

Inquiry into Increasing Value-adding to Australian Raw Materials

Australian Coal Association

Submission to

The House of Representatives Standing
Committee on Industry, Science and
Resources

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Australian
Coal
Association



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Introduction

The Australian Coal Association (ACA) welcomes the opportunity to make a submission to the Standing Committee on Industry, Science and Resources' (the Committee) inquiry into increasing value-adding to Australian raw materials. The ACA represents companies that produce around 95% of Australia's black coal.

In this submission, the ACA:

- outlines the long-term role of coal in the Australian economy, including its contribution to providing a competitive advantage to value-adding industries;
- provides information about the impact of the proposed Kyoto commitments
- summarises the initiatives the coal industry is pursuing in relation to greenhouse gas emission reductions and energy efficiency

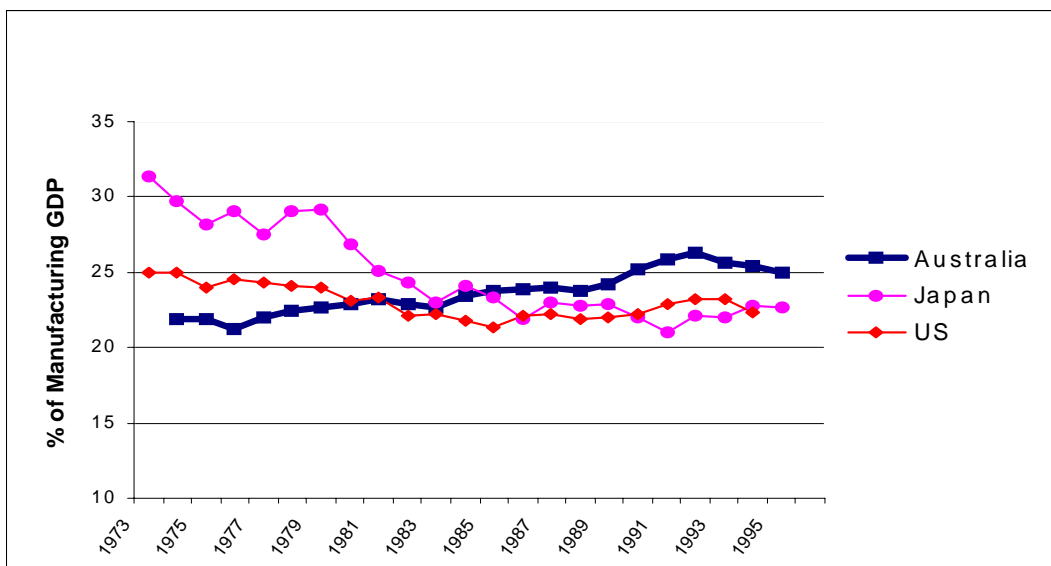
Role of coal

Black coal plays a significant role in meeting a substantial proportion of the world's and Australia's energy supply needs and, having regard for the aim of reducing greenhouse gas emissions, it will continue to play an important role throughout the 21st century. Key features of the Australian industry are described in **Box 1**.

The Australian coal industry is at the heart of Australia's comparative advantage in increasingly 'globalised' world commodity markets and, as such, is important in realising the aspirations of Australians for ongoing improvements in their living standards. Australia's comparative advantage in these industries exists because of abundant high value coal and mineral resources, the opportunities for value-adding minerals processing, the scope for further productivity improvement and our proximity to growing regional markets for coal in countries that need an inexpensive source of energy to underpin their economic development. In this context, Australian coal is critical for allaying the concerns about energy security which are understandably prominent in Japan, Korea, Taiwan and other key Australian trading partners.

The growing contribution that coal has made to wealth creation in Australia is partly illustrated by the share of raw material production and processing in total manufacturing GDP. **Figure 1** compares the trends in Australia, Japan and the USA (and the trends in most OECD countries mirror the USA or Japan) for the role raw materials production and processing plays in the manufacturing sector. The upward trend to over 25% in Australia is on the back of low priced coal-fired electricity and, in the case of Western Australia, the introduction of natural gas. Of course, the remainder of manufacturing also benefits from low cost coal-fired electricity.

Figure 1: Raw material share of manufacturing GDP



Source: Schipper et al, *Energy Use in Australia in an International Perspective, for the IEA*

Box 1: Key features of the Australian black coal industry

Black coal production is generally classified according to its end use:

- *steaming coal* is primarily used for electricity generation and cement;
- *coking coal* is a major input to the iron and steel industry;
- Australian black coal production is roughly evenly divided in terms of quantity between steaming coal (58%) and coking coal (42%).

Australia has about 120 black coal mines:

- about half are surface (open cut) and half underground;
- NSW produces around 42% of coal underground, Queensland produces about 84% by open cut;
- Queensland and New South Wales, which account for about 96% of Australian production, produce about the same amount of black coal;
- black coal is also mined in Western Australia, South Australia and Tasmania.

Australia is the fifth largest producer of black coal worldwide:

- it produced 238 million tonnes of saleable coal in 1999;
- around 72% of Australia's production is exported;
- black coal is Australia's largest export industry;
- Australia is the world's largest coal exporter, accounting for almost 35% of world seaborne coal trade;
- in 1999, at a value of over \$9.2 billion, coal accounted for about 10% of Australia's exports and more than 1.5% of GDP.

Employment in the industry at December 1999 was 18,888, a significant reduction on the level in the mid-1990s. This fall has been due to the dramatic improvements in productivity levels, which in turn were necessary for mines to remain viable in fiercely competitive markets.

The industry benefits all Australians by facilitating the delivery of low cost energy (generally in the form of electricity) to households and to business, particularly value-adding minerals processing.

Kyoto Protocol implications

Notwithstanding the important role coal will play in the future, the construct of the Kyoto Protocol and the size of the greenhouse gas constraint proposed for Annex I countries suggest two key implications for the Australian black coal industry, and for energy intensive value-adding industry:

- domestic measures applied by Australia, such as a national emissions trading scheme, to meet our Protocol commitments, will lower demand for coal by electricity generators and industries such as iron and steel and cement manufacture as these value-adding industries lose competitiveness to operators in non-Annex I countries; and
- if other Annex I countries meet the commitments assigned by the Protocol, the value of Australian coal and mineral exports will be reduced, both because of the direct reduction in demand by Annex I countries and the greater competitiveness, and less environmental efficiency, of non-Annex I producers.

The combination and extent of these *domestic effects* and *trade effects* of the Protocol is perhaps unique to the coal industry (other industries will generally be subject to one or other of the effects, but not both). These impacts on the Australian coal industry, and the resultant impacts on dependent regional communities, should be well understood before Australia commits to the Protocol.

For Australia as a whole, it is important to recognise that Australia's Kyoto Protocol assigned amount (108% of 1990 emissions) does not make Australia's task any easier than for other countries. This is because of our expected high rate of population growth and economic growth, and the energy intensive structure of our export oriented economy. For example, based on projections of population growth, **Table 1** shows that Australia's task is greater than the EU's — on a per capita basis our assigned amount

is only 86% of our 1990 per capita equivalent, while the EU's is 88%. In addition, within the 'EU bubble' individual countries have been assigned emission budgets that are far greater than Australia's (Portugal 27%, Greece 25%, Spain 15% and Ireland 13%).

Table 1: Comparison of Australia's and the EU's assigned amounts

	Australia	EU
1990 emissions (Mt CO ₂ -e)	515	3159
Population growth: per annum (%)	1.15	0.21
1990-2010 (%)	25.7	4.30
2010 emissions at 1990 per capita rates (Mt CO ₂ -e)	647	3294
Assigned amounts (Mt CO ₂ -e)	556	2906
Assigned amount as a % of 1990 per capita emissions	86	88

The Kyoto Protocol domestic impact

The 28% of Australian black coal production that is consumed domestically is principally used for electricity generation. In this role, it is an important contributor to Australians having amongst the lowest priced electricity in the world (second only to South Africa as reported in a survey carried out by the Electricity Supply Association of Australia)¹. This not only benefits us all as consumers but also provides a crucial competitive advantage supporting employment in all sectors of the economy — and notably in value-adding industries like metals smelting, which are electricity intensive.

Table 2 illustrates that the domestic market for coal is dominated by steaming coal production (59.9Mt). In 1999, black coal supplied the energy sufficient to produce 56% of total electricity generation in Australia.

Table 2: Australian Black Coal Production 1999

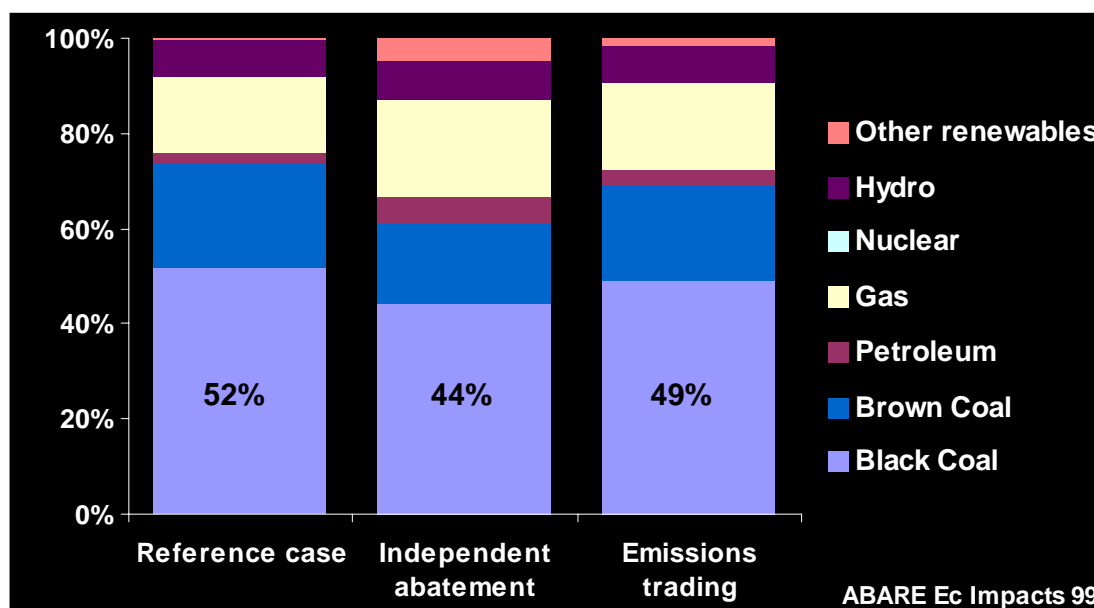
BLACK COAL PRODUCTION	For Domestic Market	For Export Market	Total
Steaming Coal	59.9 Mt (43%)	77.8 Mt (57%)	137.7 Mt
Coking Coal	6.7 Mt (7%)	93.8 Mt (93%)	100.5 Mt
Total	66.6 Mt (28%)	171.6 Mt (72%)	238.2 Mt

Forecasts suggest that black coal will remain the most important source of energy for electricity generation in Australia, including in the event Australia complies with its Kyoto Protocol commitments in the period 2008-12.

Figure 2 illustrates that the fuel share for power generation in 2010 will change if the Kyoto commitments are fully complied with, but that black coal is likely to remain the single most important source of energy and should continue to supply more than 40% of fuel for power generation in Australia. ABARE estimates that, if the Protocol were not to enter into force (the pre-Kyoto reference case), black coal would supply 52% of all fuel for power generation in 2010. If the Kyoto Protocol is complied with, and if there were international emissions trading, black coal's share of the market would fall some 3 percentage points. In a worse case scenario, if Australia elected to take independent abatement action (that is, emission abatement without the flexibility of purchasing lower priced emission permits from other Annex I countries), black coal's share in power generation could be reduced to 44%.

¹ In *Electricity Australia '99* published by the ESAA.

Figure 2: Australia's fuel share for power generation in 2010



While black coal-fired electricity will retain the largest share of the electricity market, it will be a smaller market than would otherwise be the case. In particular, 'carbon leakage' will be an important influence on electricity demand in Australia as new investment in aluminium, cement and other energy intensive minerals processing industry tends to shift offshore to non-Annex I countries.

It is important to recognise that one of the characteristics of the Australian market that currently contributes to low electricity prices is the relatively high baseload demand for electricity in Australia. This baseload demand is associated with activities like aluminium smelting. To the extent that growth in major baseload electricity consuming industries declines relative to other consumers of electricity, the average price of electricity is bound to rise (and compound the effect on industry competitiveness).

The Kyoto impact on the export market

Over the last two decades, annual world coal demand has grown by over one billion tonnes (**Box 2** provides some key statistics). In response, Australia's black coal production has increased four-fold since 1970, when more than half of total production was for domestic use. By 1999, more than 90% of coking coal and nearly 60% of steaming coal was exported (see **Table 2** above).

Australia's proven success as a black coal exporter is attributable to:

- our abundant supplies of high quality coal;
- coal deposits are easily accessible;
- the skills of the industry's management and employees;
- the use of modern equipment and technology;
- coal deposits are relatively close to shipping ports;
- the established rail and port facilities;
- the proximity to major Asian coal markets; and
- Australia's reputation as a reliable supplier.

Australia's major competitors in the export market are, for steaming coal, South Africa, Indonesia and China and, for coking coal, the USA, Canada, China and Indonesia.

Box 2: Key features of the international coal market

Black coal provides around 26% of global primary energy needs and generates about 37% of the world's electricity:

- countries that depend on coal for electricity generation include Poland (96%), South Africa (88%), China (81%), India (75%) and the USA (55%);
- some 70% of total global steel production is dependent on coal, and about 600mt (16%) of total global black coal production is currently used by the steel industry.

Total global black coal production in 1999 was about 3,435 million tonnes:

- however, today, one third of the world's population still lacks access to reliable, low cost energy;
- for many people living in developing countries, modern coal-fired electricity would provide the most viable energy source and most feasible access to an improved standard of living and contribute to improved environmental outcomes.

In 1999, Australian black coal exports had a total value of \$ 9.2 billion.

In 1999, of total exports of 171.6 million tonnes, more than three quarters were exported to Asia:

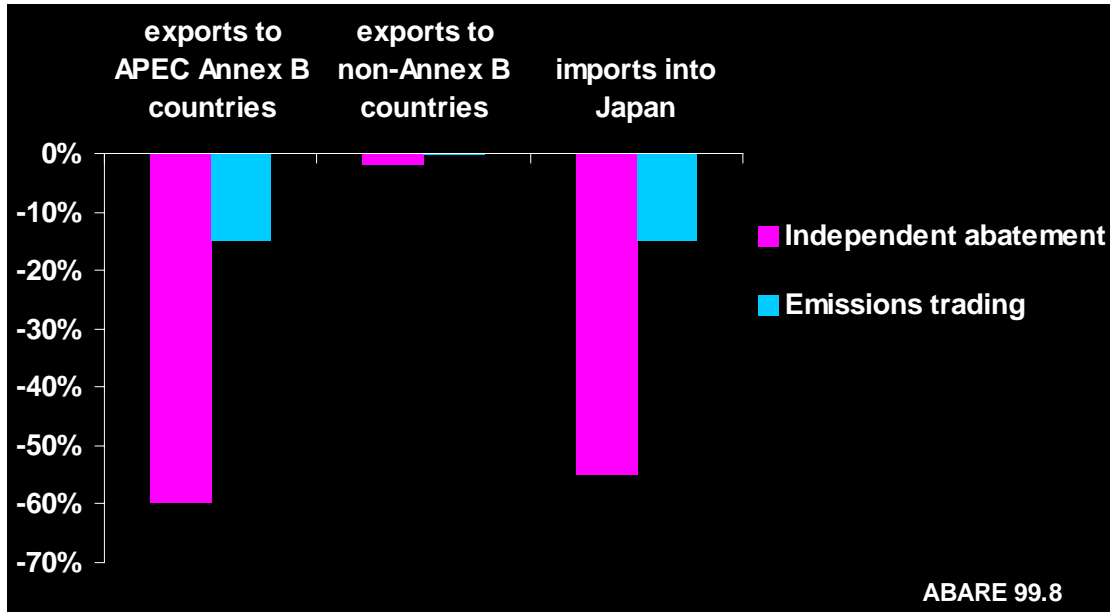
- Japan alone took 46% (79.7Mt);
- other major export markets in Asia were South Korea (23.2Mt) and Taiwan (13.8Mt);
- the remaining export coal goes to Europe (27.1Mt) and smaller amounts to the Middle East, Africa and Latin America.

Future demand for coal is expected to be highest in the Asian region. China currently accounts for about 30 % of world black coal consumption and this is forecast by the International Energy Agency to rise to 37.5 % by 2020. Projected coal demand for power generation in a 'business-as-usual' scenario suggests that in South-east Asian countries coal consumption will rise by between 4 and 6.4 % per year until 2020. The concentration of growth for coal demand in Asia — largely unaffected by the Kyoto Protocol commitments (except to the extent world economic growth is lower than would otherwise be the case) — is potentially an important asset for Australia's export economy, but will also represent a leakage in value-adding industry to those countries.

ABARE's 'business-as-usual' scenario assumes that the black coal industry achieves improvements in productivity at broadly the same rate as achieved since 1990. In this 'reference case' scenario, steaming coal exports are forecast to rise by 30 % between 1997-98 and 2009-10, and coking exports by 20 %. Should the Kyoto Protocol come into force, the implications for the Australian coal export industry are significant. While the opportunities remain in non-Annex I Asian countries, Japan our largest customer substantially reduces its demand for Australian coal. As illustrated in **Figure 3**, ABARE expects compliance with Kyoto to have significant impacts on coal exports from Annex I countries, including Australia, and on coal imports by Annex I countries, notably our biggest customer, Japan.

In a worst case scenario with independent abatement (that is, without the Protocol flexibility mechanisms), ABARE estimates that coal exports from APEC Annex I countries (including Australia) to other APEC Annex I countries (including Japan) will be 60 % lower in 2010 than in the reference case. In particular, demand for coal in Japan declines dramatically as a result of the need to meet that country's ambitious assigned amount of 94 % of 1990 emissions. Exports from Annex I countries to non-Annex I countries would also decline, but only by less than 2 %. This relatively insignificant decline reflects the major design flaw in the construct of the Protocol — the exclusion of non-Annex I countries from emission abatement commitments. Because the Protocol encourages 'carbon leakage' to take place, emission intensive industries will tend to migrate to non-Annex I countries.

Figure 3: APEC Coal Exports, 2010 versus Reference Case

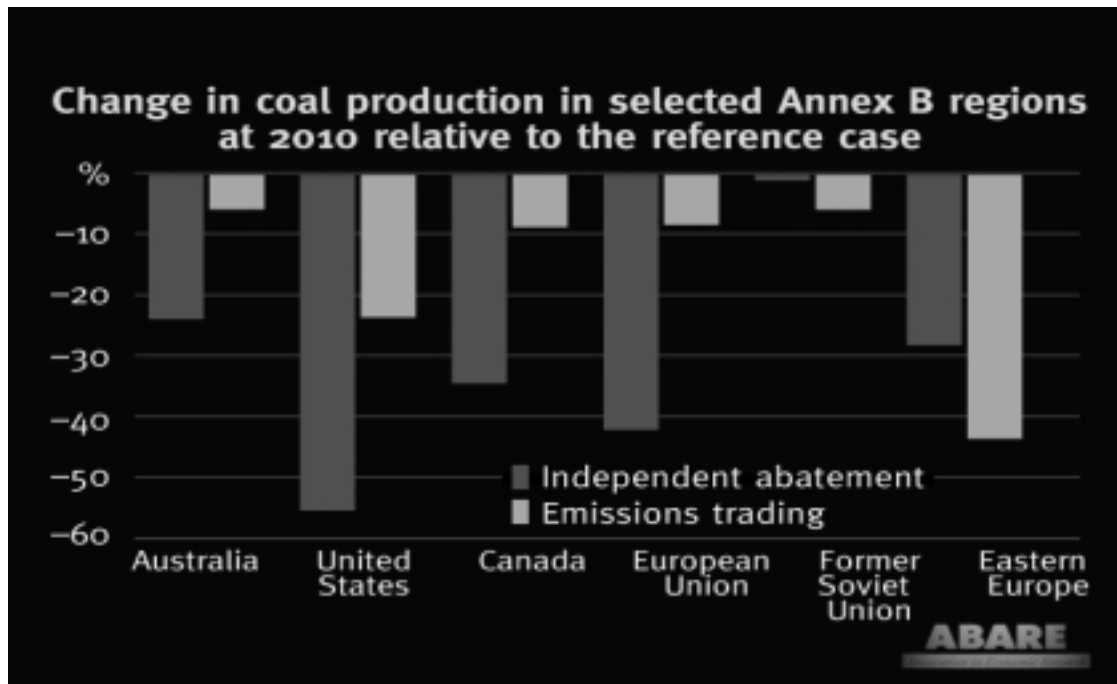


In a scenario with international emissions trading, the effects are substantially less severe. Nevertheless, there is still a significant impact on trade in coal in terms of quantities and prices, both combining to reduce Australian export income.

The combined domestic and trade effects of Kyoto

While estimates are not yet available from ABARE on the quantum of the impact of the Kyoto Protocol on income and employment in the Australian coal industry, the Bureau has published estimates of the reduction in coal production (see **Figure 4**). The 24 % reduction in the independent abatement case implies an absolute decline in Australian black coal production in 2010 of just under 5 % compared with 1999 levels of production.

Figure 4: Impact on coal production in Annex B countries.



The Kyoto impact on regional Australia

Recent research by the Allen Consulting Group for the Minerals Council of Australia (Meeting the Kyoto Target: Impact on Regional Australia) demonstrates the significant implications for a number of regions in Australia of meeting Australia's assigned Kyoto budget. In NSW and Queensland, the regions in which coal production and mineral processing feature prominently (Hunter, Central West, Illawarra and Fitzroy) are forecast to be significantly impacted:

- employment in the Hunter and Central West of NSW would be almost 5% down on the business as usual case
- in the Illawarra the reduction is around 2.5%
- and in the Fitzroy region, the reduction is almost 10%

The La Trobe Valley in Victoria also sees an employment decline of around 10%.

The coal industry commitment to reducing emissions

The ACA believes Australia — encompassing governments, industry and the community — is responding to the global climate change challenge in a manner that compares favourably with any other country.

The Federal Government has climate change funding programs amounting to almost \$1 billion covering the \$180 million in programs announced by the Prime Minister in November 1997, the \$400 million in programs associated with *A New Tax System*, plus hundreds of millions in other renewable energy, forestry, alternative fuels and energy efficiency programs. In addition, there are complementary State programs being developed under the National Greenhouse Strategy.

However, simply adding up the amount of government funding leads to a substantial underestimate of the true extent of Australia's effort. All of the government programs induce voluntary or mandate action by industry and others in the community. Whether it be through the voluntary Greenhouse Challenge program or the mandatory 2% renewables electricity generation legislation, in companies all around Australia, management skills and real dollars are being invested in greenhouse abatement and sink enhancement activities.

Australian coal producers have been aware of the need to manage their greenhouse gas emissions since the publication of the first ACA position paper on the issue in 1990. The ACA was one of the core group of industry organisations that developed with government the Greenhouse Challenge and the ACA signed a Greenhouse Challenge Cooperative Agreement in October 1997.

Under the Cooperative Agreement, the greenhouse challenge for the coal industry is to significantly decrease the rate of greenhouse gas emissions per tonne of product coal over the period to 2010. Individual companies will meet this challenge through their own initiatives — indeed, many companies with coal mines have their own Cooperative Agreements.

There is also a range of actions that are best taken at an industry level. The ACA has commitments under the Cooperative Agreement to:

- assist and encourage members to enter and participate effectively in the challenge — about 80% of production is now covered by companies which have signed agreements
- encourage the small producers to participate through what is known as Tier 2 and small to medium enterprise procedures — the ACA and the Greenhouse Challenge Office are undertaking individual company visits and have held workshops and seminars;
- provide direction on issues relevant to greenhouse gas emissions — a major study on the management and abatement of emissions has been completed for the ACA by the CSIRO which, among other things, describes the size, source and uncertainty of current emissions from coal mining (fugitive emissions may be significantly greater than currently estimated in the Greenhouse Gas Inventory), identifies R&D opportunities, and identifies uniform measurement and reporting of emissions;
- financially and administratively support R&D programs — through the Australian Coal Research Program (ACARP), which is 100% funded by the industry, financial support for R&D on greenhouse issues has been a priority since 1992. In the period 1992 to 1996, ACARP spent some \$24 million on environment and greenhouse R&D projects and in 1999 ACARP committed finance of \$700,000 to assist R&D into abatement projects worth \$1.8 million. It is worth noting that ACARP research includes work on more efficient generation of electricity from coal, notably via gasification technologies which could reduce CO₂ emissions by more than 20%; and

- assist the Greenhouse Challenge Office to develop case studies of best practice in emission abatement and energy efficiency. In relation to energy efficiency, the Department of Industry, Science and Resources has funded a benchmark study in which 90% of Australian mines took part. That study found that, while energy use forms a small fraction of greenhouse gas emissions compared with fugitive emissions from mining, there is undoubted scope for efficiency improvements at many mines given energy consumption in the range of 0.1 to 0.7GJ/tonne of saleable coal.

Other industry initiatives include:

- a proposal to establish a CRC for Coal in Sustainable Development;
- a R&D program focused on the Life Cycle Analysis of the emissions from coal compared with other energy sources; and
- proposals under the Government's Greenhouse Gas Abatement Program to establish projects to reduce emissions from mining, with the capture and utilisation of waste coal mine methane emissions designated as an industry priority.

This is an extensive program and will result in significant improvements in emission rates per tonne of produced coal at least-cost to the competitiveness of the industry. It is worth noting that the fugitive greenhouse gas emission rate in 1990 was about 0.097 tonnes CO₂-e per tonne of raw coal produced and in 1998 the rate had fallen to about 0.070 tonnes CO₂-e per tonne of coal product, an improvement of about 28% ².

Conclusion

Meeting the Kyoto Protocol commitments will impose costs on the coal industry that are likely to be disproportionately more severe than for any other sector or community group. This disproportionate incidence of the Kyoto burden would fall not only on coal industry enterprises, but also on their workforce and on the regional communities linked to coal mining.

A great deal of work needs to be done by governments to understand and measure these impacts, particularly in terms of their social and equity implications. In the absence of any countervailing government measures, the coal community will bear a disproportionate share of Australia's Kyoto burden. These are communities that are already under significant pressure from restructuring of industry and from rationalisation of services to regional Australia. They are the communities of the Hunter, Illawarra and Lithgow areas in NSW, and of the Bowen Basin in Queensland where unemployment rates remain high.

Similarly, as Australia loses its comparative advantage in value-adding minerals processing because of relatively higher electricity prices, meeting the Kyoto Protocol commitments will significantly and adversely influence the objective of this Committee's deliberations.

The ACA's recommendation to the Committee is that until there is certainty about:

- the final conditions of the Kyoto Protocol, including the definitions of land use change and sinks, compliance conditions and the rules for flexibility mechanisms (International Emissions Trading, Joint Implementation and Clean Development Mechanism);
- the ratification intentions of other Annex I countries;
- the intentions of non-Annex I countries; and
- the conditions to apply in second and subsequent budget periods,

it is not possible for the community to make an informed judgement about whether ratification of the Kyoto Protocol would be in Australia's national interest. Further, ACA suggests that the community may not be in a position to make that informed judgement for several years.

While this submission emphasises the implications of the Kyoto Protocol, the ACA would point out to the Committee that government policies on taxation, labour market reform, and continued microeconomic reform of energy, rail and other markets and infrastructure will remain crucial to value-adding industry competitiveness. The ACA has recognised a re-emerging trend for governments to intervene in markets and infrastructure development, or to slow down necessary microeconomic reform, all at some cost to Australia's competitiveness. This approach leads to inefficient markets, and wasteful policies and programs that attempt to pick winners by providing 'special' incentives for some or by imposing discriminatory impediments on others (the role of the Strategic Investment Coordinator, the 2%

² Raw coal production in 1990 was 163mt and fugitive emissions are estimated at 15.9mt. Raw coal production in 1998 was 266mt and fugitive emissions are estimated at 18.68mt.

renewables legislation, and the mandating of 13% gas-fired electricity consumption in Queensland are examples of this policy approach).

Governments need to return to the main task of establishing sound market frameworks with a minimum of government regulation and intervention.