



Using LCA to influence a sustainable future

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Agenda

- **GBCA and Green Star**
- **LCA in manufacturing**
- **LCA in Green Star**
- **LCA influencing the built environment**
- **Today's 'burning platform' and LCA**

GBCA and Green Star



Who is the GBCA?

GBCA is a world renowned organisation dedicated to transforming the built environment.

Since 2002, we have driven real change by creating market-based solutions that empower industry to embrace sustainable practices.



“We lead an industry that is building for people today, tomorrow and for future generations.”

**Davina Rooney
Chief Executive
Green Building Council of Australia**



Who is the Green Building Council of Australia?

We lead the sustainable
transformation of the
built environment



We rate



We advocate



We educate



We set the standard for Australia

From libraries to hotels and from offices to the biggest regeneration projects in the country, Green Star continues to drive sustainable outcomes.



Developed by
Green Building Council of Australia



Our purpose

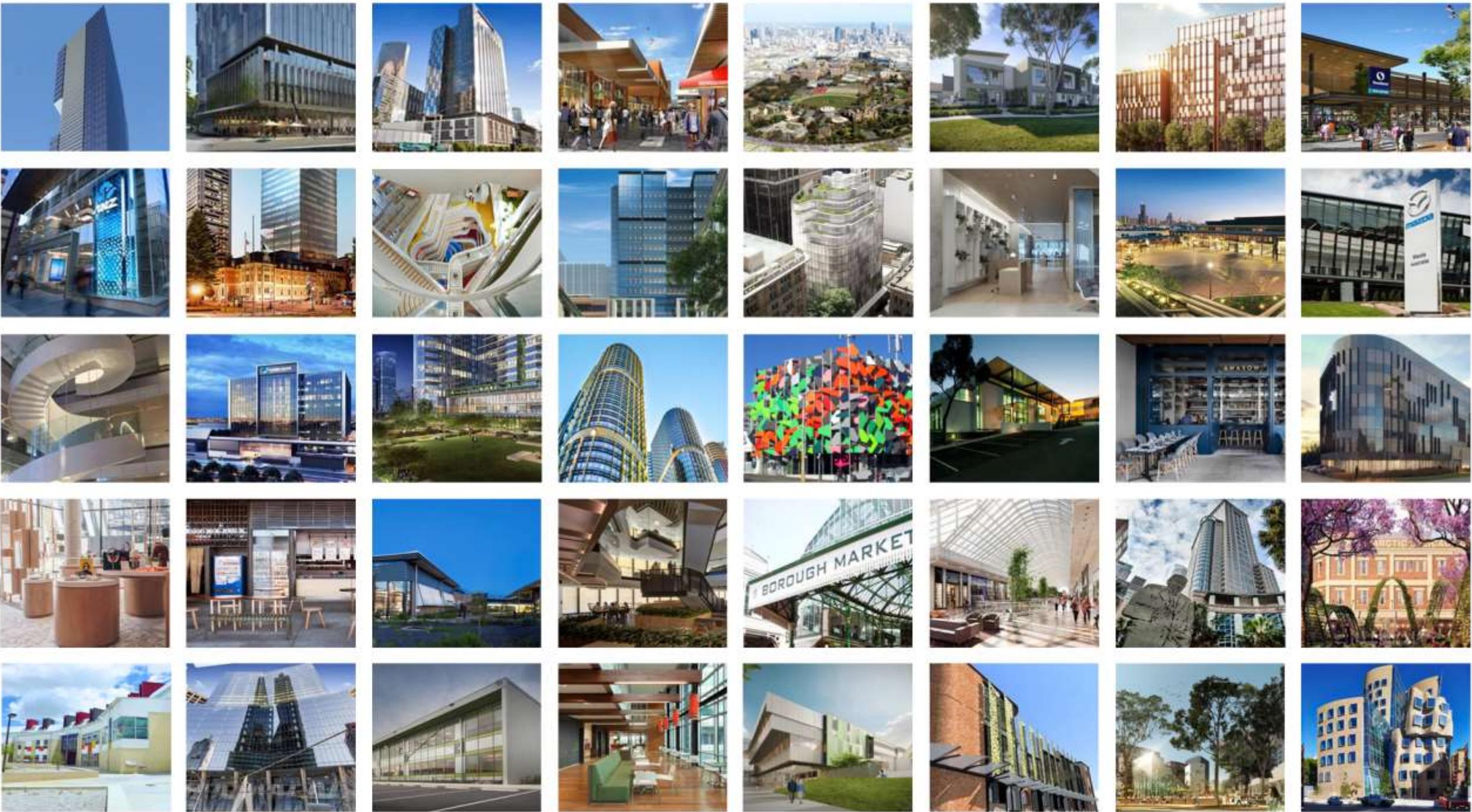
To lead the sustainable transformation of the built environment and create value through flexible, independent verification of best practice outcomes.

Green Star aims to transform the built environment by

- 1 Reducing the built environment's impact on climate change
- 2 Enhancing our health & quality of life
- 3 Restoring and protecting our planet's biodiversity and ecosystems
- 4 Driving resilient outcomes for buildings, fitouts, and communities
- 5 Contributing to market transformation and a sustainable economy

2500+

Green Star certifications 



50%

of ASX50 companies use

greenstar



medibank

Westfield

Wesfarmers

GPT
The GPT Group



CCA
COCA-COLA AMATIL

Westpac



ANZ

IAAG
Insurance Australia Group

DEXUS
PROPERTY GROUP

AMP

RioTinto

Telstra

Commonwealth Bank

mirvac

SCENTRE
GROUP

bhpbilliton

SUNCORP
GROUP

AGL

greenstar



40%
of Australia's CBD
Office space is
Green Star certified.

Green Star Quick Facts

Green Star is improving the places where Australians live, work, and play:



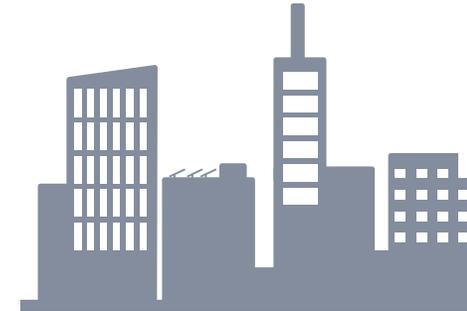
42,000

people living in
Green Star
rated homes



725,000

people working in
Green Star
rated offices



425,000

more people living in
Green Star rated
communities

Green Star & Carbon

The 970 Green Star buildings on average:

produce
55%
less greenhouse
gas emissions
than a typical new building



Developed by the
Green Building Council of Australia

Economic benefits



Green Star rated buildings deliver a **5.6%** premium in value and a **13.4%** premium in net income*



Increased tenant demand is reflected in lower vacancy rates for Green Star rated buildings, with an **26.4%** increase in Weighted Average Lease Expiry*



Research out of the US in 2018 found that by designing for the occupant, owner-occupants and tenants can gain **\$3,395 per employee** in annual profit**

Cost of Green Star

Delivering Green Star rated buildings makes economic sense.

+0.9%

To achieve a
4 star Green Star
rated building
Per square metre

+2.6%

To achieve a
5 star Green Star
rated building
Per square metre

+2.9%

To achieve a
6 star Green Star
rated building
Per square metre

LCA in Manufacturing

Sustainable Manufacturing and Materials Supply

- Red-hot opportunity
AND
- Hotbed of challenges



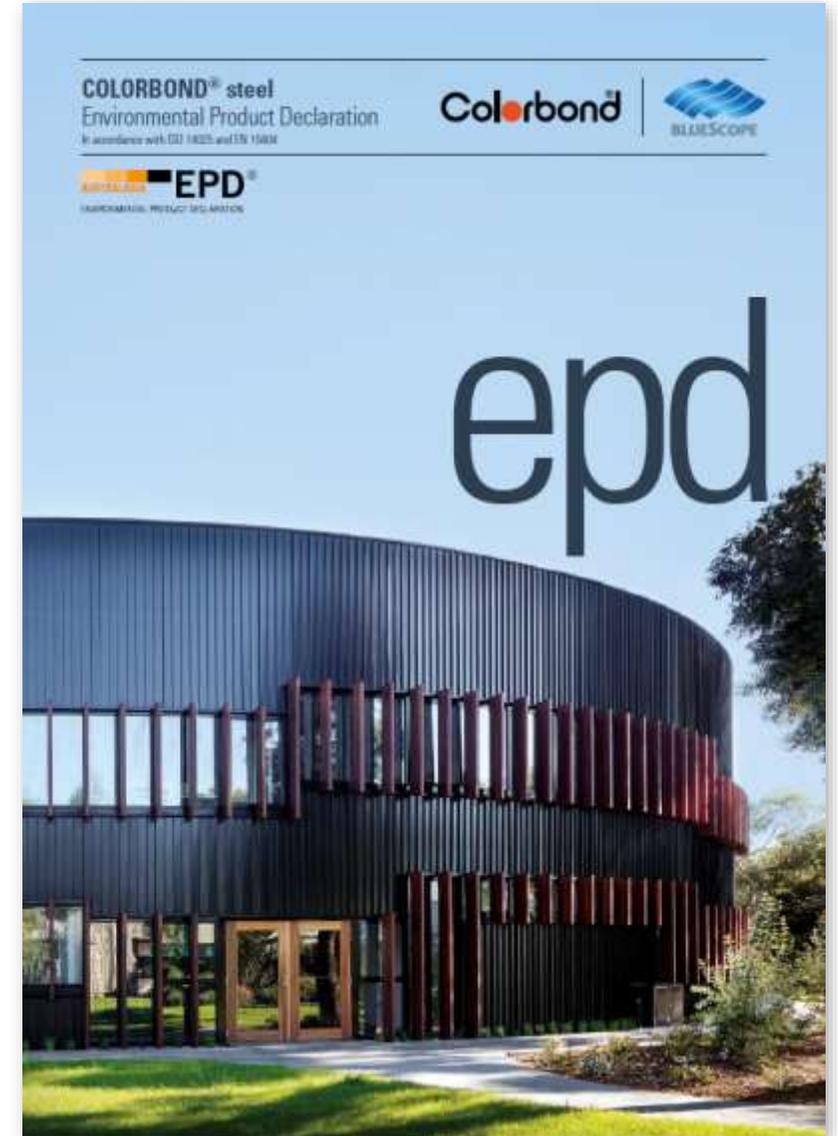
LCA and Sustainable Manufacturing

- Measure real environmental impacts:
 - Multi-metric
 - Whole life cycle – cradle to grave
 - Circular economy
- Reduce impacts of production:
 - Optimise production processes
 - Guide new product design



External-facing LCA Opportunities

- LCA provides meaningful and credible data
 - Avoids greenwash in market claims
- LCA data published in EPDs
 - New wave of transparency
- Allows genuine comparisons
 - In the right hands, materials can be compared on a level playing field



Using LCA as a manufacturer:

**reduces impacts,
saves money,
delivers commercial opportunities**

... simply makes good business sense

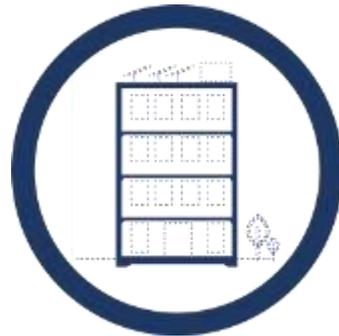
LCA in Green Star

Green Star is universal, relevant, rigorous



Communities

Master-plans



**Design &
As Built**

New Buildings



Interiors

New Fitouts



Performance

Operating Buildings

Green Star is rewarding sustainable outcomes



Green Star LCA

Green Star Design & As Built v1.2

LIFE CYCLE ASSESSMENT

Credit 19A

Points available: 7

PATHWAY CRITERIA

19A.1 Comparative Life Cycle Assessment

Up to 6 points are available where a whole-of-building, whole-of-life (cradle-to-grave) life cycle assessment (LCA) is conducted for the project and a reference building.

Points are awarded based on the extent of environmental impact reduction achieved for nominated environmental impact categories, when compared to a reference building.

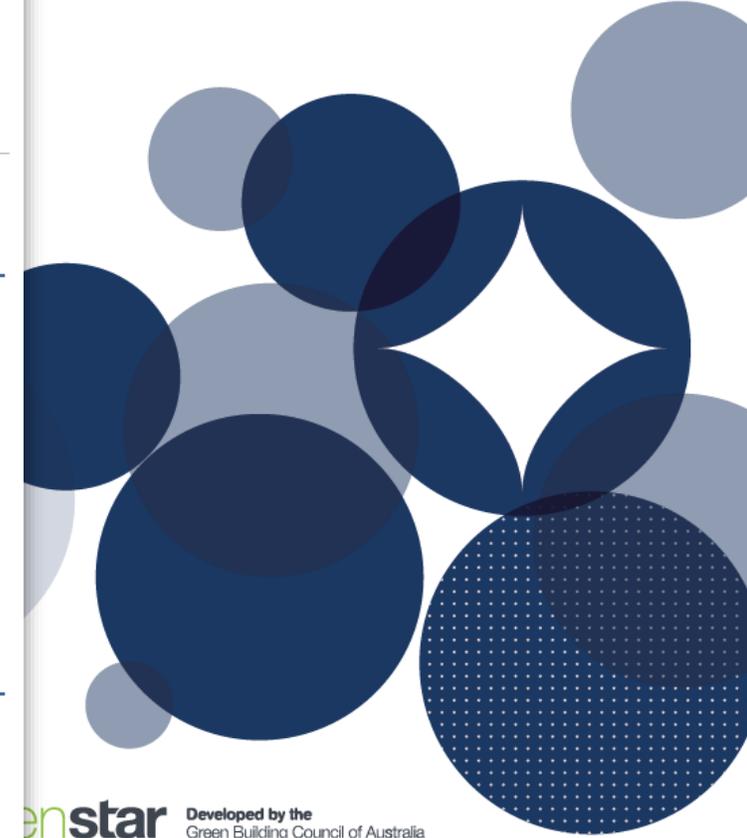
|| Points from operational energy reductions are capped at 3 out of the 6 points available for 19A.1. Please refer to the Compliance Requirements for further details.

19A.2 Additional Reporting

Up to 4 additional points are available where the LCA is used to inform the building's design process or as built outcome. Any combination of the below four initiatives may be targeted:

- Additional life cycle impact reporting;
- Material selection improvement;
- Construction process improvement; or
- LCA Design Review.

Compliance Guidelines



LCA Influencing the Built Environment

Evaluation of current status

- **LCA successfully integrated into Green Star**
- **Industry capability and understanding is growing**
- **New reporting incentives are creating impact in projects**
 - **Materials selection improvements**
 - **Construction process improvements**
 - **LCA in Design Review**
- **LCA practice in Green Star is ready for the next big step...**



HSBC

KPMG

Sydney

World
Leadership

greenstar
CERTIFIED

Barangaroo, NSW

Green Star Projects using LCA

So far...

- Approx. 100 new buildings
- Approx. 100 new fitouts
- All required to:
 - Conduct a standards-compliant LCA
 - Demonstrate genuine materials impact savings
 - Undergo peer review of method and claims
 - Submit data and report to GBCA

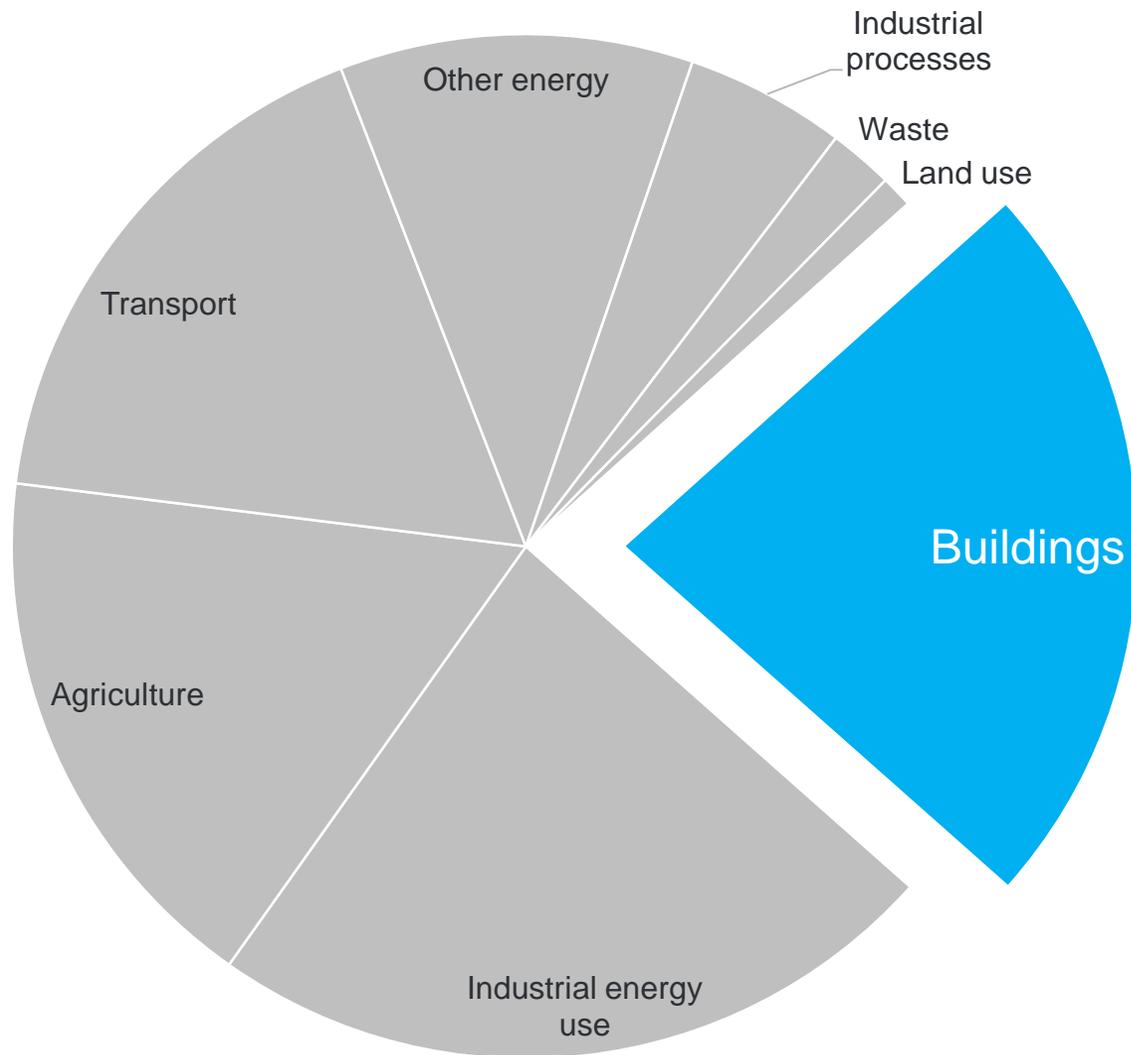
Principles for LCA in future rating tools

- **Embed LCA early in the design stage**
- **Simplify to increase accessibility and meaning while maintaining rigour**
- **Improve use of fit-for-purpose datasets, including EPDs**
- **Incentivise LCA-based design improvements, materiality assessment**
- **Focus on indicators with tangible impact to enable better decisions**
- **Holistic LCA: multiple metrics, whole-of-life, whole-of-building**

Today's
"Burning Platform"
and LCA

C2. Pathways limiting global warming to 1.5°C with no or limited overshoot would **require rapid and far-reaching transitions in** energy, land, urban and infrastructure (including transport and **buildings**), and not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and **a significant upscaling of investments in those options** (medium confidence).





**Buildings
represent 23% of
all emissions in
Australia**

Carbon



“This Carbon Positive Roadmap is a natural next step, providing clear pathways to carbon neutrality and creating new value for building owners, occupants and the broader community,”

Davina Rooney
GBCA CEO





Introducing:

Bringing embodied carbon upfront

Coordinated action for the building and construction sector to tackle embodied carbon.

Bringing embodied carbon upfront:

Project lifecycle

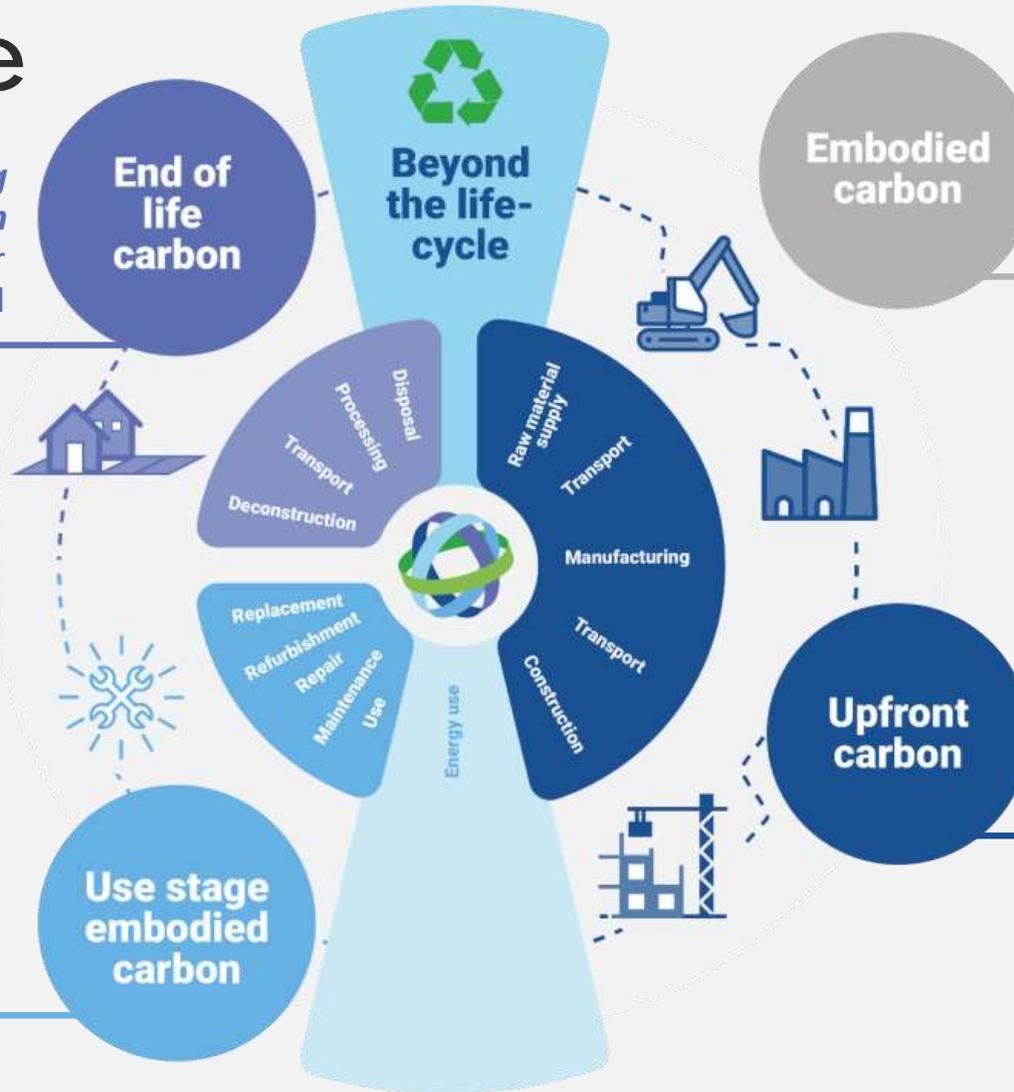


Bringing embodied carbon upfront:

Project lifecycle

The carbon emitted *during demolition or deconstruction* and processing of materials for reuse, recycling or final disposal

Carbon emissions associated with materials and processes required for the *upkeep of the built asset* throughout its lifecycle

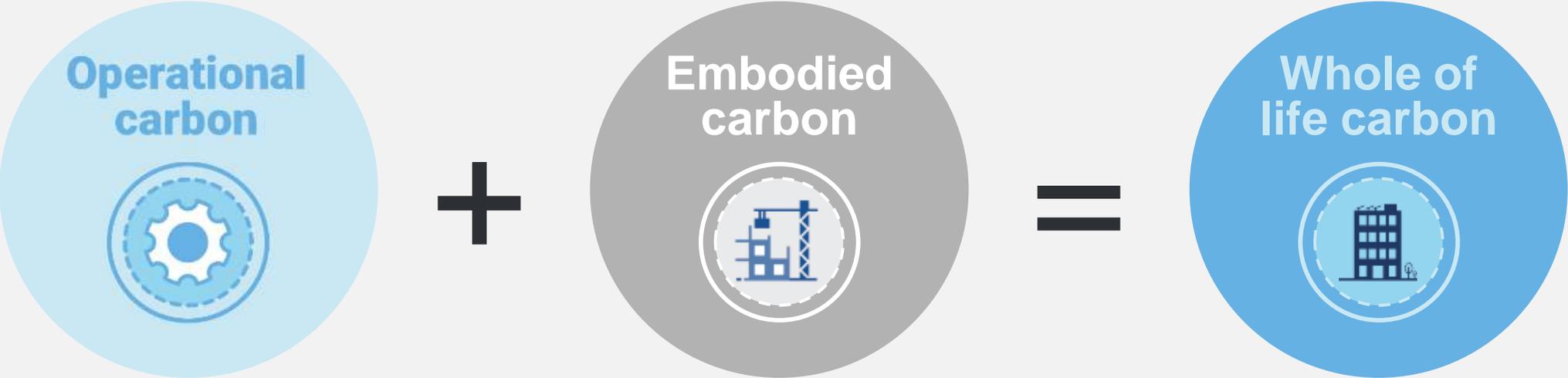


Carbon emissions associated with materials and construction processes throughout the *whole lifecycle* of a building or infrastructure

The emissions caused in the materials production and construction phases of the lifecycle *before* the building or infrastructure begins to be used

Bringing embodied carbon upfront:

Project lifecycle



LCA and Upfront Carbon Emissions

- *We HAVE to deal with upfront carbon emissions. NOW.*
- Step 1: Measure
- Step 2: Manage
- *We can't manage/reduce what we don't measure*
- **LCA provides the method and metrics**
- We need to use it – manufacturers, designers, builders, etc.
- *We must reduce our impacts. Carbon emitted today impacts us for a lifetime – and our children for even longer.*




greenstar
FUTURE FOCUS

National Strategic Partners



Future Focus Partners



Coming 2020
#GSfuturefocus



Upfront carbon emissions

Proposed amendments to Green Star to encourage better design and material selections.

New mandatory requirement (All ratings): upfront emissions reduction



To improve supply chain

RESPONSIBLE

Sustainable procurement

Sustainable products

To improve building designs

POSITIVE

Upfront embodied carbon

Impacts from resources

} **LCA**

Thank You

gbca.org.au

