

Carbon Pollution Reduction Scheme Green Paper

October 2008

Submission by the Australian Industry Group



AUSTRALIAN CONSTRUCTORS ASSOCIATION



ENGINEERING
EMPLOYERS
ASSOCIATION
SOUTH AUSTRALIA



AUSTRALIAN INDUSTRY GROUP

Submission on the

Carbon Pollution Reduction Scheme Green Paper

October 2008



The Australian Industry Group

The Australian Industry Group (Ai Group) is a leading industry association in Australia. Ai Group member businesses employ around 750,000 staff in an expanding range of industry sectors including: manufacturing, engineering, construction, defence, ICT, call centres, labour hire, transport, logistics, utilities, infrastructure, environmental products and consumer and business services.

It is an organisation committed to helping Australian industry meet the challenge of change. Its focus is on building competitive industries through global integration, human capital development, productive and flexible workplace relations, infrastructure development and innovation.

Ai Group is closely affiliated with more than 50 other employer groups in Australia alone and directly manages a number of those organisations. Together, Ai Group and its affiliates represent the interests of approximately 60,000 businesses which employ in excess of 1.2 million staff across Australia and the world.

Ai Group members operate small, medium and large businesses. They include many major Australian and global companies operating in a range of industries.

The Australian Constructors Association

The Australian Constructors Association (ACA) was formed in 1994 to advance the interests of major construction contractors. The Association has seventeen member companies. Each member operates nationally.

ACA member companies have a combined annual revenue in excess of \$AUD 40 billion and collectively employ over 86,000 people in their Australian and international operations.

The Engineering Employers Association, South Australia

The Engineering Employers Association, South Australia (EEASA) represents hundreds of companies in the metal and engineering manufacturing sector, including companies engaged in automotive components, foundry, toolmaking, whitegoods, plastics, defence, fabricated metal products and general engineering.

EEASA provides a range of industrial relations, contract of employment, industry development, training and representation services to and on behalf of its members.

Foreword

Responding to the threat of ongoing climate change requires a sharp reduction in global emissions of greenhouse gases. Reducing these emissions will require new approaches to industrial and agricultural production, heavy investments in low-emissions sources of energy and changed patterns of consumption.

Neither the scale of the change required nor its impacts should be underestimated. Reducing Australia's emissions by 60% of 2000 levels by 2050 will call for a fundamental change in the direction of Australia's economic development. After allowing for GDP and population growth, meeting this target will require us reducing the emissions intensity of our economy by around 75%.

To meet these challenges Ai Group supports imposing a price on greenhouse gas emissions. Ai Group agrees with the proposal to adopt an emissions trading scheme that will harness the power of market forces to select the least expensive ways to reduce Australian emissions. We support a scheme that will have as broad a coverage as possible and we support the objective of linking the Australian scheme to similar schemes around the world.

Ai Group members want to play a constructive roll in reducing global emissions. Many members have made significant inroads into their direct emissions and their energy use over the past decade or so. Many also are seeing opportunities for their businesses in an economy that needs to change direction so decisively.

The central challenge in striving for these objectives is the lack of momentum towards an international agreement that includes all of the world's major emitters. With only 1½% of global emissions, Australia acting alone will not make a significant difference to the accumulation of greenhouse gases. We will not make any difference at all if, by imposing costs on emissions in Australia, we merely shift economic activity to countries that do not restrain their own emissions.

The threats to our trade exposed industries from a unilateral increase in costs are the central theme of Ai Group's submission. It is imperative that in implementing the Carbon Pollution Reduction Scheme, we do not sacrifice Australia's competitiveness to countries that do not join in a global effort to address climate change.

In preparing this submission Ai Group has consulted closely with our diverse membership and that of EEASA and the ACA. This includes businesses all along the emissions spectrum; it includes small, medium and large businesses; it includes businesses in emissions intensive minerals processing and energy industries and in energy or emissions intensive industries such as paper and paper products, glass products, metals fabrication, food processing, appliances and plastics and chemicals. It also includes businesses in the construction sector; across a wide range of service industries, utilities and in less energy intensive areas of manufacturing.

Predominantly, Ai Group's members are exposed to international competition both in export markets and in the domestic market.

Our members are gravely concerned that Australia will move too fast and too far ahead of the rest of the world. In particular they are concerned that the proposals put forward in the

Government's *Carbon Pollution Reduction Scheme Green Paper* do not adequately address the threats faced by trade exposed businesses.

It is critical that the Government's proposed approach is recast to address more adequately the threats faced by our exporting and import competing businesses. Unless business can have greater confidence in this central part of the scheme, pressures will build for alternative approaches such as specific exemptions and border tariffs.

While Ai Group understands the concerns behind these alternatives, we regard them as complex, risky and prone to undermine the integrity of the overall policy. At most they are third or fourth best solutions.

We are confident there is a better way to address the threats faced by trade exposed businesses. Our submission focuses on steps that can be taken to address these threats effectively while minimising any shift in costs onto other businesses and households and in a way that allows Australia to transition towards a low emissions future.



Heather Ridout

Chief Executive

Table of Contents

	page
The Australian Industry Group	1
Foreword	2
Table of Contents	4
Executive Summary	5
Ai Group's Recommendations	9
1. The Global Context	13
2. Getting Started	14
3. Coverage, Liabilities and Thresholds	17
4. Trade Exposed Industries	20
■ Overview	20
■ Trade Exposure and Carbon Leakage	22
■ Permits and the Climate Change Action Fund	25
■ The Decay of the EITE Permit Allocation	31
■ The Allocation of Permits	33
5. Electricity Supply	38
6. The Risk of Excessive Regulation	39
7. Investing for the Future	43
8. Skills Development	45
Appendix Emissions and Emissions Intensities	47

Executive Summary

The Australian Industry Group (Ai Group) acknowledges that Australia should play its part in meeting the global challenge of climate change.

We also acknowledge that the challenge of reducing the accumulation of greenhouse gases in the earth's atmosphere requires a truly global response. It would be futile if Australia reduced its own emissions only to see them shift to other countries where a requirement to reduce carbon pollution was absent.

A global problem requires a global solution, and Ai Group fully supports the Federal Government's attempts to join with other developed countries to lead all major emitters into a genuinely global agreement to reduce emissions. We believe a key contribution Australia can make is to put in place a policy framework that demonstrates to other countries that emissions can be reduced without imposing excessive costs on our citizens or our industries.

In shaping our response, Ai Group has undertaken extensive consultation with our members and believes that the central elements of a successful domestic climate change strategy are:

- A gentle start to the Carbon Pollution Reduction Scheme (CPRS), in order to give business and government time to iron out any bugs associated with the introduction of a new and untried system;
- A reduction of as many emissions as possible for each dollar spent;
- Support for Australia's trade exposed industries to avoid carbon leakage to other countries;
- The development and deployment of low emissions processes and practices;
- Low administration and compliance costs;
- Appropriate compensation for low-income households; and,
- Avoiding disruption to energy supplies as we transition to a low-emissions economy.

The Importance of International Action

The success of efforts to address climate change hinges on the development of genuinely global action. Ai Group therefore urges the Commonwealth Government to maintain its current proactive and engaged role in building a genuinely global response. Until all the world's major emitters agree to take action on climate change Australian businesses will be exposed to unjust competitive pressure and the threat of carbon leakage.

Initial Caps, Gateways, Trajectories and Prices

Ai Group agrees with the Government's proposal to calibrate Australia's emissions reduction trajectory according to the state of international developments.

Ai Group urges a gentle start to the CPRS. An initially modest emissions reduction target will dampen adverse impacts on business costs and consumer prices and will help the transition to the new regulatory environment. It will enable teething problems to be sorted out and

ensure that any unintended consequences are exposed before they can do too much damage.

Critically, a modest start will ease the initial pressures on trade exposed industries and strongly affected industries. The Government has identified these businesses, their employees and the communities in which they are located, as the most vulnerable to the adverse impacts of the CPRS. It is right to do so.

Ai Group proposes:

- That the caps for the initial years should be no more stringent than is required to meet Australia's Kyoto commitments;
- That there should be a low price ceiling (at least until 2015) to reduce uncertainty and exposure to price volatility; and ,
- Adopting a target range that would reduce our emissions in 2020 to between the level they were in 2000 and 10% below this level. This range could be refined after the United Nations Climate Change Conference in Copenhagen in 2009.

Trade Exposed Industries

Until there is a genuine global agreement to reduce greenhouse gas emissions, Ai Group supports fair and effective measures to help mitigate the significant impact the CPRS will have on Australia's trade exposed industries.

While the Green Paper recognises some of the challenges facing Australia's trade exposed industries, its preferred positions would leave many of these industries in an uncompetitive position, exposed to a substantial risk of carbon leakage and constrained from growth. In short, as currently proposed the CPRS would damage domestic industry and employment without delivering commensurate environmental benefits.

Ai Group is nevertheless confident the Government can adjust the approach to trade exposed industries to reduce the national exposure to carbon leakage to much more manageable and less disruptive levels.

Arriving at an optimum mix of measures requires more information than is currently available. In particular, it requires greater information about the sensitivity of permit prices to increases in the quantity of permits allocated without cost. Ai Group is very mindful of this sensitivity and of the risks it carries for the rest of the business community and for households. We anticipate the release of the Treasury modelling in October will assist in better assessing the appropriate trade offs.

Pending the release of this information, Ai Group proposes that:

- The quantity of permits allocated to trade exposed industries could be raised to at least 25% without impacting disproportionately on the permit price;
- Particularly in the early years of the CPRS, the Climate Change Action Fund (CCAF) should have a clear focus on measures for trade exposed industries - particularly those not eligible for allocated permits;

- For businesses close to the eligibility thresholds for permits, the CCAF should be targeted to provide comparable treatment with that provided by permit allocation;
- CCAF measures should include but should not be confined to developing abatement opportunities; and,
- The rate of reduction in Australia's emissions should be lower than if a genuine global agreement were in place and a large proportion of the additional permits related to this lower trajectory should be allocated specifically to enable growth of trade exposed industries.

Ai Group also believes there is scope to improve on the approach to the allocation of permits proposed in the Green Paper.

- Selecting the activities eligible for permit allocation on an emission intensity ranking based on value added rather than revenue appears more likely to meet the policy objective of minimising carbon leakage;
- The base period for assessing emissions intensities is too narrow and should be broader than the 2006-07 and 2007-08 years as currently proposed;
- If the initial quantity of permits allocated can be increased without a disproportionate impact on the permit price, particular priority should be given to addressing the sudden death thresholds currently proposed;
- In measuring emissions intensity, indirect emissions from sources other than purchased electricity should be included where practical; and,
- In view of the uncertainties in these areas, any changes to the approach to permit allocation should be tested thoroughly through a consultative process with the business community.

Ai Group understands that, as global action develops, both the threat of carbon leakage and the need for measures to address it will diminish.

Electricity Supply

Ai Group recognises the particularly difficult adjustments faced by the more emissions intensive of Australia's coal-fired electricity generators. Ai Group proposes that the design of measures for Strongly Affected Industries should give priority to ensuring the continuity of electricity supply in the early years of the scheme.

The Risk of Excessive Regulation

The market-based approach of the CPRS should assist in containing regulatory costs. There are however two significant risks that could easily compromise the overall effectiveness of Australia's climate change strategy. These are the risk of duplicating, overlapping and uncoordinated regulation; and the risk of poorly designed law or supporting regulation giving effect to the CPRS.

Ai Group proposes:

- The Government should release the Wilkins Review to better inform debate about the identification of unnecessary measures and to provide a rigorous basis for assessing measures that were genuinely complementary to the CPRS;
- That all governments combine under the leadership of the national government to make serious efforts to deliver a coherent approach to climate change policy;
- Regulatory arrangements additional to the CPRS (such as the proposed Renewable Energy Target) should be confined to those that reduce greenhouse gas emissions at a cost that is no higher than the market-established carbon price; and,
- Ai Group urges the adoption of a best practice regulatory approach both for the initial design and ongoing operation of the CPRS.

Investing for the Future

Ai Group supports the Government's proposal to recirculate all the revenue raised by auctioning permits to businesses and households. In the period to 2020, a priority should be given to keeping carbon leakage from trade exposed industries as low as possible.

Commencing no later than the next budget, additional expenditure to that raised by auctioning permits should be allocated to preparing for and adjusting to the impacts of the CPRS.

Skills Development

A particular emphasis should be placed on skills development. This will require thorough assessments of skills requirements with training providers working closely with industry in identifying emerging demands for training.

It will also involve the Commonwealth and state and territory governments coordinating policy and funding initiatives across traditional lines of education and training responsibilities.

Ai Group's Recommendations

2020 Target	Adopt a target range that would reduce our emissions in 2020 to between the level they were in 2000 and 10% below this level. This range could be refined after the United Nations Climate Change Conference in Copenhagen in 2009.
Initial caps	The caps for the initial years should be no more stringent than is required to meet Australia's Kyoto commitments.
Price ceiling	There should be a low price ceiling at least for the years until 2015 to reduce uncertainty and exposure to price volatility.
Existing contracts	The Government should consult further with industry about the best approach to take in relation to existing contracts that extend beyond 2010.
Coverage principle	Any sectors or industries that are initially excluded should be covered as soon as any practical barriers are overcome.
Initial coverage	Synthetic greenhouse gases and the waste sector should be considered as candidates for a delayed start if the complexities involved in their inclusion cannot be resolved quickly.
Liability and operational control	In the mining industry, the mine owner should generally be regarded as the liable entity but there should be scope for the parties to determine among themselves which party would assume liability.
Waste sector threshold	A threshold lower than 25,000 tonnes of CO ₂ -e may be more appropriate for the waste sector.
Threshold and net emissions	Obligations should arise only if net emissions exceed the threshold.
Trade exposed industries	Until a global agreement develops, measures should be in place to address the threat of carbon leakage to countries that do not have the same carbon constraints as imposed in Australia.
Emissions intensive trade exposed permit allocation	The initial quantity of permits allocated to trade exposed industries could be raised to at least 25% without impacting disproportionately on the permit price.

Climate Change Action Fund Design	<p>Particularly in the early years of the CPRS, the Climate Change Action Fund (CCAF) should have a clear focus on effective measures for trade exposed industries - particularly those not eligible for an allocation of permits.</p> <p>Particularly for businesses close to the eligibility thresholds for permits, the CCAF should be targeted to provide comparable treatment with that provided by permit allocation.</p> <p>While a focus on abatement provides important opportunities to address carbon leakage, the CCAF should not be confined to addressing carbon leakage through abatement.</p>
Growth of emission intensive trade exposed permits	<p>A rising proportion of total permits could be allocated to trade exposed industries by allocating a large share of the extra permits made available by having a slower pace of emissions reduction until a genuinely global agreement is in place.</p>
Permit allocation method	<p>Selecting the activities for permit allocation on an emission intensity ranking based on value added rather than revenue appears more likely to match with the policy objective of minimising carbon leakage.</p> <p>The base period for assessing emissions intensities should be broader than the 2006-07 and 2007-08 years as currently proposed.</p> <p>If the initial quantity of permits allocated can be increased without a disproportionate impact on the permit price, particular priority should be given to addressing the sudden death thresholds currently proposed.</p> <p>In measuring emissions intensity, indirect emissions from sources other than purchased electricity should be included where practical.</p> <p>In view of the uncertainties in these areas, any changes to the approach to permit allocation should be tested thoroughly through a consultative process with the business community.</p>
Electricity supply	<p>A central focus in the design of the measures for Strongly Affected Industries should be given to ensuring the security of electricity supply in the early years of the scheme.</p>

Wilkins Review	The Government should release the Wilkins Review to better inform debate about the identification of unnecessary regulatory measures and to provide a rigorous basis for assessing measures that were genuinely complementary to the CPRS.
National coherence of climate change policy	All Governments should combine under the leadership of the national government to make serious efforts to deliver a coherent approach to climate change policy.
“Least cost abatement” regulatory test	Regulatory arrangements additional to the CPRS (such as the proposed Renewable Energy Target) should be confined to those that reduce greenhouse gas emissions at a cost that is no higher than the market-established carbon price.
Best practice CPRS regulation	Ai Group urges the adoption of a best practice regulatory approach both for the initial design and ongoing operation of the CPRS.
Fuel excise offset	The proposal to reduce fuel excise to counter the price impacts of the CPRS on fuel should be withdrawn and, after providing appropriate additional funds for low-income households, the surplus funds should be channelled into more farsighted measures including in support of abatement.
Future auction revenue and tax reform	The Government should ask the Review of Australia’s Future Tax System to advise on ways auction revenue could be used to improve the international competitiveness of the Australian taxation system.
An early start to funding transitional measures	Measures that will assist business prepare for the transition to a carbon constrained economy should commence as soon as possible. These measures should not wait until auction revenue begins to flow and, particularly in the early years of the scheme, should not be limited to funds raised from auction revenue.
Skills development	Data projecting new and emerging skills needs should be improved together with data on current skill levels with a view to identifying broad skills gaps.

**Skills
development**

Working in close partnership with industry, linkages between the training and higher education sectors need to be improved to:

- facilitate greater communication between researchers and training stakeholders and organisations; and,
- support efficient up-skilling and re-skilling of existing workers who will increasingly move between the sectors.

To accelerate the development of appropriate skills, Ai Group supports:

- the development of national training products;
- the development of the skills of trainers and identification of appropriate facilities; and,
- the delivery of training in new and emerging areas in anticipation of broad based demand.

Consideration should be given to establishing a *green skills audit fund* for companies working in industries designated as 'high environmental impact' to determine their future skills needs.

1. The Global Context

In its 2007 Assessment Report, the United Nations' Intergovernmental Panel on Climate Change concluded that global warming is "unequivocal" and that most of the observed increase in temperatures since the middle of the last century are very likely due to an increase in greenhouse gas emissions produced by human activity.

While scientific knowledge is always contestable, the weight of scientific evidence is clear and supports the conclusion that although the risks and costs of reducing greenhouse gas emissions are substantial, they are easily outweighed by the risks and costs associated with not acting to reduce the build up of greenhouse gas emissions.

The longer global action is delayed, solutions will become more difficult and costly to implement. Already, according to the Garnaut Review, "the task of reducing the risks of dangerous climate change to acceptable levels is immense."

Australia's wealth and economic structure contribute to one of the world's highest levels of per capita emissions. Nevertheless on its own, Australia cannot make a significant difference to reducing the global accumulation of greenhouse gases in the atmosphere.

- Firstly, we account for only a small proportion (around 1½%) of global greenhouse gas emissions.
- Secondly, even if we make deep cuts in our own emissions, there is every change that a large slice of economic activity – and in most cases the associated emissions that goes with it – would simply shift to other countries.

The international shift of emissions – or carbon leakage - would make no inroads into global greenhouse gas concentrations and would merely damage the Australian economy. Moreover, by ceding market share to other countries we would effectively reward those nations that were failing to act to reduce their own emissions.

Ai Group supports Australia joining other developed countries in a strategy to overcome this standoff and leading all major emitters into a global agreement; and we recognise this involves us making credible commitments to show we will play our part.

A central element of these commitments is to be able to introduce well-designed and workable domestic policies that will enable us to reduce our emissions by imposing an effective price on greenhouse gases. z

At the same time we caution against the dangers of moving too fast and without adequate measures to minimise the threat of carbon leakage. Damaging our own economy will not encourage other countries to participate in a concerted global effort to address climate change.

2. Getting Started

A significant reduction in our greenhouse gas emissions between now and the middle of the century will require major changes to existing patterns of production and consumption.

- Businesses will need to re-evaluate existing processes and practices;
- Investment plans will need to be revisited;
- New opportunities will need to be explored;
- New risks will need to be taken;
- New skills and new training programs will be required;
- Employment opportunities and locations will change significantly; and,
- Businesses and households will need to cut back on the use of emissions intensive energy.

The Carbon Pollution Reduction Scheme (CPRS) should be introduced in a way that moves Australia in these directions while also providing certainty for business and avoiding unnecessary disruption.

There are two particular risks: flaws in a poorly designed system will impose unnecessary costs and will undermine confidence in the CPRS; and a large increase in permit prices from the outset of the CPRS will have adverse impacts on businesses investment, levels of activity, employment and consumer prices.

Ai Group urges a gentle start to the CPRS. Initially, a modest emissions reduction target will dampen adverse impacts on business costs and consumer prices and will ease the transition to a new regulatory environment. It will enable the teething problems associated with the scheme's introduction to be sorted out and ensure that any unintended consequences are exposed before they can do too much damage.

Critically, a modest start will ease the initial pressures on trade exposed industries and strongly affected industries. The Government has identified these businesses, their employees and the communities in which they are located, as the most vulnerable to the adverse impacts of the CPRS.

Start Date

Introducing the CPRS is a large and complex project. It will require a massive administrative effort from both Government and business. It will require new laws, regulations and compliance arrangements to be established. It is vital these are right, rather than rushed. It will require all businesses and households to prepare for new cost pressures; and will call for the development of new skills and capabilities.

Ai Group believes the advantages of starting in 2010 are, as yet, ill-defined. Ai Group's consultations suggest that the benefits of taking an extra year to improve the design of the scheme could easily exceed the cost of delaying the start by a year.

2020 Target Range

The 2020 target range should give assurance to businesses and their employees that the initial years of the scheme will impose a modest reduction target building to more substantial cuts over time.

This will provide the leeway needed to iron out any teething problems and will ensure the early years of the scheme are spent developing new long-term opportunities and building new capabilities. In contrast, if we try for a flying start we risk creating an economic shock that may compromise both Australia's competitiveness and its climate change efforts.

The target range set for 2020 should allow Australia to adjust our trajectory in case international developments emerge more slowly than we hope.

Australia's emissions are currently growing and will soon be 10% above the level they were in 2000. Achieving a reduction in emissions relative to 2000 levels by 2020 will require a substantial effort.

- On current projections Australia's emissions in 2020 will be around 20% above the level they were in 2000.¹
- Compared with this projection, a target of 5% below 2000 levels would require major adjustments in our economy.
- It would require us to eliminate more than one in every six tonnes of emissions from the projected level.

Table 1: Reduction in Emissions Relative to Current Projections

2020 Reduction Target	Reduction Required
<i>(tonnes of CO₂-e)</i>	<i>(relative to the projection of 120% of 2000 levels)</i>
5% above the 2000 level	-12.5%
Equal to the 2000 level	-16.7%
5% below the 2000 level	-20.8%
10% below the 2000 level	-25.0%

¹ Department of Climate Change, 2008, *Tracking to the Kyoto Target: Australia's Greenhouse Emissions Trends 1990 to 2008-12 and 2020*, p.19.

Ai Group agrees with the Government's proposal to calibrate Australia's emissions reduction trajectory keeping a close eye on the state of international negotiations. Ai Group proposes a target range that would reduce our emissions in 2020 to between the level they were in 2000 and 10% below this level. This range could be refined after the United Nations Climate Change Conference in Copenhagen in 2009.

Prices and Caps in the Initial Years

Ai Group supports adopting measures to constrain the level and volatility of the permit price in the early years. While a fixed price approach has some attractions, a price ceiling is more conducive to market-based allocation. A price ceiling would also transmit the benefits of strong take-up of low cost abatement opportunities by lowering the permit price.

The actual level of the price ceiling will be better able to be assessed with the release of the Treasury modelling in October.

Ai Group proposes:

- The caps for the initial years should be no more stringent than is required to meet Australia's Kyoto commitments; and,
- There should be a low price ceiling at least for the years until 2015 to reduce uncertainty and exposure to price volatility.

Existing Contractual Arrangements

The Green Paper seeks comment on the implications the CPRS might have on existing contractual arrangements. Such contracts may be fixed price contracts or, more broadly, the scope for contractual adjustment may not be sufficient to accommodate the range of adjustments related to the introduction of the CPRS.

Three particular issues have been raised by members. Contracts may not:

- Allow extra direct costs associated with liabilities to be passed on;
- Allow passing on of additional indirect costs embedded in inputs; and,
- Facilitate an efficient allocation of entitlements for allocated permits between the contracting parties.

A number of members are currently assessing the impacts on existing contracts and the materiality of these impacts. In many cases the materiality of these issues requires a complex assessment of changes in costs. Members would like to be able to continue to consult with the Government on these issues.

3. Coverage, Liabilities and Thresholds

Coverage

Ai Group supports a market based approach to reducing emissions with a coverage that is as broad as possible.

A broad coverage spreads the burden more fairly. It also encourages investigation of a wider range of domestic abatement opportunities and will help deliver a lower permit price.

Ai Group recognises the difficulties faced in measuring and administering land-based sources of emissions and the unusual complexities involved in extending coverage in a way that captures a large proportion of emissions in a fair way.

Apart from electricity generation, agriculture is Australia's most emissions intensive sector. Extending the coverage to agriculture will have concentrated impacts in regional areas. The close linkages between agriculture and businesses involved in food processing and the textiles, clothing and footwear industry, for example, will compound these impacts.

We strongly support the Government's intention to extend coverage to the agricultural sector. The key to meeting this objective will be the availability of strong and reliable measures for trade exposed sectors.

In addition to agriculture, there are other areas of coverage where the complexity of inclusion in the scheme may also warrant a slight delay without impacting significantly on the integrity of the scheme. Like agriculture, coverage of synthetic greenhouse gases and the waste sector also presents unusual difficulties.

- For synthetic greenhouse gases complexities arise due to the combination of a significant capture of the gas and the slow release of uncaptured gases over time. This pattern of impact contrasts with the current proposal to imposing liabilities when the gases are imported.
- For the waste sector, complexities arise in relation to the treatment of legacy emissions from waste stored over many years.

Ai Group proposes:

- Both synthetic gases and the waste sector should be considered as candidates for a delayed start if the complexities involved in their inclusion cannot be resolved quickly; and,
- Any sectors or industries that are initially excluded should be covered as soon as any practical barriers are overcome.

Liabilities

Ai Group supports the general approach proposed by the Green Paper in relation to the point of liability. Liabilities should be imposed on direct emissions from larger facilities and on upstream fuel suppliers.

For many contract miners, however, the proposal to impose liability on a basis of operational control risks misallocating liability. In many cases both the owner and the operator of the mine would prefer the liability to rest with the mine owner. In addition, a number of mine owners and contract miners would prefer flexibility whereby the optimum arrangement can be determined through commercial and practical assessment that best meets the functional needs of a mining operation.

The Green Paper acknowledges that this is a grey area and that the best outcome would not always be achieved if the entity with operational control was liable.

Ai Group proposes an approach that is consistent with that proposed by the mining industry.

- The mine owner should generally be regarded as the liable entity but there should be scope for the parties to determine among themselves which party would assume liability. Under this approach if both parties agreed, the liability for emissions could be transferred to the contractor.
- As a second option, if liability were in general to remain with the contractor, the mine owner should have the right to elect to assume liabilities.

We believe that under either approach the National Greenhouse and Energy Reporting Act would need to be changed to align with legislation giving effect to the CPRS.

Thresholds

Ai Group supports the general application of a 25,000 tonnes CO₂-e threshold below which facilities would not attract liabilities. For most industrial processes, general economies of scale will mean that the threshold will not have general distorting impacts and that most emissions will be covered as a result.

An exception to this threshold is provided by the waste sector in which it is common for small facilities to compete with much larger facilities.

The Green Paper proposal to apply the threshold on a gross rather than a net basis appears anomalous. A facility with direct emissions from using fuel could be pushed over the 25,000 tonne threshold even though its own liabilities might only relate to a small quantity of emissions.

Ai Group proposes that:

- A threshold lower than 25,000 tonnes of CO₂-e may be more appropriate for the waste sector; and,
- Obligations should arise only if net emissions exceed the threshold.

4. Trade Exposed Industries

Overview

Ai Group supports measures to help trade exposed businesses accommodate the introduction of the CPRS prior to the emergence of a truly global agreement to limit greenhouse gas emissions.

While the Green Paper recognises some of the challenges facing Australia's trade exposed industries, its proposals would leave these industries exposed to a substantial risk of carbon leakage. As currently designed the CPRS would cause significant damage to domestic industry and employment without delivering commensurate environmental benefits.

Ai Group is nevertheless confident that the Government can adjust the approach proposed for trade exposed industries in order to minimise the risks of carbon leakage to much more manageable and less disruptive levels. Ai Group also recognises that both the threat of carbon leakage and the need for measures supporting trade exposed industries will diminish as an international agreement is developed.

There are, of course, complex trade-offs involved in developing a transparent and cost-effective approach to trade exposed industries that is relevant to both small and large businesses; that generates sufficient levels of certainty to secure investment; and that provides appropriate incentives to reduce emissions whilst also minimising windfall gains and adverse impacts on other businesses and households.

Arriving at an optimum mix of measures requires more information than is currently available. In particular, it requires greater information about the sensitivity of permit prices to changes in the quantity of permits allocated and the scope for complementary measures (such as those that could be financed by the Climate Change Action Fund).

Ai Group urges the Government to schedule further input on the optimum approach to trade exposed businesses after the release of the Treasury modelling in October and the report of the Wilkins Review into the costs and benefits of measures complementary to an emissions trading system.

Pending the release of this information, Ai Group's judgement is that

- The quantity of permits allocated to trade exposed industries could be raised to at least 25% without impacting disproportionately on the permit price;
- Particularly in the early years of the CPRS, the Climate Change Action Fund should have a clear focus on effective measures for trade exposed industries - particularly those not eligible for an allocation of permits;
- For businesses close to the eligibility thresholds for permits, the Climate Change Action Fund should be targeted to provide comparable treatment with that provided by permit allocation;
- While a focus on abatement provides important opportunities to address carbon leakage, the CCAF should not be confined to addressing carbon leakage through abatement;

- The rate of reduction in Australia's emissions should be lower than if a genuine global agreement were in place and a large proportion of the greater quantity of permits related to this lower trajectory should be allocated specifically to enable growth of trade exposed industries.

Ai Group also believes there is scope to improve on the approach to the allocation of permits proposed in the Green Paper.

- Selecting the activities that are eligible for permit allocation on an emission intensity ranking based on value added rather than revenue appears more likely to match with the policy objective of minimising carbon leakage;
- The base period for assessing emissions intensities should be broader than the 2006-07 and 2007-08 years as currently proposed;
- If, as suggested above, the initial quantity of permits allocated can be increased without a disproportionate impact on the permit price, particular priority should be given to addressing the sudden death thresholds currently proposed;
- In measuring emissions intensity, indirect emissions from sources other than purchased electricity should be included where practical; and,
- In view of the uncertainties in these areas, any changes to the approach to permit allocation should be tested thoroughly through a consultative process with the business community.

Trade Exposure and Carbon Leakage

Carbon leakage is the central threat to the success of the CPRS. Carbon leakage occurs when economic activity moves offshore and is undertaken in other countries when it would have occurred domestically had global prices reflected broadly similar carbon costs as imposed in Australia.

It would be perverse and highly damaging to impose a cost on greenhouse gas emissions in Australia if this resulted in simply relocating economic activity overseas where it could take place without any such environmental constraints.

Overwhelmingly, Ai Group's membership is exposed to intense international competition in export markets and in the domestic market. Many members are deeply concerned at the prospect of a unilateral increase in costs resulting from the introduction of the CPRS. Such concerns are particularly prevalent given recent rises in other business costs and the ongoing gloom surrounding the global economy.

Many of Ai Group's members operate in sectors whose competitive margins have been eroded by the combined impact of cheaper production from emerging economies and the commodity-price fuelled Australian dollar. These businesses are well and truly in the firing line of the extra costs associated with direct and indirect emissions from Australian production.

All trade exposed businesses face a risk of carbon leakage to some degree. Businesses most immediately at risk range from the producers of metals and construction materials to the full range of energy intensive manufacturers in areas such as paper and packaging, plastics, chemicals, metals processing and fabrication, glass, food processing, miners and energy processors. The diversity of Australia's trade exposed industries is highly significant, involving businesses of all sizes, in every part of the country, operating in both high-margin and low-margin parts of the economy.

When coverage of the CPRS is extended to agriculture, the businesses at risk will also include beef and dairy producers; sheep, pig and poultry farmers and sugar cane and grain growers.

At this point businesses accounting for well over ten per cent of national production and around one million jobs will be affected by significant cost increases will be at risk of carbon leakage.

The most obvious source of carbon leakage comes from production facilities located (or that could be located) in countries that are not anticipated to impose a carbon constraint.

A closely related, though less well appreciated source of carbon leakage is the threat to competitive position from businesses located in countries that are imposing carbon constraints in a less comprehensive way than proposed for Australia or in which there are more effective measures for trade exposed businesses than proposed in Australia.

Case Study

Investments in the Australasian operations of a European-based MNE have been put on hold while the details of the approaches to be taken in Australia and New Zealand are under development.

Significantly higher costs arising in the Australian operations will see investment allocated to countries where the same increases do not occur.

The alternative destinations include members of the European Union. The EU emissions trading scheme has a coverage that does not extend to the business lines of this company.

To illustrate the degree to which Australasian developments are leading the world, despite operating in over 30 countries (mostly in the OECD), the company has no internal expertise to draw on to assist in preparing for the broad coverage of the carbon constraints under development in Australia and New Zealand.

Case Study

One of Australia's largest exporters of processed food competes with a New Zealand company in most of its major markets. Both companies are direct emitters, have significant electricity inputs and have a large exposure to emissions from agricultural inputs.

The NZ competitor stands to receive a far more generous treatment under its country's emissions trading scheme than is currently proposed for the Australian company.

The competitive position of the Australian company appears set to suffer in two ways relative to its NZ counterpart. It will bear higher costs due to the greater emissions intensity of Australian electricity and it is exposed to the risk of trans-Tasman carbon leakage because of the more generous design of NZ measures for trade exposed industries.

Carbon leakage is a serious threat and it needs to be addressed effectively:

- to reduce adverse impacts on domestic businesses, job prospects and living standards; and,
- to give other countries greater confidence that they can also take effective action to address climate change without damaging their economies.

The Government's Proposed Approach

The Government has clearly recognised the issue of carbon leakage and the associated threat to competitiveness. The measures it has proposed include:

- An allocation of permits to the most emissions intensive trade exposed (EITE) activities; and.
- Access to measures financed through the Climate Change Action Fund.
- Ai Group's comments on the proposals are grouped into three broad areas:
- The quantity of permits allocated and the focus of the Climate Change Action Fund;
- The decay of permits over time; and,
- The appropriate method for allocating permits.

Permits and the Climate Change Action Fund

The Government's current proposal is for an initial allocation of 20% of permits to the most emissions intensive trade exposed activities. After coverage is extended to agriculture this would rise to 30% of permits. The proposed approach to permit allocation would involve an initial allocation of:

- 90% of industry-wide liabilities for activities with average emissions intensities of more than 2,000 tonnes per \$ million of sales revenue; and,
- 60% of industry-wide liabilities for activities with average emissions intensities of between 1,500 and 2,000 tonnes per \$ million of sales revenue.

As illustrated in Chart 1 below, the proposed allocation of permits to EITE activities is well below the level of exposure of trade exposed industries to the costs of greenhouse gas emissions.

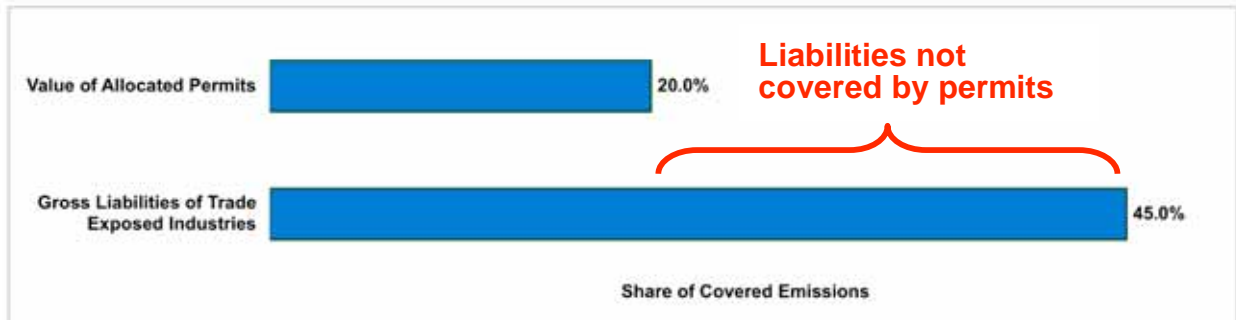
While it would be wrong to read too much into these comparisons, they indicate at a broad level why trade exposed businesses as a whole are particularly concerned with the Green Paper proposals. In rough terms only half the source of the carbon leakage threat is addressed through the proposed allocation of permits.

In addition, for many it appears that trade exposed industries are being asked to shoulder a disproportionate share of the overall burden of the CPRS.

- It appears that the costs of trade exposed industries' will rise by roughly double the value of the proposed allocation of permits to EITE activities;
- These costs will generally not be able to be passed on to other businesses or households;
- Yet under the proposed Green Paper approach, it is argued that the net revenue raised by the liabilities borne by trade exposed businesses will be allocated to other businesses and households.

Chart 1: Liabilities of Trade Exposed Industries and EITE Permit Allocation (emissions intensities above 200 tonnes per \$m of sales revenue)

Not including agriculture



Including agriculture

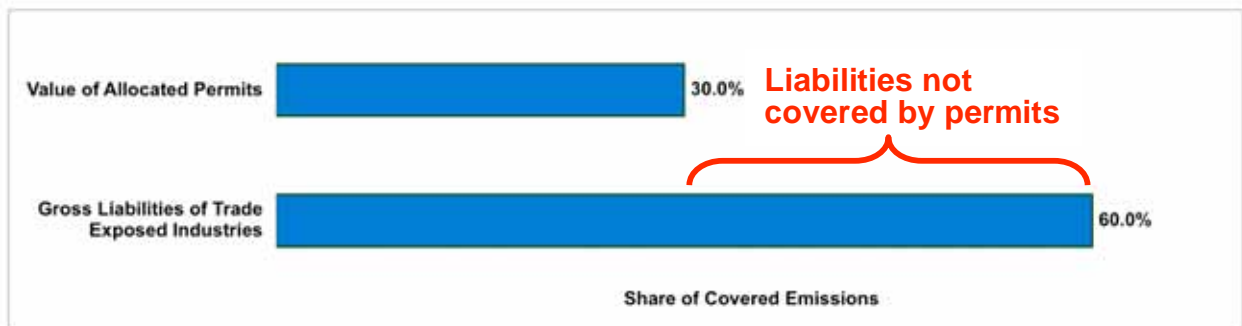


Chart 1 is based on the data presented in Figure 9.2 of the Green Paper and has the same limitations as that preliminary data (see pages 312-4 and Appendix D). It includes all emissions related to electricity used in these industries but does not include other indirect emissions related to inputs supplied by non-trade exposed industries. Only traded industries with emissions above 200 tonnes per \$ million of sales revenue are included. The pre-agriculture estimate of covered emissions assumes coverage of 75% of national emissions. After agriculture is included coverage of 90% is assumed.

The Climate Change Action Fund

This comparison between permits and liabilities does not take into account the Government’s indications that part of the Climate Change Action Fund (CCAF) would be available to address the threats faced by trade exposed businesses.

The wide disparity between the proposed allocation of permits and the overall liabilities of trade exposed businesses highlights the importance of getting the design of the CCAF right and giving it a clear focus on addressing carbon leakage. Furthermore, the design of the CCAF should provide a business that just misses out on an allocation of permits with a broadly comparable level of support.

As currently proposed the CCAF has two components: “firm-specific support (including through various one-off grants or broader industry-wide measures)” and “support directed to particular workers and communities”.

Without necessarily limiting the range of measures that would be funded through the firm specific support arrangements, the Green Paper proposes measures that would disseminate information about abatement and support investment in emissions reduction and energy efficiency. Such measures could include:

- rapid rates of depreciation on certain capital equipment;
- greater than 100 percent tax deductibility of certain abatement-related expenditure (for example on relevant training);
- direct grants to assist in implementing emissions reducing and energy efficiency projects; and
- a range of abatement and energy efficiency advisory services and grants for small and medium sized businesses.

The types of abatement measures that would be funded by the CCAF proposals would be of most benefit across the economy if they maximise the take up of low cost abatement opportunities. This approach would deliver more abatement bang from each CCAF buck and would lower costs faced by businesses generally and households by easing the demand for permits.

For some trade exposed businesses, taking up low cost abatement opportunities will also be an effective strategy to ward off the threat of carbon leakage. It will reduce some of the extra costs imposed by the CPRS.

However for many other businesses a focus on abatement will not be an effective way to address the threat of carbon leakage. This is particularly the case where, either for technical reasons or because the business has already realised all or most of the available opportunities, there are not significant low cost abatement gains to be made.

- Over the past decade and a half many of these businesses have had various obligations under Commonwealth or state government abatement and energy efficiency programs.
- Many also have voluntarily adopted greenhouse gas management practices and internal abatement targets.
- Another group of companies has adopted lean production practices that often yield substantial energy savings. In the manufacturing sector the adoption of lean practices has accelerated over the past half decade or so as part of the sector-wide response to the erosion of competitive position stemming from the high dollar and the intensification of competition from emerging economies.

Case Study

One medium sized manufacturer put in place rigorous environment management systems in the mid-1990s. As a result, the level of its emissions (direct and from purchased electricity) has fallen by around 30%.

It is likely that having already made inroads into its direct and indirect emissions, this business would not benefit from the sort of low-cost abatement measures that the Climate Change Action Fund might deliver.

The business is an exporter and is the sole domestic producer in the local market in which it competes against imports. Ironically it appears likely that its efforts in reducing its carbon footprint have placed it marginally below the threshold at which it would receive EITE permits.

For these businesses it is not likely to be effective simply to extend CCAF measures to encourage relatively high cost abatement opportunities.

- It may well be more efficient to allocate permits to these businesses.
- Other options include cash grants; assistance in developing export markets and mapping of technology opportunities for industry segments.
- Ideally, projects should also dovetail with the Government's Enterprise Connect initiatives and other productivity-enhancing programs across the country.

The Scope for Increasing the Quantity of Permits

While the arguments above point to the scope to increase the quantity of permits allocated as part of the package of measures for trade exposed industries, Ai Group recognises the limitations on the extent to which permit allocation would be the best way to address carbon leakage.

- Allocating permits to businesses where the cost of abatement is low relative to the permit price is not an efficient use of resources – the same reduction in liabilities could have been achieved at a lower cost.
- Further, the allocation of permits can reduce the realisation of efficient abatement opportunities. This may occur for example if permits shielded economic activity that would contract in the face of a global carbon constraint.
- In this case, the economy-wide burden of adjustment would be shifted towards relatively more expensive abatement opportunities resulting in a higher permit price at the expense of households and other businesses (including trade exposed businesses).

Modelling results presented in the Shergold Report point to a high degree of responsiveness of the permit price to an increase in the quantity of allocated permits.

Table 2: Modelling of Permit Price Responsiveness to Permit Allocation

	No EITE Allocation	Moderate EITE Shield	Larger EITE Shield
	<i>Scenario A</i>	<i>Scenario B*</i>	<i>Scenario B</i>
Change in Emissions (in 2030)	-12%	-12%	-12%
Carbon Leakage (as a share of Australian abatement in 2030)	12.8%	5.0%	3.6%
Change in GDP (in 2030)	-0.7%	-0.8%	-1.1%
Permit Price (in 2030)	\$15	\$21	\$31

Source: *Report of the Task Group on Emissions Trading*, (Shergold Report), 2007, Appendix H.

In this modelling, which was undertaken by the Australian Bureau of Agricultural and Resource Economics (ABARE), Scenario B* shielded the natural gas, iron and steel and the non-ferrous metals sectors while Scenario B added agriculture to the shielded group.

While the results should be treated with care, they point to the risk of a substantial increase in the permit price as the allocation of EITE permits rises. In Ai Group's view they give reason to be cautious about proposals that would involve a large increase in the allocation of EITE permits.

Ai Group understands that further modelling being undertaken by Treasury and due for release in October will assist in assessing this risk and therefore also will assist in assessing the scope to raise the quantity of permits allocated to trade exposed industries without a disproportionate increase in the permit price.

Recommendations

Until a global agreement develops, measures should be in place to address the threat of carbon leakage to countries that do not have the same carbon constraints as imposed in Australia.

Ai Group expects the release of Treasury modelling in October to shed greater light on the sensitivity of permit prices to increases in the quantity of permits allocated to trade exposed industries.

Pending the release of that information Ai Group's judgement is that:

- The quantity of permits allocated to trade exposed industries could be raised to at least 25% without impacting disproportionately on the permit price;
- Particularly in the early years of the CPRS, the CCAF should have a clear focus on measures to assist trade exposed industries - particularly those not eligible for an allocation of permits.
- For businesses close to eligibility for permits, the CCAF should be able to provide comparable treatment with that provided by permit allocation;
- While a focus on abatement provides important opportunities to address carbon leakage, the CCAF should not be exclusively confined to addressing carbon leakage through abatement.

The Decay of the EITE Allocation

The Green Paper approach to permit allocation proposes that a more or less constant proportion of permits would be allocated to trade exposed industries over time.

Under the proposals there is some limited scope for the 20% allocation (30% after agriculture is included) to drift upwards if the actual growth of activities proves to be greater than initially expected. Nevertheless as the cap falls over time, the quantity of permits allocated would reduce in absolute terms.

This decay of permits would tend to thwart the growth prospects of the emissions intensive trade exposed businesses eligible for permits, and there is every prospect that the growth opportunities for such industries will be realised in other countries where constraints on the production of greenhouse emissions are absent. To the extent to which this growth would have occurred in Australia if there was a global carbon price, the decay of permits will result in carbon leakage. This implies that Australia would see less investment, lower wages and slower GDP growth than if all countries adopted a carbon constraint.

If, on the other hand, the quantity of permits allocated to EITE activities was increased over time while the national cap continued on a downwards trajectory, the permit price – and therefore general business costs and consumer prices – would tend to rise faster than otherwise.

One solution that has been put forward is to allow for “growth above the cap” so that the greater quantity of permits allocated to EITE activities would not exert this pressure on permit prices. This solution would be most relevant if Australia had not ratified Kyoto or if the next phase of international agreement could be shifted to allow for Australia and other parties to record a level of emissions that exceeded their national caps without attracting penalty.

While this approach needs further analysis, Ai Group finds it difficult to see how the approach could work without undermining the general direction of international negotiations on climate change.

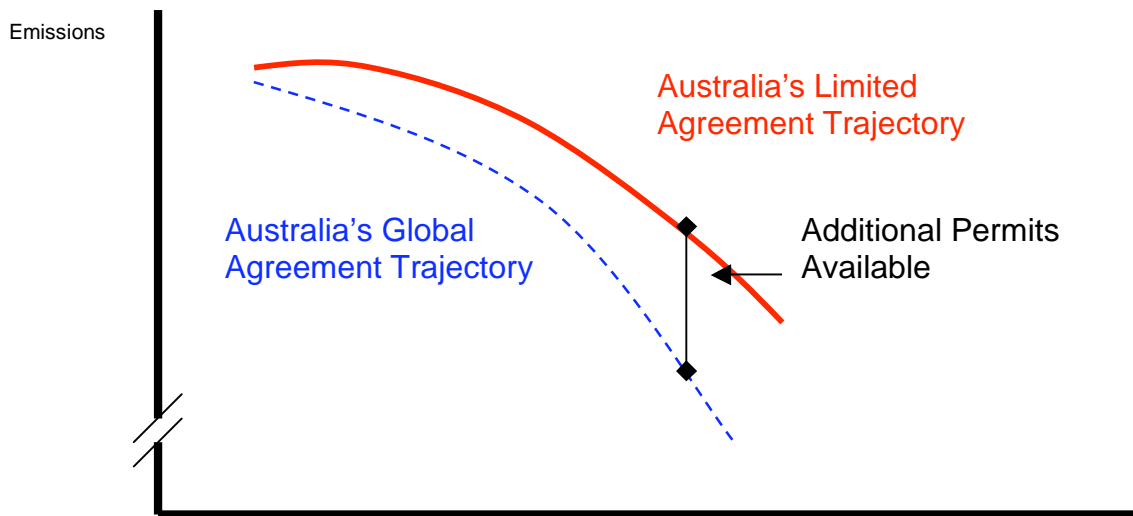
In any case there appears to be a more straightforward approach to this issue. In large part because of the threat to trade exposed businesses, the Government has indicated that it will calibrate the pace of emissions reduction to reflect the level of international commitment to reducing greenhouse gas emissions.

This suggests that the trajectory it will agree to in international negotiations will be more modest than if more widespread international agreement was reached. Compared to the quantity of permits that would be available under the preferred trajectory, more permits will be available under the more modest trajectory actually pursued.

Other things being equal this will lower the Australian permit price below its “preferred level”. This suggests there may be scope to allocate to EITE activities a large share of the extra permits available under the more modest trajectory. This could be done without raising the permit price above the levels it would have reached under the preferred trajectory.

The approach proposed is illustrated in Chart 2 below. The preferred trajectory is the emissions reduction path that Australia would take if there was a genuine global agreement on climate change. Partly because of the threat of carbon leakage, under a limited international agreement, Australia would agree to the more modest trajectory. A share of the additional permits available could be allocated to EITEs thus raising the quantity of permits allocated to EITE industries beyond the level they otherwise have been allocated.

Chart 2: Finding Extra Permits for EITE Activities



Recommendation

The rate of reduction in Australia's emissions should be lower than if a genuine global agreement were in place and a large proportion of the greater quantity of permits related to this lower trajectory should be allocated specifically to enable growth of trade exposed industries.

The Allocation of Permits

In consultations with members a number of alternative approaches to the allocation of EITE permits have been canvassed. Assessing alternative approaches has proved difficult:

- There is considerable uncertainty about what might be regarded as an “activity” for the purposes of assessing emissions intensity;
- Even in relation to apparently well-defined activities, businesses generally do not have processes in place that enable ready attribution of emissions (including Scope 2 emissions) on an activity basis; and
- There is uncertainty about the parameters (thresholds and rates) that would be used to allocate a given allocation budget under different methodologies.

As a result, support for alternative approaches is often something of a stab in the dark and often involves comparing not only an alternative allocation methodology but also the allocation of different quantities of permits.

Emissions Intensity Measure: Value Added Vs Revenue

The Green Paper proposes an allocation of EITE permits using an emissions to revenue ratio. While this would be considerably less complex than most other measures from both an administrative and compliance point of view, it is relatively less generous to low margin activities and as a result also likely to be less effective as a means of addressing the threat of carbon leakage.

Table 3 compares two hypothetical activities with the same emissions intensities when measured relative to value added but with different sales to value added ratios.

Table 3: Emissions Intensities: Low and High Value Added Activities

	Emissions	Value added		Sales revenue	
	<i>tonnes CO₂-e</i>	<i>\$m</i>	<i>Emissions intensity (t/\$m)</i>	<i>\$ m</i>	<i>Emissions intensity (t/\$m)</i>
Lower value added	8,000	1	8,000	5.5	1,455
Higher value added	8,000	1	8,000	4	2,000

Under the approach put forward in the Green Paper, the relatively higher value added activity would be eligible for permits equal to 90% of liabilities whereas the lower value added activity would not attract any permits.

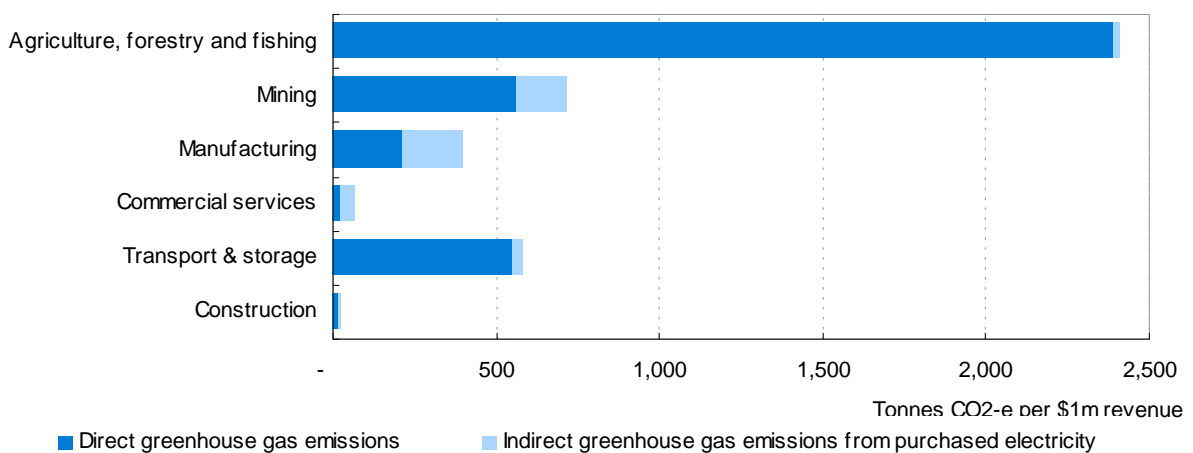
Given similar bottom line impacts of a price on emissions on these two activities, it is not apparent why the activities should receive such vastly different treatments under the Green Paper’s EITE proposals. Business decisions relevant to carbon leakage are likely to be made by comparing the profitability of the same activity undertaken in different parts of the

world. There does not appear to be a strong reason to suspect that the higher margin activity would be under greater threat of carbon leakage than the lower margin business.

Charts 3 and 4 below are drawn from the Appendix of this submission. They contrast two measures of emissions intensities for different economic sectors. Chart 3 presents sales revenue-based measures of intensities and Chart 4 presents value added-based measures of intensities.

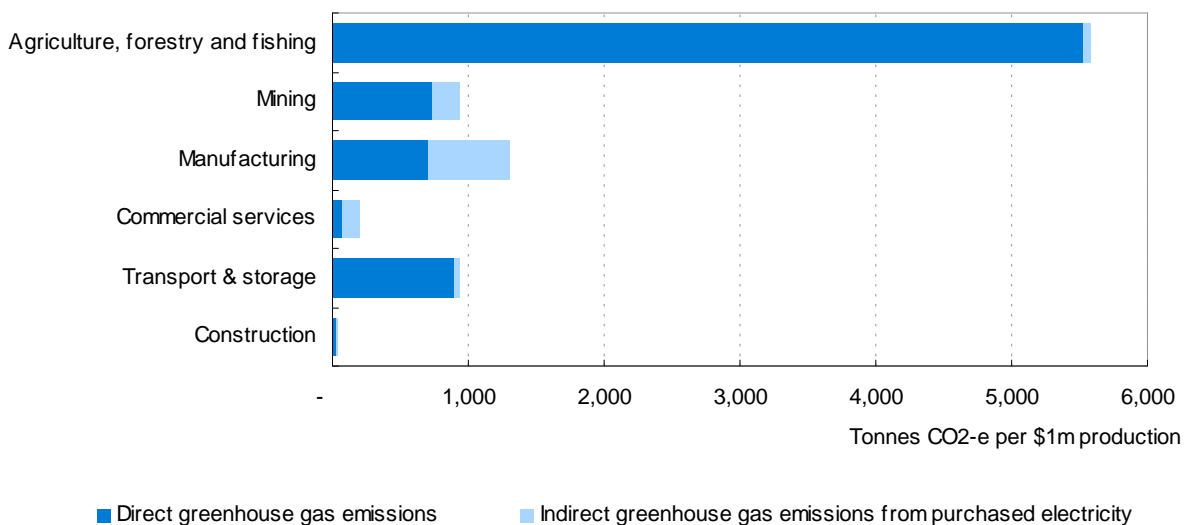
Even at the broad sector level the two measures produce clearly different results. In particular the relative emissions intensities of the mining, manufacturing, transport and storage sectors shift noticeably.

Chart 3: Direct and Scope 2 Emissions (per \$m of revenue)



Source: See Appendix Chart A3.

Chart 4: Direct and Scope 3 Emissions (per \$m of value added)



Source: See Appendix, Chart A5.

The emissions intensity ranking of the mining sector changes from second under the revenue measure to fourth (behind agriculture, manufacturing and transport and storage) using the value added measure. Conversely the relative ranking of manufacturing moves from the fourth highest under the revenue measure to second highest under the value added measure.

Within sectors there is also considerable variation of relative emissions intensities depending on the measure adopted. In Table 4 this variation is indicated by the divergence in revenue to value added ratios for manufacturing sub sectors.

Table 4: Sales Revenue to Value Added Ratios for Manufacturing Sub Sectors

Manufacturing sub-sector	Average Sales Revenue to Value Added Ratio	
	2006-07 to 2007-08	2002-03 to 2007-08
Food, beverage & tobacco	3.7	3.7
Textiles, clothing & footwear	2.4	2.4
Wood & paper products	2.7	2.7
Printing, publishing & recorded media	1.9	1.8
Petroleum, chemicals & coal	5.4	5.1
Non-metallic minerals	3.0	3.0
Metals	3.7	3.6
Machinery & equipment	3.0	3.1
Other manufacturing	2.4	2.4

Source: ABS, 5206.0, June 2008 and 5676.0, June 2008.

Base Period Used to Calculate Emissions Intensities

The data presented in Table 4 includes the average sales revenue to value added ratios in 2006-07 to 2007-08 and the average of these ratios over the period since mid 2002.

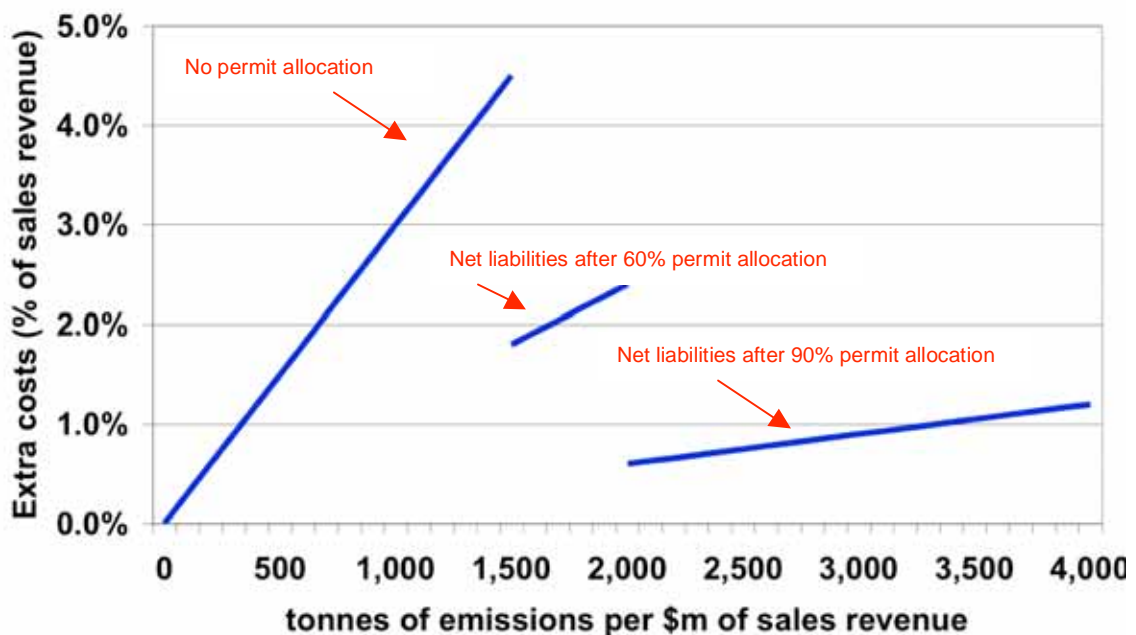
It is notable that at this high level of aggregation the averages for the two years 2006-07 to 2007-08 do not depart much from the average for the years since 2002-03. This suggests that at least at the sub-sector level, revenue and value added generally move in lock step.

The exception that stands out even at this aggregate level is in the petroleum, chemicals and coal products sub sector where value added has not matched the steep rise in prices for petroleum and related products in more recent years. The revenue to value added ratio in the last two years is roughly 10 per cent higher than the average for the previous five years. In Ai Group’s consultations, businesses in or closely linked to these industries have been most concerned about the risks of using the 2006-07 to 2007-08 period to measure emissions intensities based on revenue.

‘Sudden Death’ Cut Offs

The Green Paper proposes an approach to EITE permit allocation with sharp sudden death cut offs at emissions intensities of 2,000 tonnes per \$million of sales revenue and 1,500 tonnes per \$million of sales revenue. The impacts of these measures are illustrated in Chart 5 which summarises the cost impacts of the CPRS at a permit price of \$30 after taking account of the permit allocations under the proposed EITE measures.

Chart 5: Extra Costs Faced by Trade Exposed Activities after Permit Allocation (\$30 per tonne permit price)



Broadly there are two ways of reducing the problem.

- Introduce an intermediate rate of allocation for activities with emissions intensities below 1,500 tonnes per \$million of sales revenue (or equivalent value added threshold); or
- Have a smooth allocation – above a threshold – where the proportion of permits allocated rises. This would work in a similar way as personal income tax scales.

In each case, for a given allocation of permits, these solutions imply a dilution of permit allocation for at least some businesses relative to the Green Paper proposals.

Indirect Emissions from Sources other than Electricity

A small number of Ai Group members have pointed to the material impact they expect indirect emissions from sources other than electricity will have on their cost structures.

While the Green Paper discusses a range of difficulties involved in including indirect emissions from sources other than electricity, Ai Group's view is that there should be scope for businesses for which there are demonstrable material impacts to include these emissions in their emissions intensities.

Our discussions with members suggest that the importance of this issue will become more widespread after agriculture is included in the scheme.

Recommendations

Ai Group also believes there is likely to be scope to improve on the approach to the allocation of permits proposed in the Green Paper.

- In particular, selecting the activities that are eligible for ongoing permit allocation on an emission intensity ranking based on value added rather than revenue appears more likely to match with the policy objective of minimising carbon leakage;
- The base period for assessing emissions intensities should be broader than the 2006-07 and 2007-08 years as currently proposed;
- If, as suggested above, the initial quantity of permits allocated can be increased without a disproportionate impact on the permit price, particular priority should be given to addressing the sudden death thresholds currently proposed;
- In measuring emissions intensity, indirect emissions from sources other than from purchased electricity should be included where practical; and,
- In view of the uncertainties in these areas, any changes to the approach to permit allocation should be tested thoroughly through a consultative process with the business community.

5. Electricity Supply

Along with agriculture, it is likely that the electricity sector will experience the greatest transformation as a result of the introduction of the CPRS.

Electricity generation, with its high reliance on Australia's plentiful coal reserves, accounts for over one third of national emissions.

Ai Group supports the exploration of all options for low emissions electricity generation. Nuclear energy, for example, must not be ruled out of consideration and should be retained as an option, subject to the same rigorous cost-benefit assessment as alternative sources of energy such as geothermal, wind and solar power.

In the near term the costs of coal and gas-fired electricity generation are set to rise substantially. Electricity prices will also rise to reflect the extra costs imposed by the CPRS as well as the substantial additional costs that are likely to be associated with meeting the planned Renewable Energy Target.

Even allowing for general price increases, the most emissions intensive of the coal-fired generators will find it difficult to pass on all their additional costs. By some estimations, such generators will face financial distress to the point where they will under-allocate resources to essential maintenance. Over time, this could have an adverse impact on the continuity of electricity supply.

Recommendation

Ai Group supports the broad thrust of the measures proposed in the Green Paper in relation to Strongly Affected Industries and proposes that a central focus in the design of these measures should be given to ensuring the security of electricity supply in the early years of the scheme.

6. The Risk of Excessive Regulation

Overview

Ai Group believes that regulatory framework for the CPRS and for climate change policy more broadly should:

- Maximise transparency and minimise costs;
- Adhere to the principles of 'better' regulation;
- Rationalise the current suite of environmental regulations and targets;
- Focus on areas where there is a clear risk of market failure;
- Introduce a binding Least Cost Abatement test;
- Ensure an effective functioning carbon market;
- Avoid introducing artificial, market distorting measures;
- Scrap the National Renewable Energy Target Scheme; and,
- Allow for the publication of the long-awaited Wilkins Review.

The market-based approach of the CPRS should assist in containing regulatory costs. There are however two significant risks that could easily compromise the overall effectiveness of Australia's climate change strategy. These are the risk of duplicating, overlapping and uncoordinated regulation; and the risk of poorly designed law or supporting regulation giving effect to the CPRS.

Avoiding Complexity, Reducing Duplication

The CPRS has the potential to significantly transform the Australian economy. Given the scale of its prospective impact it is imperative that the design of the CPRS adheres to the principles of better regulation. The United Kingdom's Better Regulation Taskforce summarised these as:

- Proportionate: regulatory intervention should occur only where necessary;
- Accountable: regulators must be able to justify decisions and be subject to public scrutiny;
- Consistent: regulation should be 'joined-up' and implemented fairly;
- Transparent: regulations should be simple and user-friendly;
- Targeted: regulations should be focused on specific problems and minimize 'side effects'.

In addition, the regulatory framework for the CPRS itself and for climate change policy more broadly should be subject to periodic assessment and review in order to ensure it remains fit-for-purpose and is effective in meeting national objectives.

At present, a vast array of policy instruments, incentives and targets are causing confusion and adding cost for business. In particular, the scenario where Federal, state and territory legislators are effectively competing against one another to implement environmental regulation is both unhelpful and highly inefficient.

Ai Group strongly supports measures taken by the Rudd Government to appoint a Minister, sitting within Cabinet, with responsibility for deregulation. However, we urge the Government to focus directly upon the deregulatory potential of the CPRS – potential that has not, as yet, been seized.

The array of environmental regulations currently facing business are driving up compliance costs and creating a complex basket of regulatory burdens that are, in most instances, ultimately paid for by the consumer. Linked to this are audit and reporting requirements, which already demand a significant proportion of executive time and are likely to grow significantly under CPRS, unless regulatory simplification occurs.

A regulatory ‘budget’ for CPRS should be established, which rationalises existing environmental targets and regulations, and accurately reflects the economic costs and benefits attributed to combating climate change. Such a process will, we believe, help meet the Government’s stated desire of least cost abatement, whilst assisting business by providing greater regulatory efficiency and transparency.

Regulatory and Market Efficiency

The existing approach to regulatory intervention to address climate change is essentially ad hoc and demonstrably inefficient; and it is in the interest of both Government and Australian industry for climate change policy to be implemented in a more efficient manner.

A revised regulatory model, one that focuses climate change policy at all levels of government on least cost abatement and which harmonises complementary policies whilst removing policies that are not complementary, will be both easier to administer and more effective.

Indeed, if CPRS is to achieve its primary objective Ai Group believes it is imperative the Government looks closely at the current suite of environmental incentives and carbon reduction programs. As a market based solution, CPRS requires a freely functioning market to operate effectively and schemes operating outside of the CPRS risk artificially distorting the market and inflating the price of carbon.

CPRS fundamentally negates the need for competing programs as, by placing a true price on the cost of carbon, the market will naturally drive business investment and behaviour towards those technologies that help reduce greenhouse gas emissions in the most cost effective manner. Conversely, a failure to rationalise such programs risks compromising the effectiveness of both these related schemes and the CPRS itself.

Complementary programs, where required, should be confined to addressing areas where there is likely to be a natural absence of market incentives, i.e. incentives to drive research and development in low-emissions technologies, and/or exploiting opportunities to reduce carbon emissions in sectors not currently covered by the CPRS. However, such measures should only be undertaken if it is clear that they will not unintentionally influence the functioning of the formal carbon market.

The Federal-State Conundrum

It is imperative that Australia’s national carbon pollution reduction strategy is not undercut by State programs. As the Productivity Commission stated:

With an effective ETS, much of the current patchwork of climate change policies will become redundant and there will only be a residual role for state, territory and local government initiatives.

Ai Group supports the current COAG process to rationalise renewable energy targets and assist the states and territories with the implementation of a truly national emissions trading scheme. However, it is essential this process delivers tangible results. A failure to endorse a comprehensive and efficient (national) regulatory framework at COAG's October meeting will compromise regulatory efficiency and risks destabilising industry confidence in the CPRS.

This does not mean that Ai Group sees no role for the states and territories in climate change policy. In particular, state and territory governments are often best placed to play an important role in providing consumers and businesses with relevant information, in promoting best practice and in leading by example.

The National Renewable Energy Target Scheme

Ai Group fully supports the development of renewable technologies and endorses measures to help deliver energy efficiency - but not at the expense of an efficiently operating carbon market.

Energy efficiency measures, in particular, should already be embedded in to commercial practice as a common sense tool for reducing everyday business costs. A failure to do so, given the current volatility in global energy prices, is both reckless and unsustainable. Equally, renewable energy is, and should remain an essential part of Australia's energy mix, but its uptake should be driven by market forces not blunt policy instruments.

Ai Group sees no need for the Government to continue with a separate, and potentially highly distortive, target for the uptake of renewable energy. The proposed Renewable Energy Target (RET), whilst retaining some merit as a mechanism for achieving a unified national approach to renewable energy targets is nonetheless likely to result in abatement costs that are higher than necessary to meet Australia's emissions reduction targets. The effects of such distortions will adversely impact on both households and businesses throughout the economy.

The RET risks disrupting incentives for other carbon reduction measures; provides unnecessary complexity to the regulatory roadmap for tackling climate change and will contribute to higher carbon abatement costs.

The 'Least Cost Abatement' Test

If the Government is to achieve its stated commitment of transitioning Australia to a low-carbon economy at the lowest possible cost, it is essential that a least cost abatement test is applied to all current and future regulation.

A test of this nature would require climate change programs to ensure that abating each tonne of greenhouse gas emissions takes place at a cost that is no higher than the market-established carbon price. Such an approach would be entirely consistent with the market based model of CPRS and the Government's stated policy objectives. It would also help build business confidence in the scheme whilst ensuring an accurate, undistorted carbon price.

Such a test would be consistent with media reports of the findings of the Wilkins Review and we urge the Government to publish the Review's report.

Recommendations

Ai Group believes it is important the Government seizes the opportunities presented by the introduction of the CPRS to reduce the regulatory burdens placed on Australian industry. In particular, the Government should attack the multiplicity of environmental regulation currently imposed.

Ai Group believes that an efficient regulatory process is both in the public and business interest and will play an important role in bringing business on board with climate change policy broadly and with the CPRS in particular.

A market based solution is the most effective way for Australia to contribute to international efforts to tackle climate change. The Government should ensure that the introduction of the CPRS goes hand-in-hand with measures to tackle potentially market distorting mechanisms. Ensuring the regulatory framework that accompanies CPRS is clear, effective and efficient will be a key part of this process.

The Government's desire to implement CPRS at the lowest cost to the economy is an approach which is welcomed by Australian industry, but one which must include a frank appraisal of the full regulatory costs involved. By imposing a strict least cost abatement test, Ai Group believes the Government will be best placed to achieve its stated policy objectives.

7. Investing for the Future

The challenge of reducing greenhouse gas emissions requires long-term commitments. Both for the private and public sectors addressing climate change calls for new investments and a change in the direction of investment.

Auction Revenue

The Government has proposed recirculating all the revenue raised by auctioning permits to businesses and households.

Ai Group supports this commitment and believes that, particularly in the period to 2020, a priority should be to focus the Climate Change Action Fund on the objective of keeping carbon leakage from trade exposed industries as low as possible.

As set out earlier in this submission, Ai Group proposes that a variety of investment measures and incentives should be available through the Climate Change Action Fund to address carbon leakage. While these should include investments in abatement opportunities, they should not be limited to measures aimed specifically at reducing emissions.

Ai Group does not support the excise offset proposal put forward by the Government. The measure will ease the burden on households but it will do so in a way that will deliver larger benefits for households according to the quantity of petrol they consume. It will be of relatively minor benefit for the many households without a car. These households are much more likely to be low-income households.² In our view, the policy does not make sense either from an economic, environmental or an equity point of view.

This measure should be withdrawn and, after providing additional funds for low-income households to offset the additional general price impacts, the surplus funds could be channelled into more farsighted measures including in support of abatement measures. Well targeted investments in these areas could assist in reducing costs for households and businesses.

In the longer term, and assuming the emergence of a genuine global agreement, the threat of carbon leakage, along with the rationale for trade exposed measures, will be removed. Ai Group proposes that the Government ask the Review of Australia's Future Tax System to advise on ways auction revenue could be used to improve the international competitiveness of the Australian taxation system.

² One study based in metropolitan Melbourne found that in 2001, 27 percent of low income households (under \$500 per week) did not have a car, compared to just two percent of households with incomes over \$1,000 per week (Currie, G. and Senbergs, Z., 2007, *Exploring Forced Car Ownership in Metropolitan Melbourne*, 30th Australasian Transport Research Forum).

Additional Investment

Ai Group supports the early adoption of measures that will assist business prepare for the transition to a carbon constrained economy. These measures should not wait until auction revenue begins to flow and, particularly in the early years of the scheme, should not be limited to funds raised from auction revenue.

Research and Development

Ai Group supports the Government's ongoing commitment to increase research and development in emissions reduction and energy efficiency projects. Particular areas of importance for Australia are carbon capture and storage and the full suite of options for low-emissions electricity generation, including nuclear energy.

In addition, a greater focus on research and development outside the energy sector involving a broader range of industrial and agricultural processes is warranted.

8. Skills Development

The importance of skills development is too often forgotten in policy discussions on climate change.

Reducing greenhouse emissions and improving energy efficiency will require both the development of new skills to support new jobs in new industries and also a 're-tooling' of the current skills of the Australian workforce as existing jobs and industries are re-oriented.

CSIRO modelling suggests that in order to make deep cuts in Australia's greenhouse emissions, it will be necessary to identify and provide the 'green skills' needed by the 3.25 million workers in industries that now have 'high environmental impact'. Many of the jobs in 'low environmental impact' industries increasingly will also be 'green collar' jobs.³

There is, in addition, a wealth of anecdotal information available on the impact skills shortages are already having on moving to greener solutions. Public training providers in some states report that they are operating at over capacity in their traditional trade areas and so not able to consider moving into new technology areas which will address climate change, despite a high level of interest. In other areas a lack of availability of suitable training products and/or suitable training facilities is delaying the up-skilling of workers in solar technology applications.

Recent Ai Group research on emerging technologies has identified a strong demand for skills in technologies focussed on addressing climate change, global warming and population growth. These challenges are demanding new approaches from business and are driving more energy efficient and sustainable practice. What is particularly interesting about these new technologies from a skills perspective is that they are inter-related, multi-disciplinary and highly diverse. As a consequence they cross traditional industry and educational boundaries.

The specific skills identified include industry-specific foundational knowledge (such as knowledge of the properties of CO₂ in the carbon capture and storage industries) as well as high level IT skills, strong technical skills and excellent generic skills such as problem solving, analysis and communication. The findings of the Ai Group work suggest strong demand will come at the post-trade, paraprofessional qualifications levels and for higher education qualifications.

It is also imperative that the skills needed to meet the climate change challenge are embedded at every level of Australian industry, from the shop-floor to the boardroom. Ai Group believes that a focus on the skills requirements associated with climate change should therefore be considered as part of a wider review of Australia's management training arrangements.

The recommendations below will require the Commonwealth and state and territory governments to work closely together to coordinate policy and funding initiatives across the traditional lines of education and training responsibilities.

³ Hatfield-Dodds, S., G. Turner, H. Schandl and T. Doss, 2008, *Growing the green collar economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint*.

- Data projecting new and emerging skills needs should be improved together with data on current skill levels with a view to identifying broad skills gaps.
- Working in close partnership with industry, linkages between the training and higher education sectors need to be improved to:
 - facilitate greater communication between researchers and training stakeholders and organisations; and,
 - support efficient up-skilling and re-skilling of existing workers who will increasingly move between the sectors.
- To accelerate the development of appropriate skills, Ai Group supports:
 - the development of national training products;
 - the development of the skills of trainers and identification of appropriate facilities; and,
 - the delivery of training in new and emerging areas in anticipation of broad based demand.
- Consideration should be given to establishing a *green skills audit fund* for companies working in industries designated as 'high environmental impact' to determine their future skills needs.

Appendix

Emissions and Emissions Intensities

This Appendix uses data on emission levels and aggregate sales revenue and valued added data to compare emissions and emissions intensities under different measures for broad economic sectors and for manufacturing subsectors.

Emissions

Table A1 presents the estimated volume of direct greenhouse gas emissions and indirect greenhouse gas emissions from the generation of purchased electricity (“Scope 2” emissions) in 2005, by broad economic category and for the sub-sectors of manufacturing.⁴

Table A1: Direct and Scope 2 Emissions, 2005

ANZSIC code	Industry Classification	Direct Greenhouse Gas Emissions	Scope 2 Emissions	Combined Direct and Scope 2 Emissions
		Tonnes CO ₂ -e	Tonnes CO ₂ -e	Tonnes CO ₂ -e
Div A	Agriculture, forestry and fishing	148314720	1400000	149714720
Div B	Mining	48051430	12800000	60851430
Div C	Manufacturing	70039200	59800000	129839200
21	Food, beverages, tobacco	4701600	4963400	9665000
22	Textiles, clothing, footwear and leather	499620	657800	1157420
23-4	Wood, paper and printing	2491790	3408600	5900390
252-6	Chemical industry	11829050	3707600	15536650
264	Other non-metallic	688870	3049800	3738670
271	Iron and Steel (excl coke making)	12615790	5322200	17937990
272-3	Basic non-ferrous metals	19852020	36238800	56090820
28	Machinery and equipment	523000	2212600	2735600
29	Other manufacturing	15360	239200	254560
Div F-H, J-Q	Commercial services	18729430	37640000	56369430
Div I	Transport & storage	38866550	2100000	40966550
Div E	Construction	1855350	860000	2715350

Source: Australian Greenhouse Emissions Information System: www.climatechange.gov.au/inventory and Australia’s National Greenhouse Accounts - National Inventory Economic Sector 2006.

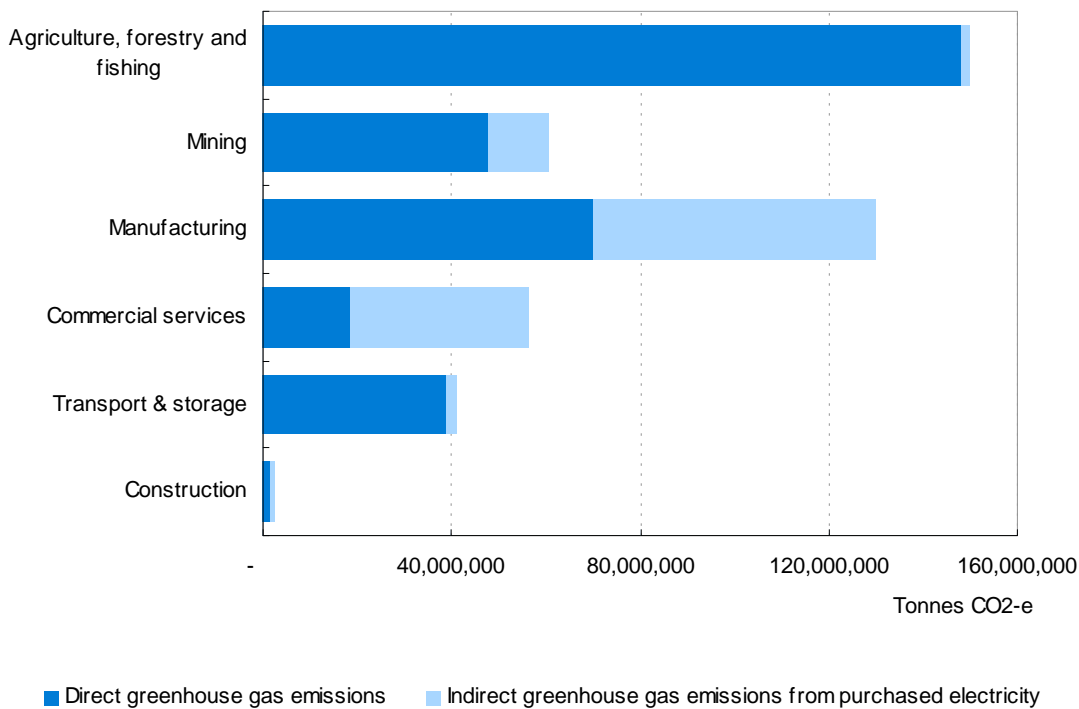
The agriculture, forestry and fishing sector accounted for the largest proportion of combined greenhouse gas emissions in 2005 (149.7 megatonnes of CO₂ –e). Most of this amount can be attributed to direct greenhouse emissions.

⁴ Direct greenhouse gas emissions are as estimated under the Kyoto Protocol reporting provisions. Scope 2 emissions for the sub-sectors of manufacturing have been calculated by applying each sector’s share of emissions from electricity use on a full fuel cycle basis (Table 1.11 of Australia’s National Greenhouse Accounts) to the total of Scope 2 indirect greenhouse gas emissions for the manufacturing sector. Emissions relating to petroleum refining; glass & glass products; ceramic products; cement, lime, plaster & concrete products; structural metal products; sheet metal products; and fabricated metal products were not available and were not included in the analysis.

The manufacturing sector emitted 129.8 megatonnes of CO₂ –e in 2005. This was comprised of 70.0 megatonnes of CO₂ –e in direct emissions and 59.8 megatonnes of CO₂ –e in indirect emissions from the generation of purchased electricity.

Mining accounted for 60.9 megatonnes of CO₂ –e in 2005 (almost 80% of which were direct emissions); commercial services accounted for megatonnes of 56.4 CO₂ –e (just under a third of which were direct emissions); transport & storage accounted for 41.0 megatonnes of CO₂ –e (around 95% of which were direct emissions); and construction accounted for 27.2 megatonnes of CO₂ –e (almost 70% of which were direct emissions).

Chart A1: Combined Direct and Scope 2 Emissions by Broad Economic Category, 2005

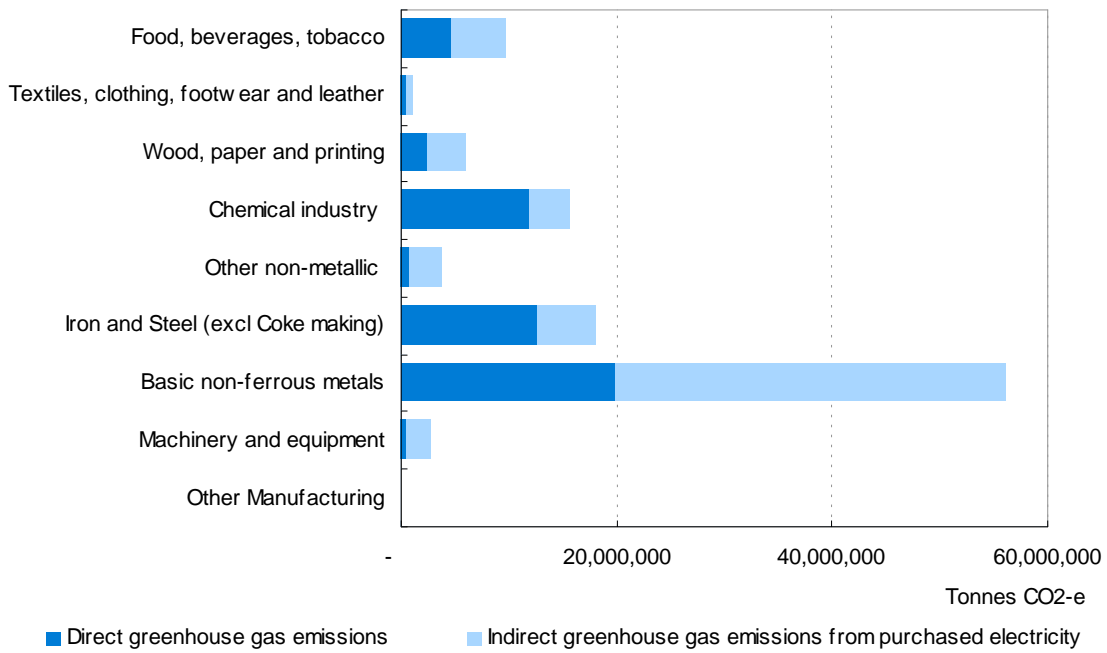


The totals of direct and Scope 2 emissions for each of the sub-sectors in the manufacturing sector are illustrated in Chart A2.

The production of basic non-ferrous metals generated the largest volume of emissions in 2005 (56.1 megatonnes of CO₂ –e). This was comprised of 19.9 megatonnes of CO₂ –e in direct emissions and 36.2 megatonnes of CO₂ –e in Scope 2 emissions.

The iron and steel metal products (17.9 Mt CO₂ –e) and chemical sectors (15.5 Mt CO₂ –e) were also relatively heavy emitters in 2005.

Chart A2: Combined Direct and Scope 2 Emissions by Manufacturing Sub-Sector, 2005



Emissions Intensities

Table A2 presents the estimated volume of direct and Scope 2 emissions, as a proportion of sales revenue (\$ million) by broad economic category and for the manufacturing sub-sectors.⁵

Table A2: Direct and Scope 2 Emissions per \$ million of Revenue, 2005

ANZSIC code	Industry Classification	Direct Greenhouse Gas Emissions	Scope 2 Emissions	Combined Direct and Scope 2 Emissions
		Tonnes CO ₂ -e per \$m revenue	Tonnes CO ₂ -e per \$m revenue	Tonnes CO ₂ -e per \$m revenue
Div A	Agriculture, forestry and fishing	2388	23	2410
Div B	Mining	566	151	717
Div C	Manufacturing	214	182	396
21	Food, beverages, tobacco	68	71	139
22	Textiles, clothing, footwear and leather	69	91	161
23-4	Wood, paper and printing	69	95	164
252-6	Chemical industry	294	92	386
264	Other non-metallic	400	1771	2171
271	Iron and Steel (excl coke making)	921	389	1310
272-3	Basic non-ferrous metals	779	1422	2201
28	Machinery and equipment	9	37	46
29	Other manufacturing	2	25	27
Div F-H, J-Q	Commercial services	23	47	70
Div I	Transport & storage	550	30	580
Div E	Construction	17	8	24

Source: Australian Greenhouse Emissions Information System: www.climatechange.gov.au/inventory, Australia's National Greenhouse Accounts – National Inventory Economic Sector 2006 and ABS Cat. No. 5676.9 *Business Indicators*, Australia, June 2008.

The total of direct and Scope 2 emissions, as a proportion of sales revenue, for each of the broad categories of economic activity are illustrated in Chart 3.

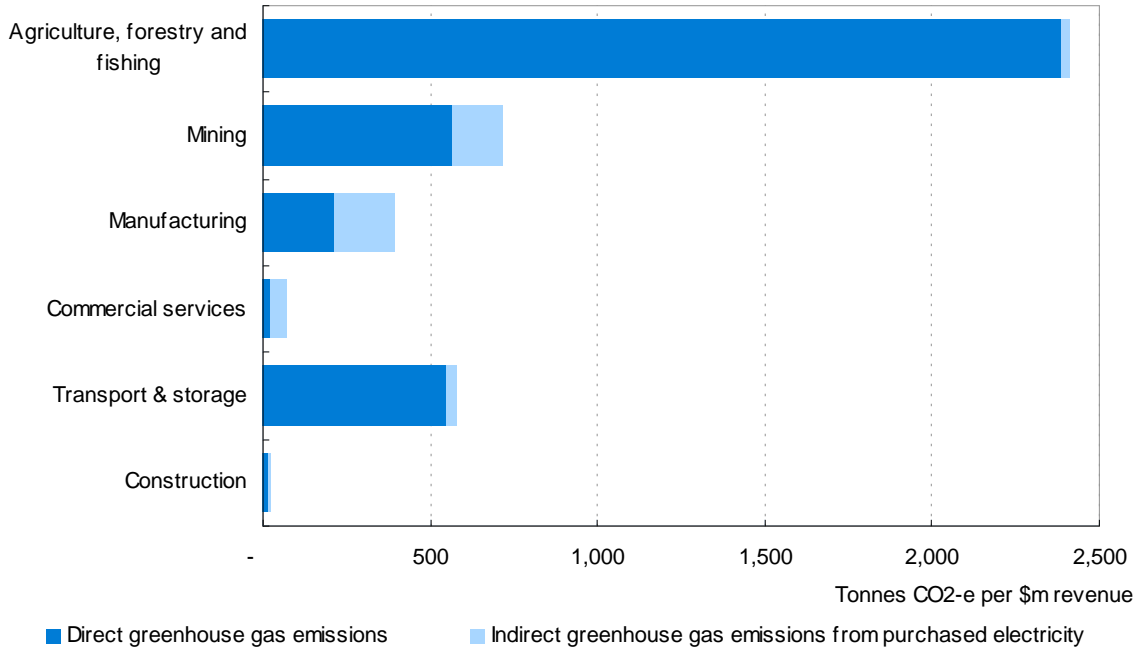
As well as being the greatest emitter of greenhouse gases, the agriculture, forestry and fishing sector also recorded the highest emissions-intensity ranking using a revenue base (2,410 tonnes of CO₂ –e per \$ million of revenue).

While the manufacturing sector is the second largest emitter of greenhouse gases, its emissions intensity ranking using a revenue base was lower (396 tonnes of CO₂ –e per \$ million of revenue) than for the mining and transport & storage sectors (717 tonnes and 580 tonnes of CO₂ –e per \$ million of revenue respectively).

⁵ Unadjusted, nominal sales revenue data has been used to calculate emissions intensities. Sales revenue data from the ABS, 8155.0, *Australian Industry*, 2005-06, has been used to determine total 2005 sales revenue for the chemical industry; other non-metallic products sector; iron & steel products sector; basic non-ferrous metal products sector; and the agriculture, forestry & fishing industry.

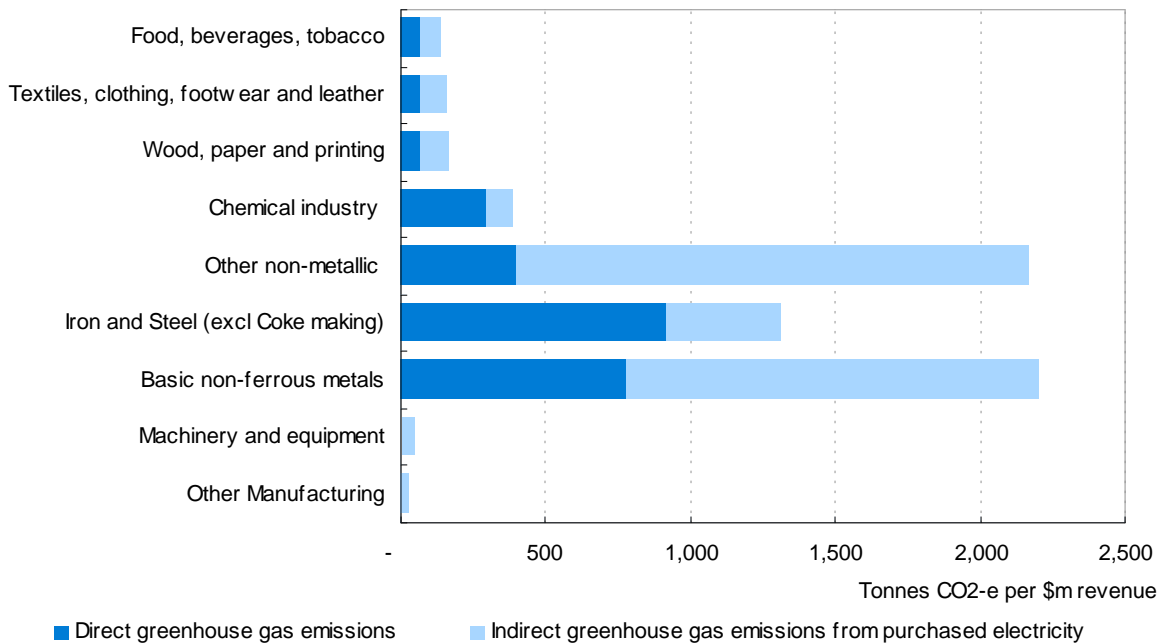
The emissions intensities per \$ million of sales revenue for the commercial services and construction sectors were relatively low (just 70 tonnes and 24 tonnes of CO₂ –e per \$ million of revenue respectively).

Chart A3: Direct and Scope 2 Emissions per \$ million of Revenue, 2005



The total of direct and indirect greenhouse gas emissions, as a proportion of sales revenue, for each of the sub-sectors of manufacturing are illustrated in Chart A4.

Chart A4: Direct and Scope 2 Emissions per \$ million of Revenue by Manufacturing Sub-Sector, 2005



The emissions intensity rankings of the basic non-ferrous metal products and other non-metallic products industries were highest under the revenue measure (2,201 tonnes and 2,171 tonnes of CO₂ –e per \$ million of revenue respectively). Direct emissions accounted for a larger proportion of total emissions in the basic non-ferrous metal products sector (35%) than in the other non-metallic products sector (18%).

The emissions intensity of the iron and steel products industries ranked third with an emissions intensity of 1,310 tonnes of CO₂ –e per \$ million of revenue.

On average, every \$ million in sales revenue for the chemicals sub-sector mining was associated with the emission of 386 tonnes of CO₂ -e.

The emissions intensities of other manufacturing industries were significantly lower than the four highest ranking sub-sectors.

Table 3 presents the estimated volume of direct and Scope 2 emissions in 2005, as a proportion of real production (or value added) by broad economic category and for the sub-sectors of manufacturing.⁶

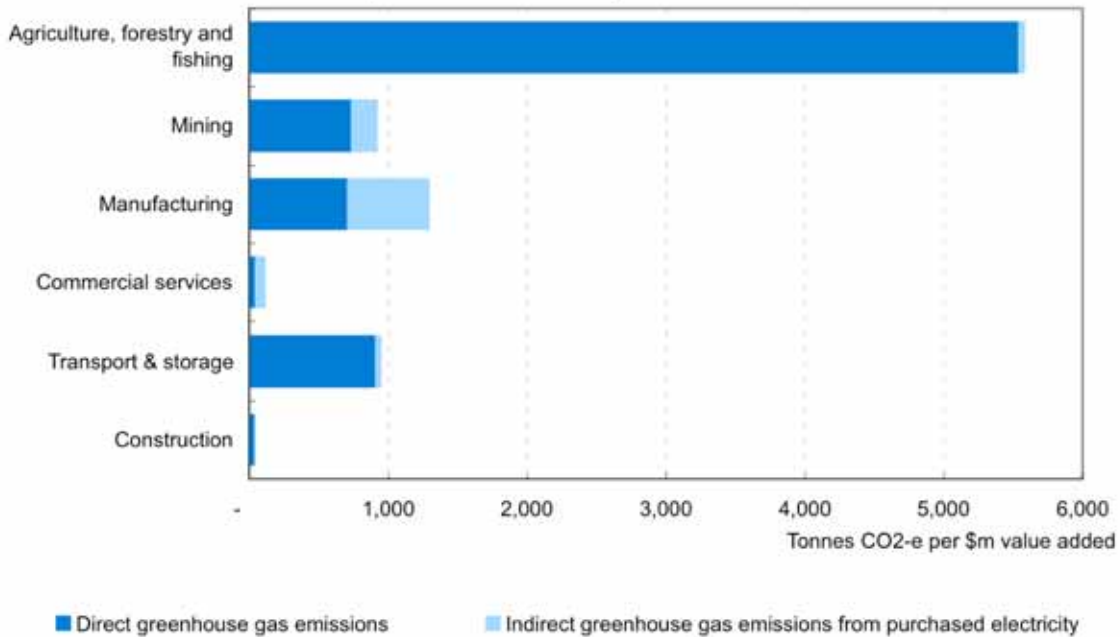
⁶ Unadjusted, real gross value added data has been used to calculate emissions intensities. Data from the ABS Cat. No. 8155.0, *Australian Industry*, 2005-06, has been used to determine total 2005 value added for the chemical industry; other non-metallic products sector; iron & steel products sector; basic non-ferrous metal products sector; and the agriculture, forestry & fishing industry.

Table A3: Direct and Scope 2 Emissions per \$ million of Value Added, 2005

ANZSIC code	Industry Classification	Direct Greenhouse Gas Emissions	Scope 2 Emissions	Combined Direct and Scope 2 Emissions
		Tonnes CO2-e per \$m value added	Tonnes CO2-e per \$m value added	Tonnes CO2-e per \$m value added
Div A	Agriculture, forestry and fishing	5534	52	5586
Div B	Mining	730	195	925
Div C	Manufacturing	700	597	1297
21	Food, beverages, tobacco	245	258	503
22	Textiles, clothing, footwear and leather	170	224	394
23-4	Wood, paper and printing	145	198	343
252-6	Chemical industry	1444	453	1897
264	Other non-metallic	1170	5180	6350
271	Iron and Steel (excl coke making)	3120	1316	4436
272-3	Basic non-ferrous metals	2638	4815	7453
28	Machinery and equipment	26	111	137
29	Other manufacturing	4	61	65
Div F-H, J-Q	Commercial services	39	78	116
Div I	Transport & storage	903	49	952
Div E	Construction	31	14	45

Source: Australian Greenhouse Emissions Information System: www.climatechange.gov.au/inventory, Australia's National Greenhouse Accounts – National Inventory Economic Sector 2006 and ABS Cat. No. 5206.0 *Australian National Accounts: National Income, Expenditure and Product*, June 2008.

Chart A5: Direct and Scope 2 Emissions per \$1m of Value Added, 2005



In Table A4 the ranking of sectors’ emissions intensities under the sales revenue and value added measures is compared.

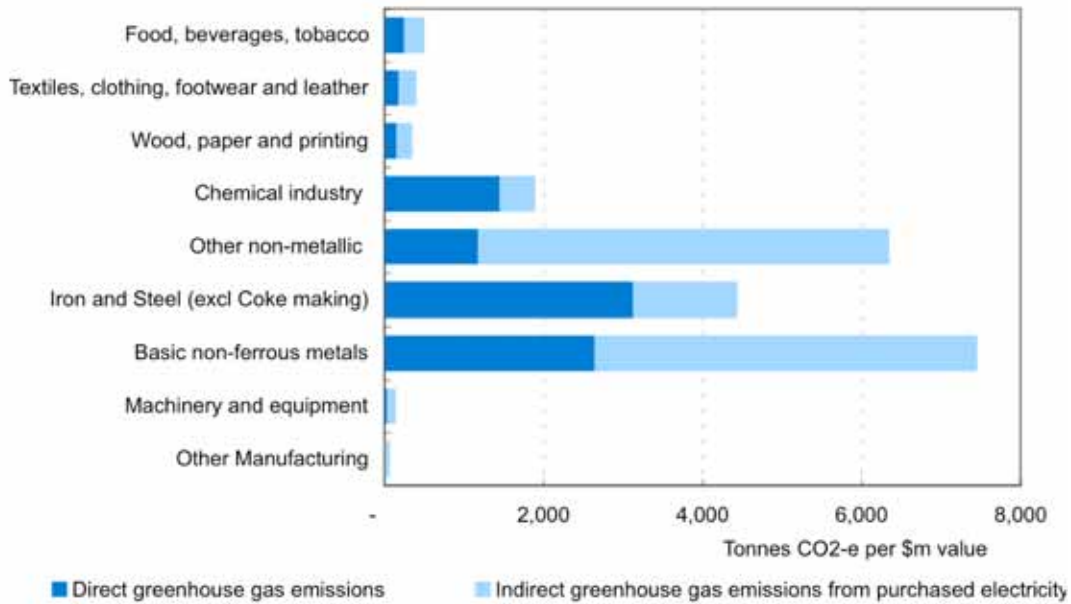
Table A4: Sector Ranking of Emissions Intensities by Sales Revenue and Value Added

	Emissions Intensity Ranking (1 is highest)	
	Sales Revenue	Value Added
Agriculture, forestry and fisheries	1	1
Mining	2	4
Manufacturing	4	2
Commercial Services	5	5
Transport & Storage	3	3
Construction	6	6

Source: Tables A2 and A3 above.

The two approaches to measuring emissions intensities produce different rankings. Mining, which ranks second to agriculture under the revenue measure, ranks fourth under the value added measure. The opposite is true of manufacturing which ranks as relatively more emissions intensive under the value added measure.

Chart A6: Direct and Scope 2 Emissions per \$1m of Value Added by Manufacturing Sub-Sector, 2005



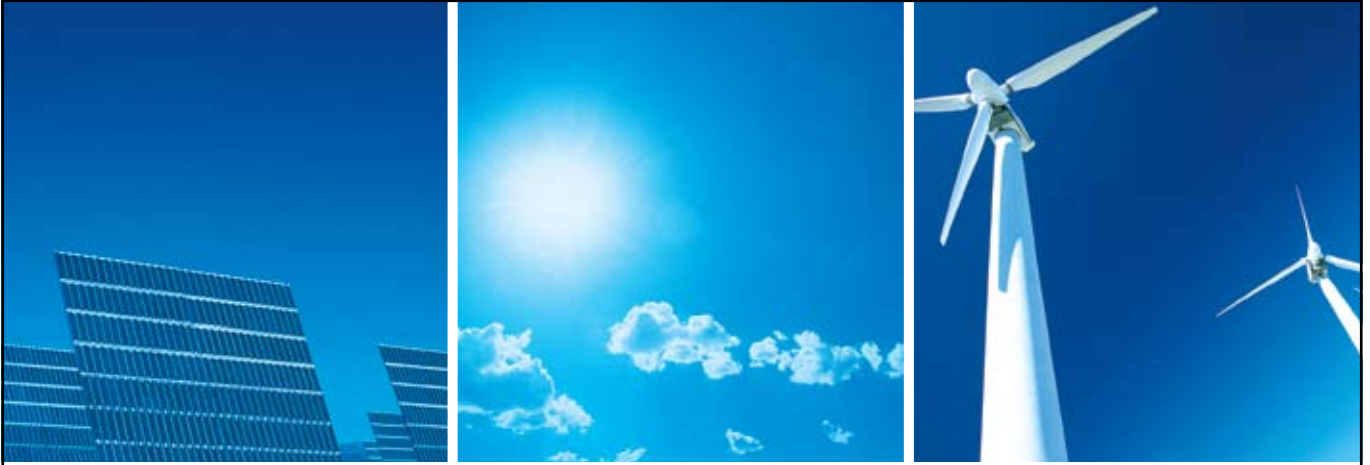
In Table A5 the ranking of the emissions intensities under the sales revenue and value added measures is compared.

Table A5: Sector Ranking of Emissions Intensities of Manufacturing Sub-Sectors by Sales Revenue and Value Added

	Emissions Intensity Ranking (1 is highest)	
	Sales Revenue	Value Added
Food, beverages and tobacco	7	5
Textiles, clothing, footwear and leather	6	6
Wood, paper and printing	5	7
Chemical industry	4	4
Other non-metallic products	2	2
Iron and Steel (excluding coke making)	3	3
Basic non-ferrous metals	1	1
Machinery and equipment	8	8
Other manufacturing	9	9

Source: Tables A2 and A3 above.

As with the sector level data, the two approaches to measuring emissions intensities produce different rankings. The relative positions of the food, beverages and tobacco industries and the wood paper and printing industries shift under the two measures.



AUSTRALIAN INDUSTRY GROUP

www.aigroup.asn.au

Ai GROUP METROPOLITAN OFFICES

SYDNEY

51 Walker Street
North Sydney
NSW 2060
PO Box 289
North Sydney
NSW 2059
Tel: 02 9466 5566
Fax: 02 9466 5599

MELBOURNE

20 Queens Road
Melbourne VIC 3004
PO Box 7622
Melbourne VIC 8004
Tel: 03 9867 0111
Fax: 03 9867 0199

BRISBANE

202 Boundary Street
Spring Hill QLD 4004
PO Box 128
Spring Hill QLD 4004
Tel: 07 3244 1777
Fax: 07 3244 1799

CANBERRA

44 Sydney Avenue
Forrest ACT 2603
PO Box 4986
Kingston ACT 2604
Tel: 02 6233 0700
Fax: 02 6233 0799

Ai GROUP REGIONAL OFFICES

ALBURY/WODONGA

560 David Street
Albury NSW 2640
PO Box 1183
Albury NSW 2640
Tel: 02 6021 5722
Fax: 02 6021 5117

BALLARAT

15 Dawson Street Sth.
Ballarat VIC 3350
PO Box 640
Ballarat VIC 3353
Tel: 03 5331 7688
Fax: 03 5332 3858

BENDIGO

92 Wills Street
Bendigo VIC 3550
Tel: 03 5443 4810
Fax: 03 5443 9785

GEELONG

'La Cabine'
1 Yarra Street
Geelong VIC 3220
PO Box 638
Geelong VIC 3220
Tel: 03 5222 3144
Fax: 03 5221 2914

NEWCASTLE

16A Bolton Street
Newcastle NSW 2300
PO Box 811
Newcastle NSW 2300
Tel: 02 4929 7899
Fax: 02 4929 3429

WOLLONGONG

Level 1,
166 Keira Street
Wollongong NSW 2500
PO Box 891
Wollongong East
NSW 2520
Tel: 02 4228 7266
Fax: 02 4228 1898

**AFFILIATE
ADELAIDE**

Engineering Employers Association
South Australia
136 Greenhill Road
Unley SA 5061
PO Box 767
Unley SA 5061
Tel: 08 8300 0133
Fax: 08 8300 0134

**AFFILIATE
PERTH**

Chamber of Commerce & Industry
Western Australia
180 Hay Street
East Perth WA 6004
PO Box 6209
East Perth WA 6892
Tel: 08 9365 7555
Fax: 08 9365 7550