

# CCAA Submission on the Development of a National Construction Strategy for Transport Infrastructure



APRIL 2025

# CCAA Submission on the Development of a National Construction Strategy for Transport Infrastructure

## Executive Summary

Cement Concrete & Aggregates Australia (CCAA) welcomes the opportunity to contribute to the development of a National Construction Strategy for transport infrastructure.

Representing a sector that supplies the fundamental materials for roads, bridges, rail, ports and other critical infrastructure, CCAA outlines a suite of eleven recommendations aimed at improving productivity, supporting decarbonisation, and ensuring long-term resilience and capacity across the transport infrastructure supply chain.

Central to CCAA's recommendations is the need to modernise infrastructure specifications and standards. The submission advocates a shift away from prescriptive requirements toward performance-based specifications that enable innovation, greater use of recycled materials, and the uptake of lower carbon products. A priority is the review and reform of AS 3972-2010 (General Purpose and Blended Cements) to support the broader use of supplementary cementitious materials and newer cement formulations.

The submission also calls for national coordination on the availability and use of Environmental Product Declarations (EPDs), investment in industry training, and a grant program to support EPD development. It highlights the need for better data, stronger enforcement of WHS and anti-bullying standards, and workforce development to embed modern methods of construction.

A key new recommendation is the development of a **National Heavy Construction Materials Plan**—a strategic response to risks posed by land use conflicts, lengthy planning approvals, and fragmented regulation across jurisdictions. This plan would secure proximate supply of critical materials and protect key facilities from encroachment.

CCAA also refutes claims that material shortages are responsible for price escalations in infrastructure projects. The industry has sufficient capacity, and is fully capable of scaling in response to demand—provided the regulatory environment enables it.

This submission provides a roadmap for integrating material supply, carbon reduction, and productivity reform into a coherent national strategy that supports economic and environmental goals.

## Summary of recommendations

1. That the CCAA Decarbonisation Facilitation Plan should be considered as the Strategy develops.
2. That the Strategy should require jurisdictions to review all prescriptive based requirements with a view of determining whether they can be amended to become performance-based documents.
3. That part of the Strategy should encourage as a priority a review of Australian Standards relevant to transport infrastructure through working closely with Standards Australia and the relevant standards committees, commencing with AS 3972-2010.
4. That the Strategy should stress the enforcement of existing building and construction standards as part of an enabling environment for innovation.
5. That the Strategy should encourage the creation of a nationally available platform providing information on the availability and performance of recycled materials.
6. That the Strategy encourages the greater use and reliance of properly verified Environmental Product Declarations (EPDs) when calculating emission levels arising from the development of transport infrastructure, for reasons of national consistency and so governments can meet net zero requirements.
7. That the Strategy should recommend the commencement of a national grant program, similar to the USA Environmental Protection Agency Scheme to support businesses that manufacture cement and concrete to develop and verify Environmental Product Declarations (EPDs).
8. That the Strategy should require the full enforcement of both bullying and harassment policies on construction sites.
9. That the Strategy should require the enforcement of all WHS standards relevant to the development of transport infrastructure.
10. That the Strategy should require supply chain training on using lower carbon concrete to mitigate resistance from project managers and contractors from procuring and using these products.
11. That the Transport and Infrastructure Senior Officials Committee (TISOC) agrees to support the development of a National Heavy Construction Materials Plan as an additional pillar to the Strategy.



## Comments on the development of a national construction strategy for transport infrastructure

Cement Concrete and Aggregates Australia (CCAA) welcomes the opportunity to make a submission on a National Construction Strategy for transport infrastructure.

CCAA is the voice of the heavy construction materials industry in Australia.

Our members operate cement manufacturing and distribution facilities, concrete batching plants, hard rock quarries and sand and gravel extraction operations throughout the nation. CCAA membership produce the majority of Australia's cement, concrete and aggregates, and ranges from large global companies to SMEs and family operated businesses.

It generates approximately \$15 billion in annual revenues and employs approximately 30,000 Australians directly and a further 80,000 indirectly. The Heavy Construction Materials Industry is vital to the nation's building and construction industries and underpins the development of Australia's physical infrastructure.

Australian cement, lime, concrete and aggregate producers form part of a critical manufacturing industry of national importance, especially given the need for sovereign capability to support Australia's infrastructure (such as roads, bridges, water supply structures, medical facilities, defence structures, housing and commercial buildings) and as part of the overall transition to net zero.

Understanding each material component that makes up our industry is critical to recognising the specific challenges and actions required to decarbonise each component of our sector.

The decarbonisation of concrete and aggregates in infrastructure projects is one of the key policy areas relevant to CCAA members.

Therefore, to underscore the critical need to decarbonise cement, concrete and aggregate production and to support sustainable infrastructure development, CCAA believes that it is imperative that any National Construction Strategy contain the following concepts:

### **Whole-of-Life Carbon Approach**

Implementing a holistic approach to planning, design, and carbon estimates in government projects to accurately represent carbon footprints.

### **Revised Standards**

Encouraging federal support for redesigning standards to enable decarbonisation, such as changes to AS3972- 2010 for General Purpose and blended cements.

### **Adopting Global Practices**

Fast-tracking standards and specification changes by adopting best practices from the US and Europe.

### **Material Efficiency**

Promoting designs that prioritise material efficiency, specify lower carbon concrete, and improve construction technologies.

### **Supplementary Cementitious Materials**

Moving towards performance-based specifications to increase the use of materials like Fly Ash and Blast Furnace Slag.

### **Supporting EPD**

Accelerating the development of Environmental Product Declarations (EPDs) across the industry, through implementing funding programs similar to those available internationally.

### **Training and Information**

Providing supply chain training on using lower carbon concrete and so mitigate resistance from project managers and contractors.

CCAA congratulates the Infrastructure and Transport Senior Officials' Committee (ITSOC) for developing the strategy as it advances the achievement of some of these important goals.

CCAA will generally comment on the Modern Methods of Construction Research Paper (**the MMC paper**).

CCAA also believes the overall strategy will be enhanced by the inclusion of a component encouraging the continued efficient operation of the Australian heavy materials supply chain through the development of a heavy construction materials plan, which will be discussed later in this submission.

## Comments on the MMC paper

CCAA agrees with the observation made in Part 1.3 of the MMC paper where it said:

*MMC and Construction Technology applications have different and overlapping applications across all stages of the project and asset lifecycle, and at a system level. Many productivity gains are realised from continuous improvement throughout projects, between projects, across networks and over the useful life and decommissioning of assets. As such, there is risk to searching for productivity improvement within only a select stage or stages of the project or asset lifecycle.*

*Taking this whole-of-system approach allows decision makers to design the most beneficial intervention, which often occurs at the early planning phase. Decisions made at this stage have the greatest potential to influence longer-term outcomes across myriad of factors, including decarbonisation, socially focused outcomes and supply chain enablement, to name a few. It is the stage when key decisions like location, technology use, design and management of assets are made, and interdependencies between assets, players and projects are identified. Taking this broader lens also allows continuous improvement learnings to flow end-to-end and into sequential projects.*

CCAA appreciates the recognition in Part 4 that there are new and emerging technologies that have applications largely unrealised (particularly in relation to innovations in the use of concrete) as set out in part of Table 12:

|   |  |  |
|---|--|--|
| <p><b>New construction materials and recycled construction materials,</b></p> | <p>Innovations in concrete, insulation, steel, timber, composites and aggregates or the recycling of waste and other materials for use in construction.</p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Mass laminated timber or cross-laminated timber panels (CLT) have been used in building construction projects offering environmental benefits, the speed of construction, carbon storage and favourable aesthetics.<sup>45</sup></li> <li>• Use of recycled materials in projects with the application of recycled alternatives in roads infrastructure range from 2% to 83% depending on geography, availability, time, and other measures.<sup>46</sup></li> </ul> | <p>Supports Standardisations</p> <p>Reduced waste</p> <p>Improved efficiency</p> |
|---|--|--|

CCAA finally agrees with the comment in the part of the table called **Inadequate enabling environment** on page 50 of the MMC paper, reading:

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- Existing risk settings, regulations and standards do not adequately support the introduction of Construction Technology and certain materials used by MMC market participants. For example, industry consultation highlighted *'existing specifications and prescribed specific characteristics for products rather than performance outcomes'* as one of the key barriers that limits the entry of new and innovative and lower-carbon materials into the market.<sup>[57]</sup>
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The industry commissioned VDZ<sup>1</sup>, a world-renowned cement and concrete research centre, to undertake a study entitled Decarbonisation Pathways for the Australian Cement and Concrete Sector (**the industry report**)<sup>2</sup> to better understand the technologies and practices necessary to decarbonise Australian cement and concrete.

It highlighted key actions including:

- Adopting whole-of-life carbon approaches for infrastructure.
- Revising outdated standards to enable lower-carbon solutions.
- Promoting material efficiency and the use of supplementary cementitious materials.
- Supporting the transition to zero-emission heavy vehicles.

CCAA has subsequently developed a Decarbonisation Facilitation Plan to assist it to deliver net zero carbon cement and concrete by 2050<sup>3</sup>.

## Recommendation

### 1. That the CCAA Decarbonisation Facilitation Plan should be considered as the Strategy develops.

#### Development and adoption of fit for purpose specifications

CCAA advocates a shift from prescriptive to performance based infrastructure specifications to enable innovation and maximise resource utilisation.

Overly prescriptive specifications and restrictive material requirements are creating barriers to industry innovation and contribute to the increasing cost of infrastructure.

CCAA supports the use of fit-for-purpose heavy construction materials in construction to improve resource utilisation, increase use of recycled materials and reduce costs of construction.

Fit-for-purpose materials is about using the right materials in the right location, where it makes economic sense, and includes quality raw quarry materials, recycled construction materials and marginal quarry materials.

As an example, the Victorian Department of Transport and Planning has recently amended a range of road construction specifications to allow for the inclusion of recycled products such as crushed concrete and brick, glass fines and reclaimed asphalt but only in specific, certain circumstances. There is still significant opportunity in this area.

Recycled content requirements for infrastructure and construction projects should be carefully considered due to the limited capability of the recycled materials supply chain to economically respond to a potentially massive increase in demand in some markets.

This should include the review of relevant Australian Standards, so that they have the flexibility to capture improvements in processes without comprising safety outcomes.

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<sup>1</sup> VDZ is a world-renowned research centre, providing practical and quality-oriented joint research and services in the field of cement and concrete

<sup>2</sup> [https://www.ccaa.com.au/CCAA/CCAA/Public\\_Content/SUSTAINABILITY/Decarbonisation\\_Pathways\\_Report.aspx?hkey=2b452a7b-5b70-4e78-b0d3-1a829e5bd319](https://www.ccaa.com.au/CCAA/CCAA/Public_Content/SUSTAINABILITY/Decarbonisation_Pathways_Report.aspx?hkey=2b452a7b-5b70-4e78-b0d3-1a829e5bd319)

<sup>3</sup> [https://www.ccaa.com.au/Common/Uploaded%20files/CCAA/CCAA%20Decarbonisation%20Plan\\_A3%20Brochure\\_06%20-%20Web%20Version.pdf](https://www.ccaa.com.au/Common/Uploaded%20files/CCAA/CCAA%20Decarbonisation%20Plan_A3%20Brochure_06%20-%20Web%20Version.pdf)

One such Standard that should be reviewed as a matter of priority is AS 3972-2010 *General Purpose and Blended Cements*.

In the context of moving towards performance-based specifications and away from prescription, the minimum amounts of Portland cement required by the standard should be reviewed to promote the greater uptake of higher limestone additions and other Supplementary Cementitious Materials (SCMs) such as Fly Ash and Blast Furnace Slag and so facilitate the adoption of new, lower-carbon cement types.

When it is fully utilised the change would save 10% of the embodied carbon in concrete, and so support the Government's Net Zero objectives.

CCAA is therefore pleased that the Productivity Commission indicated in its *Australia's Circular Economy: Unlocking the Opportunities* interim report (2025):

*Participants have suggested that some standards and specifications for infrastructure projects unnecessarily restrict the use of recycled materials.*<sup>32</sup> *The Business Council for Sustainable Development Australia suggested that some state road authorities apply 'conservative specifications that limit the use of recycled aggregates and plastics in road construction' (sub. 175, p. 24). Polar Enviro, which manufactures low carbon and recycled products for roads, noted that prescriptive Australian standards and state specifications inhibit uptake of circular alternatives (sub. 29, p. 14). In particular, the CCAA noted that the Australian standard related to general purpose and blended cements (AS3972-2010) needed to be updated to support greater use of supplementary cementitious materials in concrete (sub. 55, p. 16).*

*Different specifications and standards across states increases compliance costs for companies with national operations that use recycled materials. This was also noted by various inquiry participants. The Cement Industry Federation recommended that steps be taken to 'identify, remove and avoid regulatory duplication' across all levels of government (sub. 103, p. 13).*

*Similarly, the Australasian Procurement and Construction Council noted inconsistent regulations across governments pose challenges to using recycled materials in construction (sub. 74, p. 3).*

*Infrastructure Australia has also said more action should be taken to develop, update and harmonise performance-based specifications, standards and guidance for use of recycled materials in roads (2022, p. 48).*<sup>4</sup>

## Recommendation

2. **That the Strategy should require jurisdictions to review all prescriptive based requirements with a view of determining whether they can be amended to become performance-based documents.**
3. **That part of the Strategy should encourage as a priority a review of Australian Standards relevant to transport infrastructure through working closely with Standards Australia and the relevant standards committees, commencing with AS 3972-2010.**
4. **That the Strategy should stress the enforcement of existing building and construction standards as part of an enabling environment for innovation.**

### Access to information

Finally, CCAA members report that from time to time there are gaps of knowledge as to the way in which fit-for-purpose circular economy principles can be used in the construction of transport infrastructure.

## Recommendation

5. **That the Strategy should encourage the creation of a nationally available platform providing information on the availability and performance of recycled materials.**

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<sup>4</sup> <https://www.pc.gov.au/inquiries/current/circular-economy/interim/circular-economy-interim.pdf>: 74

## Other observations

### Environmental Product Declarations

CCAA strongly supports the wider adoption of Environmental Product Declarations (EPDs) across the construction materials supply chain. EPDs provide a scientifically robust, third-party verified method for reporting the environmental impacts of products, including embodied carbon. Their use aligns with a performance-based approach to construction and enables informed procurement and specification decisions that can lower lifecycle emissions.

They can also be used to benchmark and further improve the sustainability of products.

In the Data Collection and Governance Discussion Paper, reference is made to the following:

*Productivity is impacted by various factors, such as technology adoption, workforce skills workforce composition, and decarbonisation requirements. Nevertheless, such factors are not direct measures of productivity but can be framed as measures of project performance or outcomes of projects alongside other simple performance measures such as budgeted cost vs real cost, allocated time vs real time.<sup>5</sup>*

## Recommendation

- 6. That the Strategy encourages the greater use and reliance of properly verified Environmental Product Declarations (EPDs) when calculating emission levels arising from the development of transport infrastructure, for reasons of national consistency and so governments can meet net zero requirements.**

It should be noted that third-party verification is crucial for EPDs as it ensures the accuracy and reliability of the data, demonstrating that the environmental impacts and carbon offset determinations are calculated properly and based on reliable information.

To help scale adoption, governments should consider grant programs like those available in the US and Europe, which support the preparation and registration of EPDs by manufacturers.

## Recommendation

- 7. That the Strategy should recommend the commencement of a national grant program, similar to the USA Environmental Protection Agency Scheme to support businesses that manufacture cement and concrete to develop and verify Environmental Product Declarations (EPDs).**

## Culture

CCAA welcomes the focus on culture in the Workforce Discussion Paper, in particular that a focus on improving workforce culture, flexibility and diversity will assist workforce attraction and retention.<sup>6</sup>

## Recommendation

- 8. That the Strategy should require the full enforcement of both bullying and harassment policies on construction sites.**

Similarly, enforcement of health and safety standards is varied.

CCAA members report the lack of adequately enforced traffic management standards impacts on efficient delivery of construction materials.

## Recommendation

- 9. That the Strategy should require the enforcement of all WHS standards relevant to the development of transport infrastructure.**

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<sup>5</sup> Page 16

<sup>6</sup> Page 1

## Training

Finally, CCAA members have found that some procurers and contractors have limited knowledge on the quality of concrete produced to modern standards.

## Recommendation

### **10. That the Strategy should require supply chain training on using lower carbon concrete to mitigate resistance from project managers and contractors from procuring and using these products.**

**An important part of a national construction strategy: development of a heavy construction materials plan**

An efficient cement and concrete supply chain will provide for the sustainable, reliable, affordable and predictable supply of heavy construction materials to meet the growing needs of the Australian economy.

Such a supply chain is at risk due to:

- A long, slow, complex development approvals process across multiple government agencies for new or extension of existing operations
- Encroachment of state significant quarry resources and key concrete batch plants by incompatible land uses
- Prescriptive standards and specifications acting as barriers to the increased use of innovative materials that will decarbonise the economy
- Port and road access bottlenecks that potentially limit cement/clinker imports and high quality silica sand exports.

It is particularly concerning to industry that quarries are being forced further and further away from high population centres where the aggregates are most needed. This, in turn, increases the transport related carbon emissions in supplying these materials.

The [Infrastructure Australia Market Capacity Report 2023](#) elaborated on this point:

*Acute quarry shortages loom in a few hotspots across the country. Shortages in local quarry supply threatens the deliverability of major public infrastructure works, increases project costs and schedule delays, and contributes greater emissions by bringing heavy materials to site from further afield via truck or train. Data availability of raw quarry products varies by state and territory, while long quarry approval times (5–10 years) impede efforts to plan supply for demand. While quarries are monitored and managed by state and territory governments predominantly, national regulation and policies across biodiversity and environment, cultural heritage, and net zero requirements, may also contribute to delays in quarry approvals.<sup>7</sup>*

Of equal concern is a reduction of sufficient amounts of industrial lands in urban areas to accommodate concrete batch plants near to the construction sites that build the modern urban environment. Operations are continually being encroached on by sensitive land users.

Finally, CCAA members are increasingly concerned by the repeated—but unfounded—claims from some quarters of the construction sector that material supply constraints are a primary driver of cost escalation in transport infrastructure projects.

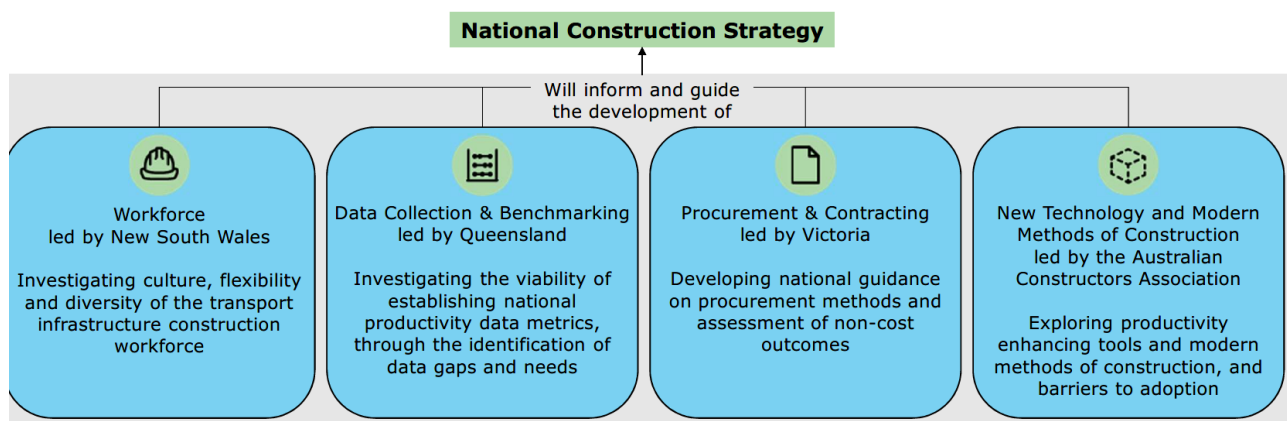
This is an erroneous assumption that deflects attention from the broader and more complex productivity and cost challenges affecting the construction sector, including inefficiencies in project planning, procurement practices, contract management, and workforce utilisation.

The industry has sufficient financial and strategic capability to invest and grow capacity as and when it is needed.

The current national construction strategy contains the following pillars:

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<sup>7</sup> Page 12 <https://www.infrastructureaustralia.gov.au/publications/2023-infrastructure-market-capacity-report>



However, for the reasons expressed above CCAA believes that it is equally important that the efficient operation of the heavy materials supply chain forms part of the Strategy.

The reasons for such a plan are set out in the graphic contained in **Attachment 2**.

A Heavy Constructions Material Plan would (among other things) set out guidance requiring participating jurisdictions to:

Ensure proximate and adequate materials supply for housing, infrastructure and renewable energy projects.

- Protect extractive resources and concrete batch plants from urban encroachment and sterilisation.
- Establish permanent Quarry Approvals Coordinators, similar to the system in force in Victoria to navigate joined up approvals for priority sites and resolve approval roadblocks across State and Local Governments.
- Commit to regular demand:supply data collection and analysis to better understand barriers to increasing supply of material and to better plan for major infrastructure project delivery to ensure efficient and economical delivery into projects.
- Deliver stronger planning protection for strategic extractive resources to give priority to extracting quarry materials.

- Protect key concrete batch plants and quarries from encroachment.
- Enable a streamlined environmental and development approval process.
- Align State and Federal energy and climate change policies to minimise complexity and ensure national targets are met.
- Encourage public procurement practices that reflect government policies on reducing emissions.
- Remove barriers for lower carbon concrete by moving from prescriptive to performance based specifications.
- Support the introduction of lower carbon cement standards.
- Facilitate the circular economy by fast tracking the introduction of recovered materials frameworks such as the Queensland End of Waste Codes<sup>8</sup>, including priority materials such as construction and demolition waste, fly ash, lithium byproduct and incinerator bottom ash aggregate.
- Ensure that the sand and aggregate needed for roading and construction is added to the Australian critical minerals list<sup>9</sup> in the same way as these products have been added to the comparable list made by the New Zealand Government.<sup>10</sup>

<sup>8</sup> <https://www.business.qld.gov.au/running-business/environment/waste-management/regulated-waste/eow-codes>

<sup>9</sup> <https://www.industry.gov.au/publications/australias-critical-minerals-list-and-strategic-materials-list>

<sup>10</sup> <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/minerals-and-petroleum/critical-minerals-list/critical-minerals-list-2025>

## Recommendation

- 11. That the Transport and Infrastructure Senior Officials Committee (TISOC) agrees to support the development of a National Heavy Construction Materials Plan as an additional pillar to the Strategy.**

CCAA looks forward to continuing dialogue with TISOC, through the Department of Infrastructure, Transport, Regional Development, Communications and the Arts as the final cohesive product is developed.



**Attachment 1:**  
Ambition to deliver net zero  
cement and concrete by 2050

# Ambition to deliver net zero cement and concrete by 2050

## WHO WE ARE

Cement Concrete & Aggregates Australia (CCAA) is the voice of the heavy construction materials industry, CCAA members produce the majority of Australia’s cement, concrete, and aggregates, which are crucial to Australia’s building and construction sectors.

The Cement Industry Federation (CIF) is the peak industry association for manufacturers of clinker, cement and cement products in Australia. CIF membership accounts for 100 per cent of Australian integrated clinker and cement production.

The Cement & Concrete industries have declared an ambition to deliver net zero carbon cement and concrete to Australian society by 2050.

Concrete, of which cement is the key ingredient, is the world’s most widely used building and construction material and is vital to securing a resilient built environment that is sustainable for life. With demand for durable and sustainable housing as well as public infrastructure expected to rise strongly in response to population and economic growth, the demand for concrete will increase.

The public statement of ambition below reinforces that the industries recognise the challenges of climate change and outlines the commitment to work towards decarbonisation throughout the value chain, with a strong emphasis on technological, regulatory, structural, and behavioural change.

Achieving these significant decarbonisation objectives will require changes to policy settings, material technology and design practices which can only be achieved through collaboration across the construction supply chain.

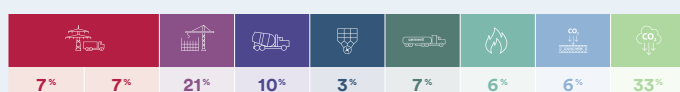
*“Australia’s cement and concrete industries recognise the challenges of climate change and adaptation.”*

*“Our industries hold an ambition to reduce their CO<sub>2</sub> footprint and deliver society with Net Zero carbon concrete by 2050. We are committed to work across the value chain to deliver this in a circular economy, whole-of-life context to support a sustainable built environment.”*

## KEY PATHWAYS TO NET ZERO BY 2050 IDENTIFIED









An independent report developed by VDZ<sup>1</sup> titled ‘Decarbonisation Pathways for the Australian Cement and Concrete Sector’ was released, following the Australian cement and concrete industries declaring the ambition to deliver net zero carbon cement & concrete by 2050. This report enables a better understanding of the technologies and practices necessary to decarbonise Australian cement and concrete, and identifies the pathways and key future research requirements to support decarbonisation:

- > Zero emission electricity and transport;
- > Innovation through design and construction;
- > Further innovation in concrete;
- > Increased use of supplementary cementitious materials in concrete;
- > New CO<sub>2</sub> efficient cements;
- > Alternative fuels and green hydrogen;
- > Accounting for concrete to uptake CO<sub>2</sub> (recarbonation); and
- > Capture remaining CO<sub>2</sub> (CCUS).



<sup>1</sup> VDZ is a world-renowned research centre, providing practical and quality-oriented joint research and services in the field of cement and concrete.

# CEMENT & CONCRETE INDUSTRY DECARBONISATION FACILITATION PLAN-ON-A-PAGE

| <b>IDENTIFIED DECARBONISATION PATHWAYS</b><br>Showing percentage contribution to total decarbonisation objective from 2020-2050.#   |   |   |    |   |    |    |   |   |  |
|---|--|---|--|--|---|---|--|--|---|
|   | 7%   | 7%  | 21%  | 10%  | 3%  | 7%  | 6%   | 6%   | 33%   |
| ZERO EMISSION ELECTRICITY AND TRANSPORT   |  | INNOVATION THROUGH DESIGN AND CONSTRUCTION  |  | CONTINUE TO FURTHER INNOVATE CONCRETE  | USE OF SUPPLEMENTARY CEMENTITIOUS MATERIALS IN CONCRETE   | NEW CO <sub>2</sub> -EFFICIENT CEMENTS  | USE ALTERNATIVE FUELS AND GREEN HYDROGEN   | ACCOUNT FOR CONCRETE TO UPTAKE CO <sub>2</sub>   | CAPTURE REMAINING CO <sub>2</sub>   |
| INDUSTRY OBJECTIVE  |  |   |  |  |   |   |  |  |   |
| Electricity emissions are reduced to zero.  | Emissions from transport and mobile plant are reduced to zero.   | Concrete remains an essential construction material as the built environment decarbonises.  | Change Standards and Specifications to support increased flexibility in binder content and composition. Reduce concrete waste.   | Increased ability to use Supplementary Cementitious Materials (SCMs), such as Fly Ash & Slag, as a replacement for Cement in Concrete.   | Increased ability to innovate through the development of new clinker efficient cements - including those with higher limestone additions.   | Increase alternative fuel use without affecting efficiency, cost and quality.   | Recarbonation is factored into international and national carbon accounting frameworks.  | Cost effective, efficient and fully capable CCUS is supported and commercialised.  |   |
| AREAS OF FOCUS  |  |   |  |  |   |   |  |  |   |
| Advocate for and support the transition to renewable energy.  | Advocate for and support the transition to zero emissions fleet and plant.   | Support Concrete's position in the transition to decarbonise through design and construction.   | Advocate for and support changes to Standards and Specifications. Promote concrete waste reduction.  | Influence changes to Standards and Specifications removing barriers to increased SCM use. Educate on benefits of increased SCM use.  | Influence standards and specifications, educate supply chain on lower carbon cement.  | To ensure sustainability and energy policy supports the continued uptake of co-processing and alternative fuels.  | Advocate for market acceptance and optimisation of Recarbonation.  | Ensure that policy and regulatory frameworks support the development and commercialisation of CCUS as a priority.  |   |
| MARKET ENABLERS: Positive regulatory and government support that enables and incentivises decarbonisation is critical to success across all pathways.   |  |   |  |  |   |   |  |  |   |
| STRATEGIES  |  |   |  |  |   |   |  |  |   |
| <ul style="list-style-type: none"> <li>Informing members of funding opportunities and efficiency improvements.</li> <li>Advocating for funding and cost competitive supply of renewable power and access.</li> <li>Advocate for the removal of barriers and limitations to sourcing renewable power.</li> </ul> | <ul style="list-style-type: none"> <li>Informing members of funding opportunities.</li> <li>Advocating for funding and transition opportunities.</li> <li>Advocate for the removal of barriers and limitations.</li> </ul> | <ul style="list-style-type: none"> <li>Educate key stakeholders on available decarbonisation opportunities.</li> <li>Inform key stakeholders on Industry progress and successes.</li> <li>Support the ability to measure construction carbon emissions.</li> <li>Identify remaining barriers to progressive adoption of lower carbon construction solutions.</li> </ul> | <ul style="list-style-type: none"> <li>Using experience and data,                             <ul style="list-style-type: none"> <li>Promote concrete practices that produce lower carbon results</li> <li>Advocate to remove any limitations to methods that enhance decarbonisation.</li> </ul> </li> <li>Promote improvements in waste management and recycling.</li> </ul> | <ul style="list-style-type: none"> <li>Advocate to remove limitations to SCM use and for performance metrics to enable SCM use.</li> <li>Advocate for the removal of barriers to increase use of traditional SCM.</li> <li>Identify potential new SCMs.</li> <li>Advocate for the removal of barriers to introduce new SCMs.</li> <li>Encourage, and educate on, the higher use of SCMs</li> </ul> | <ul style="list-style-type: none"> <li>Investigate the barriers to CO<sub>2</sub> efficient cement and binders, and advocate for alternatives supporting their use.</li> <li>Remove barriers for CO<sub>2</sub> efficient cements and alternative binders.</li> <li>Advocate for CO<sub>2</sub> efficient cements and alternative binders.</li> </ul> | <ul style="list-style-type: none"> <li>Ensure co-processing is recognised as a safe and effective method to reduce waste and fossil fuel usage.</li> <li>That regulatory policies and programs continue to encourage co-processing and the development of alternative energy sources to fuel integrated cement facilities.</li> </ul> | <ul style="list-style-type: none"> <li>Raise stakeholder awareness.</li> <li>Advocate to factor into concrete carbon measurement.</li> <li>Enable optimisation of recarbonisation in Australia.</li> </ul> | <ul style="list-style-type: none"> <li>That government continues to recognise CCUS as a critical pathway to reduce domestic emissions, especially cement manufacturing emissions.</li> <li>That supportive and consistent regulatory policies and programs are developed as a priority.</li> <li>Collaborate with other industries around the development of Carbon Capture &amp; Storage (CCS) hubs.</li> </ul> |   |

Note : Concrete scope 1, 2 and 3 emissions are included in the percentage emissions for each pathway.  
 # These Decarbonisation Pathways were identified in the independent report Decarbonisation Pathways for the Australian Cement and Concrete Sector

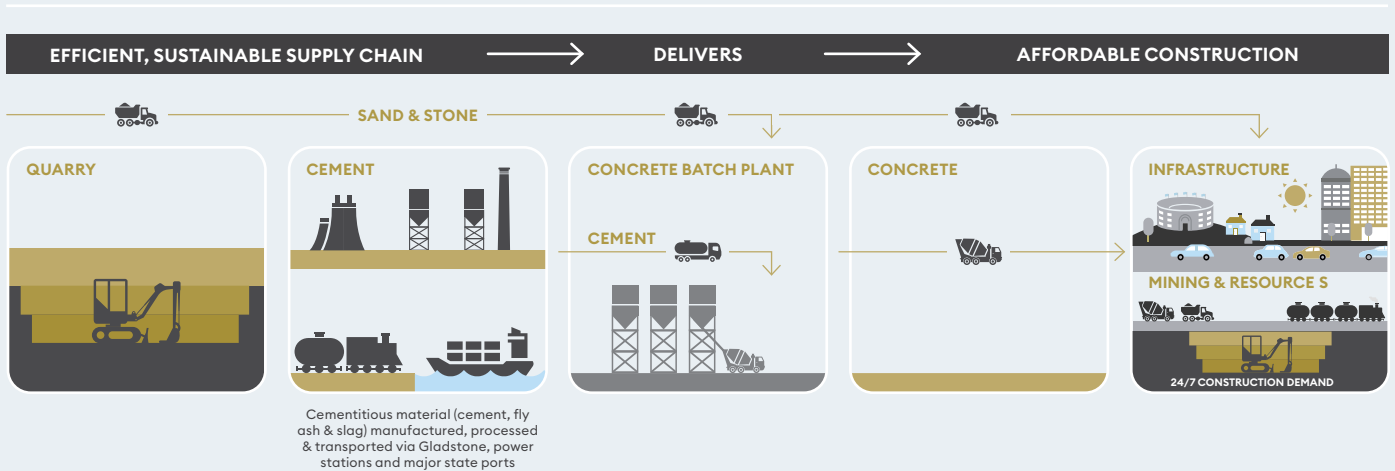
# EXAMPLES OF DECARBONISATION INITIATIVES

|                   | <br><b>INNOVATION THROUGH DESIGN AND CONSTRUCTION</b> | <br><b>NEW CO<sub>2</sub>-EFFICIENT CEMENTS</b> | <br><b>ACCOUNT FOR CONCRETE TO UPTAKE CO<sub>2</sub></b> |
|-------------------|--|--|---|
|                   |   |   |    |
| <b>INITIATIVE</b> | CCAA Concrete EPD Support Program  | Advocating for updates to AS3972 and related standards to support the use of low CO <sub>2</sub> cements                         | CCAA Market Information Sheet on Recarbonation  |
| <b>LAUNCHED</b>   | 2023 Available to all Australian concrete suppliers  | Industry Change Management Plan / Advocacy under way   | Available at <a href="http://cca.com">cca.com</a>   |
| <b>INITIATIVE</b> | CCAA Policy Webinars, incl. exploration of Decarbonisation & Sustainability related topics   | CCAA Publications and Technical Resources, including related events  | Australian Research underway through SmartCrete CRC – supported by CCAA and CIF   |
| <b>LAUNCHED</b>   | Late 2023  | Ongoing  | Underway, to conclude in 2024   |

**Attachment 2:**  
Heavy construction  
materials supply chain

# Snapshot

## HEAVY CONSTRUCTION MATERIALS SUPPLY CHAIN



### INDUSTRY ISSUES

- ✗ Complex approvals process
- ✗ Multiple sets of regulations & government agencies
- ✗ Resource security & urban encroachment
- ✗ Increasing demand for materials
- ✗ Local Council conditions limiting supply
- ✗ Key Resource Areas (KRAs) lack planning priority
- ✗ Keep port facilities open and efficient for cement
- ✗ Urban encroachment
- ✗ 24/7 manufacturing and loading
- ✗ Bringing low carbon products to market
- ✗ Low cost energy
- ✗ Local Council requirements
- ✗ Hours of operation
- ✗ Prescriptive specifications
- ✗ Traffic congestion
- ✗ Restricted heavy vehicle access
- ✗ Constrained site access and delivery time restrictions
- ✗ Skilled labour
- ✗ Maintain pipeline of infrastructure projects
- ✗ Business taxes and royalties

## FACILITATING AFFORDABILITY AND ECONOMIC GROWTH THROUGH REGULATORY REFORM AND IMPROVEMENT

### WHAT NEEDS TO CHANGE

- ✓ Appoint Quarry Approvals Coordinator in State Government
- ✓ Stronger planning protection for KRAs to protect buffer zones and enable development approvals
- ✓ Practical local council conditions
- ✓ 24 hr product loading and sales
- ✓ Priority road access
- ✓ Planning protection
- ✓ Ensure internationally competitive energy costs
- ✓ Recognition of re-use of waste through effective End of Waste Framework
- ✓ Stronger planning protection for concrete batch plants
- ✓ Streamlined process to co-locate construction material manufacturing with quarries
- ✓ Streamlined process to extend operating hours
- ✓ Aligned State and Federal energy and climate change policy
- ✓ Risk based approach for material specifications
- ✓ Extended hours for construction site delivery, operation and access
- ✓ Streamlined site access
- ✓ Continued investment in social housing
- ✓ Balanced delivery of State/Local Government infrastructure projects
- ✓ Increase road maintenance
- ✓ Minimise payroll tax, land and property taxes