



First steps to a carbon positive built environment

Supporting innovation and leadership today for a low emissions future

The Green Building Council of Australia's (GBCA's) strategic plan calls for the development of a carbon positive roadmap for industry.

This roadmap aims to support our industry as we strive to keep global warming to within the 1.5°C target outlined in the Paris agreement. The roadmap will complement the recommendations established by the Australian Sustainable Built Environment Council (ASBEC) in its landmark report Low Carbon, High Performance, and it will support the World Green Building Council's Advancing Net Zero project.

In close consultation with industry, the GBCA has drafted four guiding principles to underpin the roadmap:

- Promote energy efficiency, driving quality design first and efficient systems next.
- Drive investment in resilient, renewable energy infrastructure in Australia.
- Increase markets for carbon products, materials and services that have offset or eliminated their emissions.
- Promote offsets for any remaining emissions.

The GBCA's Carbon Positive Roadmap will outline a long-term plan for the GBCA and the property and construction industry, and outlines how we can work collaboratively. It will also inform our policy priorities and broader industry engagement, and include a forward trajectory of upgrades to Green Star.

In parallel with the development of this roadmap, and recognising the urgency of action, the GBCA has taken more immediate steps to support industry leaders to reduce carbon emissions now – both for buildings and precincts in operation, and in design. The Australian Government's National Carbon Offset Standard for Buildings, and new Innovation Challenges through Green Star, provide critical first steps for industry as we move towards a carbon positive future.

Defining carbon positive

There are many terms used to describe the elimination of carbon emissions. For this document, the following are used:

Net zero carbon: An item or asset that has eliminated or offset all annual carbon emissions.

Carbon neutral: An item or asset that has been certified against the Australian Government's National Carbon Offset Standard for Buildings or equivalent.

Carbon positive: An item or asset that has eliminated or offset all emissions, and then offset further beyond its share.

1. The Australian Government's National Carbon Offset Standard for Buildings

A key feature of the GBCA's Carbon Positive Roadmap is the National Carbon Offset Standard for Buildings (the standard), developed collaboratively with the GBCA and released in October 2017.

The release of the standard achieves three key goals:

- Define a carbon neutral building in operation to provide consistency across the Australian building industry.
- Provide verification of achievement that is relevant to asset owners (through NABERS Energy and Green Star – Performance) and government (for COP21 commitments).
- Enable Australian industry to demonstrate accountability and transparency through a reporting mechanism that investors understand.

The standard covers operational emissions of a building, including:

- Emissions from energy and electricity generation and consumption.
- Emissions from water consumption, waste in operations, refrigerant leakage, and (in the future) transport emissions.

The standard has a minimum requirement that the building must be 30% more energy efficient than average. That is:

- The building must have a 4 star NABERS Energy rating; or
- The building must achieve a 4 Star Green Star – Performance rating; or
- The building must achieve 8 points in the 'Greenhouse gas emissions' credit in Green Star – Performance.

Aside from the minimum energy efficiency requirement, the standard requires that all other emissions be measured, reduced, eliminated, or offset through high quality carbon offsets. The standard communicates one clear achievement: that a building is carbon neutral if it is energy efficient and has addressed all emissions.

The cost for achieving carbon neutral building certification in addition to a Green Star – Performance rating is \$1,900 + GST.

A related standard, the Australian Government's National Carbon Offset Standard for Precincts, has also been released. However, as it is for precincts in operation, and the GBCA's Green Star – Communities rating tool assesses the design of master-planned communities, the two certifications do not, at this time, align.

2. Innovation and leadership through Green Star

As the standard only measures and addresses carbon for buildings in operation, the GBCA has developed three Green Star Innovation Challenges. The challenges are applicable to new buildings, new fitouts, and existing buildings. New challenges for precincts will be rolled out in the near future.

The three Innovation Challenges are:

- Powered by renewables.
- Responsible carbon impacts.
- Carbon positive.

Together these three challenges chart a world-leading course to a carbon positive future.

Powered by renewables

This Innovation Challenge rewards the use of 100% renewable energy, the shift away from fossil fuel use in buildings and the use of on-site solar and battery storage. To achieve points for this challenge, new buildings must also register for Green Star – Performance.

The challenge has three goals:

- Promote the use of on-site or off-site renewable energy in buildings and fitouts.
- Eliminate the use of fossil fuels on site for most uses (except in emergency situations or for small scale cooking).
- Promote and reward the use of on-site solar and storage systems where possible and relevant.

Responsible carbon impacts

This Innovation Challenge rewards the reduction of embodied carbon in a building, with any remaining emissions offset. It also rewards the use of carbon neutral products and materials. This Innovation Challenge only applies to new buildings and fitouts.

The challenge has three goals:

- Promote the design and use of low embodied carbon solutions.
- Reward asset owners who have taken responsibility for their building's embodied carbon and have offset those emissions accordingly.
- Create incentives for the use of carbon neutral products and materials, and encourage product manufacturers to take responsibility for their own embodied carbon, rather than shifting that responsibility to the asset owner.

What are Innovation Challenges?

Innovation Challenges are special credits within Green Star that project teams pursue to demonstrate additional achievements and increase their rating. GBCA uses Innovation Challenges to test new approaches and signal the direction of future Green Star updates. For example, credits that reward life cycle assessment and health and wellbeing of construction staff were first introduced as Innovation Challenges and are now specific Green Star credits.

Carbon positive

This Innovation Challenge rewards project teams that address emissions not covered by the above credits (such as through waste, water consumption). It also rewards tenants for selecting carbon neutral buildings, and encourages collaboration between tenants and asset owners. It also requires an additional purchase of offsets to address emissions not easily calculated as part of the above activities.

The challenge has three goals:

- Ensure ongoing carbon neutral certification of buildings.
- Create demand for carbon neutral buildings by rewarding tenants for their selection.
- Address all emissions in the building and fitout.

Next steps

The work to date is part of a broader discussion on carbon and greenhouse gas emissions that will continue with the release of GBCA's Carbon Positive Roadmap. We look forward to working collaboratively with industry to eliminate emissions from the built environment, identify new value and deliver positive, resilient and healthy places for people and the natural environment.