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Green Building Council Australia

Climate Positive Buildings & our Net Zero Ambitions

Guidance for Green Star on the use of offsets and renewables

Building a sustainable future

With the assistance of

south pole

With thanks to

Our Climate Positive Partners

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On our shared goals and ambitions to a climate positive future

In 2018, we released 'A Climate Positive Roadmap'*. This document outlined a path for how we planned to decarbonize the built environment, with a strong focus on using Green Star to set targets and guidance that industry could follow. That same year, WorldGBC launched the Global Commitment for Net Zero Carbon Buildings, which challenged industry to get to net zero by 2030.

In a few short years, industry has adopted these targets as their own, and we have made progress at changing the conversation from should the built environment be 'net zero' to how we should achieve this goal.

The need to decarbonise is significant. The Intergovernmental Panel on Climate Change (IPCC) SR15 report paints a clear picture of the steps we need to take to do this: fossil fuel free, highly efficient buildings, powered by renewables, built with low upfront carbon emissions, and offset with nature.

The good news is that the means to do this is at our reach, and once again the built environment can be at the forefront of a fully decarbonized economy.

This paper aims to help you do this. It builds on our roadmap to articulate a clear strategy that all buildings should follow. It also sets global and leadership targets that should be adopted and exceeded by every stakeholder in the built environment.

We need not waste any more time thinking about how to decarbonise. The next step is to simply start doing it.

* Formerly known as 'A Carbon Positive Roadmap'

"Decarbonising the built environment will take leadership and engagement across all disciplines. Our industry is ready for this challenge"

Davina Rooney
Chief Executive Officer
Green Building Council of Australia

Purpose of this document

Help drive the transformation of the built environment to a climate positive future.

Understand the science of why and how we need to drive our emissions to zero and what actions are available to us.

Understand how the built environment needs to act to lead on the ambitions noted in the Paris Agreement and the role and targets set in Green Star.

Provide guidance on making claims for offsets and renewables in Green Star.

List of acronyms

ACCU	Australian Carbon Credit Unit
AFOLU	Agriculture, Forestry, and Other Land Use
BECCS	Bio-energy with Carbon Capture and Storage
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
ERF	Emissions Reduction Fund
GBCA	Green Building Council Australia
GS	Gold Standard
IPCC	Intergovernmental Panel on Climate Change
NBS	Nature-Based Solution
SDG	Sustainable Development Goal
tCO_2e	tonne of carbon dioxide equivalent
VCS	Verified Carbon Standard

The global push for a climate positive built environment

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Links to the sustainability megatrends

Global megatrends are shaping the built environment like never before. Climate action, resource depletion, and a focus on people are megatrends that the built environment must address.

In response to these megatrends, the built environment has focused on three strategic imperatives: Climate action, resource efficiency and circularity, and health and wellbeing.

This paper aims to explicitly address the Climate Action imperative with a clear focus on driving net zero emissions and addressing embodied carbon, water, and nature.

1 Net zero emissions
2 Climate resilience
3 Nature
4 Circular economy
5 Embodied materials
6 Water cycle
7 Health and wellbeing
8 People and equity
9 Community resilience

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GBCA's Climate Positive Roadmap

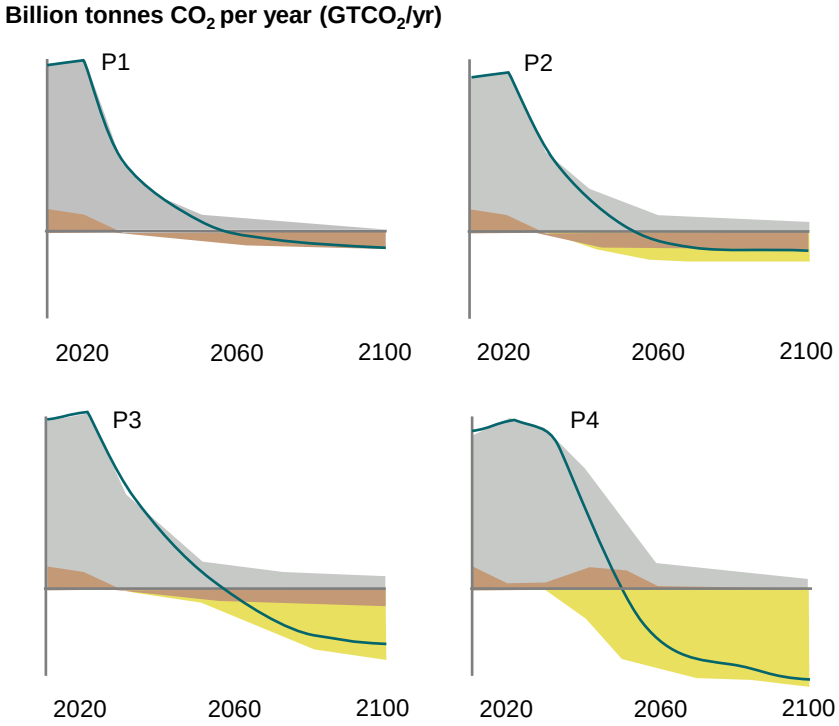
GBCA's Climate Positive Roadmap* outlines high-level actions and targets over the next decade to support new buildings and fitouts in addressing its emissions by 2030 and existing buildings and fitouts by 2050.
The following **10 actions** will help building and fitout owners achieve this vision:

Measure and disclose the performance of building and fitouts	Reduce the building's upfront carbon emissions
Reduce building and fitout energy demand	Stimulate markets for carbon-neutral products and services
Use 100% renewable energy	Support high-quality offsets for remaining emissions as a transition strategy
Switch away from fossil fuel use	Increase access to active transport facilities and public transport
Phase down refrigerants with a high global warming potential	Support the adoption of electric vehicles

(Source: GBCA's Climate Positive Roadmap for the built environment (June 2018. Formerly known as 'A Carbon Positive Roadmap')

Why do we need to comprehensively address our emissions?

Breakdown of contributions of global net CO_2 emissions in four illustrative model pathways



(Source: IPCC SR15 Report, 2018)

In all scenarios outlined in the IPCC report (P1 to P4), emissions from the economy must come down to zero.

What this means for the built environment is all emissions that can be eliminated should be eliminated as quickly as possible, and any that cannot be, must be addressed by solutions that draw down carbon from the atmosphere.

To achieve this, we need global targets, leadership targets, and a clear definition of what buildings should be aiming for.

- Fossil fuel industry
- Agriculture, forestry and other land use (AFOLU)
- Bio-energy with Carbon Capture and Storage (BECCS)

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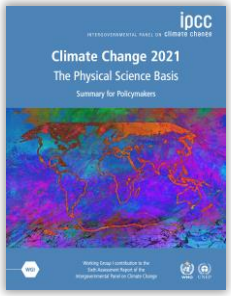
On the need to decarbonize faster

Two recent documents have highlighted the importance of decarbonising buildings faster than ever before.



Climate Change 2021 The Physical Science Basis – 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)

Released August 2021, it notes that we are currently at 1.1 degrees over pre-industrial levels and that we are on-track to exceed 1.5C in 10 to 12 years. The report serves as a warning that action is urgently required.

The report recommends strong, rapid, and sustained emissions reduction with a focus on methane reductions. It notes that emissions must be zero by 2050. It also recognises that we must compensate for existing and unabated emissions with nature-based carbon removal activities.

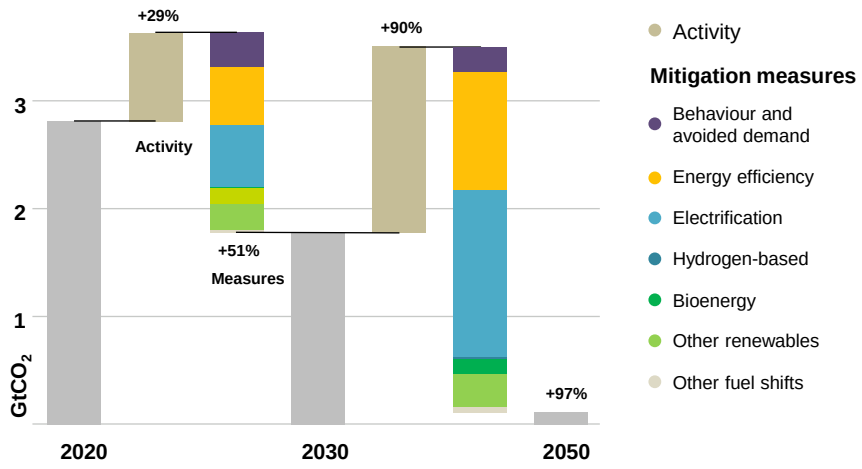
Net Zero by 2050: A roadmap for the global energy sector – International Energy Agency

Released May 2021, it describes pathways, timelines, and recommendations for many industries, including buildings. It also defines the end state of buildings in 2050 as *zero carbon ready* buildings, or buildings that are highly energy efficient, use directly or indirectly a fully decarbonised energy supply, maximises the efficient use of materials, and helps facilitate the decarbonisation of other sectors.

The report also outlines the aspects of buildings that provide the largest decarbonisation opportunities (see diagram to the right). Electrification is identified as the highest impact for change in the energy sector.

Finally, the report outlines that globally, 50% of all existing buildings should be *zero carbon ready* buildings by 2040.

Global direct CO_2 emissions reductions by mitigation measure in buildings



Electrification and energy efficiency account for nearly 70% of buildings-related emissions reductions through to 2050, followed by solar thermal, bioenergy and behaviour.

Extract from *Net Zero by 2050: A roadmap for the global energy sector*, International Energy Agency (Figure 3.27)

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Our global targets

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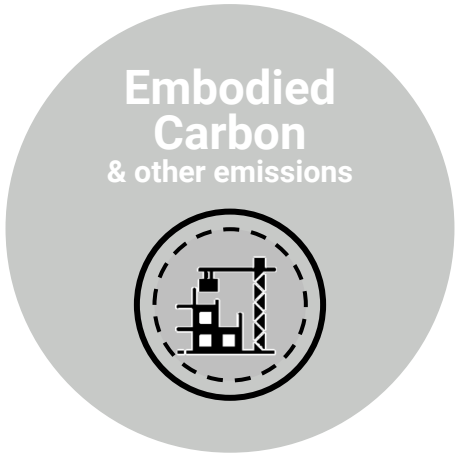

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By 2030, all new buildings must be highly efficient and fully powered by renewables.

By 2030, all new buildings must have a 40% reduction in embodied carbon.

By 2030, all new buildings must have a 40% reduction in embodied carbon, be highly efficient, fully powered by renewables.

By 2050, all buildings must be highly efficient and fully powered by renewables.

By 2050, any remaining emissions that cannot be eliminated must be neutralised.

By 2050, all buildings must be highly efficient, fully powered by renewables and neutralised the rest.

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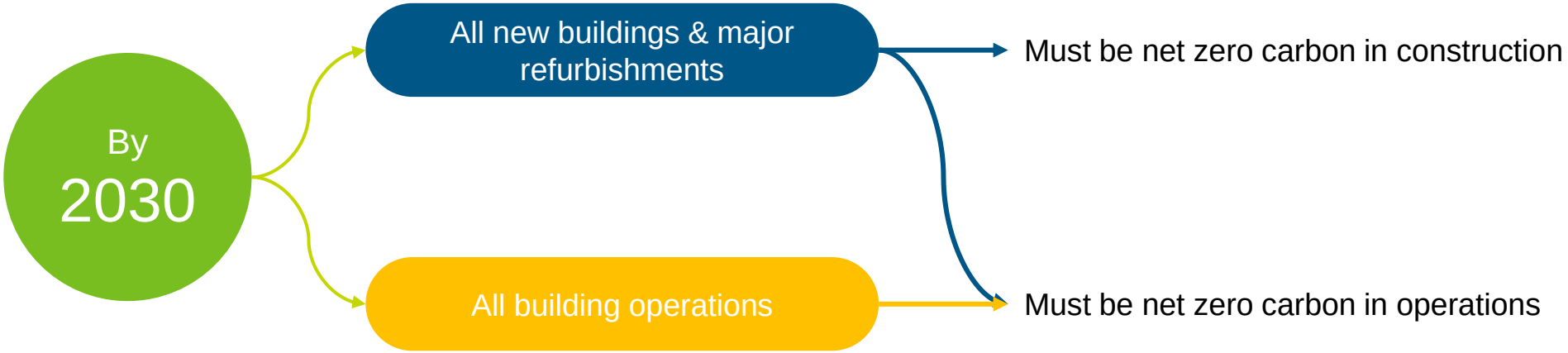
Our global commitment

Driving change means moving faster than others, inspiring the rest, enabling regulatory change, and creating transformation in the supply chain. The green building movement, through WorldGBC set out a clear challenge. We must drive the built environment to net zero carbon as fast as possible. The two global targets are:



WORLD GREEN BUILDING COUNCIL

ADVANCING NET ZERO

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From net zero to climate positive

The many definitions of how to transform the built environment

WorldGBC's priorities aim to define global priorities to drive a built environment to be net zero. But global priorities will need to be adjusted over time and location. To help the Australian market understand the trajectory that these priorities may take, we have translated the concept to what we call 'climate positive' buildings.

Advancing Net Zero's global priorities for buildings in operation

- Energy efficiency (as much as possible)
- On-site renewable energy
- Off-site renewable energy
- Offsets as a last resort

Climate Positive

- Highly efficient
- Fossil fuel free
- Powered by renewables
- Built with lower upfront emissions (for new buildings)
- Offset, or compensate, with nature

Definitions

There are many definitions in this space that are used by industry. The following are the most commonly used versions of these terms, and are used in this paper.

		Net Zero				Carbon Neutral	Climate Positive
		The balance between the amount of greenhouse gas produced and the amount removed from the atmosphere on a net annual basis. It is a technical, though open-ended term. Its use must be accompanied by the focus on-emissions, e.g. net zero in operations, net zero for construction, etc.				Carbon neutral buildings are those that address all their emissions so that the carbon account is zero. Actions can include energy efficiency, use of renewables, and offsets, and must be considered in that order. The measurement is on a net annual basis. In Australia, the term is defined by the Federal Government through the Climate Active Carbon Neutral program.	Climate positive buildings are those that address all relevant emissions, but do so in a manner that drives our built environment to be in line with a 1.5C trajectory in the built environment. These buildings are fossil fuel free, highly efficient, fully powered by renewables, with lower embodied emissions, and with remaining emissions offset with nature – essentially removing carbon from the atmosphere.
		embodied carbon	in operations	energy emissions	carbon		
Actions Practical building related actions that represent best practice to decarbonise buildings.	Fully powered by renewables			✓		❍	✓
	Fossil fuel free			✓			✓
	Highly efficient			✓		✓	✓
	Lower upfront and embodied carbon					✓	✓
	Compensate for remaining embodied carbon	✓			✓[2]	✓[4,5]	✓[7,8]
	Compensate for remaining emissions		✓		✓[2]	✓[5]	✓[8]
Scopes The emissions from these scopes are addressed through avoidance, reductions, offsets.	1 Refrigerants				✓	✓	✓
	1 Gas or other fuel use[1]		✓	✓	✓	✓	✓
	2 Electricity		✓	✓	✓	✓	✓
	3 Products and materials emissions	✓			✓	✓	✓
	3 Water					✓	✓
	3 Waste					✓	✓
Meets WorldGBC's net zero carbon buildings commitment					✓	✓	✓
Formal accreditation					SBTI[3]	Climate Active[6]	Green Star[9]

❍ While not required, the standard strongly encourages the use of renewable electricity. This is regularly taken up by buildings going for certification.

[1] Emissions from emergency fuels are not generally material emissions in buildings

[2] The correct mechanism to be net zero would be through carbon removal activities. As there is no clear standard, this does not always occur.

[3] SBTI assesses corporates as being *net zero carbon* but their standard does not currently apply to buildings.

[4] Climate Active addresses embodied carbon in new buildings. For existing buildings, these would matter if they are significant (e.g. more than 5% of the emissions in the building).

[5] Climate Active requires compensation for carbon emissions. These are not only limited to removal activities but may also include emissions reduction.

[6] Climate Active certification can be achieved through NABERS, Green Star, or Climate Active.

[7] Applies to both new buildings, and embodied carbon from refurbishments or maintenance activities of the existing building.

[8] The Climate Positive Pathway explicitly requires carbon removal activities, specifically nature based. This is in line with current best practice.

[9] Green Star and ILFI's Zero Carbon standard share a crosswalk that can be found here.

What does climate positive mean?

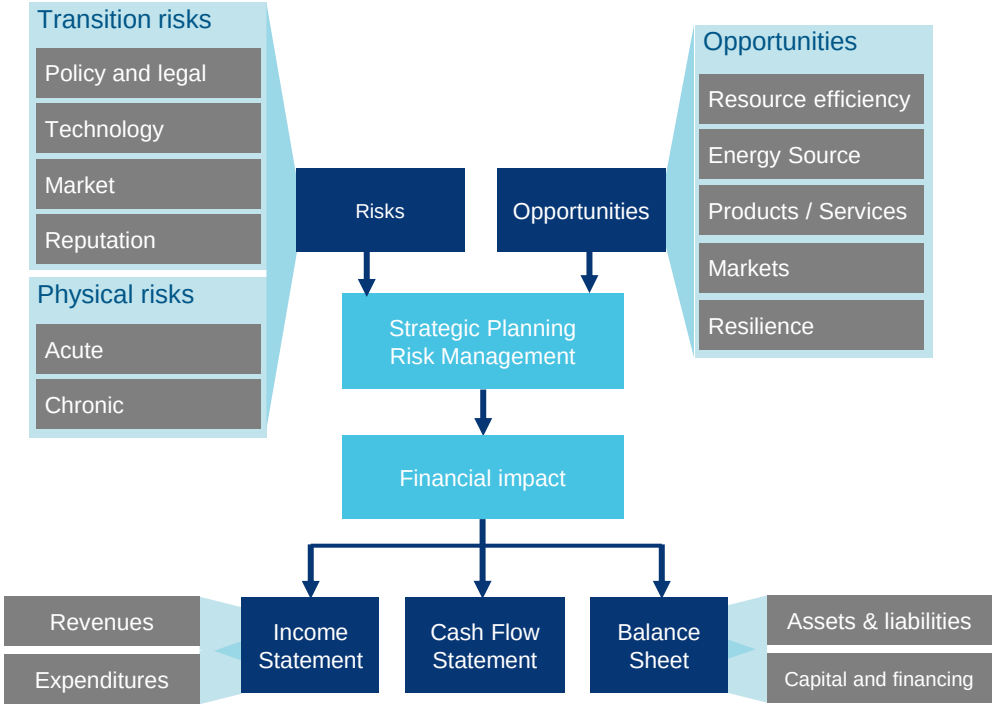
The Task Force for Climate-related Financial Disclosure and transition risk

The Task Force for Climate-related Financial Disclosure (TCFD) was established as part of the G20 Financial Stability Board to enhance organisational consideration and reporting of financial risks related to climate change.

TCFD recommendations include understanding distinct risks (physical and transition) and opportunities against which organisational strategy can be assessed.

While physical risks relate to the impacts from changing climate conditions, transition risks relate to how the entity's business activities need to change over time to account for a net zero carbon economy.

Built environment organisations reporting in line with the TCFD recommendations should consider decarbonisation strategies in line with the Paris Agreement, and adjust their efforts appropriately.



Climate-Related Risks, Opportunities, and Financial Impact (TCFD)

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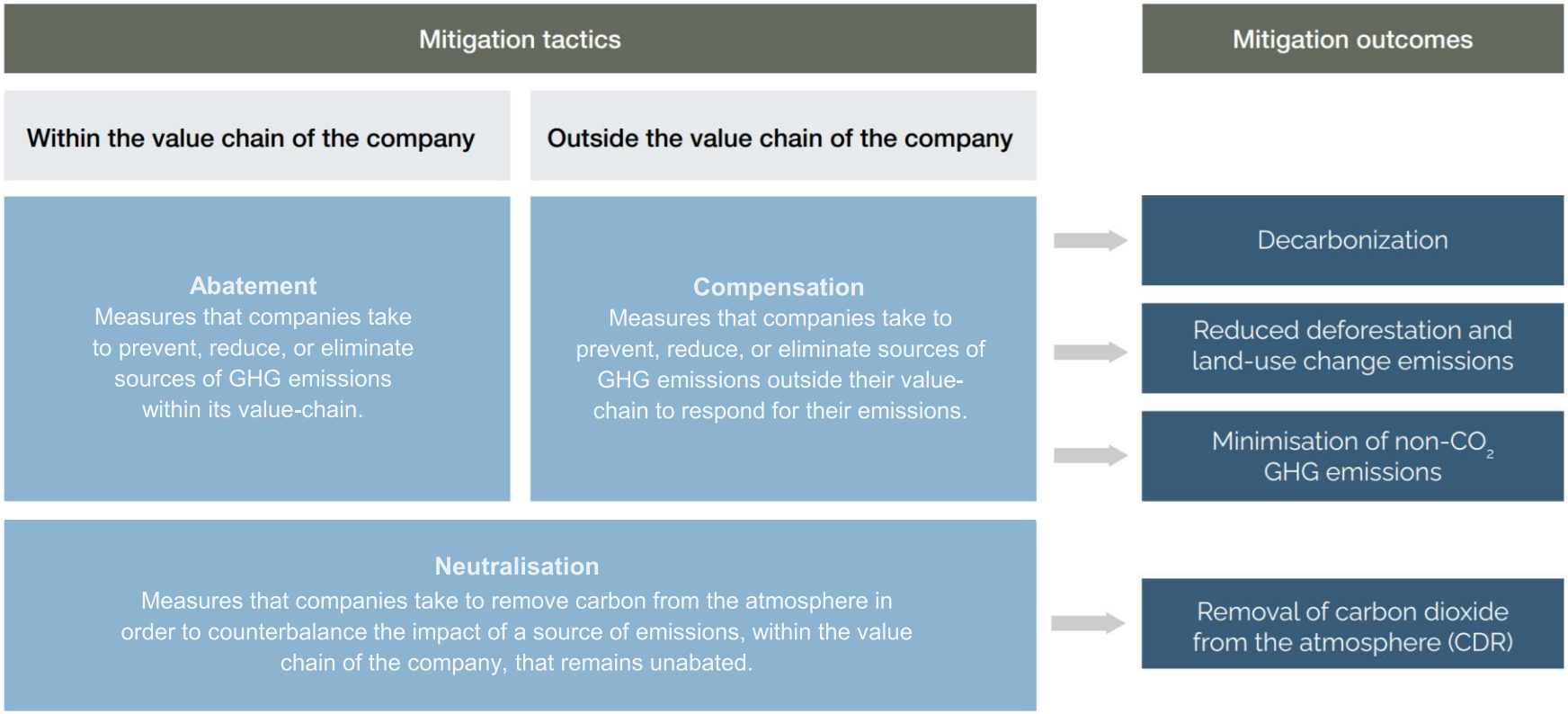
Foundations for science-based net zero target setting in the corporate sector

Published by the Science Based Targets initiative, the paper outlines a conceptual foundation for setting and assessing corporate net-zero targets based on robust climate science.

Link: Foundations for science-based netzero target setting in the corporate sector (September 2020)
To develop this paper, we also reviewed the SBTi Net Zero consultation paper which provides additional information that informed our views

The concepts of net zero emissions aligned with the Paris Agreement



Source: Foundations for science-based netzero target setting in the corporate sector (September 2020)

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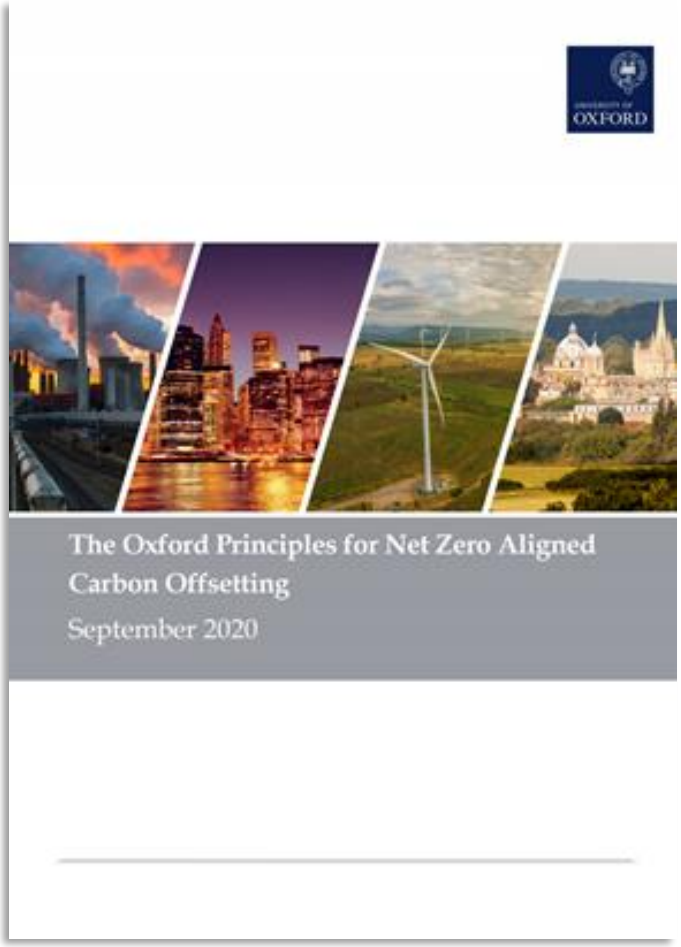


The Oxford Principles for net zero aligned carbon offsetting

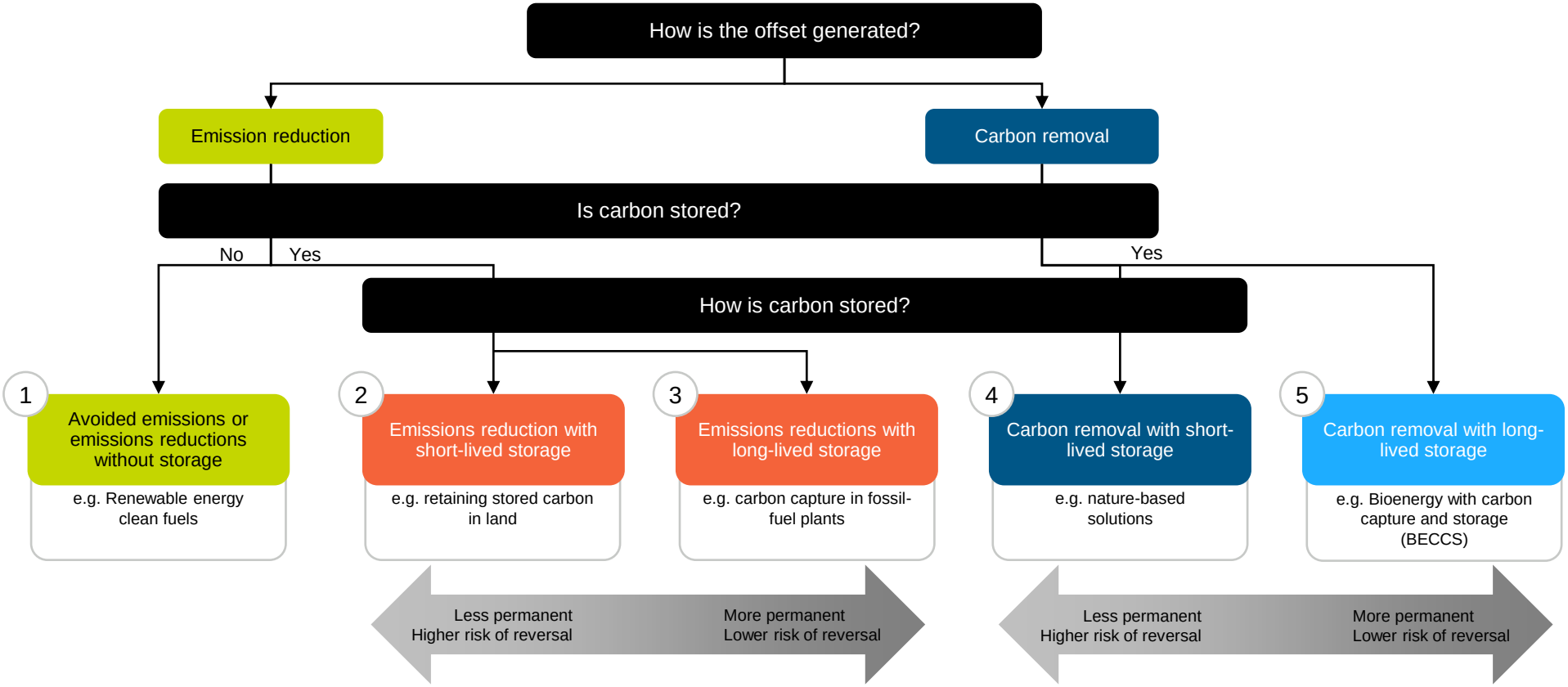
The Oxford Principles for Net Zero Aligned Carbon Offsetting are designed to help clarify these questions, particularly for non-state actors who want to design and deliver rigorous voluntary net zero commitments and develop high quality carbon markets in line with the Paris Agreement.

The four principles are:

- Cut emissions, use high-quality offsets, and regularly revise offsetting strategy as best practice evolves
- Shift to carbon-removal offsetting
- Shift to long-lived storage
- Support the development of net zero aligned offsetting

(Source: The Oxford Principles for Net Zero Aligned Carbon Offsetting (September 2020))

The principles in practice



(Source: The Oxford Principles for Net Zero Aligned Carbon Offsetting (September 2020))

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Eliminating, reducing, compensating

The many roads to addressing your emissions

Reduce

- Relevant for all emission scopes.
- A must for any credible climate change mitigation claim.
- Relevant to continue doing over time.

Eliminate

- Currently relevant for scope 1 and 2 emissions.
- For new assets, avoid a lock-in effect of fossil fuels in the long term, and install systems that use low-impact refrigerants.
- For existing buildings, phase out fossil fuels, and move to low-impact refrigerants.
- For electricity, can be completed today through renewable electricity.

Compensate

- Assists companies to make claims of carbon-neutrality and make a first step to address emissions as they decarbonise.
- Relevant for emissions that cannot be immediately eliminated but should be over time (e.g. fossil fuel consumption).
- For new buildings, relevant for emissions that cannot be easily eliminated at the time of construction (e.g. refrigerants and embodied carbon).

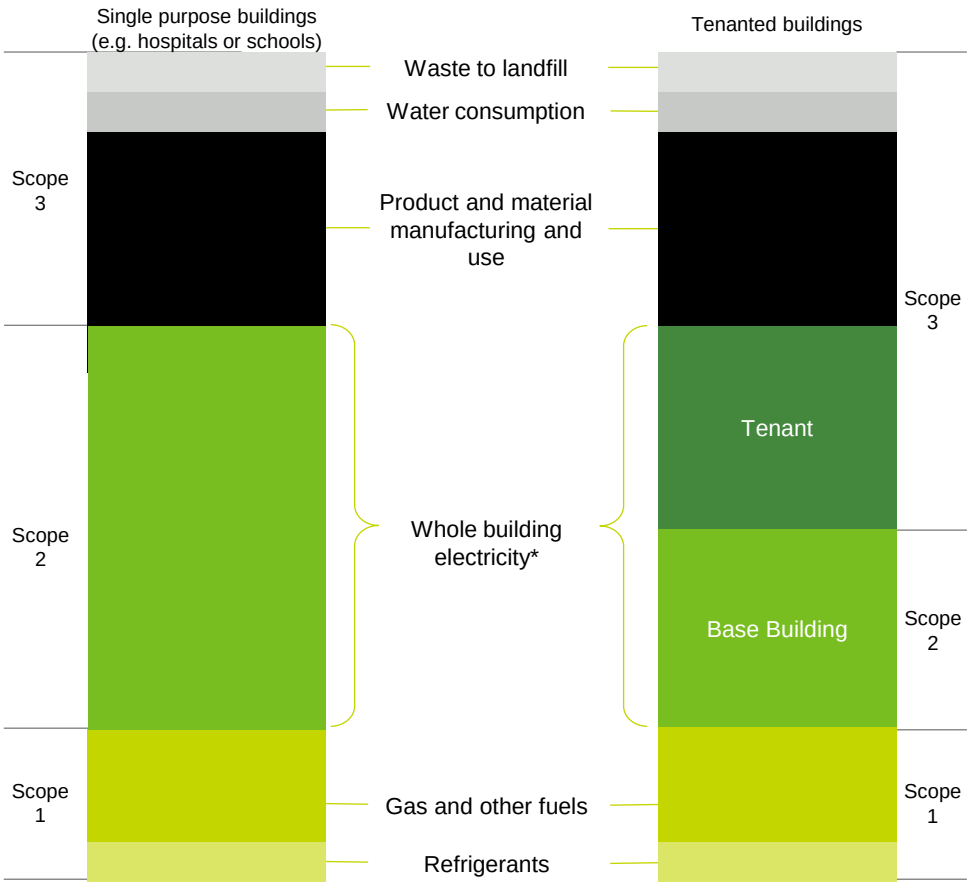
Neutralise

- Over-time, emissions that cannot be eliminated must be paired with actions that neutralise or withdraw an equal amount of carbon from the atmosphere.
- Therefore, if emissions exist that cannot be eliminated they should be paired with investments that are long-term carbon storage projects.

These are the emissions of typical buildings over their lifetime

In terms of building emissions, electricity in Australia continues to be the largest portion of typical building's emissions, then, depending on location, embodied carbon, followed by gas, refrigerants, emissions from water consumption and waste.

Each of these issues has different strategies that should be followed to address and get to a climate positive future.



Source: Various, 2017

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The climate positive strategies for the built environment

At a global level

REDUCE global GHG emissions

INCREASE global CO_2 sinks

At an action level

REDUCE Scope 1 + 2 + 3 emissions

ELIMINATE emissions within & outside of the value chain

Compensate and neutralise emissions through natural & technical removals within & outside the value chain

At a building level

Reduce upfront carbon emissions by selecting better materials (new buildings)

Increased efficiency measures to reduce emissions and enable transformation of the grid

Remove fossil fuels, move to low impact refrigerants and avoid the creation of lock-in effects

Move to renewables to eliminate emissions from energy consumption

Compensate for emissions by investing in nature-based carbon removal projects

Neutralise emissions by financing long-term carbon removal projects

(Source: Carbone 4, Net Zero Initiative, 2020 – adapted by South Pole and GBCA)

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The three key barriers to decarbonizing our built environment

Over the next 20 years we will have to decarbonise all buildings in Australia. To do this, we need to design, build, and refurbish buildings to address the following three key barriers.

Refrigerants

There are now viable commercial alternatives to hydrofluorocarbons (HFCs). Natural refrigerants' including ammonia, carbon dioxide and hydrocarbons, as well as manufactured substances, such as hydrofluoro-olefins (HFOs), are now viable alternatives with much lower impact.

The built environment must phase out HFCs for low impact alternatives from new buildings as quickly as possible and from existing buildings by 2040 at the latest.

Fossil fuels

Fossil fuels in buildings can be typically found as natural gas in heating, cooking, hot water and power, while diesel is used for backup energy generation.

The IPCC SR15 report notes that the continued installation of fossil fuel infrastructure will likely result in the planet overshooting its climate targets.

The built environment must phase out fossil fuel infrastructure from new buildings as quickly as possible and from existing buildings by 2040 at the latest.

Emissions from sourcing, manufacturing, installation, and demolition of materials

These emissions (known as embodied carbon) represent about 20% of a typical building's emissions. Unlike operational carbon, the vast majority of these emissions are in the atmosphere on day one of the building's lifetime (upfront carbon).

Addressing these emissions can be done by improving building designs, by selecting lower carbon materials, and by using carbon neutral products.

The built environment and the supply chain must jointly reduce embodied carbon in buildings by 40% by 2030, and reduce to zero by 2050.

Green Star's climate positive targets

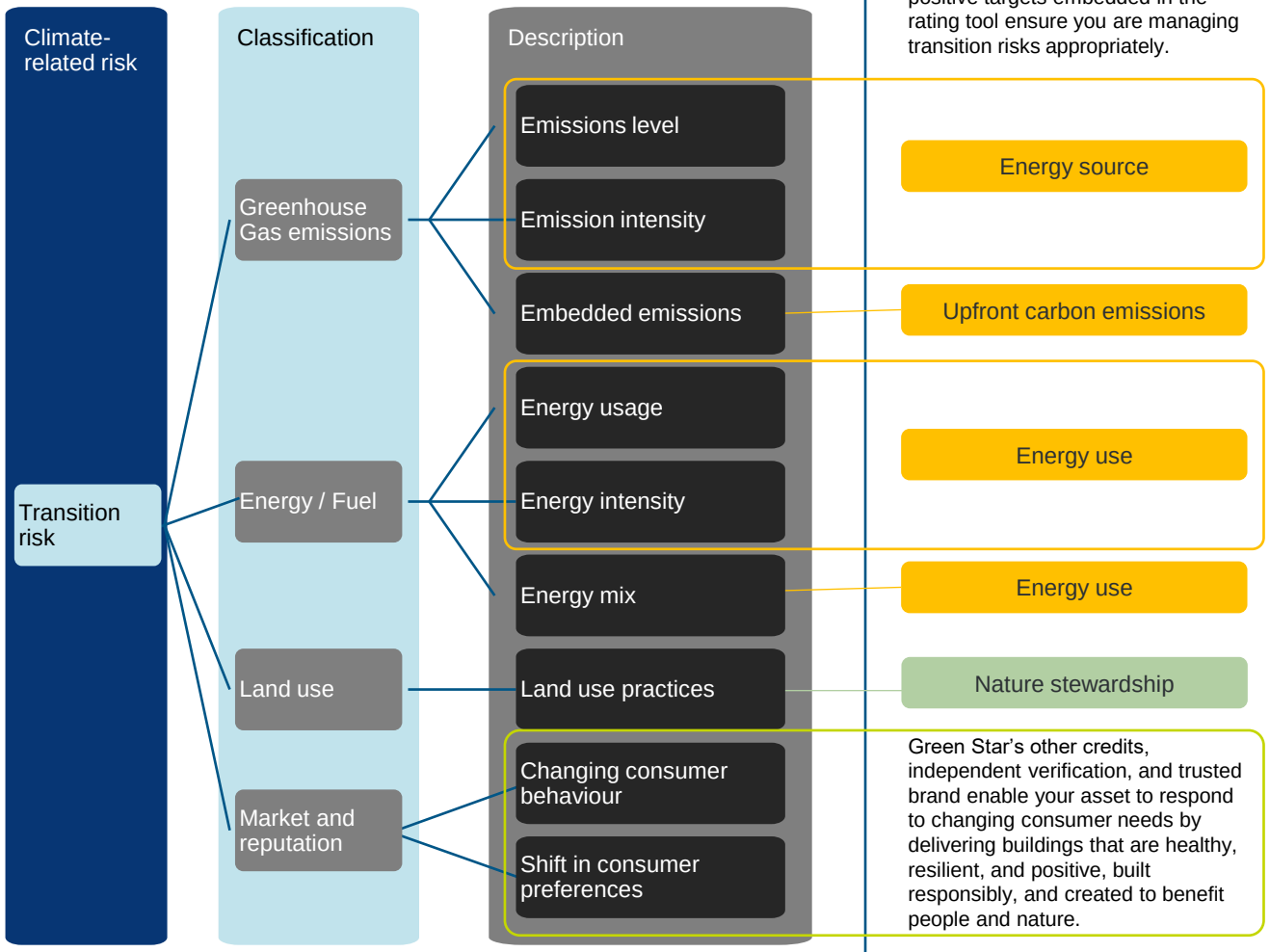
TCFD, Green Star & transition risks

Green Star Buildings and all new Green Star Future Focus rating tools have been designed to address both physical and transition risks with a focus on driving net zero carbon targets.

Green Star can serve as a valuable tool to manage your transition risks at an asset level, which in turn helps address your strategic risks and opportunities.

Climate-related risks

While risks are determined at a group strategy level, individual assets have to address and ensure they meet these strategic goals.



The following Green Star Buildings credits help you manage these risks at an asset level. The climate positive targets embedded in the rating tool ensure you are managing transition risks appropriately.

Green Star's other credits, independent verification, and trusted brand enable your asset to respond to changing consumer needs by delivering buildings that are healthy, resilient, and positive, built responsibly, and created to benefit people and nature.

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Green Star Buildings

What climate positive means for assets in construction

Built with lower upfront emissions

Highly efficient

Fossil fuel-free

Powered by renewables

Offset with nature

Upfront carbon emissions

Uses lower carbon products and incentivises change in the supply chain.

Energy use

Reduces and manages energy loads needed to operate the building.

Energy source

The building does not use fossil fuels for heating, cooling, cooking or power, and uses low impact refrigerants.

The building is fully powered by on-site or off-site renewable energy.

Other carbon sources

Invests in natural solutions to capture and store carbon from non-energy carbon emissions.

Reduce emissions

Eliminate emissions

Compensate

Denotes Green Star Buildings (2020) credit

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Our targets for new buildings in detail

Green Star Buildings sets targets to decarbonise all buildings

For **Green Star Buildings**, new assets will need to:

	2020	2023	2026	2030
Be net zero carbon in operations • Highly efficient • Fossil fuel free • Sources all energy from renewables • Reduces upfront carbon emissions • Offsets remaining scope 1 emissions	6 star World Leadership	5 star Australian Excellence	4 star Best Practice	
Be climate positive • Highly efficient • Fossil fuel free • Sources all energy from renewables • Reduces upfront carbon emissions • Offsets all emissions under the owner's control		6 star World Leadership	5 star Australian Excellence	4 star Best Practice

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Our targets for new buildings in detail

Green Star Buildings sets the targets to decarbonise all new buildings by 2030.

Credits	Criteria	2020*	2023*	2026*	2030**
Energy source	Renewable electricity	6 star	5 star	All registrations	All certifications
	Renewable energy	6 star	5 star	All registrations	All certifications
Energy use Reductions over typical building	10% reduction	All ratings			All certifications
	20% reduction	6 star	5 star	All registrations	All certifications
	30% reduction				
Upfront carbon emissions Reductions over a typical building	10% reduction	All registrations			All certifications
	20% reduction	6 star	5 star	All registrations	All certifications
	40% reduction			6 star	All certifications
Other carbon emissions	Scope 1 eliminated or offset (refrigerants and fossil fuels)	6 star	5 star	All registrations	All certifications
	All remaining emissions offset (embodied carbon and other under control)		6 star	5 star	All certifications

* Denotes year of registration
** Denotes year of completion

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Tenant emissions in Green Star

There are two key sources of tenant emissions in a building: energy emissions and fitout embodied carbon. Combined they are a significant portion of a building's scope 3 emissions. The built environment should do what it can to help tenants be decarbonise by 2050.

	Energy emissions		Embodied carbon
	Gas	**Electricity**	**Fitout embodied carbon**
What the building owner can do	Remove fossil fuel infrastructure from the building.	Encourage the tenant to shift to renewable electricity or provide renewable electricity to tenants.	Encourage the tenant to offset its embodied carbon, or provide and manage fitouts within the building to tenants.
What the tenant can do	Look for fossil-fuel free buildings.	Buy 100% renewable electricity for its fitout.	Reduce and offset its fitout embodied carbon.
Green Star Buildings credit*	Energy source The building does not include fossil fuel infrastructure for cooking, heating, or hot water.	Tenant energy emissions The building owner provides a facility or a method to encourage tenants to buy renewable energy. Most of the tenants use renewable energy.	Upfront fitout emissions The fitout emissions have been offset by the building owner or the tenant.

Standard Green Star Buildings credit Sector-specific Green Star Buildings credit

* Similar credits may be available for Green Star Performance

Green Star Performance

What climate positive means for assets in operations

Lower embodied emissions	Highly efficient	Fossil fuel free	Powered by renewables	Offset with nature	Partner for success
Embodied emissions	**Energy use**	**Energy source**		**Other carbon emissions**	**Tenant energy source** **Other tenant emissions**
Uses lower carbon products and incentivises change in the supply chain.	Reduces and manages energy loads needed to operate the building.	The building does not use fossil fuels for heating, cooling, cooking or power, and uses low impact refrigerants.	The building is fully powered by on-site or off-site renewable energy.	Invests in natural solutions to capture and store carbon from non-energy carbon emissions.	Assists tenants and occupants to decarbonise through quantifying emissions and procuring renewables
Reduce emissions		Eliminate emissions		Compensate	

Denotes Green Star Performance (2021) credit

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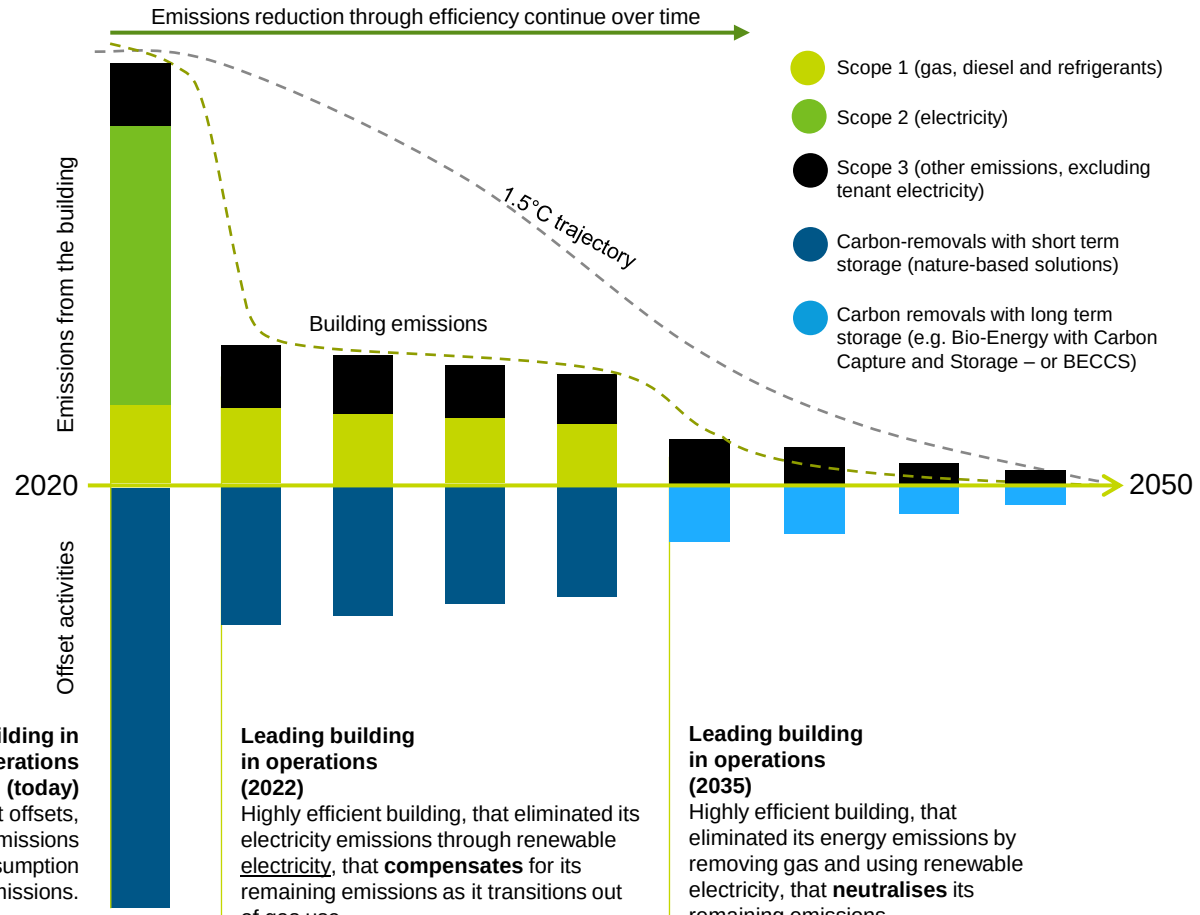
Transitioning to a climate positive future for existing buildings

When translated to **an existing building in operations** there is a significant opportunity to continue reducing emissions over time, but also go a long way to eliminate electricity emissions, compensate for emissions that are hard to abate, and eventually neutralise any remaining emissions in the value-chain.

Ultimately what we need to do is accelerate the decarbonisation of our buildings.



Leading building in operations (today)
Efficient building that offsets, or compensates, emissions from its energy consumption and other emissions.

Leading building in operations (2022)
Highly efficient building, that eliminated its electricity emissions through renewable electricity, that **compensates** for its remaining emissions as it transitions out of gas use

Leading building in operations (2035)
Highly efficient building, that eliminated its energy emissions by removing gas and using renewable electricity, that **neutralises** its remaining emissions

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Our targets for existing buildings in detail

The next version of Green Star Performance will set targets to decarbonise all buildings

For **Green Star Performance**, existing buildings will need to:

	2023	2026	2030	2035	2040
Be in alignment with Advancing Net Zero's goals • Have a carbon action plan to decarbonise • Be highly efficient • Source all electricity from renewables • Eliminate or offset remaining emissions • Achieve Climate Active certification	6 star World Leadership	5 star Australian Excellence	4 star Best Practice	All ratings	
Be climate positive • Highly efficient • Fossil fuel free • Sources all energy from renewables • Reduces embodied carbon emissions • Offsets all emissions under the owner's control • Partners to eliminate emissions from tenants			6 star World Leadership	5 star Australian Excellence	All ratings

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Green Star Future Focus

What climate positive means for the rest of the rating system

To be introduced in a future update prior to 2030

Homes

From release, to achieve a rating, all rated homes must be:

- Highly efficient
- Fossil fuel-free
- Powered by renewables
- Built with lower upfront emissions
- Offset with nature

Fitouts

From release, to achieve a rating, all rated fitouts must be:

- Highly efficient
- Fossil fuel-free
- Powered by renewables
- Built with lower upfront emissions
- Offset with nature — Rewarded initially, and required by 2030

Communities

By 2030, all rated precincts must be:

- Highly efficient
- Fossil fuel-free
- Powered by renewables
- Built with lower upfront emissions
- Offset with nature
- Walkable and liveable

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Rewarding climate positive buildings

Our partnerships towards climate positive buildings

NABERS is a suite of rating tools (Energy, Water, IE, Waste) that rates the operational performance of existing commercial offices, large retail centres, data centres, hotels, and office tenancies.

Together, NABERS and Green Star are working to create a more sustainable Australia where our buildings and precincts are making a positive contribution to our environment. Green Star relies on and encourages the use of NABERS Energy ratings as the method to show that buildings are well on their energy efficiency journey.

The Climate Active Carbon Neutral Standard for Buildings (the standard) provides industry a recognised, streamlined, and agreed way to claim to be a carbon neutral building in operation.

The Climate Active Carbon Neutral Standard for Buildings has been established through collaboration between the Australian Government Department of Industry, Science, Energy and Resources, GBCA, and NABERS.

Aligning initiatives:

How Green Star Buildings and ILFI's Zero Carbon Certification are jointly driving industry to a net zero emissions outcome.

ZERO CARBON CERTIFICATION

Zero Carbon Certification by ILFI

Zero Carbon Certification (ZC) was developed by the International Living Future Institute (ILFI). It is a third-party verified industry recognised standard verifying that the operational and embodied carbon emissions of a built project have been neutralised. By achieving the performance targets of ZC, organisations demonstrate a credible and comprehensive approach to carbon neutrality.

ZC is one of several programs offered by ILFI, which also includes the Living Building Challenge, the world's most stringent sustainability standard.

Key stats about ZC

- Released in 2018, ZC is one of the newest offerings from the ILFI
- There are currently 34 projects registered globally with two certified
- The first ZC certified building was Google's office in London at 6 Pancras Square
- Microsoft and Salesforce are also pursuing ZC for their current building projects in the US
- The standard is yet to be formally launched in Australia

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Green Star Buildings by GBCA

Green Star was developed by the Green Building Council of Australia (GBCA). It is a third-party verified holistic rating system for the built environment. From libraries offices and to the biggest regeneration projects in the country, Green Star continues to drive sustainable outcomes in buildings, fitouts, and communities.

Green Star Buildings is the latest version of the rating tool for new construction. This new version addresses the three key challenges of the next decade: climate action, health and wellbeing, and resources and circularity.

Key stats about Green Star

- Released in 2003, more than 2,000 buildings have achieved some form of Green Star certification.
- 48 million sqm of building space is Green Star certified
- 44% of CBD office space is Green Star certified
- 40% of retail space is Green Star certified
- 790,000+ people will live or work in the 50+ Green Star communities we have certified, including 450,500 + residents and 340,000 workers and students

INTERNATIONAL LIVING FUTURE INSTITUTE™

Green Building Council Australia

Aligning initiatives

greenstar × ZERO CARBON CERTIFICATION

How Green Star Buildings and ILFI's Zero Carbon Certification are jointly driving industry to a decarbonise.

Available today on our website

The role of offsets in delivering a climate positive built environment

The role of offsets in Green Star

Green Star Buildings (and in the future, other Green Star rating tools) allow the use of high-quality nature-based offsets for a selected number of emission scopes.

	Green Star Buildings	Green Star Performance
Refrigerants	Low impact refrigerants preferred with emissions offset	Can be offset until low-impact refrigerants can be used
Gas or other fossil fuels	Should be designed out or replaced with renewables	Can be offset, but will require elimination over time
Electricity	Can only be addressed with renewable electricity	Can only be addressed with renewable electricity
Upfront carbon emissions	Should be reduced and then offset	-
Other emissions (water, waste)	Should be reduced and then offset	Should be reduced and then offset

Guidance for other rating tools will be developed over time, though it will likely follow a similar pattern.

Net zero emissions & nature based solutions

Carbon removal projects are essential for achieving net zero emissions by mid-century.

"With its dual role as a source of emissions and as a natural carbon sink, nature can and must play a critical role in climate mitigation strategies."

Foundations for science-based net zero target setting in the corporate sector

Users of offsets should increase the portion of their offsets that come from carbon removals, rather than from emission reductions, ultimately reaching 100% carbon removals by midcentury to ensure compatibility with the Paris Agreement goals. Creating demand for carbon removal offsets today will send the necessary market signal to increase supply."

The Oxford Principles for net zero Aligned Carbon Offsetting

Nature-based solutions

In addition to helping draw-down carbon, there are other benefits to nature-based solutions.

Key benefits

- Support livelihoods in disadvantaged communities
- Restore soils, reduce fertiliser runoff, and increase resilience
- Reduce flood and erosion, and stabilise river banks and slopes
- Sustaining natural resources in drier and more variable climates
- Buffering communities from the impacts of climate change

There are some things to consider:

- They should not be seen as an alternative to decarbonise energy systems
- Easy to consider afforestation in the wrong locations
- Potential adverse impacts on local communities
- Failure to ensure benefits for biodiversity improvements

(15.1) …ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems…

(15.2) promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

(13.1) Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters…

(13.2) Integrate climate change measures into national policies, strategies and planning

(13.3) Improve education, awareness-raising and human and institutional capacity on climate change …

(13.a) Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change …

(12.2) achieve the sustainable management and efficient use of natural resources

(9.1) Develop quality, reliable, sustainable and resilient infrastructure…

(9.4) upgrade infrastructure and retrofit industries to make them sustainable…

(9.a) Facilitate sustainable and resilient infrastructure development in developing countries…

(9.b) Support domestic technology development, research and innovation in developing countries…

Nature-based solutions assist in achieving targets set by the 17 Sustainable Development Goals.

The impact can be **direct** or indirect.

(1.5) Reduce exposure and vulnerability to climate-related extreme events

(3.9) …substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination…

(4.7) …all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development…

(8.2) Achieve higher levels of economic productivity through diversification, technological upgrading and innovation…

(8.4) …endeavour to decouple economic growth from environmental degradation…

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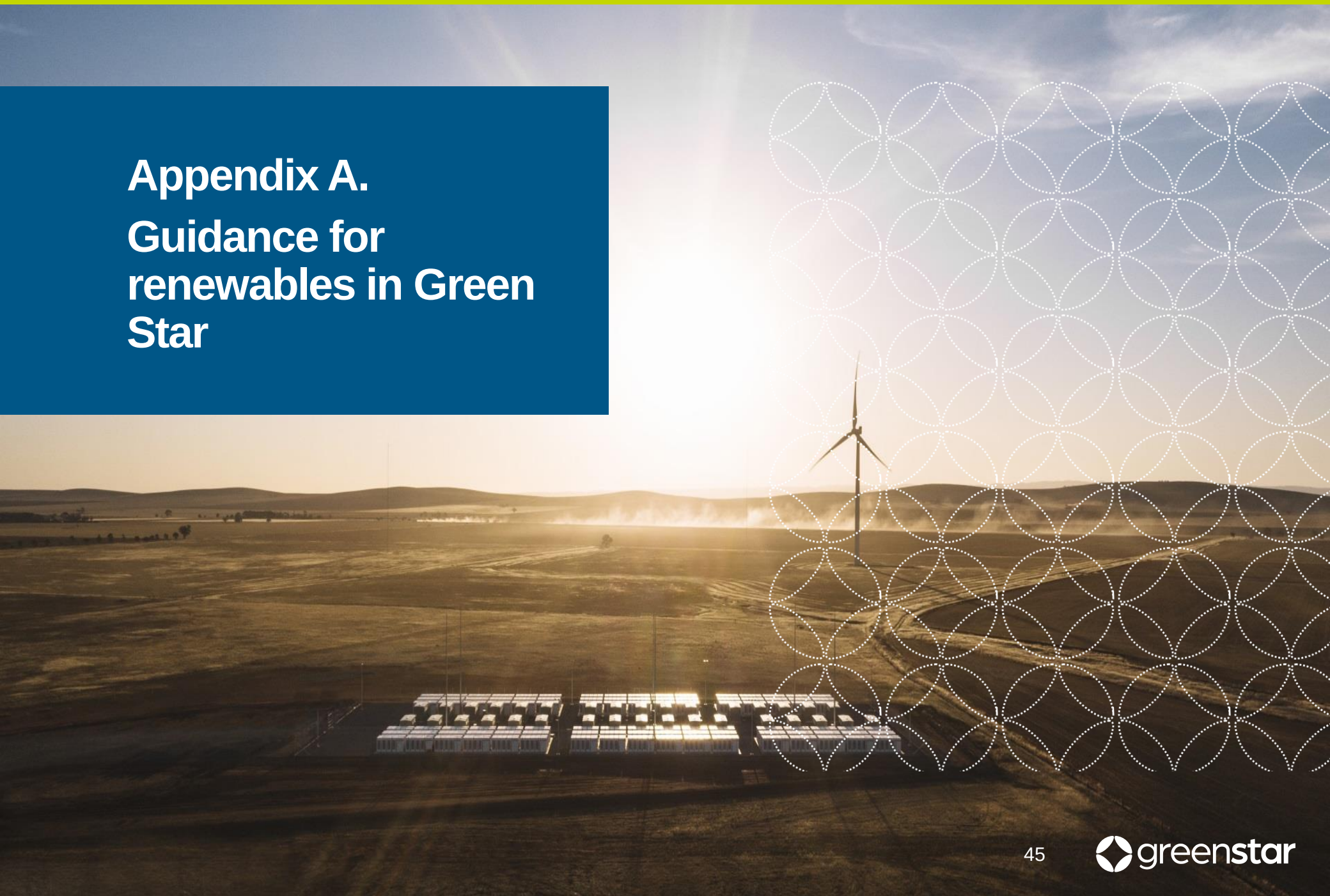
Next steps

- Register your asset for Green Star Buildings and showcase your leadership.
- Be involved as we update our Green Star rating tools.
- Support GBCA's policy platform by advocating for decarbonised built environment.
- Seek the support of government to make the necessary changes to policy and codes to drive climate positive buildings.
- Partner with us to deliver skills, services, and mechanisms to drive change in industry.
- Help us build a market for a lower upfront carbon emissions supply chain.
- Partner with us and become a climate positive champion.
- Provide us with feedback at greenstar@gbca.org.au

Appendix A.

Guidance for renewables in Green Star



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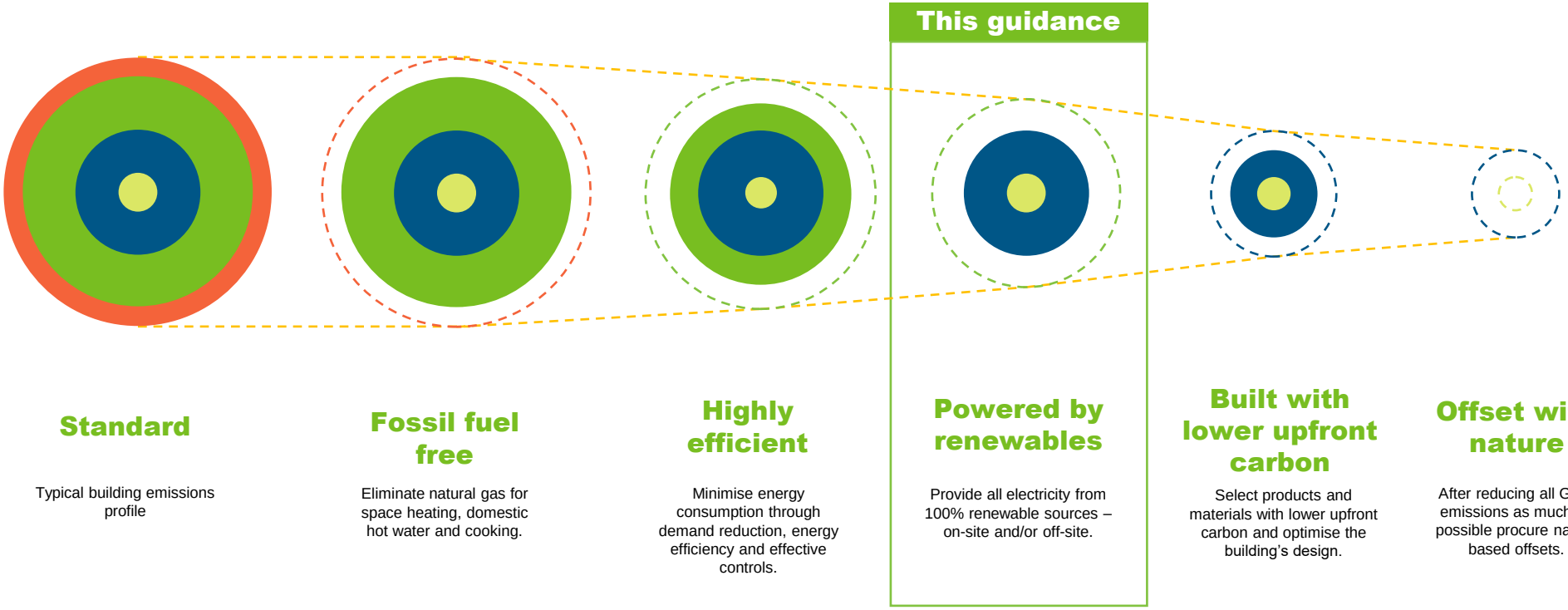
Emissions from new buildings in context



Legend

Natural gas
Space heating, DHW, cooking

Electricity
Ventilation, cooling, lighting, pumps, small power, lifts, security, controls, IT systems

Other
Emergency (backup) power, *(also include refrigerant GWP)*

Materials in construction
Emissions from products and materials used in construction.

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Renewables in Green Star

Green Star recognises the emissions reductions benefits of on-site renewable energy systems, GreenPower, or off-site renewables.

It does this to:

- Promote the decarbonisation of the grid in Australia
- Encourage a permanent transition to renewables in Australia.

Throughout this paper, guidance is provided in the form of scenarios. These are described in more detail in the table at the end of this appendix.

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Definitions

The following definitions are used in this document:

- **Renewable Energy**: Renewable energy is any source of energy that can be used without depleting its reserves including sunlight or solar energy, wind, wave, biomass, and hydro energy.
- **On-site renewables:** Renewable electricity that is supplied directly to the building. The location of the renewable generation does not need to occur on the same site as the building, it may occur adjacent to it (for example). The key is the direct supply to the asset (known as 'behind the meter'), and the traceability of the energy supply to the building or fitout itself.
- **Off-site renewables**: Renewable electricity that is supplied to the grid, which in turn distributes energy to the building. As above, the location of the generator does not dictate whether it's considered off-site or on-site. Rather, it is that the generator supplies the grid directly without such supply being directly used by the building itself.
- **Accredited off-site renewables**: Renewable electricity supplied through the grid that has received GreenPower® or GreenPower® Connect accreditation. GreenPower® is the only voluntary government accredited program that enables an electricity provider to demonstrate that the purchased electricity is helping develop new renewable infrastructure in Australia.
- **Offsets**: Offset Units are defined by the Climate Active Carbon Neutral Standard for Buildings as: '*Represents reductions of greenhouse gases or removals of greenhouse gases from the atmosphere by sinks, relative to a business-as usual baseline. Offset units are tradeable and can be used to negate (or offset) all or part of another entity's emissions'*.

Definitions

The following terms are also useful in understanding this document:

- **Small-scale technology certificate (STC):** A certificate generated for systems that generate less than 100kw of power per year. STC's generated behind the meter do not need to be surrendered.
- **Large generation certificate (LGC)**: A certificate generated for systems that generate more than 100kw of power per year. LGCs can be surrendered to the electricity regulator (in which case the certificate cannot be used by a second entity to make a claim). Alternatively, LGCs can be sold to a second entity, which can then make a claim against its liability.
- **Renewable energy certificate (REC):** Both STCs and LGCs are examples of Renewable Energy Certificates.
- **Power Purchase Agreement (PPA):** A contract identifying the duration of the power supply contract, supply availability (including proportion of off-site renewable electricity) and guaranteed GHG emission factor.
- **Renewable Energy Target (RET):** an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

Making credible claims in Green Star

To make claims with regards to renewable electricity usage, GBCA has reviewed the principles of RE100, as outlined in '*RE100 technical briefing: Making credible renewable electricity usage claims*'. We have also reviewed principles established by NABERS with regards to renewable energy use. Finally, we have also reviewed the 'Greenhouse Gas Emissions Protocol scope 2 Guidance'.

Where the principles between schemes conflict, we have chosen the guidance that is most relevant to the Australian built environment in line with international best practice.

*As this document applies to older versions of Green Star, there is additional guidance for Green Star – Design & As Built, Green Star – Performance (2014) and Green Star – Interiors (2014) that is aligned with NABERS (scenario **C**, and **D**). This is maintained for legacy purposes. Project teams and applicants should note that scenarios C and D are not aligned with the newer rating tools or international best practice.*

Making *on-site* renewable claims for Green Star submissions

The following scenarios can be claimed as **on-site renewable energy** for purposes of Green Star (all rating tools):

- On-site systems are present and only STCs are generated (Scenario A)
- On-site systems are present and LGCs are generated and retired (Scenario B)

For Green Star – Design & As Built (2014), Green Star – Interiors (2015), and Green Star – Performance (2013), these additional scenarios are allowed for legacy purposes. Project teams are strongly encouraged to not rely on these scenarios as they may hamper the assets ability to make credible claims on the international stage.

- *On-site systems are present and LGCs are generated and sold (Scenario C)*
- *On-site systems are present and LGCs are generated and sold, and offsets are purchased (Scenario D)*

Making *off-site* renewable claims for Green Star submissions

The following scenarios can be claimed as **off-site renewable energy** for purposes of Green Star (all rating tools):

- GreenPower® or GreenPower Connect® (Scenario **E**)
- A Power Purchasing Agreement (PPA) between a generation source and user, where the Australian Renewable Energy Certificates are retired to the regulator (Scenario **F** and **I***).

** Scenario I only applies to Green Star Performance*

Additional information

The following scenarios are **not** considered renewable electricity in Australia for the purposes of Green Star:

- Electricity purchased from a generator / retailer through a PPA or contract, where LGCs are provided to user and LGCs are sold by the user. (Scenario G)
- Electricity purchased from a generator / retailer through a PPA or contract where LGCs are provided to user, LGCs are sold and the emissions from the electricity consumed are calculated at the grid factor and carbon offsets are purchased. (Scenario H)
- Electricity is purchased and an equivalent amount of international RECs have been purchased to cover the amount of electricity used by the building, and these certificates are retired (Scenario J)
- Electricity is purchased and an equivalent amount of offset units have been purchased to cover the greenhouse gas emissions attributed to scope 2 & 3 grid emissions from the building's electricity use (Scenario K)*
- Electricity is purchased and the retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services (Scenario L)**

** GBCA acknowledges it has provided conflicting guidance against Scenario K in the past for Green Star – Performance registered projects. From December 2021, no claims against Scenario K will be accepted regardless of it being previously allowed.*

*** While not considered renewable electricity, some benefits are recognised in legacy rating tools. See FAQ 84 and Appendix C.*

Calculating your renewable requirements

Green Star and the market-based mechanism

The Greenhouse Gas Protocol defines two mechanisms to allocate generator emissions (scope 2 electricity emissions) to the end-user: the l**ocation-based** method and the **market-based method**.

The location-based method uses the average emissions intensity of the grid where consumption occurs. The market-based method reflects emissions after allowing for renewable electricity purchases.

In Australia, the market-based method means that the entity calculates scope 2 emissions after allowing for renewable energy provided as part of Government targets and quotas, renewable energy voluntarily purchased via Large scale Generation Certificate (LGC) retirement and a residual mix factor for the remaining non-renewable electricity. Where the sum of mandatory renewable electricity and voluntary purchase renewable energy equals 100% scope 2 emissions are regarded as zero.

Green Star recognises 100% renewable electricity procurement as calculated through the market-based method. NABERS and the Climate Active program also follow this approach when 100% renewable electricity is purchased.

Green Star, renewable purchasing, and the Australian Capital Territory (ACT)

The ACT announced in 2020 that they had procured 100% renewable electricity for all electricity consumption in the territory. They have achieved this by procuring enough large scale generation certificates for the electricity used in the territory and surrendering these to the regulator. The ACT government will continue to do this every year.

For purposes of Green Star Buildings, and the rest of the Green Star Future Focus rating tools, buildings located in the ACT are able to automatically claim the ‘Energy Source’ credit achievement. If the building does not use fossil fuels for heating, cooking, hot water, or power, then the building can also automatically claim the ‘Energy Source’ Exceptional Performance.

This is the case, provided the ACT government continues with surrendering the certificates at the time of certification.

Renewable procurement scenarios in Australia

On-site renewables

Scenario	A	B	C	D
Outcome	Electricity from on-site systems where: • STCs are generated • Certificates are sold	Electricity from on-site systems where: • LGCs are generated • Certificates are retired	Electricity from on-site systems where: • LGCs are generated. • Certificates are sold	Electricity from on-site systems where: • LGCs are generated • Certificates are sold • Offsets are purchased
Considered renewable electricity in Australia	Yes	Yes	No	No
Consistent with WorldGBC's Net Zero Carbon Buildings Commitment	Yes	Yes	No	No
Consistent with RE100	Yes	Yes	No	No
Recognised by NABERS	Yes	Yes	Yes	Yes[2]
Recognised by Climate Active Carbon Neutral Standard	Yes	Yes	No	Yes[3]
Recognised in Greenhouse Gas Emissions in Green Star – Design & As Built (2014), Green Star – Interiors (2015), and Green Star – Performance (2013)	Yes	Yes	Yes[1]	Partial[1,2]
Recognised in *Energy Source* in Green Star Buildings (2020)	Yes	Yes	No	No

[1] To align with guidance from NABERS, legacy rating tools recognise this method. Project teams should be aware that this method may not be in line with international best practice
[2] Though for purposes of NABERS and Green Star, the purchase of offsets is irrelevant.
[3] While not recognised as renewable electricity, this method is recognised within the Climate Active standard to compensate for building emissions from electricity.

Renewable procurement scenarios in Australia

Off-site renewables

Scenario	E	F	G	H	I
Outcome	Electricity purchased from retailers accredited through: • GreenPower® • GreenPower Connect®	Electricity purchased from a generator / retailer through a PPA or contract where: • LGCs are provided to user • LGCs are retired by the user.	Electricity purchased from a generator / retailer through a PPA or contract, where: • LGCs are provided to user • LGCs are sold by the user.	Electricity purchased from a generator / retailer through a PPA or contract where: • LGCs are provided to user • LGCs are sold • The emissions from the electricity consumed are calculated at the grid factor and carbon offsets are purchased.	Electricity is purchased and: • An equivalent amount of Australian RECs (LGCs) are purchased to **retrospectively** cover the amount of electricity used by the building • These certificates are retired are retired by the asset owner.
Considered renewable electricity in Australia	Yes	Yes	No	No	Yes
Consistent with WorldGBC's Net Zero Carbon Buildings Commitment	Yes	Yes	No	No	Yes
Consistent with RE100	Yes	Yes	No	No	Yes
Recognised by NABERS	Yes	Yes[4]	No	No	Yes[4]
Recognised by Climate Active Carbon Neutral Standard	Yes	Yes	No	Yes[3]	Yes
Recognised in 'Greenhouse Gas Emissions' in Green Star – Design & As Built (2014), Green Star – Interiors (2015), and Green Star – Performance (2013)	Yes	Yes	No	No	Only in Green Star – Performance
Recognised in Energy source in Green Star Buildings (2020)	Yes	Yes	No	No	No

[3] While not recognised as renewable electricity, this method is recognised within the Climate Active standard to compensate for building emissions from electricity.
[4] NABERS has announced these methods will be recognised from late 2021 onwards.

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Renewable procurement scenarios in Australia

Electricity and offset scenarios

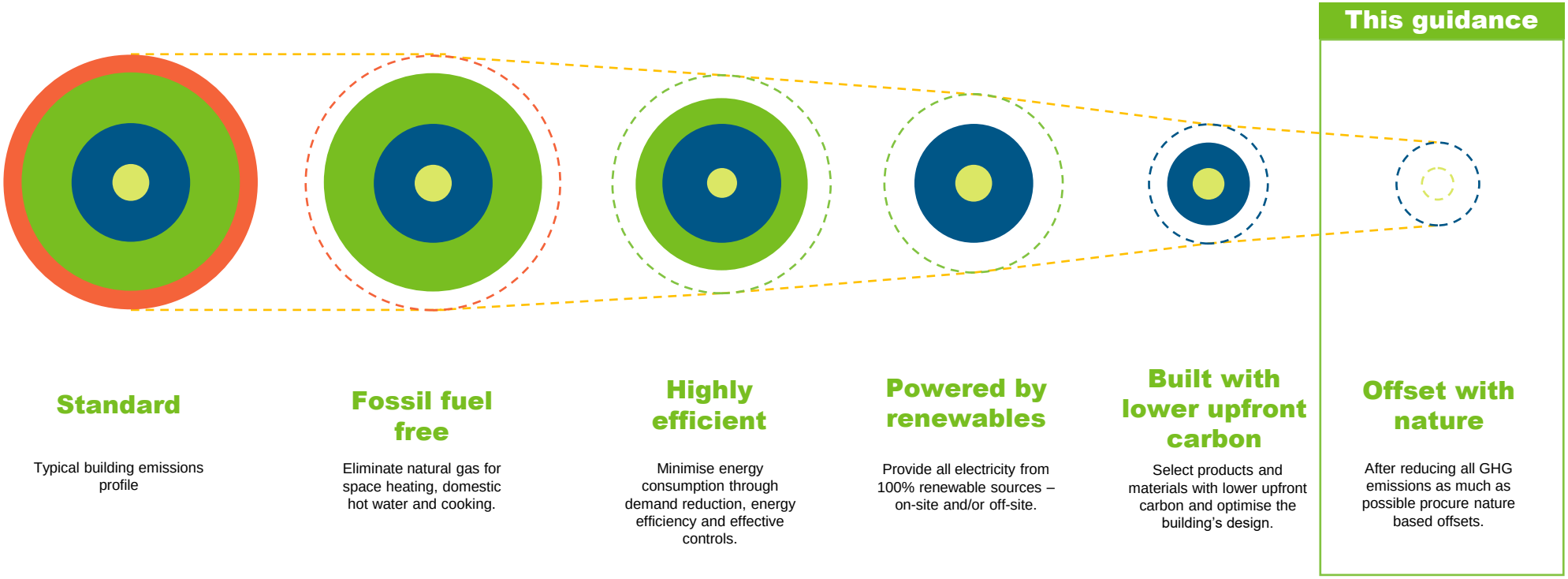
Scenario	J	K	L
Outcome	Electricity is purchased and: • An equivalent amount of international RECs have been purchased to cover the amount of electricity used by the building. • These certificates are retired.	Electricity is purchased where: • An equivalent amount of offsets have been purchased to cover the greenhouse gas emissions attributed to scope 2 & 3 grid emissions from the building's electricity use.	Electricity is purchased and: • The retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services
Considered renewable electricity in Australia	No	No	No
Consistent with WorldGBC's Net Zero Carbon Buildings Commitment	No	No	No
Consistent with RE100	No	No	No
Recognised by NABERS	No	No	No
Recognised by Climate Active Carbon Neutral Standard	No	Yes	Yes[5]
Recognised in 'Greenhouse Gas Emissions' in Green Star – Design & As Built (2014), Green Star – Interiors (2015), and Green Star – Performance (2013)	No	No	Partial[5]
Recognised in Energy source in Green Star Buildings (2020)	No	No	No

[5] Carbon Neutral certified electricity is considered zero emissions electricity. For Green Star legacy rating tools, it is marked partial as its benefits are partly recognised through the renewable energy allowance.

Appendix B.

Guidance for offsets in Green Star

Emissions from new buildings in context



Legend

Natural gas
Space heating, DHW, cooking

Electricity
Ventilation, cooling, lighting, pumps, small power, lifts, security, controls, IT systems

Other
Emergency (backup) power, *(also include refrigerant GWP)*

Materials in construction
Emissions from products and materials used in construction.

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A note on this document

The guidance in this document applies to any use of offsets for recognition within Green Star.

This is explicitly for:

- Green Star Innovation Challenges (legacy rating tools)
- Green Star Buildings
- Any Green Star Future Focus rating tools, including future versions of Green Star Performance, Green Star Communities, Green Star Fitouts, and Green Star Homes.

The guidance in this document does not place limitations on the use of offsets for the purposes of achieving Climate Active certification through Green Star.

This document also presents the best available current guidance on the publishing and availability of offsetting opportunities. Over time, as the offsetting market evolves and based on potential changes due to the ratification of article 6 of the Paris Agreement, we expect that the guidance in this document related to offsets will change.

General requirements for carbon offsets

Key criteria for credible offsets

- **New project**. Implementation of the project has not yet started or is within the grace period according to the standard.
- **Additionality**. The project has only been implemented thanks to revenue from emission reduction certificates. In general, this means that the project is
  - not economically feasible without carbon revenues
  - not considered common practice
  - not required by law
- **Permanence**. The project needs to ensure that emissions are kept out of the atmosphere for a reasonable length of time.
- **No double counting**. The emission reductions claimed do not conflict with claims made by any other organisations.
- **Sound monitoring**. Emission reductions can be measured and verified.
- **Recognised methodology**. The project is in line with the requirements and principles set by a recognised GHG accounting standard.

The criteria above are intended to drive the use of high-integrity and high-quality compensation activities. As the offset market is still changing and maturing the guidance in this document will change over time.

What are the eligible activities?

Afforestation, reforestation and improved forest management

Afforestation activities Planting in areas with no woody vegetation in the previous 10 years	**Silvopastoral systems** Planting trees in animal-grazing areas	**Reducing the impact of logging** Improving the logging activities in a commercial plantation by reducing the impact of the logging
Natural regeneration Enrichment and/or enhancing of natural regeneration	**Live fences** Planting trees as fences	**Extending forest age** Extend the rotation age or the cutting cycle of forest plantations
Agroforestry systems Planting trees with crops	**Protecting the forest** Changing the land use of a forest plantation from logged forest to protected forest	**Improving productivity** Increase the productivity of forest plantation by improvements to management, thinning, fertilisation, etc.

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Forest carbon sequestration project types

The difference between Forest Regeneration, Forest Conservation and Improved Forest Management

- **Afforestation/Reforestation (A/R)** or **Afforestation, Reforestation & Revegetation (ARR)** must be on land not previously forested. Also known as “Forest Regeneration”.
- **Reduced Emissions from Deforestation & Degradation (REDD+).** Where it is planned to convert land from forest for agriculture, development, etc., REDD+ project implementation ensures that land remains forest. Also known as “Forest Conservation”.
- **Improved Forest Management (IFM)** projects ensure that forest which has been commercially utilised in the past and/or would be commercially utilised in the future, in the absence of the project, is managed in a way that increases carbon stocks. IFM subcategories include improved management of plantations to increase carbon density, implementation of ‘reduced impact logging’, and conversion of logged forest to protected forest.

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Credible carbon standards & labels

The **Verified Carbon Standard** (VCS) developed by Verra is the world's most widely used voluntary GHG reduction programme, with more than 1,000 projects.

Established by WWF, **The Gold Standard** is endorsed by more than 80 NGOs. UN agencies use the Gold Standard for the development of their own carbon mitigation and sustainable development projects. Gold Standard is now also certifying SDGs.

The Climate, Community & Biodiversity Standard (CCBA) is a partnership of NGOs with the aim of stimulating land-based carbon reduction activities, improving the wellbeing and reducing the poverty of local communities, and conserving biodiversity.

The ERF Safeguard Mechanism provides an incentive for activities that count towards meeting Australia's climate commitments under Paris Agreement and allows for voluntary carbon market participation.

The Clean Development Mechanism (CDM) is established under the UNFCCC. Credits from CDM projects in developing countries can be used by industrialised countries to a meet a part of their compliance targets.

The Social Carbon Standard was developed to strengthen social co-benefits of carbon offsetting projects and enhance the active participation of stakeholders. It is typically used in conjunction with a carbon accounting standard, such as the VCS.

This list of standards represent offset programs of high-integrity and high-quality. The list may grow over time. If project teams wish to use a different offset program, they are encouraged to submit a technical question.

What are the eligible methodologies?

Agriculture, Forestry and Other Land use (AFOLU)

AFOLU project categories and available methodologies:

- Afforestation, Reforestation and Revegetation (ARR)
- Agricultural Land Management (ALM)
- Improved Forest Management (IFM)
- Reduced Emissions from Deforestation and Degradation (REDD+)
- Avoided Conversion of Grasslands and Shrublands (ACoGS)
- Wetlands Restoration and Conservation (WRC)*

*WRC includes tidal and freshwater wetlands. Blue Carbon Ecosystem are wetlands and therefore the WRC category is applicable.

In the case of mangroves, which are forests, REDD+ and ARR categories are also applicable, in combination with WRC methodologies.

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Vintage year requirement

- The “vintage year” of an offset here refers to the year in which the associated emissions reductions/removals occurred. Offset vintage year corresponds to the crediting period of projects that generate it.
- Initially, GBCA will align its requirement for Green Star offset vintage year with that of CORSIA, to be compliant with the requirements for CORSIA Eligible Emissions Units (see ICAO Recommendation for more information).
- Offsets eligible for use under Green Star are those with **vintage year 2016-2020**. Those offsets are issued to activities that started their first crediting period from 1 January 2016 and in respect of emissions reductions that occurred through 31 December 2020.
- Guidance on offsets is an evolving topic. For example, SBTI is exploring introducing a 3 year vintage requirement. As such, we intend to update the Green Star offset vintage year requirement from 2023 as international guidance is developed.

Why CORSIA was chosen as the baseline for Green Star

CORSIA is the "Carbon Offsetting and Reduction Scheme for International Aviation", an offsetting program to partially meet the global airline industry emission reduction target, established by the International Civil Aviation Organization (ICAO). Vintage 2016+ applies to CORSIA's pilot phase (2021-2023).

- Aligned with the Paris Agreement entry into force.
- It is also aligned with other domestic compliance programs (e.g. Korea Emissions Trading Scheme).
- This scenario allows building developers to buy credits over-the-counter.
- Offsets issued in 2016 onwards can be considered 'old'. Appropriate care must be taken to ensure they are the right fit for your strategy.
- This baseline will change over time as Green Star is updated.

Appendix C.

Claiming points in Green Star

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	On-site renewables				Off-site renewables		Offsets	
Scenario	**A**	**B**	**C**	**D**	**E**	**F**	**I**	**L**
Outcome	Electricity from on-site systems where • STCs are generated • Certificates are sold.	Electricity from on-site systems where: • LGCs are generated • Certificates are retired	Electricity from on-site systems where • LGCs are generated. • Certificates are sold	Electricity from on-site systems where: • LGCs are generated • Certificates are sold • Offsets are purchased	Electricity purchased from retailers accredited through: • GreenPower® • GreenPower Connect®	Electricity purchased directly from a generator / retailer through a PPA or contract where: • LGCs are provided to user • LGCs are retired by the user.	Electricity is purchased and: • An equivalent amount of Australian RECs (LGCs) are purchased to retrospectively cover the amount of electricity used by the building • These certificates are retired by the building owner or user.	Electricity is purchased and: • The retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services
Green Star – Design & As Built (2014) and Green Star – Interiors (2015)								
Prescriptive Pathway (D&AB 15A.10) Prescriptive Pathway – Non Residential Fitouts (Interiors 16A.7) Prescriptive Pathway – Residential Fitouts (Interiors 16B.6) NatHERS Pathway (D&AB 15B.2.10) BASIX Pathway (D&AB 15C.2)	X	X	X	X	✔	✔	X	✔
NABERS[1] Energy Commitment Agreement Pathway (D&AB 15D.2) NABERS Energy Commitment Agreement Pathway (Interiors 16C.2) Reference Building Pathway (D&AB 15E.3, 15E.4, & 15E.5.3) Reference Fitout Pathway (Interiors 16D.2)	✔	✔	✔	✔	✔	✔	X	✔
Green Star – Performance (2013)								
All Pathways (15A, 15B, 15C, 15D)	✔	✔	✔	✔	✔	✔	✔	✔
Green Star – Communities (2012)								
Greenhouse Gas Strategy – Performance Pathway (25A.3)	✔	✔	✔	✔	✔	✔	X	✔
Greenhouse Gas Strategy – Prescriptive Pathway (25B.3)	✔	✔	✔	✔	X	X	X	X
Green Star Buildings (2020)								
Energy Use (22)	✔	✔	X	X	X	X	X	X
Energy Source (23)	✔	✔	X	X	✔	✔	X	X

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Green Star – Design & As Built and Green Star – Interiors

Green Star – Design & As Built:
- 15A Prescriptive Pathway (15A.10)
- 15B NatHERS Pathway (15B.2.10)
- 15C BASIX Pathway (15C.2)
- 15D NABERS Energy Commitment Agreement Pathway
- 15E Reference Building Pathway

Green Star – Interiors
- 16A Prescriptive Pathway – Non-Residential Fitouts (16A.7)
- 16B Residential Fitouts (16B.6)
- 16C NABERS Energy Commitment Agreement Pathway
- 16D – Reference Fitout Pathway

Scenario		Outcome	How to apply in Green Star
On-site Renewables	A	Electricity from on-site systems where: • STCs are generated & Certificates are sold.	For pathways 15A, 15B, 15C in Green Star - Design & As Built and pathways 16A and 16B in Green Star – Interiors: • Not accepted - Submit a Technical Question if the project intends to claim under the relevant rating tool. For pathway 15D in & 16C - NABERS Energy Commitment Agreement Pathway: • Model the electricity produced by the on-site renewable electricity systems • Complete the relevant Green Star calculator. • On-site renewables contribute to emissions reductions. For pathway 15E - Reference Building Pathway & 16D – Reference Fitout Pathway: • Model the electricity produced by the on-site renewable electricity systems • Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.
	B	Electricity from on-site systems where: • LGCs are generated & Certificates are retired	
	C	Electricity from on-site systems where • LGCs are generated & Certificates are sold	
	D	Electricity from on-site systems where: • LGCs are generated, certificates are sold & offsets are purchased	
Off – Site Renewables	E	Electricity purchased from retailers accredited through GreenPower® or GreenPower Connect®	For the above pathways in the relevant rating tools: • Procure a supply contract for Off-site Renewable electricity solutions. Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.
	F	Electricity purchased directly from a generator / retailer through a PPA or contract where: • LGCs are provided to user & LGCs are retired by the user.	
	I	Electricity is purchased and: • An equivalent amount of Australian RECs (LGCs) are purchased to retrospectively cover the amount of electricity used by the building • These certificates are retired by the building owner or user.	Not Accepted.
Offsets	L	Electricity is purchased and: • The retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services	For the above pathways in the relevant rating tools: • Procure a supply contract for Carbon Neutral Certified electricity. • Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.

Green Star – Performance

- 15A NABERS Energy
- 15B Building Energy Baselines
- 15C Peer Group of Comparable Buildings
- 15D Longitudinal Benchmarking

Scenario		Outcome	How to apply in Green Star
On-site Renewables	A	Electricity from on-site systems where: • STCs are generated & Certificates are sold.	For the above pathways in Green Star - Performance: • Meter, validate and monitor the use of on-site renewable electricity generated during the performance period. • Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.
	B	Electricity from on-site systems where: • LGCs are generated & Certificates are retired	
	C	Electricity from on-site systems where • LGCs are generated & Certificates are sold	
	D	Electricity from on-site systems where: • LGCs are generated, certificates are sold & Offsets are purchased	
Off – Site Renewables	E	Electricity purchased from retailers accredited through GreenPower® or GreenPower Connect®	For the above pathways in in Green Star - Performance: • Have a supply contract for Off-site Renewable electricity in place during the performance period. • Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.
	F	Electricity purchased directly from a generator / retailer through a PPA or contract where: • LGCs are provided to user & LGCs are retired by the user.	
	I	Electricity is purchased and: • An equivalent amount of Australian RECs (LGCs) are purchased to retrospectively cover the amount of electricity used by the building • These certificates are retired by the building owner or user.	For the above pathways in Green Star - Performance: • Measure the amount of electricity consumed during the performance period and buy equivalent of amount of Renewables Energy Certificates (RECs). • Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.
Offsets	L	Electricity is purchased and: • The retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services	For the above pathways in in Green Star - Performance: • Have a supply contract for Carbon Neutral Certified electricity in place during the performance period. • Complete the relevant Green Star calculator. • Points are awarded accordingly as per the completed calculator.

Green Star – Communities

- 25A Performance Pathway (25A.3)
- 25B Prescriptive Pathway (25B.3)

Scenario		Outcome	How to apply in Green Star
On-site Renewables	A	Electricity from on-site systems where: • STCs are generated & Certificates are sold.	For the above pathways in the in Green Star - Communities • Model the electricity produced by the on-site renewable electricity systems. • Provide evidence as per the submission guidelines.
	B	Electricity from on-site systems where: • LGCs are generated & Certificates are retired	
	C	Electricity from on-site systems where • LGCs are generated & Certificates are sold	
	D	Electricity from on-site systems where: • LGCs are generated, certificates are sold & Offsets are purchased	
Off – Site Renewables	E	Electricity purchased from retailers accredited through GreenPower® or GreenPower Connect®	For pathway 25A: • Have a supply contract for Off-site Renewable electricity in place and can be guaranteed into the future. • Provide evidence as per submission guidelines. • Points are awarded as per the submission guidelines. For pathway 25B – Not Accepted. • Submit a Technical Question if the project intends to claim under this pathway.
	F	Electricity purchased directly from a generator / retailer through a PPA or contract where: • LGCs are provided to user & LGCs are retired by the user.	
	I	Electricity is purchased and: • An equivalent amount of Australian RECs (LGCs) are purchased to retrospectively cover the amount of electricity used by the building • These certificates are retired by the building owner or user.	Not Accepted.
Offsets	L	Electricity is purchased and: • The retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services	For pathway 25A • Have a supply contract for Carbon Neutral Certified electricity in place and can be guaranteed into the future. • Provide evidence as per the submission guidelines. • For every 3 points awarded for percentage improvement over the reference project, 1 point is awarded when the project team can demonstrate how the purchase of Carbon Neutral Certified electricity can be guaranteed into the future. For pathway 25B • Not Accepted. Submit a Technical Question if the project intends to claim under this pathway.

Green Star Buildings

- Energy Use
- Energy Source

	Scenario	Outcome	How to apply in Green Star
On-site Renewables	A	Electricity from on-site systems where: • STCs are generated & Certificates are sold.	For the purposes of Energy Use credit: • On-site renewable electricity generation cannot be used to demonstrate compliance with the Minimum Expectation. • On-site renewable electricity generation can be used to demonstrate compliance with the Credit Achievement and Exceptional Performance
On-site Renewables	B	Electricity from on-site systems where: • LGCs are generated & Certificates are retired	For the purposes of Energy Source credit: • On-site renewable electricity generation under the control of the building owner can be used to demonstrate compliance with the Credit Achievement and Exceptional Performance
On-site Renewables	C	Electricity from on-site systems where • LGCs are generated & Certificates are sold	Not Accepted
On-site Renewables	D	Electricity from on-site systems where: • LGCs are generated, certificates are sold & Offsets are purchased	
Off – Site Renewables	E	Electricity purchased from retailers accredited through GreenPower® or GreenPower Connect®	For the purposes of Energy Use credit: • Does not contribute towards the requirements of the credit.
Off – Site Renewables	F	Electricity purchased directly from a generator / retailer through a PPA or contract where: • LGCs are provided to user & LGCs are retired by the user.	For the purposes of Energy Source credit: • Procure a supply contract for Off-site Renewable electricity solutions for at least 5 years (or 3 where there is a public commitment). • Provide evidence as per the submission guidelines
Off – Site Renewables	I	Electricity is purchased and: • An equivalent amount of Australian RECs (LGCs) are purchased to retrospectively cover the amount of electricity used by the building • These certificates are retired by the building owner or user.	Not Accepted.
Offsets	L	Electricity is purchased and: • The retail electricity product is certified as carbon neutral against the Australian Government's Climate Active Carbon Neutral Standard for Products and services	Not Accepted.

Changelog

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Changelog

Date	Page	Change
25/11/2021	11	New page referencing recent IEA and IPCC reports outlining the need to decarbonise faster
	15	New page clarifying definitions used in the document.
	29	Minor grammar corrections and alignment of terminology.
	32	Amended to reflect proposed updates to framework for Green Star Performance as seen in the Climate Positive Pathway for Existing Buildings
	34	Amended targets to reflect proposal outlined in the document noted above.
	46	New page stating purpose of guidance for the renewables guidance section.
	59	New page stating purpose of guidance for the offsets guidance section.

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