle)

| Emissions since base year | | |
|---------------------------|---------------------------|---|
| | Total tCO ₂ -e | Emissions intensity of the functional unit (kg CO ₂ -e/kW installed) |
| Base year/Year 1: CY2021 | 659.99 | 2.13 |
| Year 2: CY2022 | 1,769.36 | 1.74 |

Significant changes in emissions

C&I Solar

| Emission source name | Previous year emissions (t CO ₂ -e) | Current year emissions (t CO ₂ -e) | Detailed reason for change |
|--|--|---|---|
| Product Emissions (Embodied emissions, Transport, Install and EOL) | 63.61 | 412.52 | Additional sales in CY2022 have resulted in an overall increase in the product emissions. |

Residential Solar (when supplied as part of a solar battery bundle)

| Emission source name | Previous year emissions (t CO ₂ -e) | Current year emissions (t CO ₂ -e) | Detailed reason for change |
|--|--|---|---|
| Product Emissions (Embodied emissions, Transport, Install and EOL) | 659.99 | 1,769.36 | Additional sales in CY2022 have resulted in an overall increase in the product emissions. |

Use of Climate Active carbon neutral products and services

| Certified brand name | Product or Service used |
|----------------------|-------------------------|
| Pangolin Associates | Consulting Services |

Emissions summary

C&I Solar

| Stage / Attributable Process / Source | tCO ₂ -e |
|--|---------------------|
| Product Emissions (Embodied emissions, Transport, Install and EOL) | 412.52 |
| Organisation Emissions | 56.69 |
| Total | 469.22 |

| | |
|---|---------------|
| Emissions intensity per functional unit (kg CO₂-e/kW installed) | 1.76 |
| Number of functional units to be offset (kW installed) | 267.2 |
| Total emissions to be offset | 469.22 |

Residential Solar (when supplied as part of a solar battery bundle)

| Stage / Attributable Process / Source | tCO ₂ -e |
|--|---------------------|
| Product Emissions (Embodied emissions, Transport, Install and EOL) | 1,733.04 |
| Organisation Emissions | 36.32 |
| Total | 1,769.36 |

| | |
|---|-----------------|
| Emissions intensity per functional unit (kg CO₂-e/kW installed) | 1.74 |
| Number of functional units to be offset (kW installed) | 1,015.23 |
| Total emissions to be offset | 1,769.36 |

6. CARBON OFFSETS

Offsets retirement approach

This certification has taken in-arrears offsetting approach. The total emission to offset 2,239 t CO₂-e. The total number of eligible offsets used in this report is 2,239. Of the total eligible offsets used, 2,776 were previously banked and 112 were newly purchased and retired. 649 are remaining and have been banked for future use.

Co-benefits

Not all carbon offset units are created equal. There's a wide range of carbon offsets that differ in source, methodology, and price. AGL undertakes a rigorous selection process when it comes to the carbon offsets we purchase. The eligible carbon offsets we buy meet the Carbon Neutral Standard integrity requirements set by Climate Active.

There are many different offset methodologies. Some include reforestation, renewable energy, or energy efficiency projects that generate eligible carbon offsets; projects that involve the destruction of certain industrial gases; and projects that involve the capture and destruction of methane from landfills and certain agricultural activities. Many of these projects also provide additional positive environmental and social benefits.

We believe that the projects we've chosen will make a real difference. Listed below are some representative examples of projects that we have purchased carbon offsets from.

Ceramic Water Purifiers Project in Cambodia

AGL has pre-purchased and retired Gold Standard Verified Emissions Reductions (GSVERs) from the Ceramic Water Purifiers Project, developed by Hydrologic Social Enterprise Company Ltd, a social enterprise which has a mission to ensure all families in rural Cambodia have access to safe, clean drinking water. The use of water purifiers eliminates the need for wood fuel, therefore reducing the depletion of Cambodia's forest resources, reducing greenhouse gas emissions and improving indoor air pollution.

Kenmore Regeneration Project

The Kenmore Regeneration Project: This project establishes permanent native forests through assisted regeneration from in-situ seed sources (including rootstock and lignotubers) on land that was cleared of vegetation and where regrowth was suppressed for at least 10 years prior to the project having commenced.

Eligible offsets retirement summary

| Offsets retired for Climate Active Carbon Neutral Certification | | | | | | | | | | | |
|--|----------------------|--|--------------|--|----------|------------------|---|---|---|--|-------------------------|
| Project description | Type of offset units | Registry | Date retired | Serial number (and hyperlink to registry transaction record) | Vintage | Stapled quantity | Eligible quantity retired (tCO ₂ -e) | Eligible quantity used for previous reporting periods | Eligible quantity banked for future reporting periods | Eligible quantity used for this reporting period | Percentage of total (%) |
| Production and dissemination of Ceramic Water Purifiers by Hydrologic, in the Kingdom of Cambodia (GS1020) | VERs | GSF Registry | 8 April 2021 | GS1-1-KH-GS1020-16-2019-20065-3322-6176 | 2019 | 0 | 2,855 | 79 | 649 | 2,127 | 95% |
| Kenmore Regeneration Project HIR. ERF126432 | ACCUs | ANREU | 27 July 2023 | 8.327,316,720-8.327,316,831 | 2020 -21 | 0 | 112 | 0 | 0 | 112 | 5% |
| Total offsets retired this report and used in this report | | | | | | | | | | 2,239 | |
| Total offsets retired this report and banked for future reports | | | | | | | | | | 649 | |
| Type of offset units | | Eligible quantity (used for this reporting period) | | | | | Percentage of total | | | | |
| Verified Emissions Reductions (VERs) | | 2,239 | | | | | 95% | | | | |
| Australian Carbon Credit Units (ACCUs) | | 112 | | | | | 5% | | | | |

7. RENEWABLE ENERGY CERTIFICATE (REC) SUMMARY

Renewable Energy Certificate (REC) Summary

N/A

APPENDIX A: ADDITIONAL INFORMATION

N/A

APPENDIX B: ELECTRICITY SUMMARY

N/A

APPENDIX C: INSIDE EMISSIONS BOUNDARY

Non-quantified emission sources

The following emissions sources have been assessed as attributable, are captured within the emissions boundary, but are not measured (quantified) in the carbon inventory. These emissions are accounted for through an uplift factor. They have been non-quantified due to one of the following reasons:

1. **Immaterial** <1% for individual items and no more than 5% collectively
2. **Cost effective** Quantification is not cost effective relative to the size of the emission but uplift applied.
3. **Data unavailable** Data is unavailable but uplift applied. A data management plan must be put in place to provide data within 5 years.
4. **Maintenance** Initial emissions non-quantified but repairs and replacements quantified.

| Relevant non-quantified emission sources | Justification reason |
|--|----------------------|
| N/A | |

Excluded emission sources

Attributable emissions sources can be excluded from the carbon inventory, but still considered as part of the emissions boundary if they meet **all three of the below criteria**. An uplift factor may not necessarily be applied.

1. A data gap exists because primary or secondary data cannot be collected (**no actual data**).
2. Extrapolated and proxy data cannot be determined to fill the data gap (**no projected data**).
3. An estimation determines the emissions from the process to be **immaterial**.

| | No actual data | No projected data | Immaterial |
|-----|----------------|-------------------|------------|
| N/A | | | |

Data management plan for non-quantified sources

There are no non-quantified sources in the emission boundary that require a data management plan.

APPENDIX D: OUTSIDE EMISSION BOUNDARY

Non-attributable emissions have been assessed as not attributable to a product or service (do not carry, make or become the product/service) and are therefore not part of the carbon neutral claim. To be deemed attributable, an emission must meet two of the five relevance criteria. Emissions which only meet one condition of the relevance test can be assessed as non-attributable and therefore are outside the carbon neutral claim. Non-attributable emissions are detailed below.

1. **Size** The emissions from a particular source are likely to be large relative to other attributable emissions.
2. **Influence** The responsible entity could influence emissions reduction from a particular source.
3. **Risk** The emissions from a particular source contribute to the responsible entity's greenhouse gas risk exposure.
4. **Stakeholders** The emissions from a particular source are deemed relevant by key stakeholders.
5. **Outsourcing** The emissions are from outsourced activities that were previously undertaken by the responsible entity or from outsourced activities that are typically undertaken within the boundary for comparable products or services.

Non-attributable emissions sources summary

| Emission sources tested for relevance | Size | Influence | Risk | Stakeholders | Outsourcing | Justification |
|---|------|-----------|------|--------------|-------------|---|
| Cleaning of panels | N | N | N | N | N | <p>Size: The emissions source is immaterial and is not likely to be large compared to other attributable emissions.</p> <p>Influence: We do not have the potential to influence the emissions from this source, as this activity is carried out by the customer at their discretion.</p> <p>Risk: There are no relevant laws or regulations that apply to limit emissions specifically from this source, the source does not create supply chain risks, and it is unlikely to be of significant public interest.</p> <p>Stakeholders: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for our product.</p> <p>Outsourcing: We have not previously undertaken this activity within our emissions boundary and comparable products/services do not typically undertake this activity within their boundary.</p> |
| Credits from Electricity generated over the lifetime of the solar system. | N | N | N | N | N | <p>Size: This emissions source would not have any increase on the emissions, and there is a risk in double-counting credits if it were to be included.</p> <p>Influence: We do not have the potential to influence the emissions from this source, as this activity is carried out by the customer at their discretion.</p> <p>Risk: Key stakeholders, including the public, are unlikely to consider this a relevant source of emissions for our product</p> <p>Stakeholders: We have not previously undertaken this activity within our emissions boundary and comparable products/services do not typically undertake this activity within their boundary.</p> <p>Outsourcing: We do not have the potential to influence the emissions from this source, as this activity is carried out by the customer at their discretion.</p> |



An Australian Government Initiative

