

The Australian Institute of Landscape Architects

Climate Positive Design

Volume 2

Organisation Guide to Climate Positive







The Australian Institute of Landscape Architects acknowledges and respects Aboriginal and Torres Strait Islander Peoples of Australia, as the traditional custodians of our lands, waters and seas.

We recognise their ability to care for Country and their deep spiritual connection with Country.

We honour Elders past and present whose knowledge and wisdom ensure the continuation of Aboriginal and Torres Strait Islander cultures.

Climate Positive Design

Volume 2 • Organisation guide to climate positive

Acknowledgment of Country	4
Foreword	5
AILA's climate positive design series	6
What is Climate Positive Design?	8
Introduction	11
Framework	12
Measure	15
Emission Scopes.....	18
Measuring your inventory	20
Mitigate	23
Reducing your emissions	24
Offset	27
Carbon offset credits: the basics	28
Carbon offset requirements.....	29
What to consider when choosing offsets	30
The important question of quality and integrity of carbon credits	32
Additional considerations	34
Certify and disclose	37
Timeline and cost	38
Climate Active timeframe and tasks.....	40
References	43
Resources.....	45
APPENDICES	
Glossary	49
Acknowledgements	53
Landscape practice case studies	54
OCULUS.....	54
Taylor Cullity Lethlean	55
Organisation Emissions Data	56

Cover Image: Australian National Arboretum • Taylor Cullity Lethlean • Ngunnawal Country • Photo: John Gollings.
Inside Cover: Angophora Costata • Balls Head • Cammeraygal Country • Photo: Martin O'Dea

Foreword

"You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make"¹

Jane Goodall

The Climate Council in their publication "Aim High, Go Fast - why emissions need to plummet this decade" says Australia needs to reduce its greenhouse gas emissions by 75% by 2030². And we can.

In 2019 AILA declared a Climate and Biodiversity Loss Emergency. We are committed to continuing to play a crucial role in leading the profession to respond to this unfolding emergency. This includes promoting landscape architecture as a leading profession in policy development and actions to respond to the emergency. This document is part of our provision of resources, education and information to members on how they can respond.

While Volume 1 of our climate positive design series outlines the enormous positive impact we can have as landscape architects by reducing greenhouse gas emissions in our projects, the organisations and practices we work for can make a significant contribution.

Volume 2 in the climate positive design series guides you through the steps your practice or organisation can take to become climate positive – to play your part in driving down emissions for a brighter future for our children and communities.

From where you source the electricity that runs your office, choosing effective offsets, the flights you make, through to staff superannuation, simple switches away from business as usual can make a huge difference.

We hope this step-by-step guide supports your ambitions within your organisation.



Ben Stockwin
AILA CEO



Claire Martin
RLAF
AILA President



Martin O'Dea
RLAF
Climate Positive Design
Committee Chair

June 2022

AILA's climate positive design series

To help guide your climate positive journey, we have three separate guides, targeting three specific areas of our work and practice.



Your projects



Your office / business



Our institute

Volume 1

Climate positive design action plan for Australian landscape architects

Volume 1 provides clear, simple advice on what Australian landscape architects can do to understand and deliver climate positive design through good planning, design, documentation, construction and renewal.

Volume 2

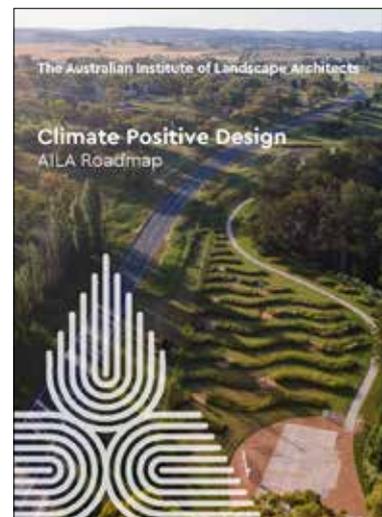
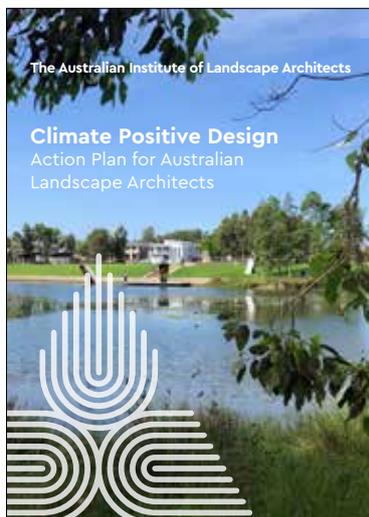
Organisation guide to climate positive

Volume 2 outlines the steps your practice, business or organisation can take to achieve carbon neutral certification and beyond to become climate positive.

Volume 3

AILA roadmap to delivering climate positive design

Volume 3 sets the framework, guidance and time frames for the AILA Executive and State groups to roll out climate positive design to members, and provide engagement and policy direction.







One Central Park • ASPECT | Oculus • Photo: Simon Wood • Gadigal Country

What is Climate Positive Design?

Landscape architecture designed to climate positive design principles creates a better future for our environment and communities.

Climate positive design means that over the life of a project, it sequesters more greenhouse gases than it emits. Climate positive design projects can also provide multiple social, cultural, environmental and economic co-benefits.

Net positive climate outcomes must focus on emissions reductions first

Climate positive design is not just "net zero". It's taking steps to directly reduce greenhouse gas (GHG) emissions and draw down CO₂ from the atmosphere.

Emissions reduction is the starting point and the most important contribution we can make as landscape architects through our practice. Although offsets do make a difference, we cannot offset our way out of the situation we are in.

When looking at your organisation's journey to climate positive, you will see there are many co-benefits to taking climate action.

These include:

- Social
- Cultural
- Environmental
- Economic



Social co-benefits

Climate action fosters equity and justice for all members of our community. As the planet gets hotter, acting on climate change provides social co-benefits including protection from extreme heat, resilience to extreme weather events and resilience and self-reliance for regional communities.

Some of the most vulnerable people in our community are the most at risk from climate change. Climate action provides the right to clean air and water, local food, aiding mental health, resilience and wellbeing.

Cultural co-benefits

There are many examples of climate positive projects underpinned by traditional knowledge in Australia, like the Indigenous Ranger Programs across Australia. Indigenous ranger projects support Indigenous people to combine traditional knowledge with conservation training to protect and manage their land, sea, and culture.

Activities include bushfire mitigation, protection of threatened species, and biosecurity compliance. Indigenous ranger groups also develop partnerships with research, education, philanthropic and commercial organisations to share skills and knowledge, engage with schools, and generate additional income and jobs in the environmental, biosecurity, heritage, and other sectors.

This organisational guide aims to establish a base line of recommendations and should act as a starting point for individual research into the various initiatives that represent the breadth and diversity of Aboriginal and Torres Strait Islander peoples across Australia and their leadership within land management. Landscape Architects and Traditional Owners have a natural affinity towards gaining an understanding of each other, centered around landscape design, and caring for Country.³

Environmental co-benefits

Climate positive projects improve local and global environments.

Through climate positive projects, displaced fauna species can return to restored habitats and those habitats can become self-sustaining. Improved biodiversity, soil retention and water quality are the building blocks for healthy and resilient ecosystems.

Healthy ecosystems are vital to humans as well, providing us with clean air, water and food.

Economic co-benefits

Climate action provides economic benefits through investment in new and sustainable industries, increasing employment, providing relevant up-skilling opportunities, and providing economic stability and growth for regional communities.

Climate positive investment in locally owned and run projects strengthens local economies.

1.0

Riverlight, Hamilton Reach • Lat27
Turrbal / Yuggera Country

Introduction

"Everything is set for us to win this future. We have a plan. We know what to do. There is a path to sustainability."⁴

Sir David Attenborough. A Life on Our Planet: My Witness Statement and a Vision for the Future. 2020.

The Australian Institute of Landscape Architects (AILA) is asking practices to aim for their projects to be climate positive in our volume one. This volume two looks at opportunities you can address for your business or organisation to also become climate positive.

You may have heard about carbon neutral certified businesses. This is where the businesses greenhouse gas (GHG) emissions are offset to neutral or net zero.

A climate positive business will offset more greenhouse gases than they have produced over its life time.

AILA is recommending that organisations offset more than they emit each year to account for historic emissions.

There are four key steps:

- Measure
- Mitigate
- Offset
- Certify and disclose.

Measure: The first step is to understand your current emissions, like electricity, fuel, travel etc.

Mitigate: Reducing your greenhouse gas emissions is the critical component of the process.

You should develop an emissions reduction strategy to help guide your organisation.

This might entail purchasing renewable energy, reducing flights or planning an EV for your next vehicle replacement.

Offset: Once you have reduced your GHG emissions to the smallest possible amount, the remaining needs to be offset to become neutral. Offsets should be used only as a last resort.

Offsets range from reforestation to renewable energy supply, carbon capture and fire management. There are many considerations including co-benefits. However, the primary concern in selecting carbon credits for offsets, is their quality and integrity.

You will need to purchase extra offsets to reduce historic emissions or to become climate positive.

Carbon offsets are a vexed and complicated issue and we discuss this in more detail in chapter four.

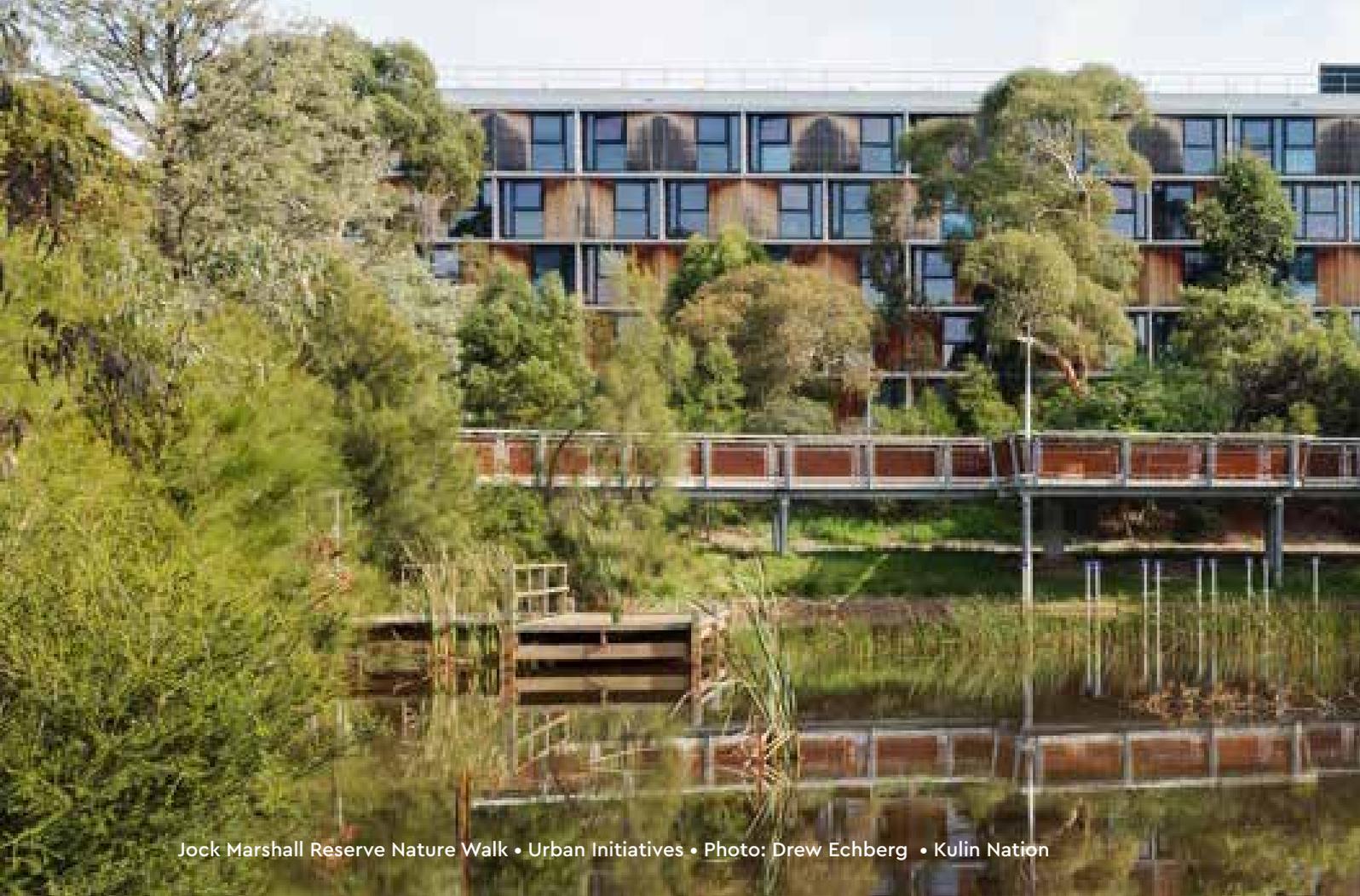
Certify and disclose: The final step involves independent validation and certification.

To be transparent, this should also be publicly disclosed. The process needs to be repeated annually to maintain carbon neutral certification.

Please note that this is a beginners guide focused on process.

We recommend finding a climate champion in your organisation to help drive and manage this process.

AILA recommends that organisations undertake further independent research when engaging in this venture.



Jock Marshall Reserve Nature Walk • Urban Initiatives • Photo: Drew Echberg • Kulin Nation

Framework

The following framework defines the stages to be undertaken each year:



1. Measure your greenhouse gas emissions

- Set a base year
- Establish an emissions reporting boundary
- Measure your greenhouse gas emissions

- See chapter 2



2. Mitigate your greenhouse gas emissions to a minimum

- Identify priority items from the 'measure' stage
- Develop an emissions reductions strategy for ways to reduce your GHG footprint.
- Undertake GHG emissions reductions measures to reduce your footprint to as close to zero as possible.

• See chapter 3

3. Offset all remaining emissions

- Select the right credits / offsets for your organisation, considering offset quality, integrity and social, cultural and environmental co-benefits
- Purchase credits / offsets to get to carbon neutral
- Purchase additional credits / offsets each year to offset historical emissions
- A climate positive outcome is where offsets amount to more than the organisation's total historic emissions and provide co-benefits

• See chapter 4

4. Certify and disclose

- Have your GHG account and activity data independently verified
- Openly publish your data for transparency.

• See chapter 5

2.0

Jones residence • Taylor Cullity
Lethlean • Karuna Country

Measure



"The future of our profession requires us to be more 'bolshie' and confident with our place in the practice of design while understanding the power of being custodians of this finite land."⁵

Greg Grabasch, UDLA 2012.

Measure is the first step on your climate positive journey. This step involves calculating your organisational emissions by preparing a greenhouse gas (GHG) inventory.

A GHG inventory measures the total amount of carbon dioxide (CO₂) and other greenhouse gases (N₂O, CH₄, and Fluorinated Gases in refrigerants) emitted over a financial or calendar year.

The GHG inventory provides a baseline for your organisation. It helps to determine your largest emissions to target for reductions.

The first step in preparing a greenhouse gas inventory is to set the emissions boundary. Include all emissions that your organisation has direct control over as well as those that are a consequence of your activities. Once the emissions boundary has been set, collect data within scopes 1,2 and 3.

A GHG inventory includes emissions from many sources. These include office stationery, company vehicles, electricity, goods and services, and waste outputs.

A summary of these scopes and where to gather the associated data is on pages 18 and 19.

Your GHG inventory enables you to target your highest emissions. It allows you to prepare an emissions reductions strategy. The intention is to become carbon neutral, and then climate positive.

If you intend to get carbon neutral certification there are several options. You can self certify, use of an independent assessor or use a government program such as Climate Active. The requirements and costs vary for different certification bodies.

Carbon neutral certification must be transparent and disclosed on the public record. Your GHG inventory needs to meet specific criteria. Offset purchases should also be disclosed transparently.



Setting an emissions boundary

Your emissions boundary establishes what your carbon account will include and exclude.

The emissions boundary must include all emissions under direct control or ownership of your organisation, as well as emissions you can strongly influence.

Essentially, any emissions that are a result of your organisations' activities should be included and quantified within the emissions boundaries.

All direct and indirect organisational emissions should be assessed for relevance. Organisations should include, measure and report as many emissions sources as possible.

In certain cases, some identified emissions sources may be non-quantified in a GHG inventory for limited reasons.

- Where data is unavailable or unsuitable, there are other methods of reasonably estimating and including emissions rather than strictly using the available data.
- For insignificant emissions sources, organisations should be able to demonstrate how it estimated an emission source to be less than 1%. If it can be estimated, then it may be able to be included in your assessment.

An external qualified consultant can advise on inclusions and exclusions for your organisation.



Wooten Road Reserve Interpretation Space • GLAS Landscape Architect • Photo: Drew Echberg • Kulin Nation

Setting a base year

Prior to undertaking any mitigation, you need to determine a baseline through establishing a base year emissions. This provides the benchmark to assess future years emissions.

The base year involves collecting all relevant data for one full year to create the organisation's greenhouse gas inventory.

Data can be collected by internal staff, or by a nominated consultant. Either way, the data needs to be independently validated.

Much of the relevant data for landscape practices can be obtained in-house. This can be a good way to reduce consultancy fees.

Where no data exists for a relevant item, you can estimate it but it will need to be validated.

The base year should be revisited periodically, or with any major changes to the organisation.

Measuring your emissions

There are three different pathways to preparing an inventory and certification:

- Engage a registered consultant to guide you through the process and assess your emissions and recommend a mitigation strategy
- Sign up to the Australian Government Climate Active scheme
- Have someone in your office undertake the task (DIY) to be externally verified.

A consultant will ask you to provide the relevant information and data. They will undertake an assessment of the organisation's GHG emissions, and make recommendations for a mitigation strategy.

Going through the government Climate Active scheme you can only use consultants on their registered list for assessment and validation.

If taking the DIY route, consider the cost benefit of your staff's time against an external consultant and their experience and expertise.

To be eligible for certification using a DIY approach you will still need external verification.



Emission Scopes

Establishing a greenhouse gas inventory involves measuring the GHG emissions of your organisation. These emissions fall into three scopes:

Scope 1: direct emissions used by your organisation that are emitted onsite.

Scope 2: indirect emissions purchased by your organisation that are emitted offsite (at point of production).

Scope 3: Indirect emissions that are emitted as a result of your organisation's operations, but not owned by your organisation.

While Scopes 1 and 2 are straightforward, Scope 3 can be difficult to calculate. Scope 3 occurs as a result of both "upstream" and "downstream" activities, and can involve large volumes of data.

Upstream activities includes emissions from producing and transporting purchased goods such as consumables, electronics, etc.

Downstream activities can include transportation of an organisation's goods, emissions from waste disposal and investments made by your organisation.

Project Emissions

Emissions from our built projects fall into Scope 3. This includes the embodied emissions in materials, construction, transport and site machinery. It also includes ongoing maintenance emissions.

AILA recommends that you calculate project emissions but exclude them from your emissions boundary. Refer to our volume 1 - Australian Landscape Architects Action Plan and the Pathfinder app.

Scope 3 project emissions to incorporate in your emissions boundary include: consultants, car hire, and flights associated with designing and administering the project. These should be included even if you're not intending to calculate the project emissions.



Scope 1 Direct on site emissions generated by your organisation

Examples of Scope 1 Emissions:

- Base building activities (day-to-day emissions due to running of the organisation's premises)
- Fossil gas used onsite (e.g. heating / hot water, cook tops / stoves)
- Fossil fuel burned for company vehicle usage
- Fugitive Hydrofluorocarbons (HFC) emissions from your air conditioning equipment (leakage)

Where to find this information:

- Energy invoices: cost and amount used
- Travel logs for company car: Km traveled
- Invoices for fuel
- Type, quantity and emission efficiency of company vehicles
- Mechanical scheduling (building-wide or company specific) to determine HFC emissions, and volumes of refrigerants in your air conditioning.

Photo by Obi - @pixel6propix on Unsplash



Scope 2

Indirect emissions generated outside your organisation

Examples of Scope 2 Emissions:

- Purchased electricity
- Energy used for heating and cooling of the premises
- Server electricity on site

Where to find this information:

- Energy invoices: cost and amount used
- Server host energy usage: source from your IT support



Scope 3

Indirect emissions - emitted as a result of the organisation's operations but not owned by the organisation

Examples of Scope 3 Emissions:

- Purchased goods including consumables
- Purchased electricity for servers off site
- Services including cleaning, waste treatment and disposal
- Organisation travel emissions including flights, car hire, taxis, etc.
- Goods transport
- Employee commuting
- Investments (banks and superannuation)
- Professional services including subconsultant engagement
- The projects built as a result of your documentation (see page 18)

Where to find this information:

- Invoices for consumables
- Invoices for services
- Calculated distance (kilometres) traveled for business
- Staff survey regarding commuter travel methods and distances
- Statement of investments
- Superannuation and bank disclosures
- Invoices for waste removal services and frequency of removal
- Staff travel expenses and invoices

Photo by Obi - Thomas Despeyroux @ thomasdes on Unsplash

Measuring your inventory



There are several ways to produce your greenhouse gas inventory. You can do it yourself or use a consultant to help streamline what can be an involved and lengthy process.

AILA recommends you engage a consultant to help so you can focus on delivering good climate positive design.

Greenhouse gas inventory: DIY

There are a number of carbon inventory calculators available for use online.

These can give a baseline for the mitigation stage but may not be suitable for an in depth audit.

You still need to have a suitable consultant to verify the results in order for an organisation to become carbon neutral certified.

United Nations [Climate Neutral Now](#) information and [Calculator download](#)

Greenhouse Gas Protocol free [carbon calculator tool](#) download.

Australian Government **Clean Energy Regulator** online [carbon calculators](#) and guides

Carbon Neutral carbon on line [carbon footprint calculator](#)

Path Zero [carbon calculator](#) for purchase

Greenhouse gas inventory: External Consultant

There are many consultants available that can undertake a technical assessment of your greenhouse gas inventory.

Most consultants will manage the entire process from start to finish. Others may offer to guide organisations through the initial process so that they can undertake future inventories themselves.

Look for consultants with expertise in the Greenhouse Gas Protocol [Corporate Accounting and Reporting Standard](#).

When certifying through Climate Active, any engaged consultants (including any undertaking technical assessment or third party validation) must be included on their registered consultants list.

Viable and robust certification alternatives to Climate Active include the UN's [Climate Neutral Now](#) initiative, and [PAS 2060](#).

Auditing requirements

Depending on the intended certification process, you may need an audit. This is to ensure all calculations follow standards, and are complete, correct and consistent.

Technical Assessment

You will need a technical assessment when certifying through Climate Active. This is to ensure correct boundaries and relevant and correct data before lodgment. The technical assessment is undertaken by a registered consultant.

Third Party Verification

Third party verification is required for the GHG inventory data. This can be undertaken by:

- A Registered Greenhouse and Energy Auditor
- A chartered accountant
- A certified practicing accountant
- An environmental auditor accredited Under international standard ISO 14001



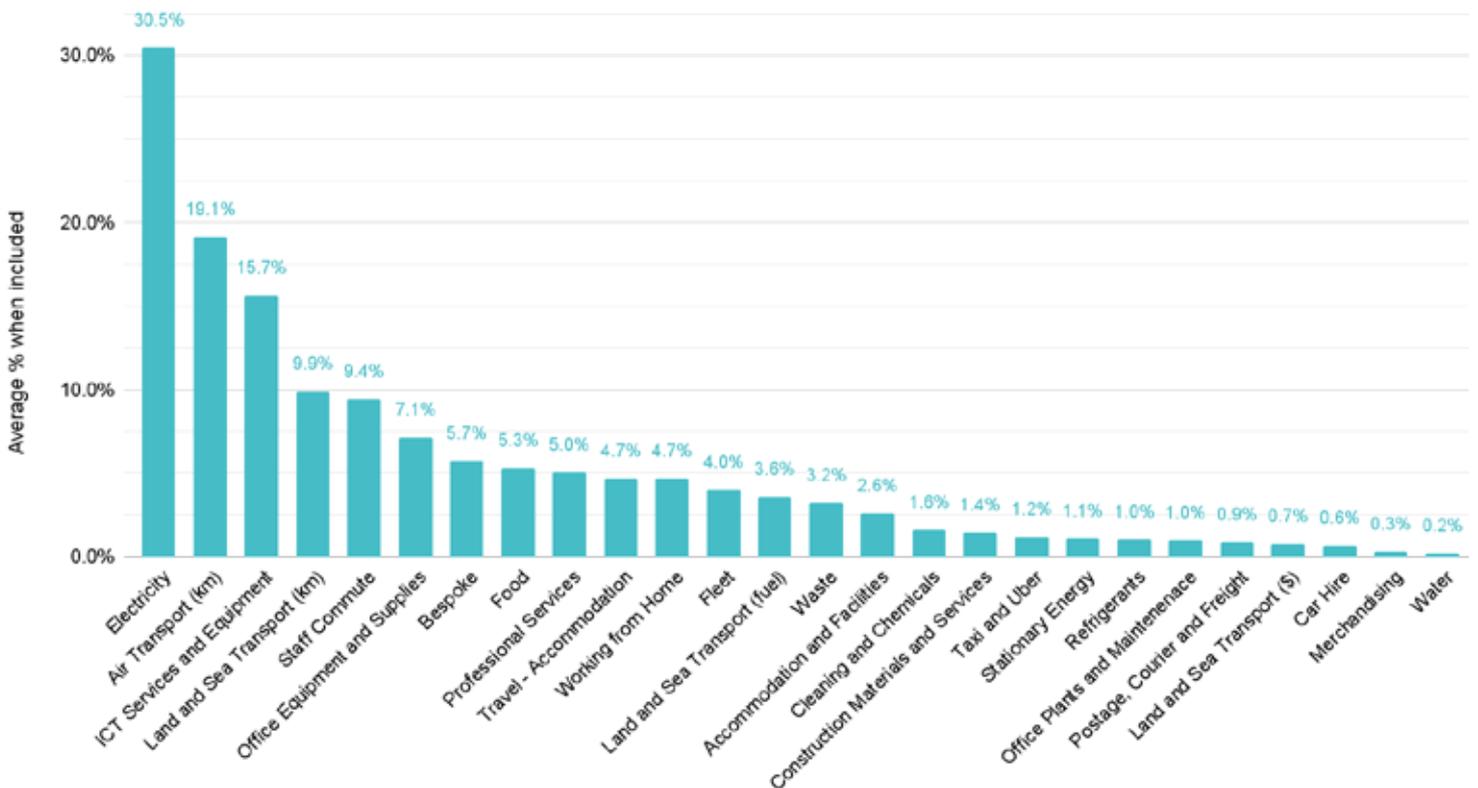
Optus Stadium Park, Hassell. Photo Robert Frith, Whadjuk people of the Noongar Nation

Emissions sources

The chart below shows the average emissions sources from 17 Australian architecture and landscape architecture firms from published data on Climate Active.

The top four emissions sources accounting for approximately 75% of emissions for the 17 firms are:

- Electricity 30.5%
- Air transport (km) 19.1%
- ICT services and equipment 15.7%
- Land and sea transport (km) 9.9%



3.0



Optus Stadium Park WA • HASSELL * Photo: Peter Bennets
Whadjuk Noongar Country

Mitigate



"The most important action to stop climate change is simple: reduce the ... emissions of greenhouse gases that cause it"⁶

Dr. Jonathon Foley - Executive Director of Project Drawdown

Mitigation is critical to becoming climate positive. Reducing your GHG emissions is the primary aim.

The broad areas for mitigation are explored in the following pages.

Using your GHG inventory, you can prepare an Emissions Reduction Strategy (ERS) to guide your specific actions. Some organisations call it a Sustainability Action Plan (SAP). [Architects Declare](#) have good guidelines and a training video on preparing a Sustainability Action Plan.

This will provide specific actions, have quantifiable goals and a time frame.

Some actions might be quite simple and immediate, like switching to green energy. Others may need time and planning, such as replacing the office (petrol or diesel) car with an electric vehicle.

Your ERS will guide changes required to become carbon neutral or climate positive. It should evolve as your organisation meets or shifts goals to align with its aspirations.

The highest priority should be your largest emissions sources. For many it may be your electricity usage (Scope 2). For some organisations this may be travel emissions (Scope 3).

Changes to energy consumption can be highly effective in reducing GHG emissions.

On average, heating, ventilation and air conditioning (HVAC) accounts for around 30% of electricity consumption in a commercial setting. Addressing this source can be an effective way to immediately reduce emissions.

It is important to remember that every organisation is different. Substantive reductions may fall under any of the scope areas.

Some of the most important tools to develop a climate positive organisation include:

- Encouraging good habits and staff-led initiatives for emissions reductions
- Implementing 'easy-win' sustainable actions within the organisation
- Investing in training for staff to foster understanding of climate positivity in the workplace and beyond
- Communicating with staff about the organisation's climate positive journey and their part within it.

Net Zero vs. Zero Emissions

There can be some confusion around the difference between net-zero and zero emissions targets. Net-zero means that there is a balance between the emissions produced and the emissions removed from the atmosphere through offsets. Zero emissions means the operation of an organisation produces zero emissions overall.

Many organisations focus on Net-zero emissions (this is carbon neutrality), but **the end-goal should be for as close to zero total emissions**. All organisations should be focusing on emissions reduction as the highest priority.



Reducing your emissions

This guide provides some examples of common emission reduction actions, but each organisation will require its own unique emissions reduction strategy to become carbon neutral.



Efficiency

Change over / upgrade to energy efficient devices

- Upgrade to energy efficient appliances
- Switch to LED lighting, or utilise task lighting
- Talk to your IT professional about how to reduce your server's footprint
- Use motion sensors to reduce lighting usage
- Consider zoning your HVAC to reduce unnecessary usage
- Consider switching to laptop computers
- Investigate energy-saving refurbishment such as double glazing, insulation, passive solar gain, etc
- Change the company car to an EV.



Energy

Move to all electric and interrogate your energy provider

- Install solar PV panels to generate your own electricity if you own the building
- Switch to a green energy provider
- Install electric or solar hot water
- Switch over from fossil fuel gas to all electric appliances in your office. Power these by solar power onsite or via green energy



Consumables

Look into a sustainable supply chain for office consumables

- Switch to carbon neutral suppliers
- Buy fair trade
- Use a green printing press for publications, organisation cards, etc.
- Educate staff about reducing resource use
- Switch to products with closed-loop systems
- Go paperless and discourage mindless printing with pick up printing

Top tip when selecting an energy provider

When selecting an energy provider, it is important to investigate the company's energy strategy. Look to see what they are planning to do with their carbon emission reductions. Are they supporting energy sector decarbonisation, supporting local energy projects, investing in renewable energy source and improving energy efficiency and demand responses.

Top tips when selecting a Super or Bank Account

When selecting a Super Fund, investigate their investment strategies to confirm they align with your values. There are comparison websites available online to cross check their coal, oil and gas exclusions as well as investments in sustainable products, responsible banking, recycling and innovative technology. When selecting a bank, follow the same investigation protocol to confirm investment strategies such as green and sustainable investments, not for profits, clean energy transition and community housing.



Investments

Review investments like superannuation and your bank for their climate credentials

- Switch to a superannuation provider with transparent investments that align with climate positive outcomes and your organisation's values
- Switch to a bank that consciously invests in sustainable projects
- Develop a supply chain charter for your office to streamline the decision-making process for suppliers
- Select providers that align with your organisation's values as a key step in the journey to becoming climate positive. There are carbon neutral, zero-emission or fossil-fuel free options in many supply areas.

Waste

Minimise waste and associated production and disposal emissions

- Eliminate single use items including cutlery, paper towels, coffee cups, plastic bags, etc.
- Provide facilities for separate waste streams, including paper and cardboard recycling, general recycling, soft plastics, food and green waste, e-waste and battery recycling, and last of all, general waste. Measure the outputs of each stream to keep staff motivated
- Refuse, reduce, reuse, and last of all recycle
- Recycle old electronics to give them a second life or consider donating them to a charity that may reuse them

Travel

Review all staff travel for emissions reduction opportunities

- Provide end of trip facilities for staff and visitors to encourage cycling, walking and running as primary modes of transport
- Establish ride to work days and offer incentives for staff
- Offer incentives for staff to participate in car share programs
- Encourage use of public transport
- Prioritise virtual meetings over in-person meetings which involve travel to and from the office
- Consider investing in a company electric car and/or bicycle and charging facilities

4.0



Westpac Place • ASPECT Studios • Photo: Florian Groehn
Gadigal Country

Offset



"... consider using carbon offsets, wisely and sparingly, but only when primary emissions cannot be reduced"⁷

Dr Jonathon Foley - Executive Director of Project Drawdown

Carbon offsetting is the third step to becoming carbon neutral. This step should not do the heavy lifting - the measure and mitigate steps should be the highest priority.

Organisations should only need to offset the bare minimum of carbon after measuring and mitigating emissions.

The fewer carbon offsets required, the less an organisation will need to pay. Requiring fewer mandatory offsets also places organisations in a stronger position to purchase additional offset credits to become climate positive.

When researching offsets, ensure providers and projects align with your organisation's values.

If your objective is to be climate positive the organisation needs to do all of the below.

- reduce the risk of shortfall,
- support robust projects,
- offset historical emissions.

Australian Landscape Architects advocate for the environment and the natural landscape.

ALLA recommends that organisations include projects that restore degraded land and provide the following co-benefits:

- continued intergenerational transfer of First Nations' land management knowledge and application, for and within Aboriginal and Torres Strait Islander Communities.
- increased biodiversity and regeneration of cleared land,
- linking of habitat for vulnerable fauna,
- educational and employment support for regional communities,
- continued land management resulting in increased land, water and air quality.

Some revegetation-based carbon sequestration offset projects will not see benefits for many years. These can however be combined with projects that provide offset credits immediately such as refrigerant gas destruction, or renewable energy projects.

If you are engaging an external consultant, they will be able to advise on suitable offset types and providers.

Offsetting as a last resort

Earth's natural systems including the atmosphere, ocean and biosphere are being overwhelmed by anthropogenic release of long stored fossil greenhouse gases. While restoring earth's natural systems is critical, there is not enough land on earth to offset current global emissions using nature-based solutions. The highest priority is emissions reduction.

Offsetting the emissions for a particular year also fails to take into account your organisation's historical emissions, which puts us in a position of deficit to begin with.

To reach capture rather than catchup, we have a responsibility to reduce emissions to as close to zero as possible (not *net-zero*), and proactively invest in regenerative projects, above what's measured, to account for historical emissions and environmental degradation.



Carbon offset credits: the basics

Carbon offsets are measured as a reduction or removal of one metric ton of carbon dioxide equivalent emissions.

1t CO₂-e = one carbon offset credit

The following offset types are created locally and internationally, and are eligible for purchase in Australia:

VERs: The Gold Standard is the first independent best practice benchmark for carbon offset projects and oversees the creation and issuance of Voluntary Emission Reductions (VER) units. It ensures that carbon credits are not only real and verifiable, but also that they make measurable contributions to sustainable development worldwide.⁸

Abatement recognised by the Gold Standard may be subject to the possibility of double counting; for example, where the abatement occurs in a host country or region that is affected by international or national emissions trading, cap and trade or carbon tax mechanisms.⁹

It is important to note that while verified Gold Standard VERs are acceptable under Climate Active, validated Gold Standard VERs are not as they cannot be cancelled.

VCUs: Verified Carbon Units (VCU), issued by the Verified Carbon Standard (VCS). The VCS develops and manages standards and frameworks to vet environmental and sustainable development efforts, build their capacity and connect them to funding.

VCUs are characterized by a number of quality assurance principles which are confirmed through the project validation and verification process.⁷

ACCUs: Australian Carbon Credit Units (ACCUs), are issued by the Clean Energy Regulator in accordance with the framework established by the Carbon Credits (Carbon Farming Initiative) Act 2011.

ACCUs represent the majority of units issued by projects in Australia, but not necessarily to majority of units purchased in Australia.⁷

CERs: A Certified Emission Reduction (CER) is 'a certified emission reduction issued outside Australia in accordance with the relevant provisions of the Kyoto rules'. CERs are issued for emission abatement or sequestration under the Kyoto Protocol's Clean Development Mechanism (CDM).⁷

The CDM operates in countries that are non-Annex I Parties to the UN Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol (essentially developing countries).

RMUs: Removal units (RMUs) are emissions units issued either in or outside of Australia under the Kyoto Protocol. Removal Units, issued by a Kyoto Protocol Annex I Party (essentially developed countries) on the basis of land use, land-use change and forestry activities (LULUCF) under Article 3.3 or Article 3.4 of the Kyoto Protocol.



Garangula Gallery • Tract • Simon Wood Photography • Wiradjuri Country

Carbon offset requirements

Carbon offset schemes offer various project locations, scope and types. The Climate Active carbon neutral standard for buildings¹⁰ uses specific terminology that is used to describe the requirements for carbon offsets:

- **Additional:** it must result in emissions reductions that are unlikely to occur in the ordinary course of events, without carbon credits, including due to any existing commitment or target publicly agreed by the entity responsible for issuing the units. It must represent abatement that has not been double counted.
Would this action have happened without the offsetting scheme anyway?
- **Permanent:** it must represent permanent reductions in greenhouse gas emissions. In the case of sinks, this requires that the carbon stored is sequestered and will not be released into the atmosphere for a period of 100 years. Where a period of less than 100 years is applied to sequestration units, an appropriate discount must be applied.
How long will this continue to reduce the GHG load?
- **Measurable:** methods used to quantify the amount of emissions reductions generated must be supported by clear and convincing evidence.
How has this offset been calculated?

- **Transparent:** consumers and other interested stakeholders must have access to information about the offset project that generated the abatement, including the applied methodology and project monitoring arrangements.
Can I easily access information about this offset, now and into the future?
- **Address leakage:** the system responsible for generating the offset unit must provide deductions for any material increases in emissions elsewhere which nullify or reduce the abatement that would otherwise be represented by the offset unit.
Is the emission activity still happening but just moved elsewhere?
- **Independently audited:** the circumstances responsible for the generation of the unit must be verified by an independent, appropriately qualified third party and not found to be in contradiction with these integrity principles.
Who is vouching for this credit and are they impartial?
- **Registered:** the offset unit must be listed and tracked in a publicly transparent register.
Has this credit been validated by all of the relevant authorities?



What to consider when choosing offsets

In addition to the requirements outlined on the previous page, it is important to consider the following factors when choosing an offset credit:

- Any offset credits should align with the United Nations [Sustainable Development Goals](#)
- It is important to choose a provider that aligns with your organisation's values to get the most out of your offsets.
- That may include projects with an Indigenous Land Use Agreement, or carbon farming projects led by Indigenous rangers, that not only provide climate and environmental benefits, but can provide economic, cultural and social co-benefits to Aboriginal and Torres Strait Islander peoples.
- Timing of emissions reductions: Prioritise tangible reductions at the time of emissions over future reductions.
- Ensure offset credit projects are monitored and reported on over their lifetime
- Offset credits should detail co-benefits, including social, cultural, environmental and economic benefits

- Contributing to biodiversity: Monocultures are not capable of replacing established ecosystems rich in diversity. Biodiverse offset planting is critical to enhancing the natural environment and can safeguard against failure.

Rising costs

In 2020-2021, the price of Australian Carbon Credit Units (ACCUs) doubled. Prices plummeted in early 2022 after changes made to the Emissions Reduction Fund.¹¹

Prices are likely to continue to increase over the coming years. There are likely to be insufficient land and programmes available to meet demand.

Australian landscape organisations should act as early as possible to minimise their emissions. This will lower the ongoing costs of annual offset credit purchases.

Minimising greenhouse gas emissions should have a higher priority than offset purchasing. Rising credit costs will make it more expensive to maintain carbon neutral certification.



Kathara Health Campus. Hassell. Photo: Hassell. Ngaluma Country.

Accounting for historical emissions

If you start with certification today, you will be offsetting emissions from your base year onwards. Unfortunately, this means that your historic emissions will still be unaccounted for.

Historic emissions can only be removed by offsets and not by reductions. At \$25-50/tonne this could represent a large investment over the lifetime of the organisation.

One way of addressing historical emissions may be to pledge to invest in extra credits every year, say 20% above the necessary amount, to account for historical emissions. This spreads the cost over many years and may be a more justifiable cost for organisations.

Microsoft is planning to remove all historic emissions since its inception in 1976. It aims to become climate positive by 2030 through an investment of \$1billion. For more information about Microsoft's planned journey, visit their [blog](#):

Accounting for global historical land degradation

Approximately 10% of historic emissions at a planet wide level are from land clearing.

We need to reforest as much of those destroyed areas as possible. But reforestation and revegetation is only restoring what has been removed in the last 230 years. Large scale restoration has the opportunity to make a difference. So it should not be wasted to offset green house gas emissions from large fossil fuel emitters.

A carbon price levied on large greenhouse gas emitters would make a difference. Instead, the voluntary market for carbon neutral certification is helping fund reforestation. Co benefits to reforestation include biodiversity co-benefits, especially when restoring previously degraded environments.



The important question of quality and integrity of carbon credits

To be of any value carbon credits need to actually reduce atmospheric greenhouse gases. Without this they are effectively worthless. The quality and integrity of carbon credits is critical when selecting offsets.

While there are good carbon offset schemes available in Australia, research by the [Australian Conservation Foundation and the Australia Institute](#) have found that at least one in five carbon credits in Australia have not produced any additional emissions reductions.¹² They have done nothing.

The four main areas of poor integrity credits are:

- "Avoided deforestation" credits for land that was never going to be cleared
- Regrowing native forests in cleared areas known as "human-induced regeneration" where forest area has not actually increased. This also rewards land clearing.
- Methane capture from landfills that was already happening as it was economical to do so.
- Re vegetation on arid lands not suitable for re vegetation where primary growth and sequestration is from rainfall, and during drought the sequestered carbon emissions are lost.¹³

Concerns over "Avoided deforestation" credits

One of the primary methods used by the Australian Emissions Reduction Fund is the "Avoided deforestation method" and accounts for approximately 20% of credits sold in Australia. This is where land holders with a permit to clear land are paid not to clear land.

Australia has a terrible record in land clearing¹⁴ so this should be a good thing. However, validating these types of credits can be problematic.

The primary objection here is that a large proportion of this land was never going to be cleared anyway. Research has shown that land clearing would need to be up to several thousand times higher than historic average to account for the number of credits issued.¹⁵

There have been instances of landholders using the income from avoided deforestation credits on poor land to purchase new high quality land, then clearing the purchased land. This is also described as "leakage" and was investigated and reported on by Geoff Thompson in this Australian Broadcasting Corporation [background briefing](#).¹⁶



Due diligence for carbon credits

The Carbon Market Institute provides guidance on due diligence that could include the following considerations:¹⁷

- Reviewing and monitoring of the project or verification reports, and reviewing the project's protocols.
- Direct outreach to project developers, stakeholders, project funders, brokers, or relevant regulatory entities may also prove a valuable source of information.
- Visiting the project site is another method for gathering information if you are able to travel, or using remote sensing methods - Nearmap, Planet, etc.

The Greenhouse Gas Institute and the Stockholm Environment Institute provide this [extensive guide](#) for reviewing offsets.¹⁸

Other potential warning signs are very low cost credits \$1-\$5/Tonne. As a general guide the difficulty of verification can provide a guide to better or worse credits:

Easier to verify: methane and CFC refrigerant gas destruction.

Moderately easy to verify: household level energy efficiency, methane capture and utilization.

Difficult to verify: agriculture, societal change, carbon capture and storage, fugitive gas capture or avoidance, forestry and avoided deforestation.

Example projects of concern

AILA recommends that organisations do their own research but outlined below are areas of concern with some carbon credit projects:

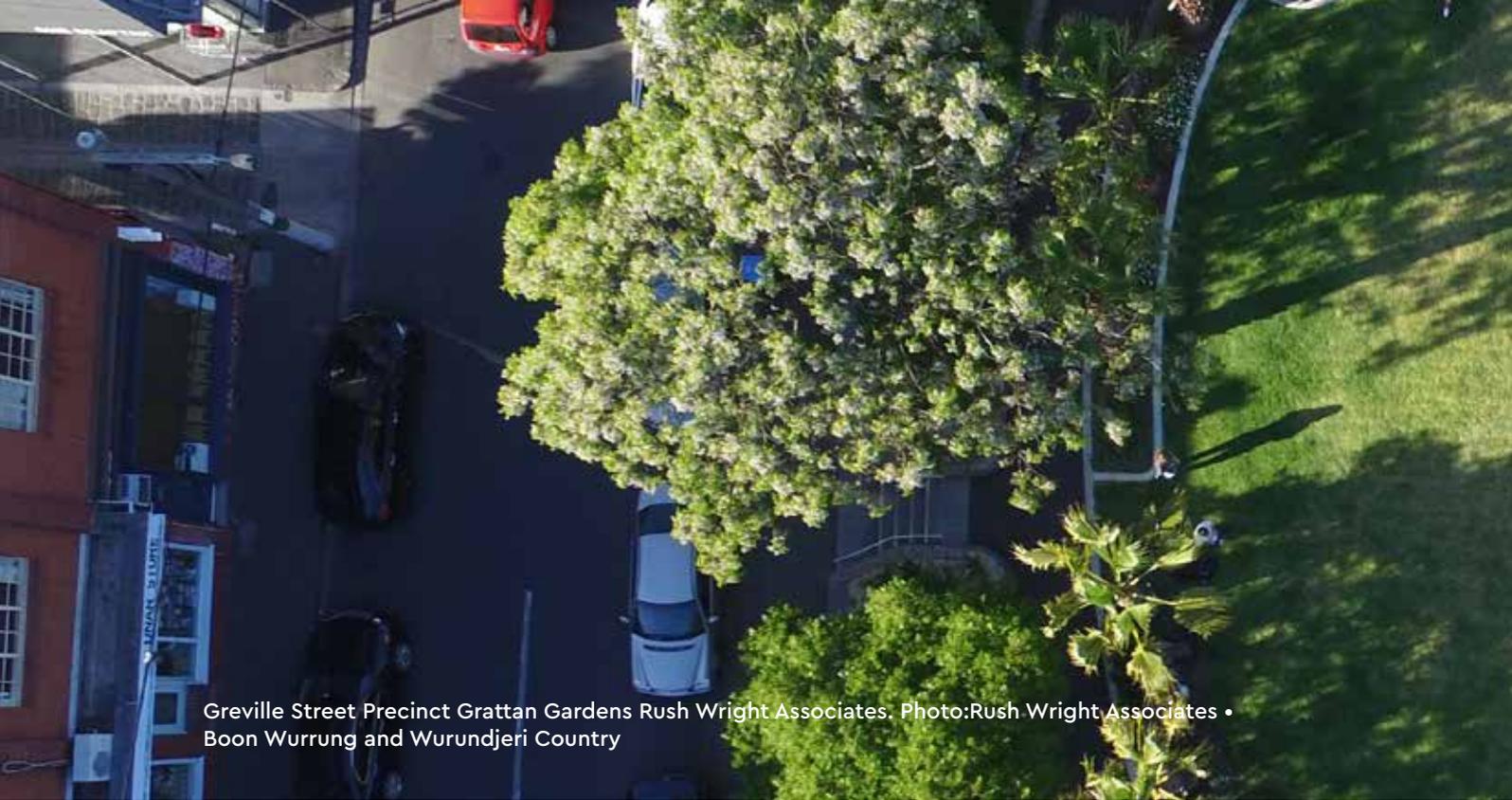
Cowboy operators: Extensive [REDD+ project in Oro Province of PNG](#) that show no evidence to support their claims that their project will result in genuine benefits for the climate or customary landholders.¹⁹

Lack of social research: Cook-top stoves in developing nations that are too small for dinner preparation resulting in both the new cook-top and old stoves being used, effectively increasing GHG emissions.

Unwanted outcomes of afforestation: Cases of established forests being cleared in countries to make way for paid reforestation project credits.

Questions over timeframes for technological projects: High embodied carbon in Direct Air Capture (DAC) machines delays the start of carbon neutral / climate positive outcomes. Ongoing GHG emissions with absorbents and operational energy usage.

Failure of Carbon Capture and Storage in the fossil fuel industry. Proven to be a failure and is used as a means to expand fossil fuel extraction.²⁰



Greville Street Precinct Grattan Gardens Rush Wright Associates. Photo:Rush Wright Associates • Boon Wurrung and Wurundjeri Country

Additional considerations

Timing of offsets

There are multiple examples of offset credits that represent investments in projects that have been completed years prior to their purchase. The question then becomes whether this is a meaningful method of offsetting current emissions.

Where possible, avoid credits in past projects and prioritise meaningful current offsets for your current emissions.

Investing power

When selecting offset credits, organisations should also think critically about the power of their investment. There are many large scale renewable energy projects that will see healthy profit returns whether or not they are invested in through offsets schemes. These commercial ventures don't represent a meaningful carbon offset investment.

Where possible, prioritise small-scale offset projects with transparent governance structures.

Co-benefits

A large part of becoming climate positive is investing in projects that not only provide required offsets, but are also providing social, cultural, environmental and economic co-benefits.

Some offset projects may not provide tangible benefits (ecological and social) to the communities they are situated in. Large scale reforestation projects, for example, may be designed for ease of installation and maintenance, rather than prioritising diverse and endemic ecological makeup, or local workforce and knowledge sharing.

Prioritise location-specific projects that are providing tangible, ongoing benefits to the local environment, society, economy and culture.



Offset credit project examples

Australian examples:

- Agricultural projects such as soil carbon sequestration, methane reduction and improved irrigation
- Revegetation and reforestation projects that restore and improve cleared land
- Avoided deforestation projects (Warning: not recommended: see 'Integrity of Credits' on page 32)
- Reduction of energy usage through increased efficiency, either in Australia or overseas
- Landfill and alternative waste treatment projects
- Savanna fires emissions reduction projects while they release carbon dioxide, they reduce fuel load, increase biodiversity, and reduce the possibility of catastrophic GHG emissions of uncontrolled bushfire. The carbon industry now generates \$20 million per year in carbon credit income for Aboriginal and Torres Strait Islander peoples. This revenue funds local jobs, ranger programs, outstation development, culture camps and other community projects.

International examples:

- REDD+ Stands for countries' efforts to reduce emissions from deforestation and forest degradation, and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks.²¹
- Implementation of renewable energy sources
- Clean cookstove projects - reducing energy usage and pollution. See cautionary note on verification on page 33.
- Access to clean water - reduces energy (wood burning) used to purify unsafe water sources

5.0



Kaurna Learning Circle and Karrawirra Parinangku • Oxigen • Photo: Chris Oaten
Kaurna Country

Certify and disclose



"We've got a challenge. Standing still and being net-zero is not going to be sufficient. We need to regenerate."²²

Paul Toyne. Grimshaw

Organisations aren't strictly required to become certified carbon neutral. However, certification can be an important tool to show your organisation's commitment to climate. Certification can convey to clients, contractors and colleagues that your organisation meets regulated carbon neutral standards. This adds a level of transparency and accountability to environmental claims.

Setting a base year establishes a starting point. Certification then uses this validated base year as a comparison point for subsequent years.

Carbon neutral certification requires a public report every year.

This public disclosure statement (PDS) includes

- disclosure of the emissions boundary,
- total emissions and their sources,
- emissions reduction strategies, and
- any offsets.

Any changes of +/- 5% are required to be disclosed in the yearly public report. Significant changes to the organisation will result in a need to re-validate the carbon account. The base year should be revisited regularly as the organisation adapts to their emissions reduction strategy. Climate Active for example requires a recalculation of the base year at least every three years. Other certification programs will be able to advise of their recommendations.

Certification requires independent validation of data, even when undertaking a DIY process. There are many qualified verifiers and assessors that will be able to provide this service.

Climate Active is the most common Australian carbon neutral certification, but is not the most rigorous process. Alternatives that adhere to international reporting standards include the United Nation's Climate Neutral Now initiative, and PAS 2060.

Timeline and cost

This timeline and cost summary is indicative only and will vary depending on the process undertaken by your organisation.

The summary provided covers small and medium organisations, as the majority of landscape architecture firms will fall into these categories.

Costs associated with transitioning to carbon neutrality, include:

- Cost of time of the employee/s undertaking the process
- Consultant fees for technical assessment (Climate Active only)
- Consultant fees for third party validation
- Costs of carbon offsets
- Costs involved in transitioning to low carbon alternatives, e.g. purchasing an electric vehicle, installing solar etc
- Production of a Product Disclosure Statement (PDS) (cost of employee or consultant time)
- Cost of certification

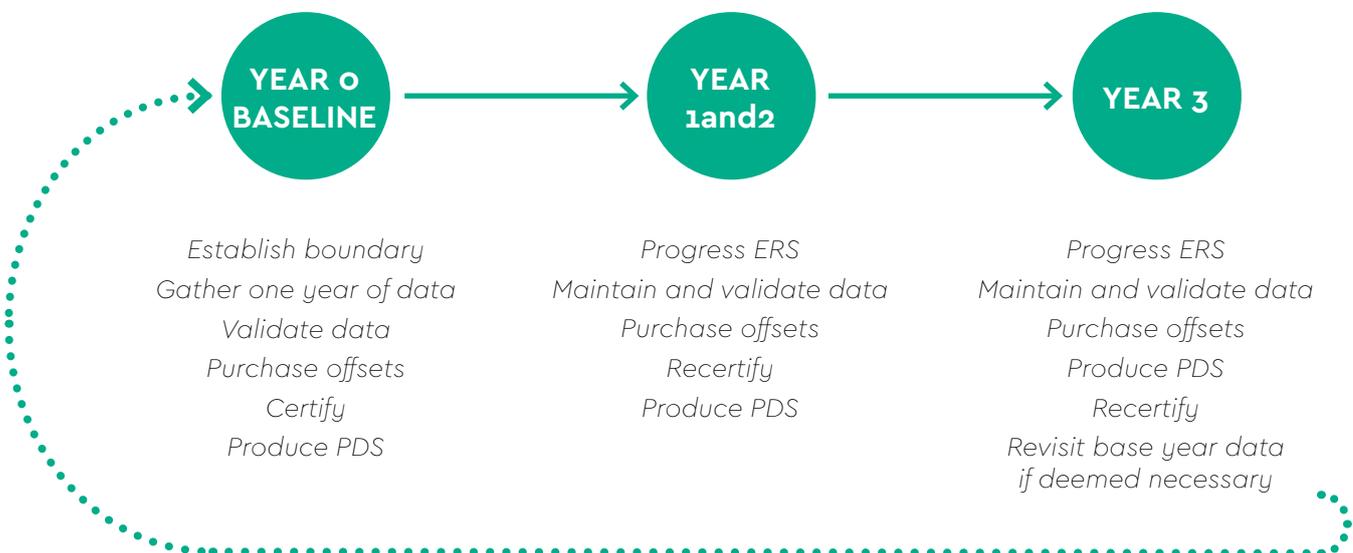
Generally if engaging a consultant they will provide advice throughout the certification process which may streamline the process and reduce costs elsewhere.

Baseline vs subsequent years

The baseline year represents the largest financial investment. This year involves the initial technical assessment, third party validation and cost to source data, as well as the highest cost for offsets.

The subsequent years will have a lower cost, as the same level of rigour is not necessary and offset costs should reduce as the emissions reduction strategy is implemented.

The exception for any organisation is if base circumstances change, in which case the baseline will need to be recalculated. Changes could include relocating operations to new premises, significant downsizing or expansion, change in business scope, business acquisition, significant refurbishment, etc.





System Garden Rainforest Walk • SBLA • Photo: Wade Trevean
Wurundjeri Woi Wurrung Country

Barangaroo Reserve • Peter Walker and Partners, Johnson Pilton Walker, Stuart Pittendrigh, Ron Powell and Tract Consultants
Gadigal Country

Climate Active timeframe and tasks

The following summary is specific for certification through Climate Active.

Indicative Timeline: Climate Active

	YEAR 0 BASELINE		YEAR 1and2		YEAR 3*	
	Small	Med.	Small	Med.	Small	Med.
Organisation Size - small or medium						
Determine Emissions Boundary	Y	Y				
Undertake greenhouse gas inventory for minimum one calendar or financial year	Y	Y	Y	Y	Y	Y
A Undertake technical assessment	O**	Y			O**	Y
B Undertake emissions reduction strategy	Y	Y	Y	Y	Y	Y
Purchase carbon offsets	Y	Y	Y	Y	Y	Y
C Undertake third party validation		Y				
D Apply for certification	Y	Y	Y	Y	Y	Y
Produce and publish Product Disclosure Statement (PDS)	Y	Y	Y	Y	Y	Y

* and every 3rd year for Medium Organisations

** Optional for small organisations



Cost points: Climate Active

- A** Technical Assessment:
Optional for Small Organisations
Climate Active lists their registered consultants
- B** Carbon Offsets, as ACCUs, CERs, RMUs, VERs and VCUs
Varies \$6 - \$50+ per CO₂-e
- C** Third Party Validation, undertaken by:
 - A Registered Greenhouse and Energy Auditor
 - A chartered accountant
 - A certified practicing accountant
 - An environmental auditor accredited Under international standard ISO 14001

- D** Certification Fee:
Climate Active (other criteria apply):
Small organisation: \$820
Medium organisation: \$2,500-\$14,000
Certification fees through alternative avenues will differ.

Optional: Consultants can be engaged to prepare an application for certification and/or annual report, but this is additional cost that may be undesirable.

In all cases, if the baseline changes significantly, a new base year is required to be established, and third party validation and technical assessment is to be undertaken again.

Organisation size definitions for Climate Active

Small:

- carbon footprint < 1,000t CO₂-e;
- annual turnover < \$10M;
- consolidated gross assets < \$30M;
- less than 30 employees (FTE);
- has 80% or more of its total emissions from the small organisation emissions boundary defined in the Climate Active inventory; and
- will not be seeking a product or service certification in the future

Medium:

- carbon footprint 1,000 - 25,000 t CO₂-e;
- OR
- carbon footprint < 1,000t CO₂-e; AND
- an annual turnover ≥ \$10M or consolidated gross assets ≥ \$30M or ≥ 30 employees (FTE) or less than 80% of its total emissions from the small organisation emissions boundary

Large:

- An organisation with a carbon footprint ≥ 25,000t CO₂-e

6.0

References

- 1 Spear S. Jane Goodall's Vision for the Future [Internet]. EcoWatch. 2017 [cited 14 November 2021]. Available from: <https://www.ecowatch.com/jane-goodall-video-2450327473.html>
- 2 Steffen W, Hughes L, Bradshaw S, Rice M, Arndt D. Aim High, Go Fast: Why Emissions Need to Plummet this Decade | Climate Council [Internet]. Climate Council. 2022 [cited 17 April 2022]. Available from: <https://www.climatecouncil.org.au/resources/net-zero-emissions-plummet-decade/>
- 3 Indigenous Ranger Programs | National Indigenous Australians Agency [Internet]. Niaa.gov.au. 2022 [cited 7 June 2022]. Available from: <https://www.niaa.gov.au/indigenous-affairs/environment/indigenous-ranger-programs>
- 4 Attenborough, D. 2020. A Life on Our Planet: My Witness Statement and a Vision for the Future. Grand Central Publishing
- 5 Greg Grabasch answers the Kevin Taylor Questionnaire [Internet]. ArchitectureAU. 2012 [cited 14 November 2021]. Available from: <https://architectureau.com/articles/greg-grabasch-answers-the-kevin-taylor-questionnaire/>
- 6 Foley J. Carbon Offsets Should Make You Nervous [Internet]. Medium. 2021 [cited 14 November 2021]. Available from: <https://globalecoguy.org/carbon-offsets-should-make-you-nervous-9995a00dbod6>
- 7 Foley J. Carbon Offsets Should Make You Nervous [Internet]. Medium. 2021 [cited 14 November 2021]. Available from: <https://globalecoguy.org/carbon-offsets-should-make-you-nervous-9995a00dbod6>
- 8 VER, VCU. ACCU, CER definitions Carbon Market Institute. 2022. Market Resources - Carbon Market Institute [Internet]. [cited 24 April 2022]. Available from: <https://carbonmarketinstitute.org/market-resources/>
- 9 Alliance Bernstein. 2022. Our Approach to Carbon Neutral [Internet]. Alliancebernstein.com. 2022 [cited 24 April 2022]. Available from: <https://www.alliancebernstein.com/au/en/institutions/our-approach-to-carbon-neutral.html>
- 10 Australian Government. 2022. Carbon Neutral Buildings. [Internet]. 2022 [cited 24 April 2022]. Available from: <https://www.industry.gov.au/sites/default/files/2020-07/climate-active-carbon-neutral-standard-buildings.pdf>
- 11 Secombe, M. 2022. Angus Taylor's \$3.5 billion carbon blunder. The Saturday Paper. 11-15th April 2022. Edition # 391 Website. [Cited 18/04/22] Available from: <https://www.thesaturdaypaper.com.au/news/politics/2022/03/19/angus-taylors-35-billion-carbon-blunder/164760840013513#hrd>
- 12 Oquist B. The era of the great carbon fraud is upon us - The Australia Institute [Internet]. The Australia Institute. 2022 [cited 18 April 2022]. Available from: <https://australiainstitute.org.au/post/the-era-of-the-great-carbon-fraud-is-upon-us/>
- 13 Morton A. Australia's carbon credit scheme 'largely a sham', says whistleblower who tried to rein it in [Internet]. the Guardian. 2022 [cited 18 April 2022]. Available from: <https://www.theguardian.com/environment/2022/mar/23/australias-carbon-credit-scheme-largely-a-sham-says-whistleblower-who-tried-to-rein-it-in>

- 14 Morton A, Davies A. 2019 Australia spends billions planting trees – then wipes out carbon gains by bulldozing them [Internet]. the Guardian. [cited 18 April 2022]. Available from: <https://www.theguardian.com/environment/2019/oct/17/australia-spends-billions-planting-trees-then-wipes-out-carbon-gains-by-bulldozing-them>
- 15 Australian Conservation Foundation and The Australia Institute. 2021. Questionable integrity Non-additionality in the Emissions Reduction Fund's Avoided Deforestation Method. Accessed 18/04.2022. Website download available at https://www.acf.org.au/questionable_integrity
- 16 Thompson, G. Sun 21 Nov 2021. Background Briefing. Australian Broadcasting Corporation. "Boom time in carbon farming country" Webpage. accessed on 18/04/2022 Available from: <https://www.abc.net.au/radionational/programs/backgroundbriefing/boom-time-in-carbon-farming-country/13637436>
- 17 Conducting offset quality due diligence - Carbon Offset Guide [Internet]. Carbon Offset Guide. 2022 [cited 18 April 2022]. Available from: <https://www.offsetguide.org/avoiding-low-quality-offsets/conducting-offset-quality-due-diligence/>
- 18 Broekhof D, Gillenwater M, Colbert-Sangree T, Cage P. 2020. Securing Climate Benefit: A Guide to Using Carbon Offsets [Internet]. Offsetguide.org. 2022 [cited 18 April 2022]. Available from: https://www.offsetguide.org/wp-content/uploads/2020/03/Carbon-Offset-Guide_3122020.pdf
- 19 Hemming, Polly and Babon, Andrea. 2022. Carbon cowboys and cattle ranches. Submission on the proposed REDD+ project in Oro Province of Papua New Guinea. The Australia Institute. [Internet] Cited 18/04.2022. <https://australiainstitute.org.au/report/carbon-cowboys-and-cattle-ranches/>
- 20 Joshi, K. 2021. Carbon capture's litany of failures laid bare in new report. [Internet] Renew economy April 14, 2021. Cited 18/04/2022. Accessible here: <https://reneweconomy.com.au/carbon-captures-litany-of-failures-laid-bare-in-new-report/>
- 21 What is REDD+? | Forest Carbon Partnership Facility [Internet]. Forestcarbonpartnership.org. 2022 [cited 18 April 2022]. Available from: <https://www.forestcarbonpartnership.org/what-redd>
- 22 Cheng, Linda. 2020. Achieving net zero is just a start. Architecture AU 16th July 2020. [Internet] Accessed 18/04/2022. Available at: <https://architectureau.com/articles/achieving-net-zero-is-just-a-start/>
- 23 Mackintosh E, Dewan A, Sangal A, Wagner M, Macaya M, Mahtani M. These are the goals for the COP26 climate summit [Internet]. CNN. 2021 [cited 13 November 2021]. Available from: https://www.cnn.com/world/live-news/cop26-climate-summit-intl-11-01-21/h_28e42c3e4daf3321438c433b81a67317
- 24 Hausfather Z. Analysis: How much 'carbon budget' is left to limit global warming to 1.5C? - Carbon Brief [Internet]. Carbon Brief. 2018 [cited 13 November 2021]. Available from: <https://www.carbonbrief.org/analysis-how-much-carbon-budget-is-left-to-limit-global-warming-to-1-5c>
- 25 Booth, C & Warianti, A & Wrigley, T. (2001). Establishing an Integrated Catchment Management (ICM) program in East Java, Indonesia. Water science and technology : a journal of the International Association on Water Pollution Research. 43. 227-34. 10.2166/wst.2001.0545.
- 26 About | IPBES [Internet]. Web.archive.org. [cited 13 November 2021]. Available from: <https://ipbes.net/about>
- 27 Natural Capital. [Internet]. [cited 13 November 2021]. Available from: <https://naturalcapitalforum.com/about/>

- 28 Woodward J, Kelly A. Bottom Line on Offsets [Internet]. World Resources Institute. 2010 [cited 13 November 2021]. <https://www.wri.org/research/bottom-line-offsets>
- 29 Embodied vs Operational Carbon - SPOT - Blog [Internet]. SPOT - Blog. 2020 [cited 13 November 2021]. Available from: <https://spot.ul.com/blog/embodied-vs-operational-carbon/>
- 30 Voiland A. Anticipating Future Sea Levels [Internet]. Earthobservatory.nasa.gov. 2021 [cited 14 November 2021]. Available from: [https://earthobservatory.nasa.gov/images/148494/anticipating-future-sea-levels#:~:text=In%20its%202019%20report%2C%20the,remain%20at%20high%20rates%20\(RCP8.&text=6\)%2C%20the%20IPCC%20expects%200.3,sea%20level%20rise%20by%202100.](https://earthobservatory.nasa.gov/images/148494/anticipating-future-sea-levels#:~:text=In%20its%202019%20report%2C%20the,remain%20at%20high%20rates%20(RCP8.&text=6)%2C%20the%20IPCC%20expects%200.3,sea%20level%20rise%20by%202100.)
- 31 Carbon Sequestration [Internet]. Climate Change Connection. 2016 [cited 13 November 2021]. Available from: <https://climatechangeconnection.org/solutions/carbon-sequestration/biological-sequestration/>
- 32 Evaluating options for water sensitive urban design - a national guide [Internet]. Department of the Environment, Water, Heritage and the Arts. 2009 [cited 13 November 2021]. Available from: <https://web.archive.org/web/20110602171329/http://www.environment.gov.au/water/publications/urban/pubs/wsud-guidelines.pdf>

Resources

Climate Active <https://www.climateactive.org.au/>

Climate Active: Technical Guidance Manual

<https://www.industry.gov.au/sites/default/files/2020-09/climate-active-technical-guidance-manual.pdf>

Climate Active: Registered Consultants under the Climate Active Carbon Neutral Standard

<https://www.climateactive.org.au/be-climate-active/certification/register-consultants-climate-active-certification>

Climate Active: Third Party Validation Guidance and Verification Procedures

<https://www.industry.gov.au/sites/default/files/2020-09/climate-active-third-party-validation-guidance-and-verification-procedures.pdf>

Climate Active: Carbon Neutral Standard for Organisations

<https://www.industry.gov.au/data-and-publications/climate-active-carbon-neutral-standard-for-organisations>

Carbon Neutral <https://carbonneutral.com.au/>

Architects Declare. Resources and links, including guidance on Sustainability action plans <https://au.architectsdeclare.com/resources>

GHG Protocol – Corporate Standard (WBCSD and WRI, 2004)

<https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

Australia's Carbon Project Registry <https://marketplace.carbonmarketinstitute.org/registry/>

Appendices





Mukanthi Nature Playspace. Peter Semple Landscape Architects (PSLA) and Climbing Tree Creations in collaboration with Indigenous artist Allan Sumner Photo: Peter Semple. Karna Country

Glossary

1.5 degrees The countries that signed the Paris Agreement in 2015 agreed to limit the increase in global temperatures to well below 2 degrees above pre-industrial levels, but preferably to 1.5 degrees.²³

ACCUs - Australian Carbon Credit Units, An ACCU is a unit issued by the Clean Energy Regulator (CER), representing one tonne of carbon dioxide equivalent (tCO₂-e) stored or avoided by a project.

Carbon budget - This is the amount of CO₂ that humans can add to the atmosphere between 2015 and 2050 before we reach 65% probability that we will exceed a global warming of 1.5degrees. The median range is 180-520Gt.²⁴ Given annual planetary emissions are approximately 36Gt, we will hit 1.5degrees in the late 2020's to mid 2030's without drastic action. Australia's Carbon budget from 2020 onwards is estimated by the Climate Council as 4.7Gt or approximately 8 years of current emissions.²

Carbon neutral - This term refers to Net zero carbon dioxide (CO₂) emissions are achieved when anthropogenic CO₂ emissions are balanced globally by anthropogenic CO₂ removals over a specified period. Net zero CO₂ emissions are also referred to as carbon neutrality.

Climate positive design - Climate positive design projects provide net positive climate outcomes. They aim to provide social, cultural, environmental and economic co-benefits. Over a cradle to cradle assessment they sequester more greenhouse gases than they emit.

CO₂e - Global warming potential is the heat absorbed by any greenhouse gas in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of carbon dioxide. The main difference between CO₂ and CO₂e is that CO₂ only accounts for carbon dioxide, while CO₂e accounts for carbon dioxide and all the other gases as well: methane, nitrous oxide, and others.

Embodied emissions - Embodied emissions refers to the embodied greenhouse gas emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure.

Greenhouse gas (GHG) - Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's ocean and land surface, by the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary GHGs in the Earth's atmosphere. Human-made GHGs include sulphur hexafluoride (SF₆), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs) and perfluorocarbons (PFCs); several of these are also O₃-depleting (and are regulated under the Montreal Protocol).

GT - (one **Gigatonne** = 1,000,000,000 tonnes)

Integrated Catchment Management (ICM) - may be defined as "the co-ordinated and sustainable management of land, water, soil vegetation, fauna and other natural resources on a water catchment basis".²⁵

Intergovernmental Panel on Climate Change (IPCC) - the United Nations body for assessing the science related to climate change.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) - is an intergovernmental organization established to improve the interface between science and policy on issues of biodiversity and ecosystem services.²⁶

The International Federation of Landscape Architects (IFLA) - is an organization which represents the landscape architectural profession globally. IFLA represents 77 national associations of landscape architecture globally.

Life Cycle Assessment (LCA) – is a technique for assessing the environmental aspects associated with a product over its life cycle.¹⁸ The most important applications are analysis of the contribution of the life cycle stages to the overall environmental load, usually with the aim to prioritize improvements on products or processes.

Mt - (one **Mega tonne** = 1,000,000,000 kg)

Net-zero emissions are achieved when anthropogenic emissions of greenhouse gases (e.g. CO₂) to the atmosphere are balanced by anthropogenic removals. Net-zero CO₂ emissions are also referred to as carbon neutrality. Where multiple greenhouse gases are involved, the quantification of net-zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon).⁷

Natural capital - the world's stocks of natural assets which include geology, soil, air, water and all living things. It is from this natural capital that humans derive a wide range of services, often called ecosystem services. Natural capital has financial value as the use of natural capital drives many businesses.²⁷

Offsetting - carbon offsetting refers to the reduction in emissions of carbon dioxide or other greenhouse gases made in order to compensate for emissions made elsewhere. Offsets are measured in tonnes of carbon dioxide-equivalent (CO₂e).²⁸

Operational emissions - the amount of carbon emitted during the operational or in-use phase of a building or landscape. This includes the use, management, and maintenance of a product or structure. Operational carbon currently accounts for 28% of global greenhouse gas.²⁹

Sea level rise - Sea level rise is caused by a combination of thermal expansion as the oceans absorb heat and meltwater from land based ice. Sea levels are rising at approximately 3.6mm per year with predictions ranging from 600mm to 1100mm by 2100, and between 3000mm and 5000mm by 2300.³⁰

Sequestration - the process of storing carbon in a carbon pool. Biological (or terrestrial) sequestration involves the net removal of CO₂ from the atmosphere by plants and micro-organisms and its storage in vegetative biomass, woody stems and in soils.³¹

Scope 1 emissions: The release of greenhouse gases into the atmosphere as a direct result of activities occurring within a responsible entity's control (or geographic boundary).

Scope 2 emissions: The release of greenhouse gases into the atmosphere from the consumption of electricity, heating, cooling or steam that is generated outside of a responsible entity's control (or geographic boundary).

Scope 3 emissions: Greenhouse gases emitted as a consequence of a responsible entity's activities but emitted outside the responsible entity's control (or geographic boundary)

t - (One **Metric** tonnes = 1000kg)

T - (One imperial **Ton** = 2,240 pounds, about 1,016 kg)

WSUD / Water-Sensitive Urban Design - is a land planning and engineering design approach which integrates the urban water cycle, including stormwater, groundwater and wastewater management and water supply, into urban design to minimise environmental degradation and improves aesthetic and recreational appeal.³²



Coastal Garden • Robyn Barlow Design • Photo: Sue Stubbs • Bunurong Country



Westmead Hospital • Tract Consultants • Photo: Brett Boardman
Darug Country

Acknowledgements

The AILA Climate Positive Design Committee:

New South Wales

Martin O'Dea (Chair) • Gadigal Country • Co-ordinating author of set. Lead Author for the Volume 1 Climate positive design action plan for Australian landscape architects

Simon Bond • Darug Country • Lead on Support for AILA Members - volume 3 - AILA Roadmap

Sarah Morgan • Gadigal Country and Wurundjeri Woi Wurrung Country • International benchmarking and website resource kit.

Queensland

Abi Kearney • Kabi Kabi (Gabi Gabi) Country • Land sector research and soil sequestration lead, Co author for this Volume 2, Organisation guide to climate positive

Victoria

Verity Campbell • Wurundjeri Woi Wurrung Country • Editorial lead for all documents

Brendon Burke • Wurundjeri Woi Wurrung Country • Mitigation and adaptation, References, glossary and Awards strategy

Lakshmanan Madhu • Wurundjeri Woi Wurrung Country • Co author for the volume 3 AILA Policy and advocacy strategies

South Australia

Kate James • Kurna Country • Lead author for the this volume 2 - Organisation guide to climate positive

Western Australia

Madeleine McEwen • Whadjuk Noongar Country • International benchmarking • carbon neutral business strategy • References and Education strategy.

AILA Board Representative.

Jasmine Ong • Wurundjeri Woi Wurrung Country • AILA Board advisory and liaison

Thanks to the following people for input, editorial comments and reviews:

Alexander Stathakis - Carbon and climate disclosure consultant. Conversio - Brisbane QLD

Landscape practice case studies

Going Carbon Neutral



Museum of Old and New • Photo Peter Bennetts • Nipaluna Country

OCULUS

In April 2021, OCULUS became Certified Carbon Neutral with Climate Active for its Sydney, Melbourne and Canberra studios. The landscape architecture practice hired a specialist consultant to help them lodge the submission in the first year and to manage all usage data and financial information required. Costs for the first year were approximately \$9,000+GST, including the certification, consultant and independent auditor.

OCULUS encourages other landscape architectural organisations to on the journey to start gathering their usage and financial data, to engage employees in the process, and to set up clear record keeping for future annual reporting.

"We undertook this process to convey our commitment and leadership in responding to the challenges of climate change and biodiversity loss. We see this as an essential action, given the nature of our work, to foster and support sustainability both in our operations and throughout our projects."

For more information see [Oculus's Climate active certification](#).



Australian Garden • Craneborne • Bunurong / Boon Wurrung Country

Taylor Cullity Lethlean

It took over nine months for TCL to become Certified Carbon Neutral for its Melbourne and Adelaide studios. They chose Climate Active because it's a government organisation and the only organisation that can certify an Australian business as carbon neutral. Costs for the first year were approximately \$8,400+GST, plus carbon credits purchased through the Aboriginal Carbon Foundation of around \$6,000.

TCL recommends that it's a good idea to have key staff involved from the outset to allocate tasks and help understand reporting requirements. They now enter specific details, such as Kms traveled, when they reconcile purchases, and monitor and reduce utility consumption and wastage.

TCL found working with a consultant invaluable for helping them keep updated with emissions management actions, Public Disclosure Statement documentation, as well as providing ongoing advice on what they can do as a small/medium growing business to reduce emissions each year.

For more information see [TCL's Climate active certification](#)

Organisation emissions data

The data below has been compiled from Public Disclosure Statements via Climate Active. It is intended to provide your organisation with a guide as to the spread of emissions, from Architectural and Landscape Architectural practices

	Bates Smart	%	BVN	%	Fender Katsalidis	%	Clarke Hopkins Clarke	%	Jackson Clements Burrows	%	Greenbox	%	TCL	%	Guymer Bailey	%	Terroir	%
Electricity	600.7	26.5	373.0	23.7	365.2	47.5	90	23.3	53.0	19.9	62.6	26.5	62.3	26.8	71.8	32.3	30.3	16.6
Air Transport (km)	382.7	16.9	656.5	41.7	116.3	15.1	25	6.5	24.4	9.2	89.1	37.8	88.2	38.0	42.3	19.0	51.7	28.4
ICT Services and Equipment	497.5	21.9	80.3	5.1	85.2	11.1	16	4.2	68.2	25.6	55.8	23.7	14.0	6.0			12.4	6.8
Land and Sea Transport (km)	78.7	3.5	49.0	3.1	33.4	4.3			11.6	4.3	11.0	4.7	16.2	7.0	79.9	35.9	9.0	4.9
Staff Commute							56	14.5										
Office Equipment and Supplies	73.5	3.2	36.0	2.3	61.4	8.0	76	19.6	49.3	18.5	3.9	1.6	2.1	0.9	3.5	1.6	54.1	29.7
Bespoke									15.3	5.7								
Food	161.4	7.1	192.0	12.2	20.8	2.7	9	2.4	13.2	4.9	5.7	2.4	4.2	1.8	2.3	1.0	6.7	3.7
Professional Services	301.0	13.3	2.0	0.1	0.6	0.1	0	0.1	4.4	1.6								
Travel - Accommodation						0.0				0.0								
Working from Home			29.9	1.9	31.3	4.1	23	5.9										
Fleet									0.5	0.2								
Land and Sea Transport (fuel)	0.1	0.0	3.4	0.2			57	14.9	1.7	0.6	0.0	0.0					15.1	8.3
Waste	35.3	1.6	6.5	0.4	1.7	0.2	12	3.1	1.5	0.6	0.8	0.3			1.2	0.5	1.4	0.8
Accommodation and Facilities	12.2	0.5	87.0	5.5	25.2	3.3	2	0.4	0.6	0.2	3.1	1.3	37.4	16.1	9.3	4.2	0.8	0.4
Cleaning and Chemicals	19.5	0.9	8.9	0.6	10.6	1.4	7	1.8	10.2	3.8	1.3	0.6	4.2	1.8			0.7	0.4
Construction Materials and Services	31.7	1.4																
Taxi and Uber	18.5	0.8			3.4	0.4	3	0.8	2.4	0.9	1.4	0.6			10.4	4.7		
Stationary Energy	26.3	1.2			9.4	1.2									0.8	0.3		
Refrigerants			30.7	1.9	0.9	0.1	2	0.4										
Office Plants and Maintenance																		
Postage, Courier and Freight	31.2	1.4	0.7	0.0	1.4	0.2	6	1.6	10.0	3.8	0.6	0.3	3.5	1.5	0.6	0.3		
Land and Sea Transport (\$)			15.9	1.0														
Car Hire																		
Merchandising							1	0.3										
Water			1.4	0.1	2.2	0.3	1	0.2	0.1	0.0	0.6	0.3			0.3	0.1		
Total Net Emissions	2270.1		1573.3		769.1		386		266.3		235.9		232.1		222.3		182.2	

Legend

- Medium/Large Organisation 30-300 staff
- Small Organisation 5-30 staff

- Highest Emissions Sources
- Lowest Emissions Sources

The average shown on the far right column on P57 represents the average emissions from a particular source (Co2-e) for organisations that have included the emissions source within their boundary.

The percentage shown for each organisation represents the emissions source as a percentage of that organisation's total emissions.

In the case of organisations with more than one year of data, the first year has been used to compare the baseline conditions.

The chart above shows average emissions sources as a percentage of total organisation emissions.

This means that for the organisations that included electricity in their emissions boundary, this emissions source contributed *on average* 30.5% of that organisation's total emissions.

M3	%	Oculus	%	Brand	%	WITH Arch	%	Hill Thalys	%	Jensen Plus	%	Sam Crawford	%	Mako	%	Average
47.2	28.6	32.7	22.5	38	30.4	29.6	41.5	41.8	75.8	9.0	24.8	6.2	19.6	4.3	31.4	112.8
27.4	16.6	7.2	5.0	8	6.3			2.8	5.1	18.1	50.1	2.2	7.0	0.5	3.6	96.4
37.3	22.6	51.8	35.7	16	12.8			3.6	6.5			7.7	24.4	1.7	12.5	67.7
		6.0	4.1	9	7.5	3.3	4.6	5.5	10.0			3.5	11.1	4.6	33.7	22.9
1.9	1.1			13	10.5	13.6	19.1			0.6	1.8					17.1
3.3	2.0	17.6	12.1	8	6.6	7.5	10.5	0.3	0.6	0.1	0.2	0.7	2.1	0.2	1.5	23.4
																15.3
8.9	5.4	3.2	2.2	0	0.3	4.0	5.6					6.9	21.9			31.4
22.1	13.4	3.8	2.6	11	8.8											43.2
										5.1	14.0					5.1
2.9	1.7	14.1	9.7													20.2
				7	5.4					2.3	6.4					3.2
2.1	1.3	0.3	0.2									2.1	6.6			9.1
2.3	1.4	3.2	2.2	8	6.7	9.4	13.2	0.8	1.5	1.0	2.8	1.1	3.6	1.7	12.4	5.5
1.5	0.9	0.4	0.3	3	2.1			0.3	0.6			0.1	0.2	0.4	2.9	12.2
1.0	0.6	2.1	1.5	1	0.5	2.6	3.6					1.1	3.5	0.2	1.5	5.0
																31.7
0.7	0.4					0.4	0.6									5.0
				2	1.5											9.6
2.6	1.6	1.5	1.0													7.4
1.6	1.0															1.6
1.2	0.7	0.6	0.4	1	0.4	0.4	0.6							0.1	0.4	4.4
		0.7	0.5													8.3
1.0	0.6															1.0
																1.2
0.1	0.0			0	0.2	0.5	0.7									0.7
165.0		145.1		125		71.3		55.1		36.2		31.4		13.7		398.8



Australian Institute of Landscape Architects

**ACN No. 008 531 851 (National Office)
Level 1, The Realm | 18 National Circuit | Canberra ACT 2600
Telephone: (02) 6198 3268
Email: admin@aila.org.au
www.aila.org.au**

Bungarribee Park • JMD Design • Photo: Simon Wood • Darug Country