



**AUSTRALIAN SUSTAINABLE
BUILT ENVIRONMENT COUNCIL**

Decarbonising Australia's built environment

Alison Scotland
CEO, ASBEC
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Implications of megatrends in the built environment

Climate action

Buildings are responsible for
39% of global carbon
emissions

Energy demand will increase by
50% by 2050

Resource efficiency

Buildings are responsible for
50% of global material use

42.4bn tonnes of materials
consumed annually

Health and wellbeing

91% of people live where air
pollution levels exceed
World Health Organization limits

People are **40%** more likely to
have asthma due to living in
a home with damp or mould

How will this change into the future?

By **2060**, global population is projected to will increase 27% to **9.8bn**

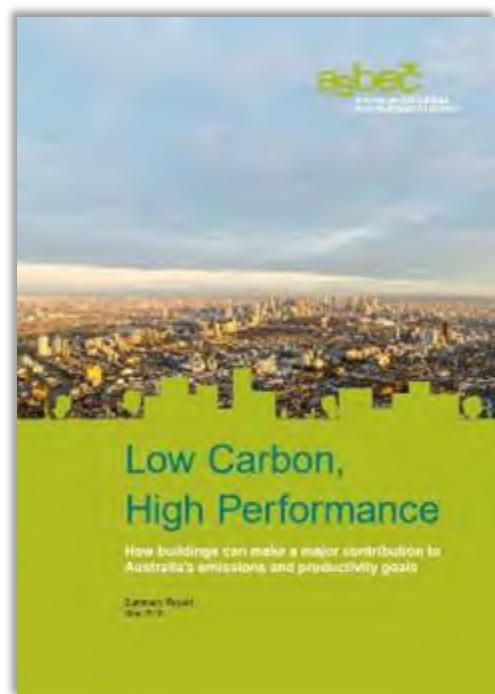
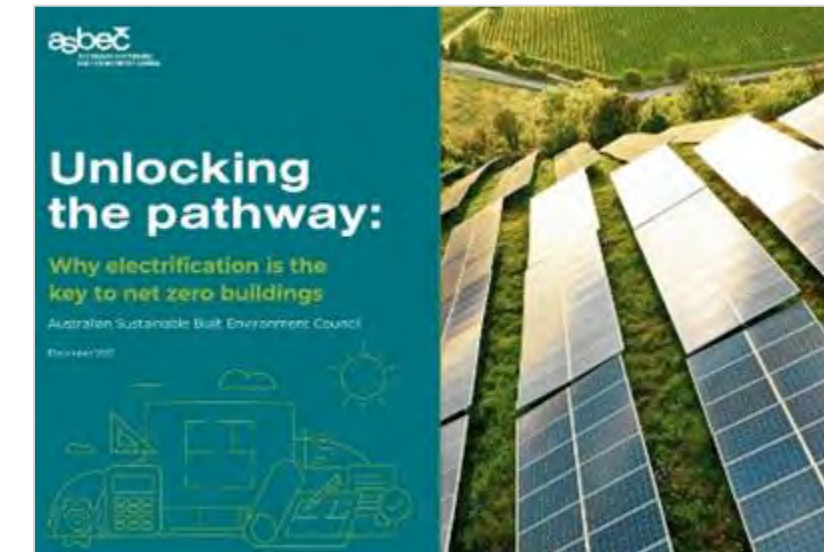
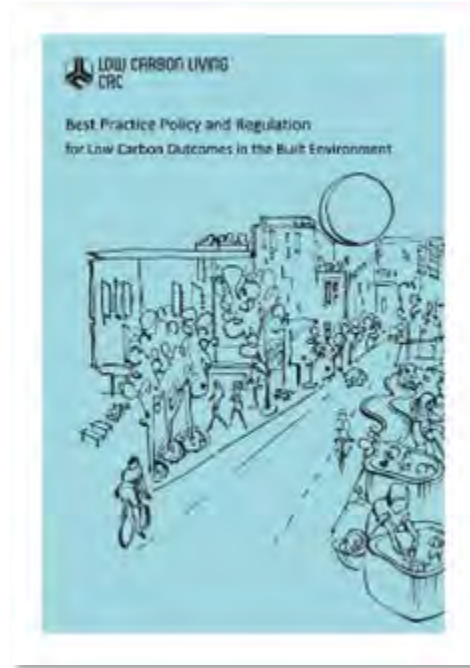
and global floor area will increase by **100%**

asbec

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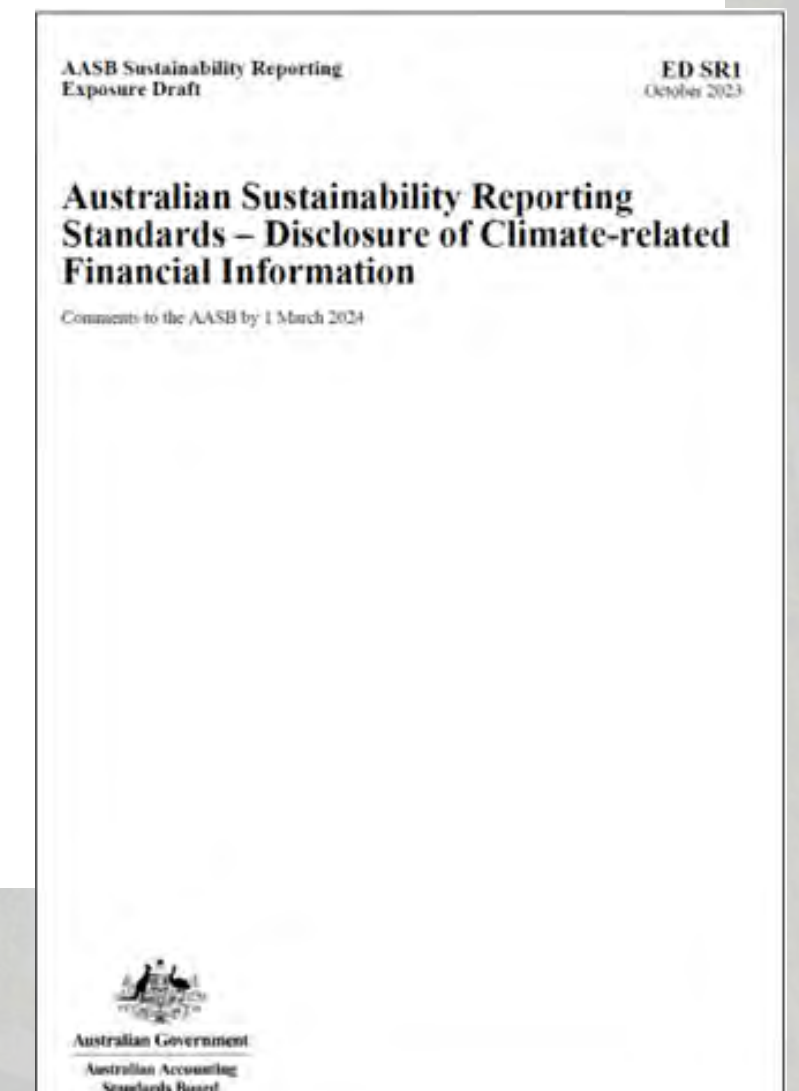


Preparing the built environment for a sustainable future is a shared responsibility



Mandatory sustainability and climate reporting

- The largest Australian companies and financial institutions must make climate disclosures commencing in the 2024/25 reporting period
- From the 2027/28 Reporting Period, the scope of reporting entities will be expanded significantly
- Requires disclosure of financial information relating to material, physical and transition climate-related risks and opportunities
- Key message: Any strategy based on offsets will become expensive and uncertain





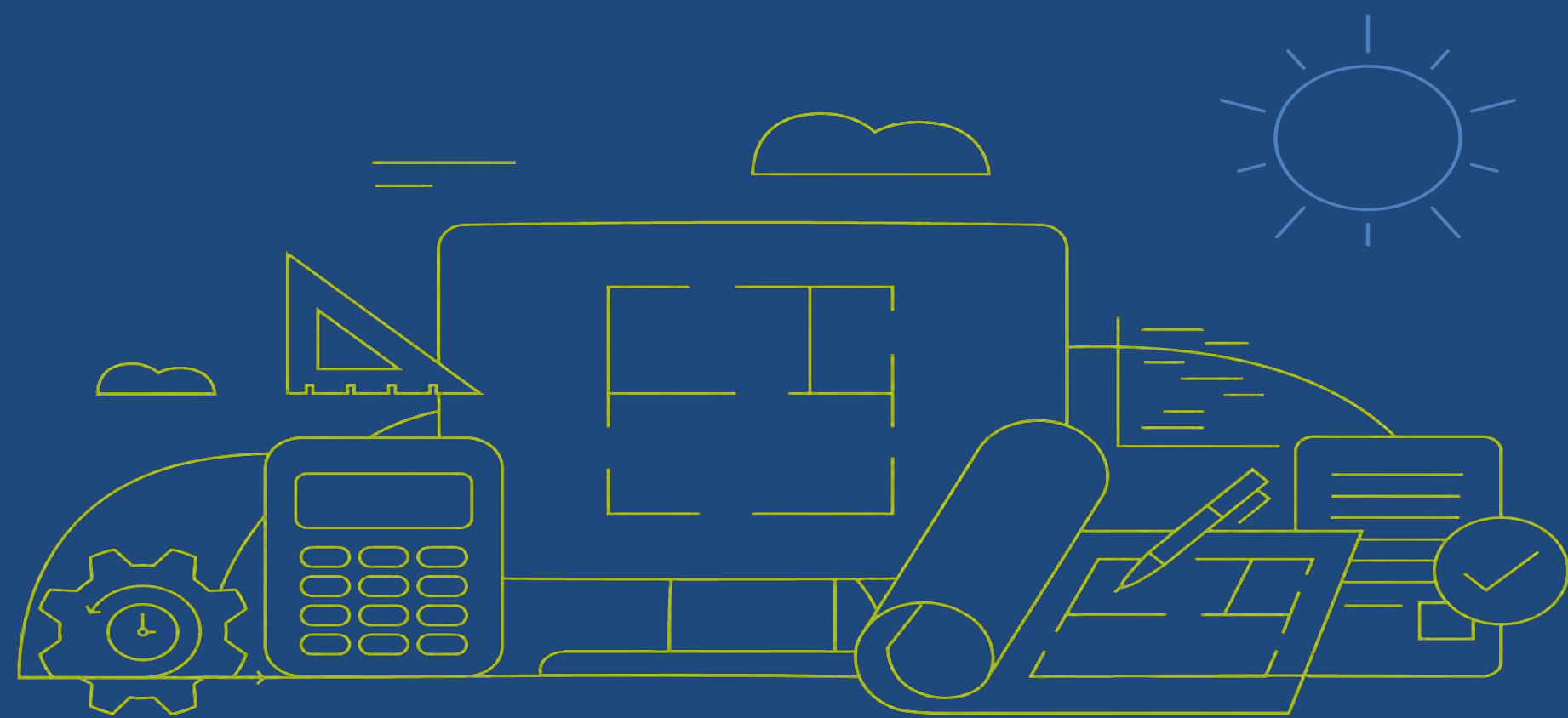
Buildings account for
over 50% of Australia's
electricity use

...and almost a quarter
of its emissions.

Unlocking the pathway:

Why electrification is the
key to net zero buildings

Australian Sustainable Built Environment Council





EVERY BUILDING COUNTS

2023 EDITION

**Innovating for a greener, healthier,
and more equitable built environment**

FOR THE FEDERAL GOVERNMENT

ASBEC Electrification Report

ZERO-CARBON-READY BUILDINGS

Zero-carbon-ready buildings are buildings that can operate in a low emissions economy.

The International Energy Agency defines them as:

“A ZERO-CARBON-READY BUILDING IS HIGHLY ENERGY-EFFICIENT AND EITHER USES RENEWABLE ENERGY DIRECTLY, OR USES AN ENERGY SUPPLY (E.G. ELECTRICITY OR DISTRICT HEATING) THAT WILL BE FULLY DECARBONISED BY 2050.”

Together with a decarbonised grid, zero-carbon-ready buildings deliver the end goal of a decarbonised built environment and feature a number of characteristics:

- High efficiency, high performance
- Fossil fuel free and fully electric
- Powered by renewable electricity
- Grid responsive
- Offset with nature
- Low embodied carbon

REDUCE



Built with lower upfront emissions

Built using materials with significantly lower embodied carbon. Emissions are reduced during construction.



Highly efficient

All buildings and infrastructure are energy efficient. Reduces stresses in the grid.



Walkable and livable

Transport emissions are reduced by good urban design, promotion of active transport, and low carbon options.



Grid responsive

Buildings that interact with the grid, including demand response and allowance for electric vehicles.

ELIMINATE



Fossil fuel-free

Buildings do not use fossil fuels for heating, hot water, cooking and onsite energy generation.



Powered by renewables

All energy used in buildings comes from 100% onsite or offsite renewable sources.

COMPENSATE



Offset with nature

The balance of emissions are compensated or neutralised through investments in high-integrity, nature-based carbon offsets.

THEME 1

ZERO-CARBON-
READY RESILIENT
BUILDING PLAN

THEME 2

ELECTRIFICATION

THEME 3

INCENTIVISE HIGH
PERFORMANCE

THEME 4

MINIMUM
STANDARDS

THEME 5

ENERGY
MARKET REFORM

THEME 6

GOVERNMENT
LEADERSHIP

THEME 7

ROBUST RATING
TOOLS FOR ALL
BUILDING TYPES

THEME 8

TOWARDS
ZERO EMBODIED
CARBON

JUNE 2024

Australian Sustainable Built Environment Council | ASBEC

EMBODIED CARBON EMISSIONS IN AUSTRALIA'S BUILT ENVIRONMENT

ISSUES PAPER
PRODUCED BY:



Australian Government
Department of Climate Change, Energy,
the Environment and Water



THE PROJECT



Figure 1. GBCA and thinkstep-anz (2021): Embodied Carbon and Embodied Energy in Australia's Buildings.



Scaling and deepening **NABERS' work**



Supporting the **supply chain** to deliver better products and services



Supporting the **value chain** to deliver better design and construction outcomes



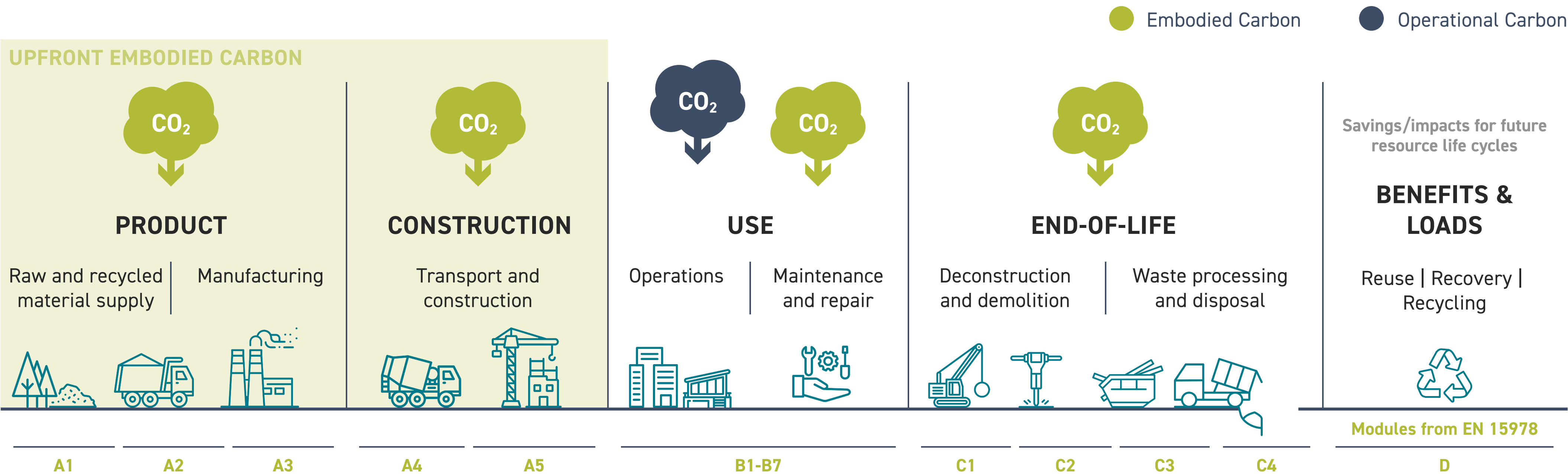
Adapted for the **needs of different segments and sectors**



CARBON IN THE ASSET LIFECYCLE

The focus of the Issues Paper is **upfront embodied carbon (A1-A5)**.

This is aligned with the scope of the NABERS Embodied Carbon measurement methodology.



The seven decarbonisation dilemmas



1. DIRECTION

Bringing lower-carbon construction to the mainstream

The **direction** governments set in guidance and regulations is the minimum standard for most construction: it must include upfront carbon.



2. DEVELOP

Building industry capacity to decarbonise

Industry-wide change to lower carbon construction will only happen when we **develop** industry capacity to deliver.



3. DISCLOSE

Methods, data and reporting

Manufacturers, builders and asset owners need to **disclose** data and outcomes in credible, transparent and consistent formats.



4. DEMAND

Clarity, consistency and confidence

Establishing broad, consistent, reliable **demand** for low-carbon construction will support faster industry transformation.



5. DESIGN

The best decisions from concept to completion

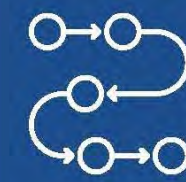
Using **design** to enable lower carbon outcomes is a key step to minimising upfront carbon.



6. DETAIL

The best product options

The **detail** of product manufacturing, data, performance and standards must unite towards rapid decarbonisation.



7. DELIVER

Delivering lower-carbon assets

Government and industry need to show how to **deliver** low-carbon assets.



An aerial photograph of a city skyline at dusk or dawn, with a harbor in the foreground. The sky is a deep blue, and the buildings are silhouetted against the light. The harbor is filled with numerous sailboats and a few motorboats. The text "Opportunities for supplementary cementitious materials" is overlaid in white, bold, sans-serif font in the center of the image.

Opportunities for supplementary cementitious materials



Thank you

Alison.Scotland@asbec.asn.au