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The Secretary Senate Select Committee on Climate Policy PO Box 6100 Parliament House CANBERRA ACT 2600

By email: climate.sen@aph.gov.au

The impact of the proposed Carbon Pollution Reduction Scheme on Cement Australia's investment in our nation's future.

1 Key Points

- Cement Australia supports the concept of emissions trading but only where scheme design adequately addresses trade-exposed industry competitiveness to ensure that carbon leakage does not occur.
- Putting a price on carbon will have a substantial impact on our profitability due to the energy and emissions-intensive nature of cement manufacturing and the import-competing nature of the cement product.
- As there are few barriers to entry for cement imports into the Australian market, the industry is trade-exposed. For the past decade, the Australian market has relied on cement imports as demand has outstripped supply. Domestic pricing has been linked to import parity pricing for most of this period requiring Cement Australia to invest in new technology, and driving world-class efficiency in our operations.
- The CPRS recognises the cement industry as an EITE industry and the challenges
 of internationally trade-exposed industries operating within a domestic carbon
 market. However the mechanism proposed erodes competitiveness over an
 uncertain timeframe, undermining the intent of the policy mechanism which is to
 maintain the competitiveness of EITE industries and minimise the risk of carbon
 leakage.
- Cement Australia has historically invested in capacity to retire old technology and to provide step increases in capacity to meet domestic market growth.
- Given recent market demand, Cement Australia is keen to invest in new capacity



rather than continue to import to meet shortfalls.

- Under the CPRS model proposed, the 'lifetime cost' of investment would be eroded, with a modest carbon price (less than \$5/t CO₂) making any proposed investment financially non-viable. We believe that new investment, demonstrated to be of world-class greenhouse efficiency should be provided with a 100% allocation.
- The diminishing aspect of the allocation mechanism proposed, the reduction in allocation due to the activity-level assessment model, and the uncertainty of the carbon price are the principle factors creating high risk in new investment, and uncertainty for the life of existing plant.
- As Cement Australia's carbon intensity in its operations is already world-class, any foregone new investment will result in a net increase in global carbon dioxide emissions.
- Early investment in world-class technology has resulted in Cement Australia becoming a low-emissions producer, but there is little in the way of new processing technology on the horizon that will enable us to further significantly reduce our emissions intensity.
- Cement Australia maintains the cement industry is well-suited to explore alternative means to address the 'dilemma of EITE industries'.

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3 Executive Summary

Cement Australia is pleased to provide this submission to the Senate Select Committee on Climate Policy. Cement Australia has participated in the consultation processes associated with the development of the Australian State and Territory Governments National Emissions Trading Taskforce (NETT), the Prime Ministerial Task Group on Emissions Trading (TGET), the Garnaut Climate Change Review, and the Government's Carbon Pollution Reduction Scheme (CPRS) Green Paper.

This submission focuses on the specific issues related to emissions-intensive, tradeexposed industries (EITE's). We are convinced that if these issues are not adequately addressed by scheme design then an Emissions Trading Scheme (ETS) policy is not the correct approach for Australia.

In terms of background, Cement Australia is the leading manufacturer of cementitious products in Australia. The company supplies 47% of the Australian market. Its international shareholders provide the business with world-class global support on related technical, environmental and sustainability issues.

Through early action, Cement Australia has maintained total carbon dioxide emissions at less than 1990 levels while achieving sales increases of over 49%.

This improvement in greenhouse emissions intensity has been delivered by significant investment in new technology processes, cementitious material substitution advances and market demand education. 88% of Cement Australia's clinker production comes from best-practice kiln technology. It is important to recognise that the drivers for this substantial abatement achievement are the same characteristics that create the greatest dilemma for a domestic ETS-based policy – emissions-intensity and trade-exposure. To effectively reduce our costs to remain competitive in an import-exposed market, Cement Australia has undertaken measures that also result in us being highly greenhouse efficient in our manufacturing processes.

Cement is also a strategically important commodity – the security of supply of cement is critical to social and economic infrastructure, a major commitment of the government in coming decades.

While we understand the environmental effectiveness and economic efficiency arguments for an ETS-based policy, we are concerned that where such a policy is based on a domestic market only, the issues of EITE industries will be very difficult to adequately address. Within a global market however, these difficulties are negated. For our industry, technology solutions are more effective and are the primary reason for the abatement achievements made to date.

4 Cement Australia and Greenhouse Gas Emissions Abatement

4.1 Relevant aspects of cement manufacture

Making cement is an energy and resource intensive process, requiring a precise combination of lime, silica, alumina, and iron that are fused together during the mixing and cooking process in the kiln. The raw materials are initially heated to 1000°C, calcining the



calcium carbonate in limestone to calcium oxide and releasing carbon dioxide, a process usually referred to as calcination and contributing to approximately 50% of our total carbon dioxide emissions (refer Figure 1). This calcination process is unique to only a few manufacturing processes and highlights the importance of focussing on emissions rather than energy when discussing climate change policy.

Within the rotary kiln, the materials are mixed and further heated to about 1,450 °c causing a high-temperature sintering reaction to occur, forming a calcium silicate matrix called 'clinker'. All of the materials fed into the kiln become part of the clinker, forming an intrinsic matrix which, once cooled, is then ground with small amounts of gypsum and other minerals to produce the grey powder commonly recognised as cement.

Manufacture of the intermediate product – clinker, is responsible for about 90% of carbon dioxide emissions. Clinker is also a much easier material to transport than cement with most global trade occurring in this form.

Cement manufacture is capital intensive with economically efficient increases in capacity being substantial in comparison with Australia's market size. For optimum energy and economic efficiency, kilns must operate at full production with typically only a major maintenance shutdown of perhaps four weeks duration annually.

Cement manufacture is predominantly domestic, requiring access to mineral resources most commonly found in limestone, energy supplies and markets. Demand shortfalls are made up from imports due to the aforementioned issues relating to capital intensiveness.

4.2 The strategic importance of cement

Cement is a vital commodity for the Australian economy, not only as a critical component of any infrastructure development program, but increasingly in resource recovery and reuse innovation – in both cases providing significant economic and social benefits. Cement's relatively low value and independence from unique geological raw materials, as well as its critical importance for the built environment mean that only very few countries do not maintain a viable and strategically important domestic cement manufacturing industry.

Building materials are the backbone of socio-economic development

Over the last five years, the world economy has grown at a rate of 4–5% and the world population is projected to increase from 6.7 billion people in 2007 to more than 8 billion by 2030, with most of the growth taking place in the developing world. Continued economic growth, driven by entrepreneurship, is indispensable in raising living standards across all strata of society, not least in securing high rates of employment and creating opportunities for millions of entrants in the job market.

These rates of growth require the construction of urban and rural infrastructure and housing. The EU estimates that buildings account for up to 40% of primary energy consumption. Adopting a more sustainable approach to construction will be key to securing long-term environmental, economic and social viability. Given its long life cycle, and owing to its natural thermal inertia, concrete is one of the most energy-efficient and eco-friendly building materials. - Holcim Corporate Sustainable



Development Report 2007

4.3 Carbon management at Cement Australia

Cement Australia is the leading integrated manufacturer of cementitious products in Australia. The company holds 47% of the Australian market, and is an acknowledged leader in the national industry while retaining an international shareholding providing leading global support on the full range of related technical, environmental and sustainability issues confronting the industry.

Our strong links with global cement players provides us with real benefits including:

- global benchmarking of our operations;
- access to the latest in cement processing technology; and
- links to the World Business Council for Sustainable Development ("WBCSD") through our shareholders Cemex, Holcim and Heidelberg – all founding members of the Cement Sustainability Initiative - that provides an international focus on greenhouse issues, emissions reporting, and resource sustainability.

Cement Australia has an annual turnover of \$950 million dollars, through 4.2 million tonnes of cement sales, as well as sales of lime products, fly ash and slag, on an asset base of \$1 billion dollars. We employ a fleet of transport assets and some 1,500 employees – largely in regional Australia.

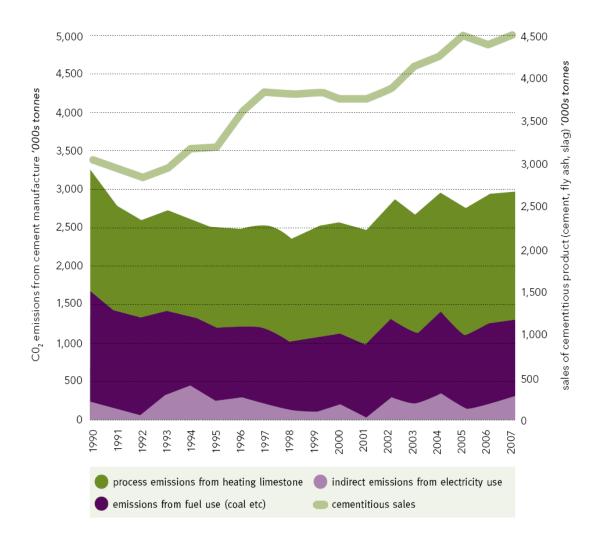
Cement Australia has the commitment and capacity to drive worthwhile sustainable outcomes in cement manufacture and sustainable materials, and has been actively involved over the last decade in responding to the climate change challenge, with the following milestones:

- 1997: Cement Australia, through our peak industry body, the Cement Industry Federation (CIF), became an early signatory to the Greenhouse Challenge Plus program
- 1999: along with other major multi-national cement manufacturers, Holcim, Cemex and Heidelberg Cement (all shareholders of Cement Australia) embark on the WBCSD Cement Sustainability Initiative which identifies climate change as a key sustainability issue for the industry
- 2004: Cement Australia participates in an industry-wide 'Technology Pathway' exercise to identify the likely course of technology investment and determine the resulting efficiency and carbon dioxide savings
- 2006: Cement Australia collaborates in drafting the Cement Industry Action Agenda, which outlines government and industry recommendations to progress technology adoption and carbon dioxide emissions abatement.
- 2006: Ongoing and substantive involvement in the Cement Sector Task Force of the Asia-Pacific Partnership for Clean Development and Climate



As a result of this early and concerted action, Cement Australia has maintained total carbon dioxide emissions at less than 1990 levels while achieving cementitious sales increases of over 37%. Appendix A provides further detail on Cement Australia's carbon management achievements.

Figure 1: the total of Cement Australia's greenhouse gas emissions since 1990 against our total sales of cement and cementitious product. We report our emissions by their source, which includes emissions: from the limestone that we heat in our kilns (which releases carbon dioxide); from the coal, diesel and other fuels that we use; and from the electricity that we purchase.





5 The Carbon Pollution Reduction Scheme – Key Issues

5.1 CPRS Objectives

Cement Australia strongly believes that the principal objective of introducing an emissions trading regime should be to reduce global carbon dioxide emissions. We therefore agree with the statement of objective presented at page 5-1 of the White Paper.

"The objective of the Carbon Pollution Reduction Scheme is to meet Australia's emissions reduction targets in the most flexible and cost-effective way; to support an effective global response to climate change; and to provide for transitional assistance for the most affected households and firms." (CPRS page 5-1)

We believe that it is worth recognising that industry receives no value for emitting carbon dioxide indiscriminately, and where industry does emit carbon dioxide; it does so for the express purpose of meeting societal demands for important, and sustainable products. Climate change is an issue for the whole of our society.

We believe that it is also worth noting that EITE industry in particular; where carbon dioxide emissions are largely related to energy, already bear a material price signal through simple energy pricing.

5.2 Assistance to emissions-intensive trade-exposed industries

For an ETS policy to be effective within a domestic context, the dilemma of EITE industries must be addressed. The first and best solution is for a comprehensive global agreement to be developed, which negates the concerns of EITE industries. In the absence of such an agreement, the CPRS proposes an industry assistance package as the means to address loss of competitiveness. The following points are of critical importance for Cement Australia in relation to the EITE assistance package:

• The White Paper rationale for the inclusion of an EITE assistance package is important:

"The ultimate objective of the introduction of a carbon constraint in Australia is to contribute to reductions in global emissions. If the introduction of a carbon constraint in Australia ahead of key international competitors simply results in EITE industries contracting in Australia and relocating offshore and using similar or worse emissions-intensive fuels or technologies, it will weaken Australia's effective contribution to the global emissions reduction effort. This is often referred to as 'carbon leakage'. Since Australia is committed to contribute towards a comprehensive global solution to the climate change problem, the potential for carbon leakage provides a rationale to act to reduce this risk." (From the White Paper, Section 12.1.1 Rationale for EITE assistance)



The proposal to assess emissions-intensive, trade-exposed (EITE) status on an activity-basis is inappropriate and will only serve to erode the effectiveness of EITE assistance program. Given that EITE assistance is provided to maintain the competitiveness of EITE industries – in our case against imports, this proposal simply renders the EITE assistance program ineffective - potentially doubling the effective cost of the scheme to Cement Australia (in real cost terms to jobs and revenues). Fundamentally, we believe that it is <u>cement products</u> that are trade-exposed as opposed to specific cement manufacturing <u>activities</u>.

The government proposes to assess cement according to individual activities such as limestone extraction, clinker manufacture and cement milling. By way of example, the current scheme activity definition is for limestone extraction for cement manufacture to not be considered an EITE activity. However, owing to the significant mass reduction that occurs during calcination, it is critical (for both energy- and cost-efficiency purposes) that limestone extraction operations exist in proximity to the rest of the manufacturing process. There is no clinker manufacturing operation that exists with a long-haul limestone supply, and globally there is no existing trade in the limestone /clay blend used as a raw material by the cement industry. Should clinker manufacturing become uncompetitive under the scheme, Australia will also lose the associated limestone extraction operations.

The current activity proposal also suggests the exclusion of cement milling operations as a trade-exposed activity. This will simply result in a trend towards cement imports over clinker imports with a commensurate loss in the abatement opportunities afforded by supplementary cementitious materials (such as fly ash and slag), and a resultant worsening of global greenhouse gas emissions.

In all assessments that we have undertaken in assessing our competitiveness under the proposals contained within the Paper, we have assumed an integrated clinker manufacturing process including both mineral resource extraction and cement milling. Should an activity-level assessment be incorporated it would be necessary for the initial allocation proposal to increase to a point that a net 90% allocation results in order to maintain the integrity of the EITE policy intent.

5.3 Assistance for EITE new investment

Cement Australia's Green Paper submission focussed on a further significant concern; the difficulty associated with financing new investment in clinker manufacturing capacity – for us; Australia's next cement kiln. Our Green Paper submission highlighted that total global greenhouse gas emissions would be worse if investment in Australia was forced offshore by the scheme. An investment analysis, undertaken for Cement Australia highlights that future Australian clinker investment would be unviable under the CPRS.

While real difficulties still exist in assessing the impacts of the proposed scheme, Cement Australia has explored the potential impacts for a probable significant investment in additional clinker manufacturing capacity in Australia. The summary findings are:



- The Australian cement industry is at a stage where a significant investment in domestic capacity is required to meet future demand.
- Without the CPRS, Australian cement companies would invest in new domestic capacity.
- Under the proposed CPRS, this investment would not proceed as importing would be a more economically viable option.
- The CPRS will cause the replacement of smaller Australian kilns with overseas import capacity with minimal carbon dioxide abatement.
- Failure to invest in domestic capacity will lead to a net global increase in carbon emissions, as a potential new kiln is replaced by imported clinker.

To assist in promoting the early uptake of improved greenhouse-efficient technologies and importantly, keeping employment in Australia, it is our position that new, world-best-practice, greenhouse-efficient, investment should be exempted from the scheme (either by direct exemption or through full allocation) for a period of time, of the order of 10 years.

5.4 Form of assistance

For Cement Australia, the issue of addressing competitiveness-at-risk is paramount.

However for the particular allocation mechanism proposed, Cement Australia holds real concerns in relation to the complexity, equity and effectiveness of the mechanism as well as its compliance with international trade commitments.

We note the Australian Government's assurance at Box 9.2 that whatever mechanism is adopted will demonstrate compliance with Australia's international trade commitments. Cement Australia believes that other mechanisms, some of which are referred to within the Green Paper, appear not to have been adequately investigated and may provide greater potential to better address the issues of complexity, equity and effectiveness referred to above.

Specifically in relation to comments made in The Paper relating to transparency aspects of border adjustments, we believe that it is worth noting that for cement, being a uniform product in either clinker or cement form, and of well known manufacturing process, that a border adjustment mechanism applied within the context of a sectoral approach may prove to be substantially more feasible.

We would also support further investigation of consumption tax approaches such as the model proposed by Carmody.

We would also like the bring to the attention of the Inquiry, that a substantial project exploring the feasibility of sectoral approaches is currently being undertaken by the Cement Sustainability Initiative of the World Business Council for Sustainable Development with findings from their current modelling exercise anticipated to be available in the near future.



5.5 Assistance to EITE entities over time

Cement Australia does not support the proposal that EITE allocation over time should be subject to a "Carbon Productivity Contribution" which has the effect of reducing assistance over time. Again the stated policy intent is to maintain the competitiveness of EITE industry and reduce carbon leakage. This transition proposal again serves to undermine that primary intent.

Cement Australia is willing to bear the full cost of carbon, but can only do so, and remain competitive, if our international competitors are also required to do so. Given that a global agreement to achieve this is not imminent and that the Government appears inclined to adopt an allocation mechanism, the level of allocation and the price of carbon clearly become the critical aspects affecting Cement Australia's ongoing competitive position. Perversely, Cement Australia's prior investments in technology and emissions reduction will serve only to increase our exposure to a carbon price and hasten our loss of competitiveness.

The proposal for a diminishing rate of allocation in line with the transitional rationale further penalises these technology investments and runs counter to the policy intent of EITE allocation.

For an assistance mechanism to address the dilemma of EITE industries, a fixed level of assistance per unit of output over time is required. If an industry is recognised as an EITE at scheme start, that classification will only change if and when a global agreement in relating to emissions trading arises, and this test alone should be the basis of altering a fixed allocation to EITE's.

6 Cement Australia's Preferred Position

Cement Australia not only recognises the threat that climate change poses to our natural environment, but has been working diligently on this challenge, and made significant investments, for over a decade and unilaterally achieved reductions in the carbon intensity of our product of 37% per tonne cementitious product since 1990.

Cement Australia is prepared to operate within an emission trading regime as long as our regional competitors also obliged to do so – highlighting that to achieve true carbon dioxide abatement through such a mechanism requires the dilemma of EITE industries to be addressed satisfactorily.

Our assessments highlight that securing a significant investment in clinker manufacturing technology in Australia is always a difficult proposition, but one that is likely to become impossible under the proposals contained within The Paper.

We see as a real contradiction the inability of the CPRS model to accommodate the local investment in low-emissions technology needed to meet increasing market demand, and the resultant perverse outcome of driving this investment offshore with no net climate change benefit.



For EITE industries the CPRS spells a new operating environment where industries rely on government allocations for their very survival – not considered to be a desirable environment within which to carry on business. From the limited information available to us, we maintain that a 90 percent allocation fixed over time (subject to competing nations entering into a similar carbon price regime) and over the equivalent of all cement manufacturing activities is the minimum position that we can accommodate to maintain competitiveness and avoid carbon leakage.

We trust that the Inquiry will give our submission due regard, particularly given the significance of this policy to the Australian economy and particularly the impacts on EITE, and we look forward to our further consultations on this matter.

DR. tice

Stuart Ritchie National Sustainability Manager

Appendix A

Cement Australia's Carbon Management Performance

Cement Australia is the leading integrated manufacturer of cementitious products in Australia. The company holds 47% of the Australian market, and is an acknowledged leader in the national industry. Our international shareholding enhances our capacity to drive best-practice sustainable outcomes in the cement manufacturing and sustainable materials areas and including:

- global benchmarking of our operations;
- access to the latest in cement processing technology; and
- links to the World Business Council for Sustainable Development ("WBCSD") through our shareholders Cemex, Holcim and Heidelberg all founding members of the Cement Sector Initiative who provide an international focus on greenhouse issues, emissions reporting, and resource sustainability.

Cement Australia has been actively involved over the last decade in responding to the climate change challenge, with the following milestones:

- 1997: Cement Australia, through our peak industry body, the Cement Industry Federation (CIF), became an early signatory to the Greenhouse Challenge Plus program
- 1999: along with other major multi-national cement manufacturers, Holcim, Cemex and Heidelberg Cement (all shareholders of Cement Australia) embark on the WBCSD Cement Sustainability Initiative which identifies climate change as a key sustainability issue for the industry
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- 2006: Ongoing and substantive involvement in the Cement Sector Task Force of the Asia-Pacific Partnership for Clean Development and Climate

As a result of this early and concerted action, Cement Australia has maintained total carbon dioxide emissions at less than 1990 levels while achieving cementitious sales increases of over 49% (Figure A1). This has resulted in a significant improvement in the emissions intensity of our products (Figure A2).

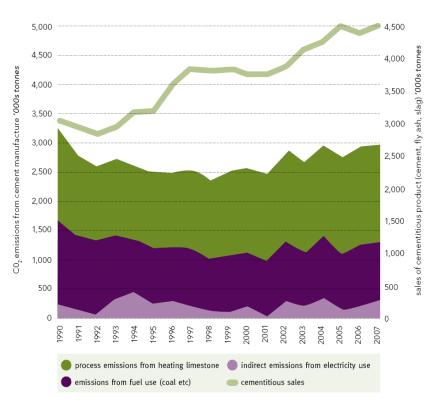
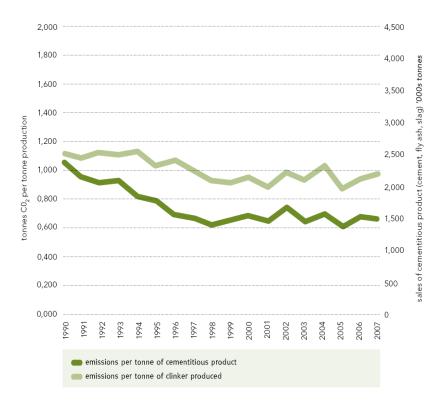


Figure A1: Cement Australia – CO₂ Emissions and Cementitious Sales since 1990.

Figure A2: Cement Australia – CO₂ Specific Emissions Intensities



The improvements in our Greenhouse Performance Indicators over the past two decades are the result of an ongoing focus on infrastructure, technology, process and product improvements that all reduce both greenhouse emissions and dependence on nonrenewable energy.

We have long subscribed to the principles of operational sustainability, and believe greenhouse policy must focus on the broader aspect of emissions intensity and not just energy intensity. As a result, Cement Australia's approach to greenhouse reduction focuses on four key areas:

- 1. Maximising the use of Supplementary Cementitious Materials (SCM's) such as fly ash and ground granulated blast furnace slag, both of which are by-products of other industrial processes and which have the ability to act as a replacement for cement.
- 2. Maximising the use of alternative fuels and raw materials (AFR's) that replace the requirement for non-renewable resources. Industrial byproducts such as blended spent solvents and calcined ash currently replace 3% of Cement Australia's thermal energy supplies. New equipment has been installed that will rapidly increase the use of these fuels. Cement Australia is also exploring opportunities in more greenhouse friendly fuels.
- 3. Delivering on our commitment (through the Cement Industry Federation) to spend \$150 million of capital as an industry, between 2004 and 2012. This is set to an 8% improvement in specific carbon dioxide emissions per tonne of cement. As a technologically advanced industry, carbon reductions in return for capital investment above this level are on a decreasing sliding scale. In this environment, a carbon price may reduce consumption levels but will not improve the economics of investment in greenhouse abatement projects.
- 4. Providing a leadership role within the Asia Pacific Partnership for Clean Development and Climate. Managing Director, Mr Chris Leon, is Australia's cement industry delegate to the Cement Task Force that includes two of the world's largest cement producers; India and China.

Cement Australia's approach to greenhouse gas abatement begins at a grassroots level: with our people, through our operational processes, our focus on research, partnerships with other industries and sharing our knowledge and skills across all twenty of our communities.

In 2007, Cement Australia established a senior corporate sustainability function to specifically tackle the challenge of greenhouse emissions abatement. This team operates in parallel with our environmental team, which is focused specifically on managing our other environmental protection responsibilities. The team is working closely with governments and regulatory authorities to ensure we identify the most cost effective methods of greenhouse abatement, allowing us to deliver on our dual commitments of providing low cost cement to support Australia's infrastructure growth, while reducing our impact on the environment.

From a global context the Australian industry, while small in size, has demonstrated a high uptake of best technology driven both by its energy intensity and rising energy costs, as well the imperative to remain price-competitive with our trading neighbours. Retaining this competitive position with our Asian neighbours remains a critical area of importance and is potentially the most difficult challenge for the development of any national emissions trading scheme. Since the inception of the European emissions trading scheme, the Australian

industry has closely monitored the experiences of the European cement industry which shows that carbon dioxide leakage has occurred due to inadequacies of trading scheme design that do not adequately address competitiveness.

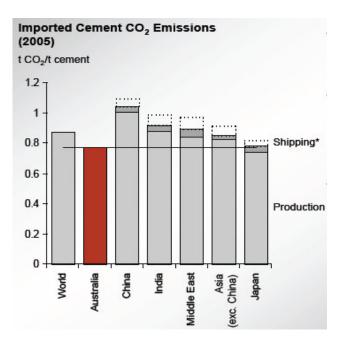


Figure A3 – Global CO₂ emissions per tonne of cement

For the last twenty years the Australian cement industry has continued to seek out new opportunities to reduce carbon dioxide emissions through more energy efficient technology. This early adoption of new production technology has allowed the Australian industry to become a low emissions intensity producer second only to Japan. It is important to note there is no new technology on the horizon that will enable the industry to significantly reduce its current emissions intensity for clinker. However opportunities are present for further reductions in the emissions intensity of cement, such as the further addition of supplementary cementitious materials (SCMs).

Australia is an energy efficient producer of cement resulting in a below average CO₂ emissions per tonne of cement. Figure A3 clearly demonstrates a switch of clinker from Australia to other countries is likely to increase global carbon emissions. Any imported cement would also result in emissions from shipping. When shipping emissions are allocated to imported cement, Australian produced cement has a low relative carbon footprint. Shipping emissions are dependent on whether only emissions from the voyage to Australia or the entire voyage including return are considered.

Cement Australia recognises the need to reduce global greenhouse gas emission, and we maintain that such reductions must occur without undue risk to the competitiveness of the local Australian cement industry. Cement is a strategic commodity, which is essential to Australia's building environment. There is no sense in forcing the cement industry to reduce domestic cement production and import cement from neighbouring countries with higher emissions intensity. Climate change is a global problem and the objective of a well-designed ETS is to reduce the net global greenhouse emissions.