CEMENT CONCRETE & AGGREGATES AUSTRALIA

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Net Zero Commission
NSW Government

CCAA Submission Via website

Net Zero Commission – Decarbonisation Pathways for NSW, Call for Evidence: July 2026

Cement Concrete & Aggregates Australia (CCAA) welcomes the opportunity to provide a submission on the Decarbonisation Pathways for NSW, Call for Evidence consultation process.

Cement Concrete & Aggregates Australia is the voice of the heavy construction materials industry in Australia. CCAA members produce the majority of Australia's cement, concrete, and aggregates, which are crucial to Australia's building and construction sectors. These materials support the development of our nation's transport, energy, water, housing, defence, and social infrastructure.

Nationally, the industry contributes $20.7 billion to GDP and supports 112,970 jobs across Australia. It generates $6.8 billion in direct value added and underpins activity across the broader economy through extensive supply chain and induced effects. Learn more about CCAA and our Economic Contribution to Australia.

Executive summary

CCAA welcomes the opportunity to provide evidence to the NSW Net Zero Commission. The Commission's pathways project is intended to translate legislated targets into practical sector actions, inform investment and policy, monitor progress and support an orderly transition. CCAA supports these objectives and recommends that modelling explicitly captures the interdependencies between manufacturing supply, construction demand, transport, energy, waste and carbon management.

CCAA supports the development of practical, evidence-based NSW pathways to the 2030, 2035 and 2050 targets. The pathways should recognise that cement and concrete decarbonisation require a portfolio of measures implemented over different time horizons, supported by sustainable procurement, standards & specification reform, reliable carbon data, renewable energy, circular economy settings and government investment in emerging technologies including Carbon Capture, Utilisation and Storage (CCUS).

CCAA refers the Commission to the Cement Industry Federation (CIF) submission to this review. CIF represents the cement and clinker manufacturing sector, and their submission provides more detailed views and evidence in relation to cement and clinker manufacturing decarbonisation achievements and challenges.

As outlined in the CCAA and CIF Decarbonisation Pathways for the Australian Cement and Concrete Sector Report (2021) and subsequent Cement & Concrete Industry Decarbonisation Facilitation Plan (2024), the cement and concrete sector cannot be represented by a single technology or a straight-line emissions trajectory.

Near-term reductions can be achieved through greater renewable electricity, operational efficiency, material-efficient design, increased use of supplementary cementitious materials (SCMs), lower-carbon cements and binders, alternative fuels, recycled materials, improved construction practices and performance-based procurement. Deeper reductions towards 2050 will increasingly depend on commercialisation and deployment of new technologies, and market acceptance of new binders and new SCM supply chains.

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Government has a critical role as regulator, infrastructure procurer and market shaper. NSW can accelerate progress by establishing long-term demand signals for lower carbon products, harmonising carbon measurement and procurement requirements, reforming standards and specifications to enable scaled uptake of lower carbon cement and concrete products, supporting innovation trials, and avoiding fragmented or overly prescriptive requirements that increase cost without delivering better carbon outcomes.

General Recommendations

1. Use a portfolio-based pathway for cement, concrete and aggregates, with realistic timing for mature, scaling and emerging technologies rather than assuming uniform deployment.

2. Embed whole-of-life carbon and material efficiency in NSW infrastructure and built-environment decision-making, while retaining a strong focus on reducing upfront embodied carbon.

3. Use government procurement frameworks & mechanisms to create predictable market pull for verified lower-carbon materials, supported by staged targets, incentives, innovation pathways and proportionate reporting.

4. Recognise and support the CCAA Australian Adoption of the Global Ratings for Low Carbon and Near Zero Concrete framework as a consistent, concrete strength-based framework for comparing concrete carbon performance using third-party verified EPD data.

5. Accelerate performance-based standards and specifications, including removal of unnecessarily prescriptive minimum Portland cement requirements and enable the streamlined acceptance of SCMs, alternative binders and recycled inputs.

6. Ensure access to affordable, reliable renewable electricity and enabling infrastructure are available to industrial facilities, quarries and concrete operations, including regional locations.

7. Recognise CCUS as a necessary but longer-term pathway for hard-to-abate process emissions, with industry consultation used to determine the most useful and practical support required.

8. Adopt circular economy settings based on appropriate-use and highest-and-best-use principles, supported by streamlined resource recovery regulation and stronger end markets for recycled and secondary materials.

9. Develop a consistent NSW carbon-data architecture using verified EPDs as the representative baseline.

10. Build workforce and supply-chain capability across clients, designers, engineers, specifiers, contractors and regulators so lower-carbon options can be well understood, confidently selected and delivered.

Cement & Concrete Industry decarbonisation framework

CCAA's position is informed by the independent Decarbonisation Pathways for the Australian Cement and Concrete Sector Report and the Cement & Concrete Industry Decarbonisation Facilitation Plan

The Facilitation Plan focuses on the strategies & market enablers needed to translate technical potential into implementation across the identified decarbonisation pathways.

The Plan's central policy message is that positive regulatory and government support that enables and incentivises decarbonisation is critical to success across all pathways.

In practice, this means aligning procurement, measurement, standards, energy, waste, planning, research, skills and investment policy rather than relying on any single intervention.

CCAA and CIF are taking a national leadership role in shaping sustainable procurement policy to support the practical uptake of lower-carbon cement, concrete and aggregates. Through ongoing engagement with governments, infrastructure agencies, regulators and industry, CCAA is continuing to formulate policy positions that promote nationally consistent, science-based and material-neutral procurement frameworks.

This work aligns with the Cement & Concrete Industry Decarbonisation Facilitation Plan and focuses on developing practical and sustainable policy across procurement requirements and incentives, regulation and governance, and standards and specifications. Key priorities include whole-of-life carbon assessment; credible carbon measurement and rating tools; verified Environmental Product Declarations; performance-based specifications; consistent definitions; appropriate risk-sharing, and clearer pathways for innovation. This includes supporting changes underway to AS 3972:2010 *General purpose and blended cements.*

CCAA will continue to advance practical policy recommendations that improve implementation of sustainable procurement practices and accelerate demand for lower-carbon materials while maintaining safety, durability and performance.

CCAA has also released the Australian Adoption of the Global Ratings for Low Carbon and Near Zero Concrete. The system provides an Australian, strength-based AA–G carbon banding framework for concrete, designed to be used with third party verified EPD product data. It creates a common language that can support procurement, benchmarking, and continuous improvement without prescribing a single mix design or technology pathway.

Responses to consultation questions

Policies and market mechanisms

1. What opportunities or barriers could improve the effectiveness of NSW's transition to net zero?

    a) Policies or market mechanisms that could accelerate emissions reductions?

    The strongest near-term opportunity is to align NSW government's role as infrastructure procurer with its role as regulator and policy maker. Public procurement can create the scale and certainty needed for producers to continue to invest in lower-carbon materials, new equipment, EPDs development & publication, trials and suitable supply chains.

    Public Procurement Policy enablers include:

    - Adoption of whole-of-life carbon assessment, with explicit treatment of upfront embodied carbon, durability, maintenance, resilience, reuse and end-of-life outcomes.
    - Introduction of proportionate carbon management requirements and staged project targets, based on industry consultation around application specific performance requirements, regional product options and data availability.
    - Use of the CCAA Australian Adoption AA–G bands as a common framework for concrete carbon performance, supported by third-party verified EPDs and appropriate strength-grade comparison.
    - Looking for opportunities to move from prescriptive material recipes to performance-based specifications that protect safety, durability and service life while allowing producers and designers to optimise carbon.

- Provide innovation pathways, pre-approved material libraries and mechanisms for agencies to share evidence from successful trials.

- Coordinate transport, planning, environment, energy and procurement agencies to address barriers across the full supply chain.

- Support resource-recovery markets and clarify when returned concrete and recovered materials can be treated as products rather than waste, subject to appropriate environmental controls.

b) Drivers and risks for 2030, 2035 and 2050?

The 2030 and 2035 targets will depend heavily on: rapid uptake of available and scalable measures around renewable electricity; energy efficiency, clinker and cement optimisation; greater SCM use; alternative fuels; improved concrete mix optimisation; material-efficient design, and better construction practice and procurement reform.

The principal risks are: delayed and slow changes to standards and specification; limited renewable energy availability; regional constraints; declining availability of traditional SCMs and the time taken to transition to market accepted alternatives; inconsistent carbon measurement, and risk-averse procurement and insufficient market demand.

The 2050 objective requires these near-term measures to be sustained, but will also depend on deeper technology pathways, particularly CCUS for unavoidable cement process emissions. As detailed in the separate CIF submission, the lack of commitment by governments to a national CCUS strategy roadmap will delay the prerequisite planning for storage, transport networks, approvals, commercial models and community acceptance of CCUS. This inaction will materially increase the timeframe, difficulty and cost of cement process emission abatement.

c) Opportunities or barriers for collaboration across sectors to support the transition?

Cement and concrete decarbonisation is inherently cross-sectoral. It relies on renewable energy and networks; by-products and recovered materials from steel; energy, mining and waste sectors; freight and vehicle technology; construction design and procurement; planning approvals, and carbon accounting. NSW should establish formal collaboration mechanisms that bring these actors together around specific barriers, regional opportunities and investment decisions.

Individual consultation with each sector remains critical however, to ensure realistic strategies are developed based on sector specific supply factors and market dynamics.

Technology and behaviour change

2. What are the opportunities & barriers to technology development and deployment for each sector?

Short-term emissions reductions can be accelerated through greater uptake of lower carbon cement and concrete products, pulling through traditional supplementary cementitious materials, including fly ash and slag, where supply and technical requirements allow.

New SCMs and alternative binders enabled through updated Standards & Specifications can also help diversify and extend supply should traditional materials become more constrained.

Updates to key national standards is a critical enabler of product decarbonisation, predominately through changes underway to AS 3972:2010 *General purpose and blended cements*.

Changes that will enable higher percentage mineral additions (from 7.5 to 10%) in General Purpose Cement and innovative pozzolans. State government specifications that enable decarbonisation are also core to success.

Concrete mix optimisation, admixtures, energy efficiency and material-efficient design offer further near-term gains. These measures can reduce Portland cement and virgin material use while maintaining required strength, durability, safety and performance.

Lower-carbon product innovation—including alternative fuels, recycled aggregates, returned-concrete recovery and improved carbon measurement—can support deeper reductions and circular economy outcomes. Uptake will require performance-based specifications, faster approvals, consistent data and procurement settings that better support innovation and beneficial reuse.

Longer-term progress will depend on affordable renewable electricity; grid capacity; plant and fleet electrification; charging and freight infrastructure, and substantial capital investment. CCUS will be critical for unavoidable cement process emissions, requiring early planning for shared transport, storage, approvals and investment mechanisms.

3. What are the opportunities to foster demand reduction and behaviour change?

For the built environment, “demand reduction” should primarily mean avoiding higher carbon than necessary, material use and delivering more service from each unit of material, rather than constraining essential housing and infrastructure. Opportunities include better project selection; adaptive reuse; longer design life; design optimisation; efficient structural systems; modularity and design for disassembly; minimising over-specification; reducing construction waste and using fit-for-purpose recycled or lower-grade materials where appropriate.

Behaviour change is also required across professional and procurement practices. Clients must set clear carbon objectives; designers must consider carbon earlier; specifications must allow lower-carbon solutions; contractors must be encouraged to actively seek out innovations and supported to manage unfamiliar materials and construction practices; and asset owners must value durability, maintenance and resilience. Government-funded training, demonstration projects, standard contract clauses and published case studies can accelerate this change.

Economic impacts and just transition

A well-managed transition can strengthen productivity, innovation, regional employment and the competitiveness of NSW’s locally based cement, concrete and aggregates industries. Poorly sequenced requirements that outpace technology, energy supply, material availability or standards reform could increase project costs, delay infrastructure and disadvantage domestic production without reducing global emissions.

Key pressures include high capital costs and long investment cycles, energy affordability and reliability, skills shortages, limited availability of SCMs and recycled inputs, transport costs, and complex reporting requirements for smaller suppliers. Policy should provide adequate lead time, reliable energy, skills development and place-based support for industry.

Evidence and other considerations

6. Evidence for pathway inputs and assumptions?

CCAA recommends that the Commission draw on the following evidence and industry initiatives:

- The Decarbonisation Pathways for the Australian Cement and Concrete Sector report, which identifies the core technical pathways required to reach net zero.
- The Australian Industry Decarbonisation Facilitation Plan, which identifies practical advocacy and market-enabling actions across the pathways.
- The CCAA Australian Adoption of the Global Ratings for Low Carbon and Near Zero Concrete, which provides a strength-based AA–G framework for concrete carbon performance using verified data.

7. Outcomes beyond emissions reduction?

Decarbonisation pathways should consider infrastructure affordability, delivery timeframes, safety, durability, resilience and whole-of-life value. They should also protect domestic manufacturing, regional jobs, secure supply chains and strategically important quarry resources and concrete batch plants close to market.

Broader impacts include transport emissions, water availability, circular economy outcomes, innovation, and skills. These considerations are not secondary. The option with the lowest modelled direct emissions may not deliver the best overall outcome if it increases costs, transport distances, supply risks or reduces durability, lifecycle performance and local industrial capability.

8. Other comments?

CCAA makes four additional observations.

Avoid sector silos. Cement and concrete emissions and abatement opportunities span the Commission's Industry, Built Environment, Transport, Waste, Electricity and Energy, Resources and Carbon Management categories. The modelling and policy response must be holistic.

Distinguish milestones from the 2050 end state. The balanced, delayed and fast-tracked scenarios should show not only different uptake rates, but also the enabling decisions that must occur early. For example, National Standard changes (e.g. to AS3972:2010) are pre-requisite enablers to the greater uptake of lower carbon materials that comply with standards. Further, CCUS may deliver most abatement later, but planning, approvals, infrastructure and commercial arrangements must begin well before deployment.

Use common definitions and verified data. A consistent system for carbon claims is essential to market confidence. The CCAA Australian Adoption of the Global Ratings for Low Carbon and Near Zero Concrete provides an industry authoritative and practical foundation for concrete. Product comparisons should be like-for-like, strength-specific and based on verified EPD information.

Align NSW with national frameworks. NSW needs to remain interoperable with national sustainable procurement, embodied-carbon measurement, EPD and infrastructure frameworks. Alignment and harmonisation reduces cost and allows suppliers to invest against a coherent market signal rather than multiple competing systems.

Conclusion

The cement, concrete and aggregates industry is committed to supporting Australia's net zero ambition and to reducing emissions while continuing to supply the affordable, durable, resilient infrastructure and buildings NSW needs. The transition requires an integrated portfolio of near, medium, and long-term actions, with government procurement and policy acting as key enablers.

CCAA looks forward to continuing to work with the NSW Net Zero Commission, CSIRO, Climateworks Centre and NSW agencies to refine pathway assumptions and develop practical policy settings. The most effective pathway will combine immediate deployment of proven solutions with early preparation for the technologies, infrastructure and supply chains required for deep decarbonisation towards 2050.

To discuss this submission further, please contact Diane Niu at **diane.niu@ccaa.com.au**

Yours sincerely

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