



GUIDELINE: UPFRONT CARBON FOR BUILDINGS

MARCH 2023

INTRODUCTION

This Guideline: Upfront Carbon for Buildings (guideline) is for entities seeking Climate Active carbon neutral certification for the delivery phase of a building project. The delivery phase includes emissions from the materials, manufacturing, transport and construction activities associated with a building, as delineated in modules A1-5 inclusive in the building lifecycle model (Figure 2 below).

This guideline is designed to be applied to new construction projects, whole buildings, and it can be applied to additions, refurbishments and fitouts where each of these projects is treated as a building project.

CARBON NEUTRAL CERTIFICATION

For the purposes of Climate Active carbon neutral certification, a building is considered a “product” and this guideline is supplementary to the **Climate Active Carbon Neutral Standard for Products and Services** (standard).

The **Climate Active Carbon Neutral Standard for Buildings** covers the operational phase of a building lifecycle and is relied on for definitions. Splitting carbon neutral certification for buildings into operational and delivery phases reflects the practicalities that often these phases of the building lifecycle are under control of different parties, e.g. developer, builder, owner/manager (Appendix 3 includes a cross reference between this guideline and the standard).

The delineation recognises the challenges of addressing future operating emissions at the delivery stage when user behaviour is unknown. However, it also recognises how important the delivery phase is to the building’s future operating emissions, as decisions made about the building’s energy use, infrastructure and energy efficiency components will determine the potential for that building to decarbonise in the future.

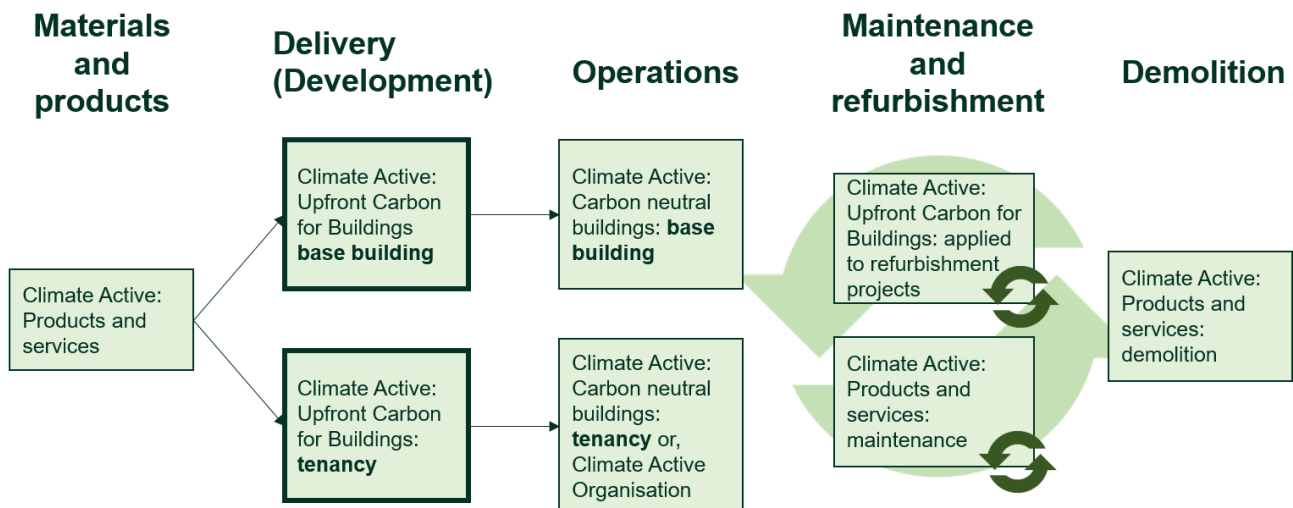


Figure 1: The Climate Active ecosystem of standards and guidelines cover all lifecycle phases and areas of buildings

Certification for the development phase is available either on building completion or prior to building completion, as a commitment confirmed after construction.

Unlike Carbon Neutral Buildings (operations) where the certification is recertified each year, the Upfront Carbon for Buildings Certification is an enduring certification that lasts the lifetime of the construction.

Upfront Carbon for Buildings

This guideline focuses on the delivery phase of the building lifecycle, A1 to A5 as defined in EN 15978:2011 and shown in the diagram below. It also recognises however that it is during the design phase of a building that future operational emissions can be minimised through passive and active efficiency measures. Therefore, the emissions reduction plan for the project must consider upfront and operational emissions. These measures are detailed in the Public Disclosure Statement (PDS) part of the guideline.

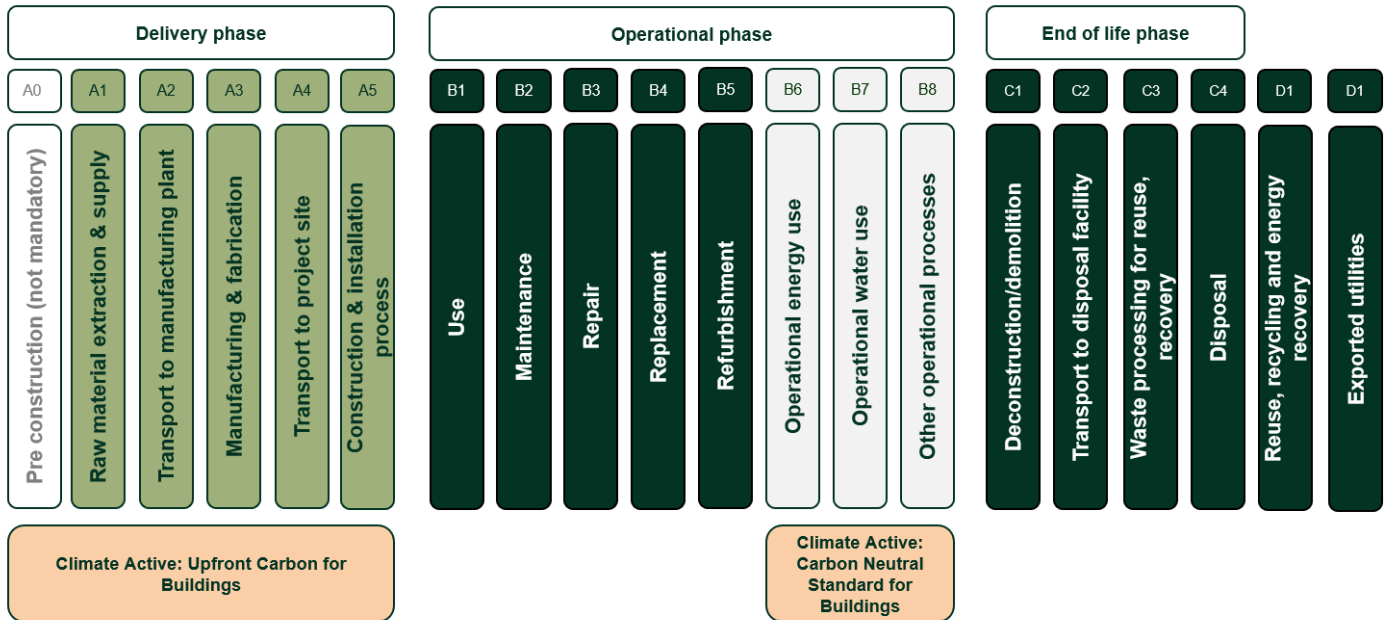


Figure 2: The certification boundary for upfront carbon focusses on emissions related to raw materials extraction, product manufacture, transport and construction emissions, shown here as modules A1 to A5, with A0 pre construction as an optional (best practice) inclusion. This diagram is derived from EN 15978:2011, PAS2080:2016 and ICMS3

While additions, renovations, extensions, refurbishments and fitouts are largely captured within modules B1 to B5 in the whole building lifecycle model, these projects can also be considered as building projects with their own delivery phase including modules A1 to A5. This guideline is designed to apply to these projects also, capturing the upfront carbon in the delivery phase.

There are six parts to this guideline:

- Certification Pathways
- Measure - Prepare carbon account
- Reduce - Develop and maintain an emissions reduction plan
- Offset - Cancel eligible offset units
- Verify - Arrange independent validation
- Report - Public Disclosure Statement

Included in Appendix 1 & 2 are sample Public Disclosure Statements and Appendix 3 includes a simple cross reference with the **Climate Active Carbon Neutral Standard for Products and Services** (Standard).

Certification Pathways

There are two pathways for a building project to be certified, either as an extension to a Green Star rating or directly through the Climate Active administrator. A third pathway may be developed through NABERS in the future.

Climate Active certification can be achieved at the earliest stages of a building development (commitment certification) and then confirmed at completion or certified on completion. Figure 3 below provides an overview of the requirements for each pathway. All certification pathways require following a process of measure, reduce, offset, validate and report as detailed in this document and the standard.

| Construction phase -----> | | | | |
|---------------------------|--|---|---|--|
| Pathway | Project origination (Commitment) | Design | Construction | Completion (As built) |
| Green Star | Register project with GBCA and sign certification agreement. Pay certification fee (one-off fee only). Publish 'design' PDS including emissions estimate. | Design for low upfront emissions, select Climate Active and low carbon materials/products | Preference low emissions energy in construction, preference Climate Active materials/products and services. | For buildings seeking Green Star or Climate Active certification after completion or that wish to add it to their existing Green Star certification - register, sign certification agreement and pay certification fee. Verify as built quantities and calculate emissions inventory. Retire offsets for total project emissions and publish final 'as built' PDS. The 'as built' certified rating must be achieved within 2 years of practical completion. |
| Climate Active | Register project with Climate Active and sign licence agreement Pay certification fee (one-off fee only). Retire offsets equivalent to at least 50% of forecast emissions Publish 'design' PDS including emissions estimate | Design for the future: avoid or reduce future operational emissions. | Accumulate "as built" material quantities and energy consumed | Register, sign licence agreement and pay certification fee (for buildings seeking certification after completion) Verify as built quantities and update/calculate emissions inventory Retire remaining offsets and publish 'as built' PDS. This must occur within 2 years of practical completion. |
| NABERS | NABERS Energy Commitment Agreement + PDS Other administration requirements TBC | | | Publish final 'as built' PDS Other administration requirements TBC |

Figure 3: Requirements for certification for each pathway, at different steps of the building project construction phase. Each pathway allows for certification at any stage of project development followed by confirmation at completion. Certification at the 'design' phase is for a 'commitment' to carbon neutrality. Certification at the 'as built' phase is for 'achievement' of carbon neutrality.

Carbon neutral claims

The nature of a certified carbon neutral claim depends on when the claim is made in respect to building completion. For buildings certified carbon neutral after completion (as built), there are no special restrictions on the nature of claims aside from those identified in section 1.4 of the standard. For buildings certified on the basis of a commitment, claims must clearly explain the commitment for the project to be fully offset after construction has been completed. The Climate Active and Green Star program administrators will provide further guidance.

Certification fees

For all pathways, certification fees must be paid before a carbon neutral claim can be made.

Climate Active

For projects seeking certification prior to building completion, an estimate of the buildings emissions must be made (see **Measure** below). The emissions estimate will determine the upfront certification fee. There are no additional or ongoing fees for certification.

For projects seeking certification after building completion, the certification fee is based on the emissions from the 'as-built' Public Disclosure Statement (see **Measure** and **Report** below). See www.climateactive.org.au for current fees.

Green Star

For projects seeking certification prior to building completion, fees are determined according to an estimate of project construction costs. There are no additional or ongoing fees for certification.

For projects seeking certification after building completion, fees are determined according to actual project construction costs. Email the Green Star program administrator for current fees.

Climate Active pathway

Certification is provided directly through Climate Active (Climate.Active@industry.gov.au).

You must register your interest in certification with Climate Active before beginning the below process of **Measure, Reduce, Offset, Validate** and **Report**. Certification is granted when the licence agreement is fully executed, fees are paid and all the requirements below are met.

Green Star pathway

Certification is provided by the Green Building Council of Australia (GBCA - greenstar@gbca.org.au).

Certification uses Green Star ratings and tools, some of which are deemed as meeting the **Measure** and **Reduce** requirements of this guideline. Requirements under different ratings and tools are detailed below.

The **Validate** and **Report** portions of this guideline are met through the Green Star certification process and the production of the Public Disclosure Statement that is produced as part of the Green Star certification pathway.

For projects registered under the current version of the [Green Star Buildings](#) rating tool

Green Star Buildings, released in October 2020, have several credits (known as the Climate Positive Pathway credits). Projects that comply with all the below credits and criteria automatically qualify for Climate Active Carbon Neutral certification.

- *Upfront Carbon Emissions* (Minimum Expectation or above) – ensures the building has reduced its upfront carbon emissions calculated in accordance with the **Measure** and **Reduce** sections of the standard.
- *Energy Source* – ensures the building:

- Has an emissions reduction plan (Minimum Expectation) in accordance with the **Reduce** section of this standard.
- will use renewable electricity for all typical building uses (Credit Achievement) and remove fossil fuel related infrastructure from the building except for emergency equipment (Exceptional Performance) in accordance with the **Reduce** section of this standard.
- *Energy Use* (Minimum Expectation or above) – ensures the building’s design reduces the future energy consumption of the building in accordance with the **Reduce** section of this standard.
- *Other Carbon Emissions* (Exceptional Performance) - quantifies remaining carbon and ensures the relevant carbon offset units have been purchased and cancelled in accordance with the **Offset** requirement of this standard.

To achieve Climate Active Carbon Neutral certification:

- For buildings or fitouts not yet completed: projects must achieve all the above credits and criteria at Designed assessment.
- For buildings or fitouts that have been completed: achieve all the above credits and criteria at As Built assessment.

For projects registered under the [Green Star Homes](#) rating tool

The Green Star Homes Standard requires the home to achieve all the requirements set in the Standard and seeks to create highly efficient, fossil fuel free homes, powered by renewables that are healthy and resilient.

The **Measure** and **Reduce** component of this guideline are met if a project:

- For Homes not yet completed, achieves all the credits in the Positive category under the Green Star Homes Standard and completes the Life Cycle Impacts credit or Upfront Carbon Emissions credit from Green Star Buildings at Designed assessment.
- For Homes that have been completed, achieves all the credits in the Positive category under the Green Star Homes Standard and completes the Life Cycle Impacts credit or Upfront Carbon Emissions credit from Green Star Buildings at As Built assessment.

There are some credits in the Green Star Buildings rating tool that may assist project teams to complete a Climate Active Carbon Neutral submission. More information can be provided by GBCA.

For projects (buildings or fitouts) registered under a [legacy Green Star](#) rating tool

Projects registered under a legacy Green Star rating tool are required to be energy efficient by exceeding the Section J requirements of National Construction Code (NCC) and reduce their life cycle impact when targeting the Life Cycle Assessment credit.

The **Measure** and **Reduce** component of this guideline are met if a project:

- For buildings or fitouts not yet completed, projects meet the Greenhouse Gas Emissions credit and the Life Cycle Assessment credit at Designed assessment or Upfront Carbon Emissions credit from Green Star Buildings at Designed assessment.
- For buildings or fitouts that have been completed, projects meet the Greenhouse Gas Emissions credit and the Life Cycle Assessment credit at As Built assessment or Upfront Carbon Emissions credit from Green Star Buildings at As Built assessment.

There are some credits in legacy rating tools and Green Star Buildings that may assist project teams to complete a Climate Active Carbon Neutral submission. More information can be provided by GBCA.

NABERS pathway (potential)

Certification would be provided through the NABERS Administrator.

In the future NABERS may provide a pathway which allows a building owner who has signed a Commitment Agreement with NABERS, or achieved a NABERS Energy rating to obtain this certification. NABERS will work to align this pathway with the current work NABERS is conducting on embodied carbon.

Measure: Prepare carbon account

Buildings using the Green Star Buildings pathway will meet this part by establishing the carbon inventory in accordance with the credit 'Upfront Carbon Emissions' or 'Life Cycle Impacts' for modules A1-5. Where the Green Star Upfront Emissions calculator is used to calculate emission from modules A1-3, an additional 25% must be added to cover module A4-5.

Buildings following the Climate Active pathway must apply EN15978 modules A1-5 in creating the inventory and follow the steps below.

Regardless of the pathway, the final inventory must include all material emissions sources. At design the bill of quantities and projected transport and construction emissions must be included but can be estimated. At the end of construction, the bill of quantities must be final.

Step 1: Establish the emissions boundary

For Climate Active Upfront Carbon for Buildings the emissions boundary may describe a new or existing:

- Base building
- Tenancy
- Whole Building
- Project: including refurbishment, extension, additions, renovations and fitouts

The emissions boundary must include all phases A1 to A5¹:

- A0 Pre-construction services (not mandatory)
- A1 Raw materials supply
- A2 Transport
- A3 Manufacturing
- A4 Transport
- A5 Construction, installation process

These phases are equivalent to the GHG Protocol "cradle to gate" boundary² where the gate in this case is at the point of delivery of the building in the exchange from builder to operator.

Where possible, the emissions boundary should (best practice) be expanded to optionally include A0 emissions – these are emissions associated with the office based services of associated building professions including Architects, Designers, Quantity Surveyors and Leasing Agents.

While future operating emissions are outside of the scope of this guideline, there are many decisions at the delivery stage that can impact on the building's capacity to operate as a carbon neutral building. As such, the project team must review the impact of design and construction decisions that may impact energy use, energy source, and refrigerants, and consider best practice approaches to reducing them, and where possible, eliminate them. The **Reduce** section of this guideline provides additional information on this item.

¹ A1 to A5 as defined in EN15978

² GHG Protocol – Product Life Cycle Accounting and Reporting Standard p 32 Boundary Setting

Step 2: Calculate the total carbon account attributable to the building project

Buildings following the Climate Active pathway seeking certification prior to completion must estimate emissions, for example by using industry specific tools and calculators. After building completion, the emissions must be recalculated as below.

The bill of quantities must identify the products included in the building design and be confirmed on practical completion for the “as built” condition.

Where actual activity data is not available, please refer to the data hierarchy in Climate Active’s [Technical Guidance Manual](#) (‘Activity data hierarchy’ section). Actual activity data is first preference, followed by previous years data, modelled data, estimated data, and applying an uplift factor.

Emission factors for each of the materials included in the inventory must be selected based on best available information, in accordance with the carbon accounting principles of the Standard (Section 1.3.1). For example, the actual quantity (kg’s) of concrete used is preferred to emissions estimates using expenditure (\$) data.

Listed in order of preference, emissions data using:

- Climate Active carbon neutral certified products in supply chain
- Environmental Product Disclosure (in accordance with EN15804)
- Peer-reviewed life cycle assessments and studies for material information based on actual and/or quantity data
- Generic or global material information and factors based on actual and/or quantity data
- Generic or global material information and factors based on estimated and/or estimated data, for example using expenditure data

Biogenic carbon sequestered in construction materials must be identified separately in the carbon account. For information on how to account for biogenic carbon, see section 3.4.1 of [RICS Whole life carbon assessment for the built environment](#), November 2017.

Reduce: Develop and maintain an emissions reduction strategy

Buildings using the Green Star Buildings pathway will meet this part by complying with the 'Energy Use' and 'Energy Source' credits.

The emissions reduction plan must include the strategies that will be used to decrease upfront carbon, future estimated embodied carbon, and ongoing operational emissions. The plan must describe how the project:

- Sets a target for energy efficiency performance such as:
 - By exceeding National Construction Code Section J requirements and conducting an emissions life cycle assessment to optimise reductions in total carbon.
 - Through (best practice) either a NABERS Commitment Agreement or conducting an emissions life cycle assessment to optimise reductions in total carbon
 - Through a Green Star rating (best practice).
- Avoids or reduces future operational emissions, through designing, installing, or choosing solutions that:
 - Eliminate (best practice) scope 1 operational emission sources for heating, cooking, and hot water as a minimum. Where elimination is not possible, shows that the building has the capacity to be modified to move away from the use of fossil fuels over time to other fuel sources
 - Reduce or eliminate refrigerant emissions
 - Include on-site renewable electricity generation equipment (best practice)
- Optimises the use and volume of materials to reduce upfront carbon emissions, and considers the impact of choices on future embodied carbon emissions, by:
 - Dematerialize the design, optimising the design to reduce the volume of materials. Best practice includes a lifecycle assessment of the design that allows for optimisation of emissions through all phases of the building lifecycle
 - Substitute materials for a lower emissions material
 - Minimise waste in construction
 - Use low emissions transport
 - Reduce construction energy
 - Use renewable energy during construction
 - Reduce module A0 emissions: best practice will include emissions associated with the office based services of associated building professions including Architects, Designers, Quantity Surveyors, Leasing Agents etc. with a preference for these activities to be certified carbon neutral

Offset: Cancel eligible offset units

Buildings using the Green Star Buildings pathway will meet this part by complying with the 'Other Carbon Emissions' credit. They are not required to pre-purchase offsets for forecasted emissions at the time of a Green Star Designed rating.

Where a commitment is made to Climate Active certification before the building project is completed, an estimated emission inventory must be used to quantify the number of Climate Active eligible offset units (listed in Appendix A of the Standard) required.

Commitment to carbon neutral certification before practical completion requires that offsets equivalent to at least 50% of forecast emissions from the development are purchased and retired. The remainder of offsets are to be retired at practical completion, along with confirmation of the as built carbon inventory.

At practical completion the as built emissions inventory must be confirmed, through:

- bill of quantities
- product selections
- transport records (module A4)
- construction energy/emissions (module A5)

At practical completion, offsets equivalent to the "as built" emissions inventory must be retired.

Validate: Arrange independent validation

Buildings using the Green Star Buildings pathway will meet this part by achieving a Green Star Designed rating (optional) and a Green Star Certified rating (mandatory).

The as built, or construction complete, bill of quantities must be validated or issued by an accredited Quantity Surveyor or similar with supplier invoice information used to identify products purchased.

The emissions boundary, materials and products used, emissions factors, transport emissions, and construction emissions must be verified by a Type 3 practitioner as listed in the Validation Schedule of the Climate Active Licence Agreement, against this guideline and the Climate Active Carbon Neutral Standard for Products and Services.

Report: Public Disclosure Statement

Buildings using the Green Star Buildings pathway will meet this part by achieving a Green Star Designed (optional) and a Green Star Certified rating (mandatory). GBCA will issue the Public Disclosure Statement alongside the Green Star certificate.

Certification requires publication of a Public Disclosure Statement (PDS). When seeking certification early in the life of a building project, an initial projection PDS must be made, committing the building to being carbon neutral and 50% of the estimated emission being offset up-front (as per 'Offset'). A final PDS is not required until practical completion is achieved, when the as built emissions inventory and final offsets retirement are completed.

The design and final as built Public Disclosure Statements must include:

- Emissions/functional unit
- Emissions summary
- Emissions reduction strategies
- Projected Green Star and NABERS rating (if applicable)

- Evidence of offsets and renewable energy certificates retirement

Note, buildings using the Green Star Building pathway will need to show evidence of retirement in the 'as built' Public Disclosure Statement, but not in the 'design' Public Disclosure Statement (unless offsets have been retired at this phase), as per the 'Offset' section.

Appendix 1: Sample Design Public Disclosure Statement

Sample: Pre construction commitment to Upfront Carbon for Buildings under the Climate Active administrator certification pathway. GBCA have a separate Public Disclosure Statement sample which can be provided on request.



PUBLIC DISCLOSURE STATEMENT

LEGAL ENTITY NAME (TRADING AS)

PRODUCT CERTIFICATION (COMMITMENT)

Australian Government
Climate Active
Public Disclosure Statement

[Insert company logo here]



An Australian Government Initiative



As you complete the PDS, delete the blue guidance text. Your responses should be in Arial font, 9 pt and black. Please note there is a separate template for events as well as for organisations and precincts.

Before submitting to Climate Active, please remove the 'Do not edit the design' watermark.

The [Technical Guidance Manual](#) provides additional pointers for a number of sections in this template.

| | |
|--------------------------|---|
| NAME OF CERTIFIED ENTITY | Name of certified entity |
| REPORT TYPE/ PERIOD | E.g. 1 August 2023 Commitment Phase certification. |
| 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><i>Signature here</i></p> <p>Name of signatory Position of signatory Date</p> |



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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1.CERTIFICATION SUMMARY

| | |
|------------------------|---|
| TOTAL EMISSIONS OFFSET | 7,040t CO ₂ -e (50% of total estimated emissions of 14,080) |
| THE OFFSETS USED | E.g. 100% ACCUs |
| RENEWABLE ELECTRICITY | E.g. 100% of electricity used in construction operations will be matched with renewable generation using the market based method. |
| CARBON ACCOUNT | Prepared by: Organisation |
| TECHNICAL ASSESSMENT | E.g Completed Date Organisation |
| THIRD PARTY VALIDATION | To be undertaken once building construction completed |

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2. CARBON NEUTRAL INFORMATION

Description of certification

The upfront carbon for the construction of Carbon Neutral Towers, office building to be constructed at 123 Generic St, Melbourne, will be net zero emissions in accordance with the Climate Active Guideline: Upfront Carbon for Buildings V1:2022

Certification is a commitment to offset the total unavoidable emissions for stages A1 – A5 of the base building. The emissions boundary was (best practice) expanded to include A0 emissions.

50% of the total anticipated emissions have been offset as disclosed in this PDS. Once construction is completed, the emissions will be recalculated using validated data, fully offset and disclosed in an 'as built PDS'.

The project is registered with the Green Building Council of Australia targeting 6 stars Green Star and the project is also subject to a NABERS Commitment Agreement targeting a 5.5 Stars NABERS Energy rating.

Product description

Carbon Neutral Towers is a 20-storey office building, 15,000 sqm NLA, with 3 underground floors of carparking space, and ground floor retail.

- 15,000 sqm net lettable area of office space
- 800 sqm of retail space
- 80 car parking spaces
- Total gross floor area of 16,000 sqm

Construction is due to commence on 24th August 2021 with completion due on or before, 30th June 2023.

The functional unit for the office building is sqm of Gross Floor Area (GFA) of and the emissions intensity for this development is projected to be less than 0.880 tonnes CO₂- e/sqm.

The Guideline: Upfront Carbon for Buildings provides coverage for all construction emissions treating the completed building as the product and the emissions boundary encompassing cradle to gate, where the gate is the delivery of the completed base building.

3.EMISSIONS BOUNDARY

Inside the emissions boundary

The emissions boundary includes product stages A1 to A5 as per EN15804. [Where possible, the emissions boundary can be \(best practice\) expanded to include A0 emissions.](#)

Quantified emissions have been deemed as 'attributable processes' that become the product, make the product, and carry the product through its life cycle. These have been quantified in the carbon inventory.

Non-quantified emissions have been deemed 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 deemed as not attributable to a product or service. 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.

[Include a description of what is outside the emissions boundary.](#)

[E.g. This certification excludes emissions related to tenant fit out activities \(tenants will be encouraged to construct their fitouts for Climate Active certification\).](#)

[E.g. This certification excludes emissions related to the ongoing operation of the building. However, the future owner of the building has a policy of carbon neutral buildings in operation using the Climate Active Carbon Neutral Buildings Standard.](#)

[The emission sources in the boundary diagram below should match the emissions categories in the emission summary table \(in section 5\).](#)

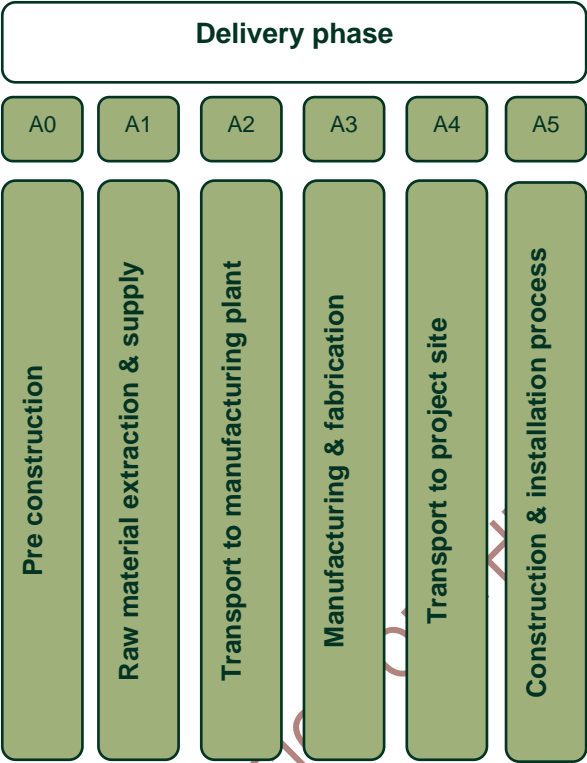
[Emissions sources listed in the Product boundary diagram below as non-quantified must be noted in Appendix C.](#)

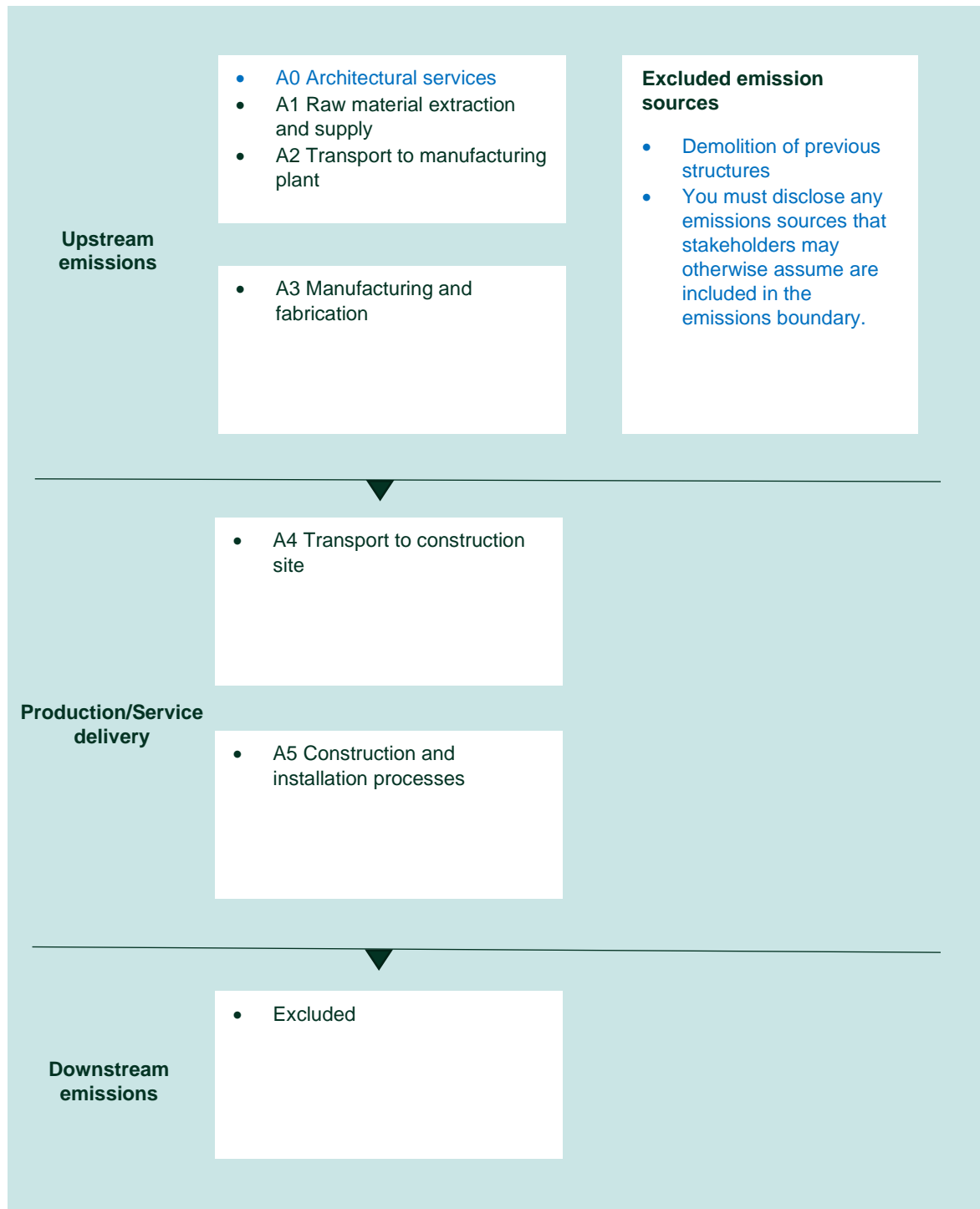
| Inside emissions boundary | | Outside emission boundary |
|--|--|---|
| <p><u>Quantified</u></p> <p>E.g. Architectural Services (A0)</p> <p>Embodied emissions in construction materials incorporated into the structure (A1-3)</p> <p>Embodied emissions in materials used during construction (for example: permanent formwork)</p> <p>Transport of materials to the construction site (A4)</p> <p>Construction energy (A5):</p> <ul style="list-style-type: none"> • <i>Electricity</i> • <i>Diesel</i> • <i>Petroleum</i> <p>Construction waste (A5)</p> <p>[Arial, 9]</p> | | <p><u>Non-attributable</u></p> <p>Tenancy fitout</p> <p>Base building operations (B6)</p> <p>Tenancy operations (B6)</p> <p>Building refurbishment or maintenance during operational lifetime (B1-7)</p> <p>Demolition at end of life (C1-4)</p> <p>You must disclose any emissions sources that stakeholders may otherwise assume are included in the emissions boundary.</p> <p>[Arial, 9]</p> |
| <p><u>Non-quantified</u></p> <p>Sundry fixtures below the materiality threshold</p> <p>[Arial, 9]</p> | | |

DO NOT EDIT

Product process diagram

Cradle-to-gate where achievement of practical completion of the project marks the “gate”, lifecycle stages A1 to A5 as per EN15978. The emissions boundary was (best practice) expanded to include A0 emissions.





4.EMISSIONS REDUCTIONS

Emissions reduction strategy

The design of Carbon Neutral Towers will be guided by the objective to minimise building lifecycle emissions recognising that decisions made to manage upfront emissions can influence operational emissions.

The upfront emissions reductions strategies include:

- Dematerialisation by optimising structural and façade elements
- Prioritising;
 - lower carbon emissions materials
 - renewable materials
 - recycled materials
 - use of Climate Active products
- Requiring EPD's for all major building elements
- Applying a project cost of carbon to provide a fair comparison of materials with varying carbon intensity
- Modularising elements of construction to reduce waste and transport emissions
- Renewable electricity during construction

The operational emissions reductions include targeting NABERS Energy 5.5 stars with this objective included in the construction contract requiring the design team to monitor the building through the first year of operation to ensure the target operational outcome is achieved.

5.EMISSIONS SUMMARY

Climate Active carbon neutral products and services

List all Climate Active carbon neutral products/services used. This does not include your own product or service that you are certifying/have certified. If none, please write N/A.

The use of Climate Active carbon neutral products and services is included in the carbon account as 0 emissions.

| Certified brand name | Product or Service used |
|------------------------|-------------------------|
| ClimateCare Architects | Architectural Services |
| Holcim | Concrete |

Emissions Summary Table

Represent a summary of your LCA here.

You may include the emissions per lifecycle stage, or attributable process or emission source.

E.g. As this certification is for a planned development, emissions have been estimated using an industry average emissions intensity for a construction of this type. The carbon account will be validated, using measured materials quantities, product specific embodied emissions, and records of other construction emissions created through electricity and fuel consumption during construction.

Estimated upfront emissions A1 to A5 (including A0 if applicable)= 16,000 sqm GFA * 0.880 tCO₂e/sqm = 14,080 tonnes CO₂e

This forms a conservative estimate of total upfront emissions. As the design phase progresses, the emission reduction activities identified in section 4 will be implemented.

The functional unit for the project is sqm of Gross Floor Area (GFA) of constructed office building – Carbon Neutral Towers. The emissions intensity (emissions per functional unit) for this development is projected to be less than 0.880 tonnes CO₂ - e/sqm.

| Stage | tCO ₂ -e |
|--|---------------------|
| Lifecycle stage name here OR Attributable process name here OR Emission source name here | |
| Pre-construction – Architectural Services (Climate Active carbon neutral) | 0 |
| Materials - Basement works | 100 |
| Materials - Structural | 1,250 |
| Materials - Façade | 250 |
| Materials - Internal finishes | 2,450 |

SAMPLE

| | |
|---|-------|
| Materials - Fittings and equipment | 2,500 |
| Materials - Services equipment | 5,000 |
| Construction - Builders works | 1,000 |
| Construction - Services installation | 1,000 |
| Construction - Landscaping | 280 |
| Holcim concrete (Climate Active carbon neutral) | 0 |
| Site electricity | - |
| Site fuels | 250 |

Outline if any uplift factors were included in the emissions total.

| | |
|--|--|
| Emissions intensity per functional unit (including any uplifts required) | <0.880 |
| Number of functional units offset | 8,000 (50% of 16,000) |
| Total emissions offset | 50% x 14,080 (total) = 7,040 tCO ₂ e |

6. CARBON OFFSETS

Offsets retirement approach

For this project nature-based carbon removal and storage projects have been selected for these features:

- **Additionality:** the reforestation area has previously been used as cattle grazing with forest regrowth suppressed through grazing and farming activities.
- **Permanence:** the offsets are subject to a 100 year + agreement for forestry stewardship.
- **Leakage: and carbon capacity:** the selected project includes a 20% buffer by conservatively reducing the number of offset units issued for the project against measured sequestration

Note, a minimum of 50% of the estimated final As-Built emissions footprint must be retired for this commitment-phase report.

Forward purchasing

| | |
|---|---|
| 1. Total emissions footprint to offset for this report | As-Built estimated = 14,080 tCO ₂ e * 50% (required for commitment) = 7,040 tonnes CO ₂ e |
| 2. Total eligible offsets purchased and retired for this commitment report | 7,040 tonnes CO ₂ e 50% of projected offsets have been purchased and retired ahead of construction. Remaining offsets will be determined at Practical Completion followed by purchase and retirement. |

Co-benefits

e.g. The reforestation project selected supports the establishment of biodiverse growth areas connected to adjacent National Parks. Stewardship of both stored carbon and biodiversity is provided by Reafforestation Services Pty Ltd

Eligible offsets retirement summary

The example text below shows how your offset retirement details should be displayed. Please insert your offset details in new rows and delete the examples once complete.

If you cannot provide a hyperlink to your offset retirement details, you must provide Climate Active with a copy of the retirement certificate, or a letter from the offset scheme administrator attesting to the retirement of those units, and include this other evidence in Appendix A.

Please refer to the [Technical Guidance Manual](#) for an example of how to report stapled units (if applicable). Evidence must be provided if stapled units are used.

| 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 banked for As Built reporting | Eligible quantity used for this commitment reporting (tCO ₂ -e) | Percentage of estimated as built total (%) |
| Project name (the project name must appear as it is listed in the registry). | ACCU | ANREU | 26 March 2022 | xxx – xxx (the serial number must match the retired offsets range as it is listed in the registry) | 2017 | - | | 7,040 | 50% |
| Total offsets retired this report and used in this report | | | | | | | | 7,040 | |

| Type of offset units | Eligible quantity (used for this commitment reporting) | Percentage of estimated as-built total (%) |
|---------------------------------------|--|--|
| Australian Carbon Credit Units (ACCU) | 7,040 | 50% |
| Certified Emissions Reductions (CERs) | 0 | 0 |
| Removal Units (RMUs) | 0 | 0 |
| Verified Emissions Reductions (VERs) | 0 | 0 |
| Verified Carbon Units (VCUs) | 0 | 0 |

7. RENEWABLE ENERGY CERTIFICATE (REC) SUMMARY

Renewable Energy Certificate (REC) Summary

RECs will be used to demonstrate the purchase of renewable electricity used during the construction phase of the project to be recorded in the final PDS.

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APPENDIX A: ADDITIONAL INFORMATION

Additional sustainability information can be viewed on our website:

If you cannot provide a hyperlink to your offset retirement details in the offsets table in section 6, you must provide Climate Active with a copy of the retirement certificate, or a letter from the offset scheme administrator attesting to the retirement of those units, and include this other evidence in this appendix below.

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APPENDIX B: ELECTRICITY SUMMARY

100% of the electricity used in construction operations is planned to be matched with renewable generation using the market-based method. Once construction is completed, electricity will be calculated using verified data under the market-based method and disclosed in an 'as built PDS'.

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APPENDIX C: INSIDE EMISSIONS BOUNDARY

Emissions as described earlier within the boundary of phases A1 to A5 (A0 can be included) of the building construction project.

Non-quantified emissions 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 collect data prior to the as-built report.

Please advise which of the reasons applies to each of your non-quantified emissions. You may add rows if required.

| Relevant non-quantified emission sources | Justification reason |
|--|-------------------------------|
| List relevant-non-quantified emission sources here | For example: Data Unavailable |
| | |

Excluded emissions 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 |
|-------------------------|----------------|-------------------|------------|
| Emission source example | Yes/no | Yes/no | Yes/no |
| Emission source example | Yes/no | Yes/no | Yes/no |

Data Management Plan

Where there are no non-quantified sources that need a data management plan, use this sentence:

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

For items listed as non-quantified due to “data unavailable” in Appendix C, a data management plan is required. The data management plan must outline how data will be collected prior to the as-built report. Where this is the case, use the below sentence and then outline the data management plan.

The data management plan below outlines how more rigorous quantification can be achieved for material (greater than 1%) non-quantified emission sources.

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APPENDIX D: OUTSIDE EMISSION BOUNDARY

The Guideline: Upfront Carbon for Building has been developed specifically to recognise boundaries that are unique to the built environment.

This commitment certification is for the design phase of a carbon neutral building product. The emissions boundary is based on the lifecycle stages A1 to A5 as per EN15978. The emissions boundary was (best practice) expanded to include A0 emissions.

A final as-built certification will be undertaken at practical completion of this building. Emissions outside of A1 (or A0) to A5, including those associated with future management of the building and use of the building by future occupants are deemed as non-attributable, outside of the emissions boundary.

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Appendix 2: Sample As Built Public Disclosure Statement

Sample: Post construction carbon neutral statement



PUBLIC DISCLOSURE STATEMENT

CARBON NEUTRAL TOWERS TRUST

PRODUCT CERTIFICATION (AS BUILT)

Australian Government

Climate Active Public Disclosure Statement

[Insert company logo here]



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As you complete the PDS, delete the blue guidance text. Your responses should be in Arial font, 9 pt and black. Please note there is a separate template for events as well as for organisations and precincts.

Before submitting to Climate Active, please remove the 'Do not edit the design' watermark.

The [Technical Guidance Manual](#) provides additional pointers for a number of sections in this template.

| | |
|--------------------------|---|
| NAME OF CERTIFIED ENTITY | Name of certified entity |
| REPORT TYPE/ PERIOD | E.g. 1 August 2023 Construction complete, as built certification. |
| 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><i>Signature here</i></p> <p>Name of signatory Position of signatory Date</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 | XXX tCO ₂ -e |
| THE OFFSETS USED | E.g. 100% ACCUs |
| RENEWABLE ELECTRICITY | E.g. 100% of construction electricity matched with renewable generation using the market based method. |
| CARBON ACCOUNT | Prepared by: Organisation |
| TECHNICAL ASSESSMENT | E.g Completed Date Organisation |
| THIRD PARTY VALIDATION | E.g. Completed Date Organisation |

| | |
|---|----|
| Contents | |
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2. CARBON NEUTRAL INFORMATION

Description of certification

E.g. The upfront carbon for the construction of Carbon Neutral Towers, office building constructed at 123 Generic St, Melbourne, is net zero emissions in accordance with the Climate Active Guideline: Building Upfront Carbon V1:2022

The carbon inventory includes emissions calculated for stages A1 – A5 of the base building. The emissions boundary was (best practice) expanded to include A0 emissions.

The project is registered with the Green Building Council of Australia targeting 6 stars Green Star and the project is also subject of a NABERS Commitment Agreement targeting a 5.5 Stars NABERS Energy rating.

Product description

Carbon Neutral Towers is a 20 story office building, 15,000 sqm NLA, with 3 underground floors of carparking space, and ground floor retail.

- 15,000 sqm net lettable area of office space
- 800 sqm of retail space
- 80 car parking spaces
- Total gross floor area (GFA) of 16,000 sqm

Construction commenced on 24th August 2021 with Practical Completion achieved on 20th June, 2023

The functional unit for the project is sqm of Gross Floor Area (GFA) of constructed office building – Carbon Neutral Towers. The emissions intensity (emissions per functional unit) for this development is 0.701 tonnes CO₂ - e/sqm.

The Guideline: Building Upfront Carbon provides coverage for all construction emissions treating the completed building as the product and the emissions boundary encompassing cradle to gate, where the gate is the delivery of the completed base building.

3. EMISSIONS BOUNDARY

Inside the emissions boundary

The emissions boundary includes product stages A1 to A5 as per EN15804. Where possible, the emissions boundary can be (best practice) expanded to include A0 emissions.

Quantified emissions have been deemed as 'attributable processes' that become the product or service, make the product or service, and carry the product or service through its life cycle. These have been quantified in the carbon inventory.

Non-quantified emissions have been deemed 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 deemed as not attributable to a product or service. 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.

Include a description of what is outside of the emissions boundary.

E.g. This certification excludes emissions related to tenant fit out activities (tenants will be encouraged to construct their fitouts for Climate Active certification).

Eg. This certification excludes emissions related to the ongoing operation of the building. However, the future owner of the building has a policy of carbon neutral buildings in operation using the Climate Active Buildings Standard.

The emission sources in the boundary diagram below should match the emissions categories in the emissions summary table (in section 5).

Emissions sources listed in the Product boundary diagram below as Non-quantified must be noted in Appendix C.

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Inside emissions boundary

Quantified

E.g. Architectural Services (A0)

Embodied emissions in construction materials incorporated into the structure (A1-3)

Embodied emissions in materials used during construction (for example: permanent formwork)

Transport of materials to the construction site (A4)

Construction energy (A5):

- *Electricity*
- *Diesel*
- *Petroleum*

Construction waste (A5)

[Arial, 9]

Non-quantified

E.g. Sundry fixtures below the materiality threshold

[Arial, 9]

Outside emission boundary

Non-attributable

E.g. Tenancy fitout

Base building operations (B6)

Tenancy operations (B6)

Building refurbishment or maintenance during operational lifetime (B1-7)

Demolition at end of life (C1-4)

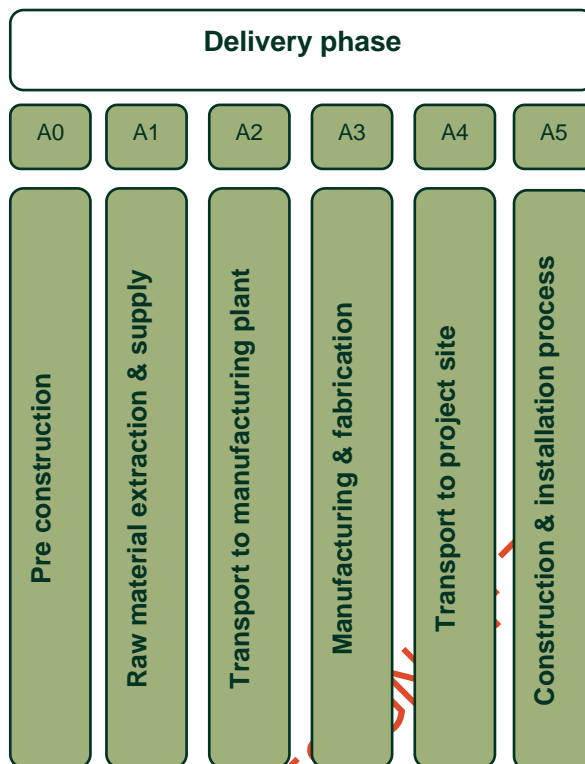
You must disclose any emissions sources that stakeholders may otherwise assume are included in the emissions boundary.

[Arial, 9]

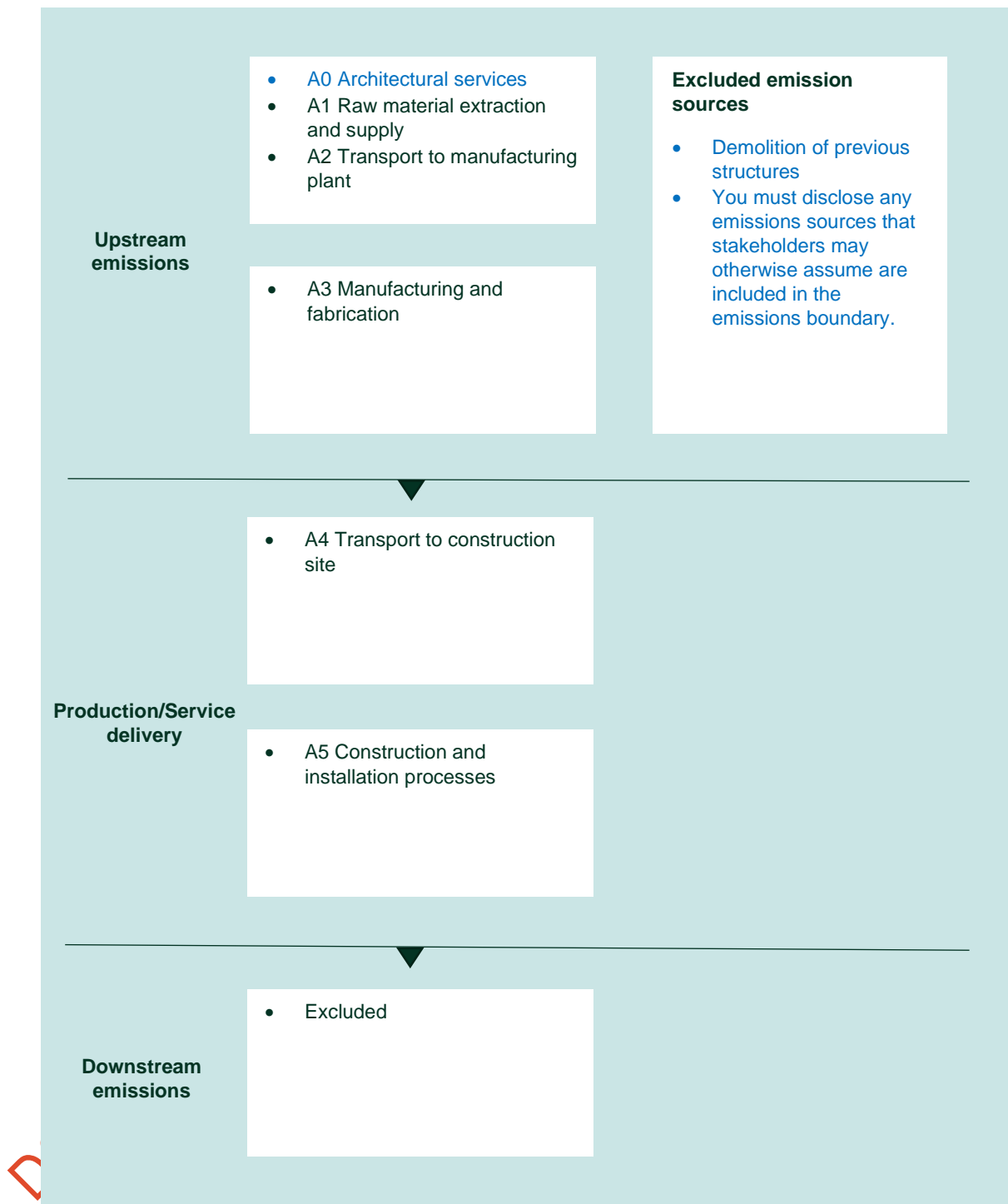
DO NOT CH

Product process diagram

Cradle-to-gate where achievement of practical completion of the project marks the “gate”, lifecycle stages A1 to A5 as per EN15978. The emissions boundary was (best practice) expanded to include A0 emissions.



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4. EMISSIONS REDUCTIONS

Emissions reduction strategy

The design of Carbon Neutral Towers has been guided by the objective to minimise building lifecycle emissions recognising that decisions made to manage upfront emissions can influence operational emissions.

The upfront emissions reductions strategies include:

- Dematerialisation by optimising structural and façade elements
- Prioritising;
 - lower carbon emissions materials
 - Renewable materials
 - Recycled materials
- Requiring EPD's for all major building elements
- Use of Climate Active carbon neutral products and services
- Applying a project cost of carbon to provide a fair comparison of materials with varying carbon intensity
- Modularising elements of construction to reduce waste and transport emissions

The operational emissions reductions include targeting NABERS Energy 5.5 stars with this objective included in the construction contract requiring the design team to monitor the building through the first year of operation to ensure the target operational outcome is achieved.

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5. EMISSIONS SUMMARY

Climate Active carbon neutral products and services

List all Climate Active carbon neutral products/services used. This does not include your own product or service that you are certifying/have certified. If none, please write N/A.

The use of Climate Active carbon neutral products and services is included in the carbon account as 0 emissions.

| Certified brand name | Product or Service used |
|------------------------|-------------------------|
| ClimateCare Architects | Architectural Services |
| Holcim | Concrete |

Emissions Summary Table

Represent a summary of your LCA here.

You may include the emissions per lifecycle stage, or attributable process or emission source.

E.g. This certification is for a completed development with emissions calculated from product specific emission intensity information for construction materials and the bill of quantities determined on completion.

Emissions from electricity use and fuels used on the construction site have been calculated using purchase record quantities and emission factors from the National Greenhouse Factors.

The functional unit for the project is sqm of Gross Floor Area (GFA) of constructed office building – Carbon Neutral Towers. The emissions intensity (emissions per functional unit) for this development is 0.701 tonnes CO₂ - e/sqm.

| Stage | Commitment tCO ₂ -e | As-built tCO ₂ -e |
|--|--------------------------------|------------------------------|
| Lifecycle stage name here OR Attributable process name here OR Emission source name here | | |
| Pre-construction – Architectural Services (Climate Active carbon neutral) | - | 0 |
| Materials - Basement works | 100 | 90 |
| Materials - Structural | 1,250 | 1,000 |
| Materials - Façade | 250 | 220 |
| Materials - Internal finishes | 2,450 | 2,000 |
| Materials - Fittings and equipment | 2,500 | 2,210 |

SAMPLE

| | | |
|---|---------------------------|------------------------|
| Materials - Services equipment | 5,000 | 3,500 |
| Construction - Builders works | 1,000 | 900 |
| Construction - Services installation | 1,000 | 900 |
| Construction - Landscaping | 280 | 200 |
| Holcim concrete (Climate Active carbon neutral) | - | 0 |
| Site electricity | 0 | 0 |
| Site fuels | 250 | 200 |
| TOTAL tCO2-e | (estimated) 14,080 | (actual) 11,220 |

Outline if any uplift factors were included in the emissions total.

| | | |
|---|---|----------------------|
| Emissions intensity per functional unit (including any uplifts required) | 0.88 | 0.70 |
| Number of functional units offset | 8,000 | 16,000 |
| Total emissions offset | =50% x estimated 14,080 = 7,040 tCO2e | = 4,180 tCO2e |

Estimated emissions were higher than actual due to the optimisation of the carbon content of products and services identified in section 5, and through the use of more accurate emission factors.

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6. CARBON OFFSETS

Offsets retirement approach

For this project nature based carbon removal and storage projects have been selected for these features:

- **Additionality:** the reforestation area has previously been used as cattle grazing with forest regrowth suppressed through grazing itself and farming activities.
- **Permanence:** the offsets are subject to a 100 year + agreement for forestry stewardship
- **Leakage and carbon capacity:** the selected project includes a 20% buffer by conservatively reducing the number of offset units issued for the project against measured sequestration.

Final As-Built emissions report: remainder of outstanding offsets must be retired for this report.

Practical completion

| | |
|---|--|
| 1. Total emissions footprint to offset for this report | =11,220 tonnes CO ₂ e (Equals your total net emissions from your summary table + your uplift factor total (if applicable)) |
| 2. Total offsets retired in design (commitment) PDS | = 7,040 of estimated tonnes CO ₂ e 50% of estimated 14,080 offsets were purchased and retired ahead of construction. |
| 3. Total offsets required for this report | = 4,180 tonnes CO ₂ e Remaining offsets retired on completion = 11,220 – 7,040 |

Co-benefits

E.g. The reforestation project selected supports the establishment of biodiverse growth areas connected to adjacent National Parks. Stewardship of both stored carbon and biodiversity is provided by Reafforestation Services Pty Ltd.

Eligible offsets retirement summary

The example text below shows how your offset retirement details should be displayed. Please insert your offset details in new rows and delete the examples once complete.

If you cannot provide a hyperlink to your offset retirement details, you must provide Climate Active with a copy of the retirement certificate, or a letter from the offset scheme administrator attesting to the retirement of those units, and include this other evidence in Appendix A.

Please refer to the [Technical Guidance Manual](#) for an example of how to report stapled units (if applicable). Evidence must be provided if stapled units are used.

| 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 used for commitment reporting (if applicable) (if not applicable, write N/A in the cells below) | Eligible quantity used for final as-built reporting | Percentage of total (%) |
| Project name (the project name must appear as it is listed in the registry) | ACCUs | ANREU | 15 Sep 2023 | xxx – xxx (the serial number must match the retired offsets range as it is listed in the registry) | 2015 | | | 4,180 | 37% |
| Project name (the project name must appear as it is listed in the registry) | ACCU | ANREU | 26 March 2022 | xxx – xxx (the serial number must match the retired offsets range as it is listed in the registry) | 2017 | | 7,040 | | 63% |
| Total offsets retired this report and used in this report | | | | | | | | 4,180 | |
| Total offsets retired previously for commitment reporting (if applicable) (if not applicable, write N/A in cell to the right) | | | | | | | 7,040 | | |
| Total offsets retired | | | | | | | | | 11,220 |

| Type of offset units | Eligible quantity used for commitment reporting (if applicable) | Eligible quantity used for final as-built reporting | Total eligible quantity used for commitment and final-as built reporting | Percentage of total |
|--|---|---|--|---------------------|
| Australian Carbon Credit Units (ACCUs) | 7,040 | 4,180 | 11,220 | 100% |
| Certified Emissions Reductions (CERs) | 0 | 0 | 0 | 0 |
| Removal Units (RMUs) | 0 | 0 | 0 | 0 |
| Verified Emissions Reductions (VERs) | 0 | 0 | 0 | 0 |
| Verified Carbon Units (VCUs) | 0 | 0 | 0 | 0 |

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7. RENEWABLE ENERGY CERTIFICATE (REC) SUMMARY

Renewable Energy Certificate (REC) Summary

If you have not surrendered any RECs, you may note this section as N/A.

The following RECs have been surrendered to reduce electricity emissions under the market-based reporting method.

| | |
|--|--------------------------------------|
| 1. Large-scale Generation certificates (LGCs)* | 684 |
| 2. Insert any other eligible RECs used. Each different type of eligible REC must be on a new row. Add new rows as necessary. If you have used other eligible RECs, you must include their details in the table below. If you have not used any other eligible RECs, delete this row. | Insert number of eligible RECs used. |

* LGCs in this table only include those surrendered voluntarily (including through PPA arrangements), and does not include those surrendered in relation to the LRET, GreenPower, and jurisdictional renewables.

| Project supported by LGC purchase | Project location | Eligible unit type | Registry | Surrender date | Accreditation code | Certificate serial number | Generation year | Fuel source | Quantity (MWh) |
|--|------------------|--------------------|--------------|----------------|--------------------|---------------------------|-----------------|-------------|----------------|
| South Keswick Solar Farm – NSW - Solar | NSW, Australia | LGC | REC Registry | 29 Nov 2021 | SRPVNSB0 | 9871-10554 | 2021 | Solar | 684 |
| Total LGCs surrendered this report and used in this report | | | | | | | | | 684 |

APPENDIX A: ADDITIONAL INFORMATION

Additional sustainability information can be viewed on our website:

If you cannot provide a hyperlink to your offset retirement details in the offsets table in section 6, you must provide Climate Active with a copy of the retirement certificate, or a letter from the offset scheme administrator attesting to the retirement of those units, and include this other evidence in this appendix below.

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APPENDIX B: ELECTRICITY SUMMARY

For building product certifications it is optional to use the Climate Active electricity calculator and dual report, however you can do so if you wish.

If you are not dual reporting, you can delete the below and include an explanation of how electricity was accounted for. E.g. 'Electricity emissions associated with the construction of the project have been considered through an industry standard tool and are included in the product inventory'.

There are two international best-practice methods for calculating electricity emissions – the location-based method and the market-based method. Reporting electricity emissions under both methods is called dual reporting.

Dual reporting of electricity emissions is useful, as it provides different perspectives of the emissions associated with a business's electricity usage.

Location-based method

The location-based method provides a picture of a business's electricity emissions in the context of its location, and the emissions intensity of the electricity grid it relies on. It reflects the average emissions intensity of the electricity grid in the location (State) in which energy consumption occurs. The location-based method does not allow for any claims of renewable electricity from grid-imported electricity usage.

Market-based method

The market-based method provides a picture of a business's electricity emissions in the context of its renewable energy investments. It reflects the emissions intensity of different electricity products, markets and investments. It uses a residual mix factor (RMF) to allow for unique claims on the zero emissions attribute of renewables without double-counting.

For this certification, electricity emissions have been set by using the [location](#) / [market-based approach](#) (Delete the one you are not using).

If you are dual reporting, please insert both the market-based approach summary table and the location-based approach summary table provided in the CY or FY reporting year output tab in the 'Electricity Calculator' excel spreadsheet.

| Market Based Approach Summary | | | |
|---|---------------------|----------------------|-------------------------------|
| Market Based Approach | Activity Data (kWh) | Emissions (k gCO2-e) | Renewable Percentage of total |
| Behind the meter consumption of electricity generated | 0 | 0 | 0% |
| Total non-grid electricity | 0 | 0 | 0% |
| LGC Purchased and retired (kWh) (including PPAs) | 684,000 | 0 | 81% |
| GreenPower | 0 | 0 | 0% |
| Climate Active precinct/building (voluntary renewables) | 0 | 0 | 0% |
| Precinct/Building (LRET) | 0 | 0 | 0% |
| Precinct/Building jurisdictional renewables (LGCS surrendered) | 0 | 0 | 0% |
| Electricity products (voluntary renewables) | 0 | 0 | 0% |
| Electricity products (LRET) | 0 | 0 | 0% |
| Electricity products jurisdictional renewables (LGCs surrendered) | 0 | 0 | 0% |
| Jurisdictional renewables (LGCs surrendered) | 0 | 0 | 0% |
| Jurisdictional renewables (LRET) (applied to ACT grid electricity) | 0 | 0 | 0% |
| Large Scale Renewable Energy Target (applied to grid electricity only) | 156,708 | 0 | 19% |
| Residual Electricity | 0 | 0 | 0% |
| Total renewable electricity (grid + non grid) | 840,708 | 0 | 100% |
| Total grid electricity | 840,708 | 0 | 100% |
| Total electricity (grid + non grid) | 840,708 | 0 | 100% |
| Percentage of residual electricity consumption under operational control | 100% | | |
| Residual electricity consumption under operational control | 0 | 0 | |
| Scope 2 | 0 | 0 | |
| Scope 3 (includes T&D emissions from consumption under operational control) | 0 | 0 | |
| Residual electricity consumption not under operational control | 0 | 0 | |
| Scope 3 | 0 | 0 | |

| | |
|---|----------------|
| Total renewables (grid and non-grid) | 100.00% |
| Mandatory | 18.64% |
| Voluntary | 81.36% |
| Behind the meter | 0.00% |
| Residual scope 2 emissions (t CO2-e) | 0 |
| Residual scope 3 emissions (t CO2-e) | 0 |
| Scope 2 emissions liability (adjusted for already offset carbon neutral electricity) (t CO2-e) | 0 |
| Scope 3 emissions liability (adjusted for already offset carbon neutral electricity) (t CO2-e) | 0 |
| Total emissions liability (t CO2-e) | 0 |

Figures may not sum due to rounding. Renewable percentage can be above 100%

| Location Based Approach Summary | | | | | | |
|--|---------------------------|---------------------------|-----------------------------|-----------------------------|-------------------------------|-----------------------------|
| Location Based Approach | Activity Data (kWh) total | Under operational control | | | Not under operational control | |
| Percentage of grid electricity consumption under operational control | 100% | (kWh) | Scope 2 Emissions (kgCO2-e) | Scope 3 Emissions (kgCO2-e) | (kWh) | Scope 3 Emissions (kgCO2-e) |
| ACT | 0 | 0 | 0 | 0 | 0 | 0 |
| NSW | 0 | 0 | 0 | 0 | 0 | 0 |
| SA | 0 | 0 | 0 | 0 | 0 | 0 |
| Vic | 840,708 | 840,708 | 714,602 | 58,850 | 0 | 0 |
| Qld | 0 | 0 | 0 | 0 | 0 | 0 |
| NT | 0 | 0 | 0 | 0 | 0 | 0 |
| WA | 0 | 0 | 0 | 0 | 0 | 0 |
| Tas | 0 | 0 | 0 | 0 | 0 | 0 |
| Grid electricity (scope 2 and 3) | 840,708 | 840,708 | 714,602 | 58,850 | 0 | 0 |
| ACT | 0 | 0 | 0 | 0 | | |
| NSW | 0 | 0 | 0 | 0 | | |
| SA | 0 | 0 | 0 | 0 | | |
| Vic | 0 | 0 | 0 | 0 | | |
| Qld | 0 | 0 | 0 | 0 | | |
| NT | 0 | 0 | 0 | 0 | | |
| WA | 0 | 0 | 0 | 0 | | |
| Tas | 0 | 0 | 0 | 0 | | |
| Non-grid electricity (behind the meter) | 0 | 0 | 0 | 0 | | |
| Total electricity (grid + non grid) | 840,708 | | | | | |

| | |
|--|------------|
| Residual scope 2 emissions (t CO2-e) | 715 |
| Residual scope 3 emissions (t CO2-e) | 59 |
| Scope 2 emissions liability (adjusted for already offset carbon neutral electricity) (t CO2-e) | 715 |
| Scope 3 emissions liability (adjusted for already offset carbon neutral electricity) (t CO2-e) | 59 |
| Total emissions liability | 773 |

Operations in Climate Active buildings and precincts

| Operations in Climate Active buildings and precincts | Electricity consumed in Climate Active certified building/precinct (kWh) | Emissions (kg CO2-e) |
|---|--|----------------------|
| N/A | 0 | 0 |
| Climate Active carbon neutral electricity is not renewable electricity. These electricity emissions have been offset by another Climate Active member through their building or precinct certification. This electricity consumption is also included in the market based and location based summary tables. Any electricity that has been sourced as renewable electricity by the building/precinct under the market based method is outlined as such in the market based summary table. | | |

Climate Active carbon neutral electricity products

| Climate Active carbon neutral product used | Electricity claimed from Climate Active electricity products (kWh) | Emissions (kg CO2-e) |
|--|--|----------------------|
| N/A | 0 | 0 |
| Climate Active carbon neutral electricity is not renewable electricity. These electricity emissions have been offset by another Climate Active member through their electricity product certification. This electricity consumption is also included in the market based and location based summary tables. Any electricity that has been sourced as renewable electricity by the electricity product under the market based method is outlined as such in the market based summary table. | | |

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APPENDIX C: INSIDE EMISSIONS BOUNDARY

Emissions as described earlier within the boundary of phases A1 to A5 (A0 can be included) of the building construction project.

Non-quantified emissions sources

The following sources emissions 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:

4. **Immaterial** <1% for individual items and no more than 5% collectively
5. **Cost effective** Quantification is not cost effective relative to the size of the emission but uplift applied.
6. **Data unavailable** Data is unavailable, but uplift applied.

Please advise which of the reasons applies to each of your non-quantified emissions. You may add rows if required.

| Relevant non-quantified emission sources | Justification reason |
|--|-------------------------------|
| List relevant-non-quantified emission sources here | For example: Data Unavailable |
| | |

Excluded emissions 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.

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

Data Management Plan

If you already published a commitment report prior to this as-built report, and if:

- emissions in the commitment report were non-quantified on the basis of data unavailability, and
- These emissions continue to be non-quantified on the basis of data unavailability,

Then you must provide an explanation in this section which compares the as-built report to the Data Management Plan in the commitment report and explains why data was unable to be collected.

If this is an as-built only report (i.e. no previous commitment reporting), you must also provide details in this section which explains why data was unable to be collected for emissions non-quantified on the basis of data unavailability.

APPENDIX D: OUTSIDE EMISSION BOUNDARY

The Guideline: Upfront Carbon for Building has been developed specifically to recognise boundaries that are unique to the built environment.

This as-built certification is for the design phase of a carbon neutral building product. The emissions boundary is based on the lifecycle stages A1 to A5 as per EN15978. The emissions boundary was (best practice) expanded to include A0 emissions.

Emissions outside of A1 (or A0) to A5, including those associated with future management of the building and use of the building by future occupants are non-attributable, outside of the emissions boundary.

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Appendix 3: Upfront Carbon for Building crosswalk with Products and Services

For the purposes of Climate Active carbon neutral certification, a building is considered a “product” and this guideline is supplementary to the **Climate Active Carbon Neutral Standard for Products and Services** (Standard). The table below shows how the guideline cross references to the Standard.

| Carbon Neutral Standard for Products and Services | Guideline: Upfront Carbon for Buildings |
|---|--|
| 1. Overview and principles | |
| 1.1 Introduction | Introduction |
| 1.2 Development of the Product & Service Standard | |
| 1.3 Core Principles | |
| 1.4 Using the Product & Service Standard | Upfront Carbon for Buildings - boundaries |
| | Certification pathways |
| 2. Requirements of the product & service standard | |
| 2.1 Context for the requirements | |
| 2.2 Achieving and maintaining carbon neutrality | |
| 2.3 MEASURE: Prepare carbon account | MEASURE: Prepare carbon account |
| 2.4 REDUCE: Develop and maintain an emissions reduction strategy | REDUCE: Develop and maintain an emissions reduction strategy |
| 2.5 OFFSET: Cancel eligible offset units | OFFSET: Cancel eligible offset units |
| 2.6 VALIDATE: Arrange independent validation | VALIDATE: Arrange independent validation |
| 2.7 REPORT: Publish a public statement of your carbon neutral claim | REPORT: Public Disclosure Statement |
| 3. Certification against the product & service standard | |
| 3.1 Application for certification | See "Certification pathways" above |
| 3.2 Obligations | |
| 3.3 Licence to use the certification trade mark | |
| 3.4 Other administrative arrangements | |
| 3.5 Environmental Product Declarations | |
| 4. References | |
| 5. Glossary | |
| Appendix A: Eligible offset units | |