SENATE ENVIRONMENT, COMMUNICATIONS, INFORMATION TECHNOLOGY AND THE ARTS REFERENCES COMMITTEE

Inquiry into Australia's Response to Global Warming

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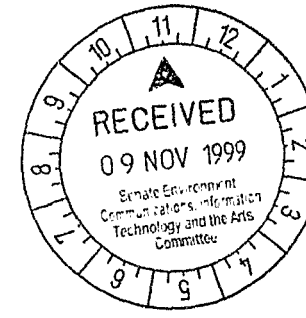
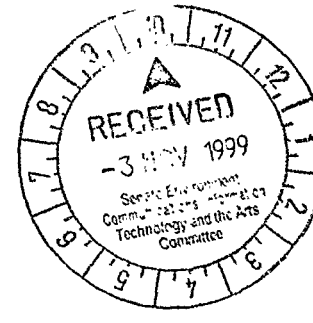


Australia Institute Submission Number 1

Greenhouse gas emissions per capita of Annex B Parties to the Kyoto Protocol

Submission to Senate References Committee on Environment

Inquiry into Australia's Response to Global Warming



4 November 1999

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Executive Summary

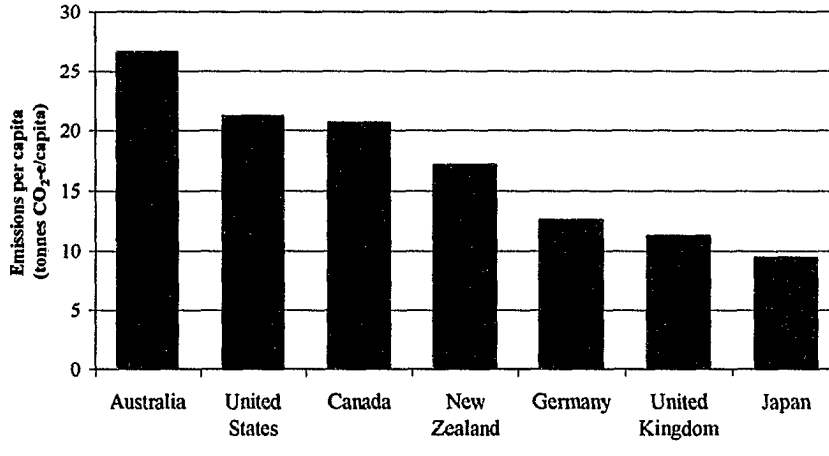
The international debate on climate change is heavily influenced by notions of fairness and justice. One of the most important principles referred to internationally is that of polluter pays. The most common interpretation of polluter pays is that national targets for the reduction of greenhouse gas emissions should be based on the level of emissions per person.

This paper reports new calculations of total greenhouse gas emissions per person for all 35 Annex B parties to the Kyoto Protocol, i.e. the industrialised nations that have signed up to emissions reduction targets.[1] The calculations are based on the official communications submitted by the various nations to the UN. They apply to emissions of the three main greenhouse gases (carbon dioxide, methane and nitrous oxide) in 1995 from all sources and all sinks measured in carbon dioxide equivalents (CO_2-e).

The results show that Australia has the world's highest greenhouse gas emissions per person at 26.7 tonnes; this is twice the average level for all other wealthy countries (13.4 tonnes) and 25% higher than emissions per person in the USA (21.2 tonnes).

While the USA has higher emissions per capita from energy (20.6 tonnes compared to Australia's 17.6 tonnes), Australia has much higher levels of emissions from agriculture and land-use change.

Net greenhouse gas emissions per capita for selected countries, 1995



[1] This report is part of a larger study of the contribution of population growth to the past and future growth of Australia's greenhouse gas emissions being conducted in conjunction with the Centre for Population and Urban Research at Monash University. The full study will be published in the December issue of *People and Place*.

1. The polluter pays principle

Notions of fairness and justice underpin international negotiations to reduce greenhouse gas emissions. The concepts of burden sharing and 'common but differentiated responsibilities' enshrined in the UN Framework Convention on Climate Change (UNFCCC) are based on the widespread belief that nations that have contributed most to the problem of climate change should do most to solve it.

One of the most important principles referred to internationally is that of polluter pays. The most common interpretation of polluter pays is that national targets for the reduction of greenhouse gas emissions should be based on the historical contribution of each nation to global emissions. The most important factor in determining this contribution is the level of emissions per capita. A number of studies of burden sharing or differentiation have identified emissions per capita as the foremost criterion on which emission reduction targets should be based (for example, Elzen *et al.* 1999; Torvanger and Godal 1999; Walz *et al.* 1997). Other criteria include: the ability to pay (usually measured by GNP per capita), emissions intensity of output and dependence on fossil fuels.

Due to measurement difficulties, perception of emissions per capita have to date been based on energy emissions only, and on this basis it is widely believed that the USA has the world's highest emissions per capita. However, the provisions of the UNFCCC require Parties to compile and submit to the UN systematic and comprehensive inventories of emissions from all sources and sinks. The availability of these data on a consistent basis for Annex B (industrialised) countries now makes it possible to make a more thorough comparison of national emissions.

2. The data

Table 1 presents total emissions by sector for each Annex B country in 1995. It also presents 1995 population and per capita emissions. Figure 1 presents graphically the size and breakdown of per capita emissions for all Annex B countries. For those countries where the Land-Use Change and Forestry (LUC&F) sector is a net sink, the block of sequestered emissions below the zero line must be subtracted from the emissions above the line to obtain net emissions per capita. Figure 2 presents the same information as Figure 1 for selected Annex B countries.

The information presented in Table 1 and Figures 1 and 2 has been obtained from an Addendum to the Second compilation and synthesis of national communications presented under the Review of the Implementation of Commitments and of Other Provisions of the Convention (referred to from now on as UNFCCC 1998).[2]

The emissions information presented in Table 1 and Figures 1 and 2 represents carbon dioxide-equivalent (CO_2-e) emissions of the three main greenhouse gases – carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Emissions of these gases are reported consistently and are available for almost all countries (UNFCCC 1998, Tables A.1., A.2., A.6., A.7., A.8. and A.9.). Emissions of other greenhouse gases (HFCs, PFCs and SF_6) are not included because a number of Annex B countries have not reported these emissions (UNFCCC, Table A.10.). Although potent greenhouse

[2] FCCC/CP/1998/11/Add.2, http://www.unfccc.org/resource/docs/cop4/11a02.pdf

gases, the contribution made by these gases to total CO_2-equivalent emissions is relatively small. For example, in Australia these gases contributed 0.3% to 1996 CO_2-equivalent emissions (NGGIC 1998, p. xviii). Emissions of the three main greenhouse gases were converted to carbon dioxide equivalents using the global warming potentials reported by the Intergovernmental Panel on Climate Change (NGGIC 1999, p. vi, xiv) and aggregated according to source (see Table 1).

Emissions of CO_2 from the land-use change and forestry sector (LUC&F) are also incorporated into Tables 1 and Figures 1 and 2 (UNFCCC 1998, Table A.5.). The UNFCCC did not report the emissions of other gases (CH_4, N_2O etc.) from this sector.

A number of sources of greenhouse gas emissions have been excluded from this analysis. Emissions from international bunkers (fuel used in international shipping and aviation) are excluded because they are not included in national inventories. Greenhouse gas precursor gases and SO_x are also excluded from these calculations. Precursor gases comprise carbon monoxide (CO), oxides of nitrogen (NO_x) and non-methane volatile organic compounds (NMVOC).

There are several Annex B countries that did not report 1995 emissions information to the UNFCCC, requiring the use of emissions data for these countries from earlier years. In the case of the Ukraine, Slovenia and Lithuania the most recent emissions data were from 1990. For Belgium, Poland, Portugal, the Russian Federation and Spain 1994 data were used. For Germany and Japan a combination of 1995 and 1994 data were used. Monaco reported 1996 data instead of 1995.

An important point to note is that a number of countries did not report emissions and removals for some sectors, particularly LUC&F. The UNFCCC noted an inconsistency in methods of reporting LUC&F emissions (UNFCCC 1998, Table A.2.). Canada, Greece, Iceland and Monaco did not report emissions or removals from the LUC&F sector at all (at least in a form that satisfied IPCC guidelines). Estimates of Sweden's 1995 LUC&F emissions were not available so 1992 estimates were used. Finland reported a range of emissions estimates to account for 'cultivated peatlands and non-viable drainage areas' (UNFCCC 1998, Table A.5.) so an average was used. Australia was the only country to report the Forest and Grassland Conversion (F&GC) subsector of LUC&F separately. This subsector was responsible for 'an additional 80,972 Gg of CO_2 in 1995' (UNFCCC 1998, Table A.5.).

Omissions existed for other sectors as well. Spain reported an estimate of '2,657 Gg of emissions [of CO_2] from waste' that was 'not included in the Party's national total'. Instead, Spain included an estimate of 863 Gg CO_2 in its national total, which 'included emissions resulting from both non-renewable waste and torches in the chemical industry and refineries.' (UNFCCC 1998, Table A.2.). Spain also reported 17,554 Gg CO_2 of emissions from agriculture for information purposes only (meaning it is not included in their inventory). Sweden, Finland, Iceland and Estonia did not report estimates for fugitive emissions of CH_4. Similarly, Monaco did not provide estimates of CH_4 or N_2O emissions from any sector, but indicated such emissions were negligible (UNFCCC 1998, Table A.7., Table A.9.).

3. Results

The results show that Australia has the world's highest greenhouse gas emissions per person at 26.7 tonnes; this is twice the average level for all other industrialised countries (13.4 tonnes) and 25% higher than emissions per person in the USA (21.2 tonnes).

While the USA has higher emissions per capita from energy (20.6 tonnes compared to Australia's 17.6 tonnes), Australia has much higher levels of emissions from agriculture and land-use change. Australia's emissions from land clearing fell sharply between 1990 and 1995, and it is likely that the difference between Australia and the USA in the earlier year would have been greater than in 1995. The year 1990 is especially important because it is the base year for calculating mandatory emission targets in the commitment period 2008-2012 under the Kyoto Protocol.

In descending order, the six nations with the highest per capita emissions are: Australia (26.7), Luxembourg (24.2), USA (21.2), Canada (20.6), New Zealand (17.3) and Ukraine (16.7). The next five countries have emissions per capita of 14 to 15 tonnes. Luxembourg's very high emissions are due to the presence of a large steel plant. New Zealand has low energy emissions (due to the predominance of hydro-electricity) but very high emissions from agriculture (due to the large number of sheep). These are offset to some extent by the net sink provided by forests in that country.

Among larger countries at the other end of the scale, France (7.8), Germany (12.6), Spain (7.1), Italy (9.0) and Japan (9.5) are notable. Their low emissions are due to a combination of energy efficiency, industrial structure and the use of nuclear power.

References

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Walz, R. *et al.* 1997. *Derivation of internationally comparable reduction targets for the Annex-I countries of the Climate Convention*, Study commissioned by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Fraunhofer Institute for Systems and Innovation Research, Karlsruhe, May.

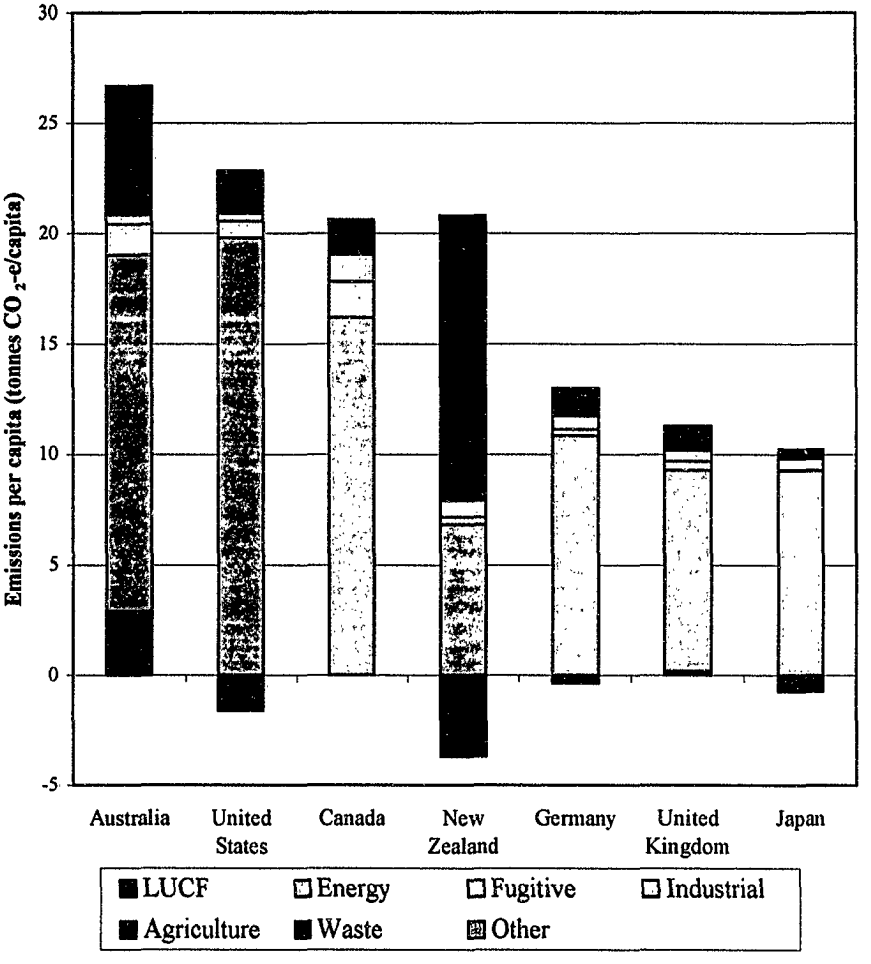
Table 1 Total emissions, breakdown by source and per capita emissions for Annex B countries , 1995 (Mt CO_2-equivalents)[a]

	Energy		Industry	Agricult-ure	Waste	LUC&F	Other	Total	Population 1995 (millions)	Per capita emissions (t CO_2-e/ capita)
	Fuel combustion	Fugitive								
Australia	291.77	25.58	7.45	87.36	16.36	51.87	1.55	481.94	18.07	26.67
Austria	50.05	2.46	11.49	5.41	4.63	-13.58	4.13	64.59	8.06	8.01
Belgium[c]	112.83	0.95	14.27	11.52	4.99	-2.06	0.06	142.56	10.14	14.06
Bulgaria	59.34	5.57	8.18	3.40	10.96	-7.52	0.06	79.98	8.41	9.51
Canada	478.96	48.20	36.34	25.04	19.47	0.00	3.31	611.32	29.62	20.64
Czech Republic	130.37	8.51	5.22	3.45	3.02	-5.45	0.30	145.42	10.33	14.08
Denmark	58.91	0.71	1.31	16.17	1.55	-0.96	0.46	78.14	5.23	14.94
Estonia	20.93	0.00	0.22	0.84	0.67	-13.27	0.00	9.39	1.49	6.30
Finland	57.33	0.08	1.77	4.64	2.79	-10.50	0.08	56.19	5.11	11.00
France	365.79	14.33	40.79	48.88	19.15	-46.80	9.93	452.06	58.14	7.78
Germany[e]	885.13	24.57	50.31	61.52	39.90	-30.00	0.00	1031.43	81.66	12.63
Greece	84.79	1.03	8.33	8.37	2.77	0.00	0.00	105.29	10.45	10.08
Hungary	58.97	6.62	2.28	3.06	6.11	-4.80	0.00	72.23	10.23	7.06
Iceland	1.77	0.08	0.46	0.29	0.04	0.00	0.01	2.65	0.27	9.81
Ireland	33.27	0.23	2.58	19.28	2.95	-6.23	0.75	52.83	3.6	14.68
Italy	425.20	10.07	29.31	41.84	21.65	-24.51	12.39	515.95	57.3	9.00
Japan[e]	1162.10	3.55	68.65	20.65	28.54	-94.62	1.51	1190.38	125.57	9.48
Latvia	12.16	0.46	0.13	5.81	0.64	-10.48	0.04	8.76	2.52	3.48
Lithuania[b]	37.75	0.55	2.64	7.15	3.49	-8.85	4.09	46.81	3.72	12.58
Luxembourg	9.16	0.04	0.41	0.51	0.08	-0.30	0.01	9.92	0.41	24.19
Monaco[d]	0.08	0.00	0.00	0.00	0.05	0.00	0.00	0.13	0.03	4.30
Netherlands	183.66	3.57	7.61	18.31	9.13	-1.70	1.48	222.06	15.46	14.36
New Zealand	24.95	1.19	2.74	44.33	2.77	-13.49	0.20	62.69	3.66	17.13
Norway	29.89	2.35	8.52	3.88	6.78	-13.64	0.34	38.12	4.36	8.74
Poland[c]	365.18	18.90	13.76	22.87	17.96	-41.95	0.23	396.94	38.59	10.29
Portugal[c]	47.92	0.26	4.01	6.33	13.77	-1.15	0.27	71.41	9.92	7.20
Russian Fed[c]	1607.27	297.20	24.37	114.53	41.04	-568.00	9.95	1526.37	148.2	10.30
Slovakia	45.99	2.25	3.43	4.24	1.45	-5.12	0.19	52.42	5.37	9.76
Slovenia[b]	13.60	1.07	0.64	2.35	1.60	-2.29	1.79	18.75	1.99	9.42
Spain[c]	221.62	13.41	18.85	37.64	15.30	-28.97	0.04	277.88	39.21	7.09
Sweden	56.29	0.02	5.17	4.20	1.28	-30.00	0.25	37.21	8.83	4.21
Switzerland	40.95	0.34	2.71	5.84	2.85	-5.10	0.12	47.72	7.08	6.74
Ukraine[b]	671.17	130.81	33.70	50.50	19.68	-51.98	7.25	861.12	51.55	16.70
United Kingdom	533.77	23.94	28.93	26.19	38.44	9.95	1.53	662.75	58.61	11.31
United States	5206.40	202.49	96.43	268.23	236.44	-428.00	0.00	5581.99	263.17	21.21
Total	13385.31	851.36	542.98	984.59	598.30	-1409.50	62.33	15015.37	1106.36	13.57

a: Main gases (CO_2, CH_4, N_2O), excluding bunkers and non-CO_2 emissions from LUC&F. Year is 1995 unless stated otherwise.
b: 1990 data c: 1994 data d: 1996 data
e: Combination of 1994 and 1995 data
Note: there are a number of instances where countries did not report emissions and emissions have been counted as zero.

Source: UNFCCC 1998. Population data obtained from IEA 1997, p. 48–57. Monaco's population was obtained from http://www.monaco.monte-carlo.mc/us/presentation/index.html.

Figure 1 Greenhouse gas emissions per capita by source for selected countries, 1995



Note: For those countries where the LUC&F sector is a net sink, the block of sequestered emissions below the zero line in the figure must subtracted from the emissions above the line to obtain net emissions per capita.

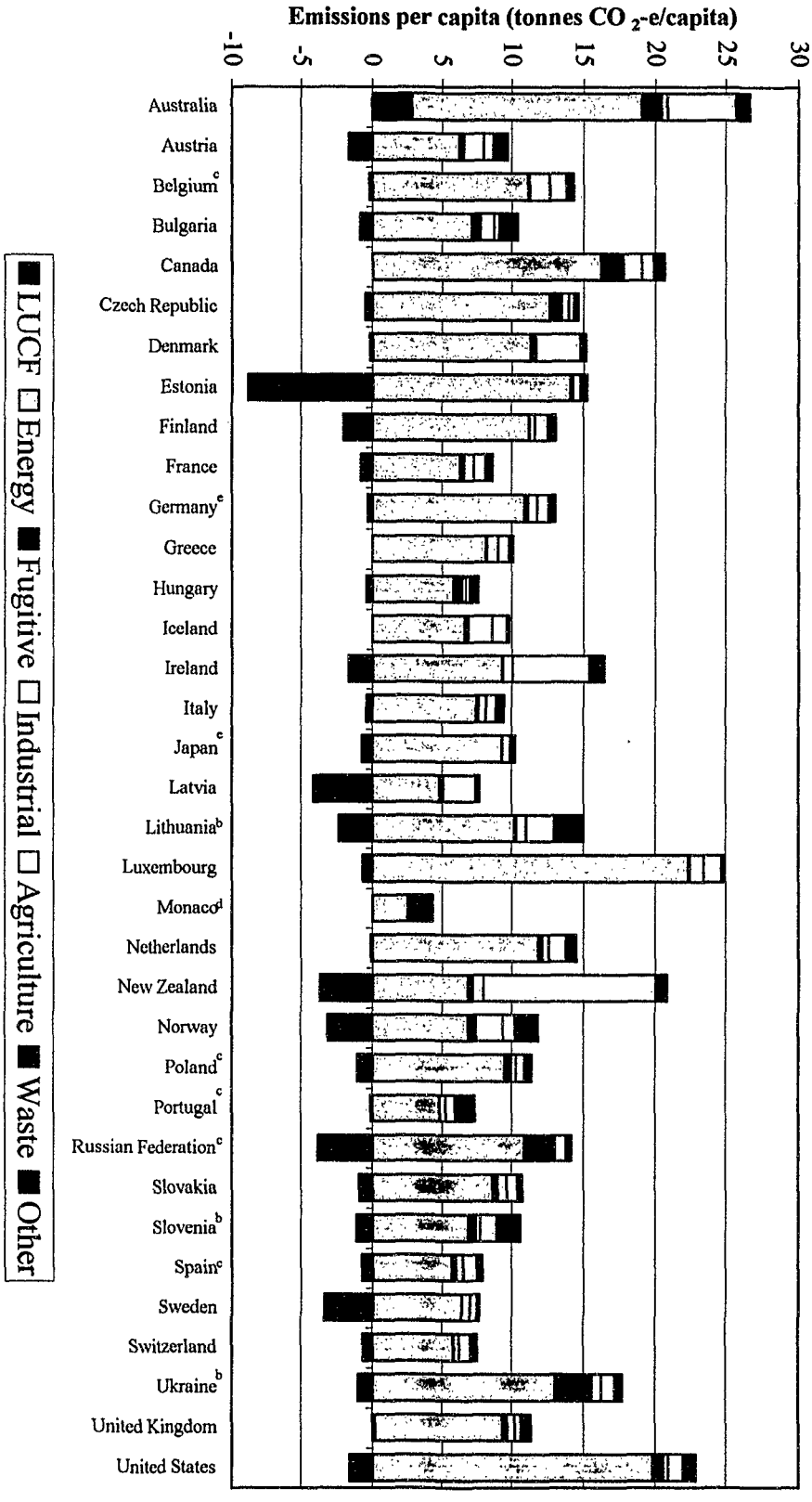


Figure 2 Emissions per capita by source for Annex B countries, 1995

Note: For description of footnotes, refer to Table 1.

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FOR A JUST, SUSTAINABLE, PEACEFUL FUTURE

Mr Richard Selth
Secretary
Senate Committee for Environment,
Communications, Technology & the Arts
Parliament House ACT 2600

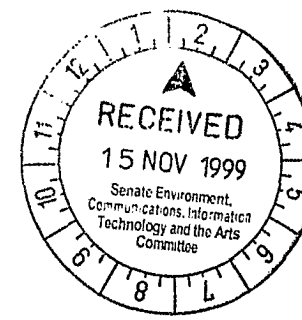
12th November 1999

Dear Mr Selth

Please find enclosed a copy of The Australia Institute's second submission to the Senate Inquiry into Australia's Response to Global Warming. As indicated in our letter dated 27 October 1999 we will be making further submissions. Electronic versions of all submissions are available on request.

Yours sincerely

Hal Turton
Research Fellow
The Australia Institute



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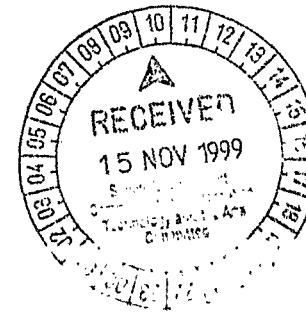
Australia Institute Submission Number 2

Common Misconceptions in the Climate Change Debate

Submission to Senate Environment References Committee

Inquiry into Australia's Response to Global Warming



12 November 1999

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Introduction

This submission responds to a number of misconceptions, misunderstandings and myths that are frequently heard in the debate over climate change. The ones dealt with in this submission are listed below and dealt with in turn. The Australia Institute will provide more detailed submissions on some of these issues.

1. Australia's fossil-fuel dependence makes it harder for us to cut our emissions
2. Reducing Australia's emissions is more difficult because we rely on exports of coal
3. Australia contributes little to global greenhouse gas emissions
4. Australia's emissions are high because we are a big country
5. The Kyoto Protocol accepted Australia's 'differentiation' position
6. Developing countries 'refused to sign' the Kyoto Protocol
7. Plantations provide an excellent opportunity for Australia to offset emissions
8. Emissions trading allows polluters to escape their responsibilities by planting trees
9. Emissions trading gives polluters the right to pollute
10. Policies that increase energy prices will see industry move out of Australia
11. Firms that are cutting their emissions should be given credit for early action

1. Australia's fossil-fuel dependence makes it harder for us to cut our emissions

The Australian Government consistently claims that our high level of fossil fuel dependence means that measures to cut emissions will be more costly for Australia than other Annex 1 countries. A little thought reveals that in fact the opposite is more likely to be the case. In determining the cost of emission reductions, the key test is not the relative amount of fossil fuel burnt but how efficiently a country burns it. As an economy reduces its emissions it will start with the cheapest abatement measures (energy savings) and then move to the more expensive measures by replacing energy-using equipment and switching from high-emission sources such as coal to low emission sources such as natural gas and nuclear power. Thus countries that have been reducing their reliance on fossil fuels for some time will probably have eliminated the least efficient uses of fossil fuels first. This was the case in Japan when faced by the oil shocks in the 1970s and early 1980s when oil prices doubled overnight. Similarly, countries that have built nuclear power plants have tended to replace the least efficient coal-fired plants.

As an analogy, it is sometimes said that in reducing emissions people will at first 'pick the low-hanging fruit'. If more fruit is wanted then more effort must be expended getting it from the higher branches. Compared to most other OECD countries, Australia has not yet picked the low fruit.

The reason that it would cost relatively little for Australia to cut emissions is that fossil fuels in Australia are cheap and abundant. This was the message of the OECD's International Energy Agency when it reviewed Australia's energy economy. It is also the message of the most comprehensive analysis of Australia's energy efficiency performance, carried out by the foremost expert in the area, Lee Schipper of the IEA and Lawrence Berkeley Laboratories.[1] The analysis concluded that, while the story varies from sector to sector, overall Australia's energy efficiency performance over 1973-1994 has been poor compared to other OECD countries, with energy intensities falling by around 1% each year compared to 1.5% to 2.7% in other countries. The situation has been worse in the 1990s.

Even the Government's own MEGABARE model results, which formed the basis for some extraordinary claims by the Government before Kyoto, actually showed that the economic cost of a 15% cut in emissions would be tiny. The model results in 1995 indicated that real Gross National Expenditure (GNE) would fall below the 'business-as-usual' path by amounts ranging from -0.27% in the year 2000 to -0.49% in 2020. This does not mean that the *growth rate* of GNE is lower by these amounts, but that the absolute levels of real GNE are lower by these amounts. This is a very small change by any standard. One way of understanding the size of the costs predicted by MEGABARE is to compare them to income levels in the future. If the Australian economy grows on average by 3.5% then per capita incomes will reach double their current levels around 1st January 2025. If Australia adheres to its international commitments and reduces its

[1] The report, commissioned by the former DPIE, has not yet been released, although it was drafted two years ago.

emissions then, according to the MEGABARE estimates, the doubling of per capita incomes will have to wait until around 1st March 2025, a delay of two months, and that was before Australia received a generous target at Kyoto.

Economic modelling by the Australian Government that purported to show that Australia would be hardest hit by uniform emission reduction targets failed to persuade other Parties.[2] The Australian economic modelling results were flatly contradicted by modelling carried out by the US Government in 1997. The US study estimated that Australian GDP would fall by 0.5% at its peak in 2010 as a result of measures to stabilise greenhouse gas emissions at 1990 levels, less than other industrialised countries except the USA. Some of the results of the US study are summarised in the table.

US Governments estimated impacts on GDP of stabilisation of emissions at 1990 levels

Country	2005	2010
Australia	-0.2%	-0.5%
Canada	-0.4%	-1.1%
Japan	-0.2%	-0.6%
Western Europe	-0.2%	-0.7%
United States	-0.1%	-0.2%

Source: Interagency Analytical Team 1997 (US Government)

2. Reducing Australia's emissions is more difficult because we rely on exports of coal

Exports of fossil fuels have no impact on Australia's greenhouse gas emissions because emissions count in the country where the fuels are combusted. Only energy used in mining and transporting fuels appear in Australia's emissions inventory. Coal exports are therefore not relevant.

Decisions by other countries to cut their emissions by reducing their usage of coal, and therefore their imports of coal from Australia (and elsewhere), will have an economic cost in Australia. Some economic models suggest that around half of the cost of uniform emission reductions would arise from declining demand for Australian coal, while the other half would arise from measures to reduce emissions in Australia. Australia can have no influence over the way in which other countries meet their targets; it is simply part of the changing international trading environment.

[2] Or indeed economists in Australia, 131 of whom (including 16 full professors of economics) in 1997 signed a statement criticising the Government's modelling and declaring that '[p]olicy options are available that would slow climate change without harming employment or living standards in Australia, and these may in fact improve Australian productivity in the long term'.

Australian liquefied natural gas exports are in a different situation. Natural gas production is very energy intensive (due mainly to the liquefaction process) and results in substantial greenhouse gas emissions. However, exports of natural gas substitute for the use of coal in other countries and therefore help reduce global emissions.

3. Australia contributes little to global greenhouse gas emissions

It is sometimes argued that since Australia is responsible for only around 1.4% of total global greenhouse gas emissions, we should not worry too much about reducing them. This argument is fallacious and even dangerous in its implications. Firstly, if the world were made up of 71 nations all of whom were responsible for 1.4% of global emissions, then no-one would take any action. More importantly, this argument has no moral basis. As an analogy, Kerry Packer could argue that since his taxes amount to only 0.01% of all tax collections in Australia, it will not make any difference if he refuses to pay his taxes. But we know that Mr Packer's refusal to pay would undermine the integrity of the tax system, and many others would refuse to pay.

The whole international climate debate is infused with issues of justice, and progress is possible only if each nation is seen to be doing its fair share. As a wealthy nation with the highest per capita emissions in the world, Australia must be seen to do its fair share, otherwise other nations, no matter how big their emissions, will feel less obligation to do their fair share. This reasoning underpinned the extraordinary lengths the world's negotiators were prepared to go to at Kyoto to ensure that Australia did not break the consensus and withdraw from the treaty. If a wealthy nation with high per capita emissions refused to adopt emission reduction targets, it would be impossible to persuade developing countries to adopt targets in subsequent commitment periods.

4. Australia's emissions are high because we are a big country

Some people have vague notions about Australia being a wide brown land with long distances to transport goods and that this means that our greenhouse gas emissions must be higher than other, more compact countries. These beliefs are misconceived.

Australia is a large country, but around 62% of all fuel used for land travel is consumed in urban areas. Of the remainder, a proportion is used for travelling within and around towns not classified as urban. Relatively little is used on long-distance travel. Most of the fuel used in passenger cars is for travel in urban areas (around 70%). Similarly, around 60% of rigid truck and light commercial vehicle fuel use occurs in urban areas. Only for large trucks and buses is more fuel used in non-urban areas (21% and 38% urban, respectively).

Of course, almost all air travel and most sea travel takes place outside urban areas, but these modes consume less than 10% of the total fuel used in transport. If Australia's use of transport is large it is because of a dependence on passenger vehicles for urban travel. These passenger cars are also particularly inefficient. In the late 1990s the average Australian car was getting about the same number of kilometres per litre as the average

car in 1971. The reality is that most Australians do not spend their time driving across the wide brown land, but sitting in traffic jams in the congested brown city.

All of the above factors lead to transport producing around 16.8% of Australia's total greenhouse emissions (excluding land clearing). The percentage of energy-related greenhouse gas emissions (i.e., emissions from fuel combustion) from transport in Australia is around the OECD and European Union average, and is less than the percentage in Canada, New Zealand, the UK and the USA.

In summary, most travel in Australia occurs in urban areas and, accordingly, the size of our country has only a small impact on total travel requirements. Secondly, when compared to other developed countries, the share of emissions from transport in Australia is about average. There is nothing particularly special about our country that can be blamed for our transport emissions, other than our lifestyle and urban planning choices.

5. The Kyoto Protocol accepted Australia's 'differentiation' position

The Australian Government argued vigorously in the lead up to the Kyoto conference that since Australia is heavily dependent on fossil fuels for export revenue, and relies on fossil fuels as the chief source of domestic energy, uniform emissions reductions targets would be very costly and would impose a disproportionate economic burden on Australia compared to other Annex 1 countries. It advocated a form of 'differentiation', that is, allocation of different targets for Annex 1 countries on the basis of 'equal economic cost per capita' for each Annex 1 country. Australia would, under the this proposal, have more lenient targets than most other countries.

A number of other differentiation proposals were discussed at Kyoto. At the broadest level, the principle of differentiation holds that nations should be allocated emission targets according to some principle of fairness. Parties would adopt targets reflecting national circumstances including their contribution the problem of climate change.

The Kyoto Protocol endorsed emission targets ranging from 92% to 110% of 1990 emissions for Annex B (industrialised) countries, an outcome that clearly differed from the uniform percentage reduction proposal that the European Union adopted as its negotiating position going into the conference. But the fact that national targets varied does not mean that principle of differentiation was adopted. The Kyoto outcome certainly does not reflect the Australian Government's particular set of differentiation criteria.

To demonstrate this it is only necessary to note that Japan (with a target of 94% of 1990 emissions), the USA (93%) and the European Union (92%) – which together account for 70% of all Annex B emissions – accepted targets that differ by only 2%. This difference of 2% stands in contrast to wide differences in national circumstances. Per capita emissions range from 7.8 tonnes per person in France and 9.5 tonnes in Japan up to 21.2 tonnes in the USA, and per capita incomes range from US$11,300 in Greece to US$27,000 in the USA (see the table). Adherence to any of the differentiation criteria that have been discussed internationally would require much more divergence in targets.

Country	Polluter pays tCO_2/an/capita	Ability to pay US$/capita/an
Japan	9.5	21,930
United States	21.2	26,979
France	7.8	21,176
Germany	12.6	20,370
Italy	9.0	20,174
Greece	10.1	11,265
United Kingdom	11.3	19,302
Australia	26.7	19,632

The rest of the world had a very different conception of fairness under differentiation to that of Australia. It was summarised by a Norwegian delegate:

> Parties should take their share of the burden in proportion to their relative contribution to the climate change problem. Those who currently emit more than their fair share should thus contribute more. Also, Parties that have greater capacity, economic or otherwise, to deal with the problem, should in principle do more than other Parties to reduce emissions (Dovland 1997).

Both of these principles – polluter pays and ability to pay – would have seen Australia assigned more stringent targets than most other countries, rather than more lenient targets. Indeed in 1997, a German Government study considered various principles and criteria that have been suggested as the basis of a 'fair' allocation of national targets. The criteria were selected from the international literature and included emissions per capita, level of wealth, emissions intensity of output, dependence on primary energy, national climate characteristics and dependence on fossil fuels. Five variants combined these criteria in different ways. The study then asked how each Annex 1 country would fare if each variant were used to assign differential targets so that overall emission in all Annex 1 countries fell by 15%. The study concluded that under any feasible differentiation proposal, far from it being given more lenient targets, Australia would have more *stringent* targets.

It is true to say that the Australian proposal for differentiated targets received no serious consideration from the rest of the world. It was seen as self-serving and not based on any recognised principles of equity. It is quite untrue to suggest that because Australia received a very generous target that the Parties acknowledged the strength of the Australian case. At Kyoto the targets for the big three – USA, EU and Japan – were set by intense negotiation taking account of a range of economic and political circumstances, and they varied by only 2%. Targets for other parties were set by a pledging procedure reflecting "willingness to pay". In the end, political bargaining based on the threat to withdraw were the means by which Australia achieved its lenient target.

6. Developing countries 'refused to sign' the Kyoto Protocol

The 1995 Berlin Mandate of the UNFCCC declared the formal intent of the parties to the Framework Convention to begin a process leading to the setting of mandatory emission reduction targets. The process begun by the Berlin Mandate culminated at the Kyoto Conference in December 1997. The Mandate's aim was to set mandatory targets for rich countries exclusively. It stated, *inter alia*, that the purpose of the process was the "strengthening of the commitments of the Parties included in Annex 1", i.e. the developed countries, through the adoption of a protocol. The aim was for Annex 1 Parties "to set quantified limitation and reduction objectives within specified time-frames" and specifically said that the process would "[n]ot introduce any new commitments for Parties not included in Annex 1".

The Mandate not only stated that the targets to be set would apply to developed countries alone, but set down the principles that were to guide the process, notably:

> The fact that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that the per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs.

The Berlin Mandate reaffirmed the principle, enshrined in the Framework Convention, that "the developed countries should take the lead in combating climate change and the adverse effects thereof".[3] The mandate reflected universally accepted ethical principles, *viz.* that those countries responsible for increased concentrations of greenhouse gases in the atmosphere should do most to reduce the problem, especially since, being rich countries, they were in a better position to do so. These principles of polluter pays and ability to pay were reinforced by the acknowledgement that while rich countries became rich by burning fossil fuels, poor countries would suffer most of the damage of climate change. There was no challenge to these views.

A few months before the Kyoto Conference conservative forces in the USA opposed to any agreement – the fossil fuel lobby backed by Senate Republicans – suddenly began to argue that it would be 'unfair' and ineffectual if the proposed mandatory targets were adopted by developed countries only, and that no agreement would be acceptable without

[3] The phrase 'common but differentiated responsibilities' was first used in the Framework Convention and reiterated in the Berlin Mandate. As a matter of record it is important to make clear that the phrase referred to the 'common but differentiated responsibilities and respective capabilities' *between developed and developing countries.* It is important to recognise this because the Australian Government used the phrase to give legitimacy to its differentiation argument in the lead-up to the Kyoto Conference. This was intended to give the impression that the Framework Convention and the Berlin Mandate provided the principle on which the Australian case was based. This was a misuse of the wording of the Convention for it was never understood to apply to 'differentiated responsibilities' among the rich countries.

developing countries also signing on to mandatory targets. The Australian Government took the same position as the Senate Republicans.[4]

At Kyoto, these same forces managed through threats and noisy lobbying to make the issue of developing country participation appear to be one of the key negotiating questions, even though no other party took the argument seriously. In response to requests from the USA, Chairman Raoul Estrada repeatedly ruled that the terms of the Berlin Mandate excluded discussion of developing country commitments. Journalists and commentators unfamiliar with the background to the negotiations mistakenly began to write that developing countries 'refused to sign' the Protocol, thus playing into the hands of industry lobbyists.

Since there was never any expectation on the part of the main parties to the Kyoto negotiations that developing countries would or should adopt mandatory targets, it is quite misleading to argue that they refused to sign the Protocol.

7. Plantations provide an excellent opportunity for Australia to offset emissions

The opportunity to use plantations to offset emissions from fossil sources will be much less extensive than many people believe. There is a lot of hype about the opportunities for land holders to establish plantations or woodlots with a view to selling the emission credits in the future. The first fundamental point to recognise is that carbon stored or sequestered in plantations can only count towards the Kyoto target if it meets two conditions:

- the plantations must have been established after 1990, and
- they must be established on land that was cleared before 1990.

If a plantation meets these criteria then it may count towards the Kyoto target. However, in practical terms only large, professionally managed plantations are likely to qualify and be commercially worthwhile. There are two sets of reasons for this.

Firstly, in order to avoid cheating, Parties to the Protocol that include carbon sequestered in trees will have to prove that each plantation passes stringent tests. They will need to be certified, monitored, audited, insured against fire and other events and probably meet a strict liability regime. The need to meet these conditions will impose significant costs on owners of plantations. All of these conditions are still to be worked out and agreed internationally and the Australian Government will have responsibility under the Protocol top ensure that all of the conditions are met.

Secondly, there is a great deal of uncertainty about how much of the carbon stored in suitably certified plantations will actually be eligible to generate an emission credit.

[4] The decision by the Australian Government in 1998 not to ratify the Kyoto Protocol until the US had done so made Australia's foreign policy hostage to the decisions of the US Senate, since the US Government has made it clear it would ratify if it could get it through a hostile Senate.

Since trees only store carbon temporarily, the extent to which they can offset emissions from elsewhere will be closely related to the guaranteed duration of storage. The key question then is how long it takes for the carbon stored to be released back into the atmosphere. Some of the carbon will be released on harvesting from discarded branches and disturbed soils, some at the saw mill as saw dust and wood waste, and the remainder will be stored in products with varying lifespans. Newspaper has a short life span while quality furniture and housing timbers may be deemed to have a life span of, say, 50 years.

One possible rule which may be agreed would be to divide the average life span of stored carbon by 100 years. The IPCC uses 100 years is the time period over which carbon dioxide in the atmosphere has a 'forcing' effect for calculation of Global Warming Potentials of other greenhouse gases. Although some part of a tonne of CO_2 emitted now will remain in the atmosphere after 100 years (with the remainder absorbed by natural marine and terrestrial sinks), a first approximation may be that to offset the warming effect of a tonne of CO_2 emitted now (from fossil fuel say) it is necessary to sequester one tonne of CO_2 for 100 years.[5]

In this case, every 100 tonnes of carbon sequestered in a plantation may generate only 30 or 40 tonnes of emission credits, sharply reducing the commercial viability of plantations for sequestering purposes.

Note that carbon stored in existing forests is outside of the Kyoto Protocol as they are assumed to be in a state of carbon equilibrium. However, if these forests are cut down during the commitment period the resultant 'deforestation' will result in net emissions from the forestry sector which will add to emissions under the Protocol.

8. Emissions trading allows polluters to escape their responsibilities by planting trees

This misconception arises from mixing up two quite independent policy measures – the introduction of emissions trading, and allowing polluters to offset emissions through the development of carbon sinks (especially forest plantations). Emissions trading (of the cap-and-trade variety) requires identified polluters to own permits to cover their annual emissions. These permits can be traded among polluters (and anyone else) with the result that emissions reductions are concentrated in the activities where it is cheapest. Under the terms of the Kyoto Protocol, polluters may be permitted to offset some of their emissions by way of activities that sequester carbon in trees (the principal form of sink activity).

But it is quite feasible for a nation to have emissions trading without any provision for sinks. Similarly, a nation may allow polluters to invest in sinks to offset emissions in the absence of an emissions trading system. In short, a nation could have sinks without trading, and trading without sinks. Thus the arguments used against the use of sinks to

[5] These issues are developed by Mark Jackson, 'Carbon Sharefarming: owning a measured sequestration commodity' (unpublished paper 1999)

meet emissions reduction obligations have no bearing on the merits or otherwise of emissions trading as such.

9. Emissions trading gives polluters the right to pollute

Some people object to emissions trading on the grounds that it appears to give polluters the right to pollute. In fact, polluters already have the right to pollute with greenhouse gases, since there is no legislated or other restriction on polluting activities. Emissions trading is based on the prior imposition of a legally enforced cap on total emissions. Thus, rather than granting the right to pollute, emissions trading *restricts* the right to pollute because in order to do so a polluter must possess a permit. The permit costs money to buy (unless the government gives them away) and is surrendered (or acquitted) when the emissions occur.

Some might argue that there is a distinction between the legal right to pollute and the moral right to pollute, and that although emissions trading may restrict the legal right to pollute it implicitly confers a moral right. While there may be some force to this argument, in the end the limitation of emissions should be the dominating objective. Indeed, any measure that restricts the right to emit greenhouse gases implicitly confers both the legal and the moral right to pollute up to that specified limit.[6]

It is also worth noting that the Kyoto Protocol has vested the emission rights with the governments of the Annex B parties. Since governments are merely constituted authorities rather than physical actors, and as such are not capable of polluting, they must now choose either to give these rights to domestic polluters or require them to buy the rights through an auction.

Emissions trading is often characterized as an 'economic instrument' and contrasted with environmental regulation (sometimes described by the tendentious term 'command and control'[7]). Emissions trading is in fact a combined regulatory and market-based measure. In the case of the cap-and-trade system, an emission trading system is predicated on two facts: a national emissions limits is set in legislation, and identified emitters are required by law to hold emission permits to cover all of their emissions. The national emission limit is specified by the government and determines the total number of permits issued. This process sets a binding limit on total national greenhouse gas emissions. Trading in emission permits then allows the reallocation of this national limit among polluters required to hold permits.

In the case of a baseline-and-credit system, the government determines a baseline of emissions over time for each defined polluter so that the overall emission limitations requirement is met. Emission credits (as opposed to permits) are generated only by reducing emissions below the specified baseline. Polluters may not exceed their defined

[6] The AGO (1999, p. 2) notes a recommendation that emission permits be regarded as licences to emit rather than property rights which may go some way to allaying the objections of those who do not want to confer moral rights.

[7] A term coined by free market advocates and designed to imply the traditional methods have Stalinist overtones.

emissions limit unless they purchase emission credits from another polluter that has reduced emissions below its baseline level. Thus the tradable instrument is only created by deviations from the baseline.

The market aspect of emissions trading only follows the introduction of a major regulatory measure i.e. specification of a maximum level of allowable emissions.

10. Policies that increase energy prices will see industry move out of Australia

It is possible that some firms that must pay more for energy as a result of emission abatement policies will consider shifting offshore to non-Annex B countries. The aluminium industry in particular has threatened to do this on many occasions. If this happened, carbon emitted in Australia would be emitted in another country, a process known as 'carbon leakage'.

While the prospect of some carbon leakage cannot be dismissed, its likely extent has been grossly exaggerated by the fossil fuel-based industries and by ABARE in its modeling. In order to be subject to carbon leakage, firms need to meet three criteria: they need to be energy-intensive in production, they need to be export-dependent (or import-competing), and their competition must come from non-Annex B countries (since all Annex B countries will have emission abatement policies).

The great majority of energy is consumed by industries or activities that are entirely domestic and face no foreign competition – electricity and gas consumed in households, nearly all transportation, the commercial and service sectors of the economy. The major sectors that fall into this category are alumina, aluminium, LNG and steel production. These sectors account for around 10% of Australia's total emissions.

For these sectors, energy prices are certainly not the only consideration in industry location. In addition, corporate decision makers considering shifting operations to developing countries would need to take account of the likelihood that those countries too will need to adopt emission abatement policies in a decade or so as they take on emission reduction obligations. For long-term investments the probability that non-Annex B countries will take on targets in subsequent commitment periods is a relevant consideration.

In a few cases, a good case can be made for some special concessions for exporters, so that the rest of the economy meets the cost of reducing emissions. LNG is a case in point. Although produced using an energy-intensive liquefaction process, it has the potential to replace more emission-intensive fuels worldwide. In such cases, it may be desirable to incorporate special transitional provisions to offset the costs of emission abatement and provide those firms most affected with a longer period over which to adjust.

11. Firms that are cutting their emissions should be given credit for early action

The targets set by the Kyoto Protocol apply to the commitment period 2008-2012. It is over those years that Australia's total emissions cannot exceed, on average, 108% of emissions in 1990. In terms of impact on climate, it is preferable that polluters begin reducing their emissions sooner rather than later as emissions over the period up to 2008 will be lower than otherwise. The question is whether those firms that reduce emissions before the commitment period should get some form of credit for doing so.

Firstly, it should be recognised that nearly all major polluters will bring their emissions down gradually to meet the commitment period deadline; for many, their emissions will peak in the early 2000s. So the 'early action' in question needs to include not just any emissions reductions prior to 2008 but emission reduction beyond levels that would occur anyway to meet the target.

Secondly, the biggest problem with credit for early action is the way in which it might interact with the terms of the Kyoto Protocol. The Protocol does not make any provision for credit for early action. Thus it is not possible to exceed the target level of emissions in the commitment period on the basis of lower emissions prior to 2008.

The best solution to the issue would be the introduction of a domestic emissions trading system for the years prior to 2008 with a specified national path of emissions. Firms that engage in early action would be relieved of the need to pay for as many emission permits and thereby would be rewarded.

The possibility of 'banking' permits, i.e. holding them over to later years, gives rise to a potential problem. Banked Australian permits will not allow Australia to exceed its assigned amount (108%) in the commitment period.[8] The volume of permits issued for the years 2008-2012 cannot exceed 108% of 1990 emissions, and while permits generated from sink and CDM activities will allow an excess of emissions over 108%, surplus domestic permits from earlier years will not.

The solution to this problem is to reduce the volume of emission permits offered in the years of the commitment period by an amount equal to the number of permits banked from earlier years which are available for use in 2008-2012. The system as proposed would give full credit to Australian firms for early action to reduce emissions without compromising Australia's commitment under the Protocol.

[8] The Kyoto Protocol allows for permits unused in the first commitment period to be banked for use in subsequent commitment periods.

SENATE ENVIRONMENT, COMMUNICATIONS, INFORMATION TECHNOLOGY AND THE ARTS REFERENCES COMMITTEE

Inquiry into Australia's Response to Global Warming

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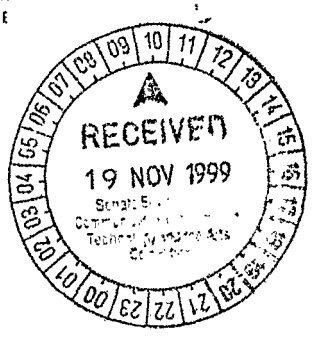

Mr Richard Selth
Secretary
Senate Committee for Environment,
Communications, Technology & the Arts
Parliament House ACT 2600

17th November 1999

Dear Mr Selth

Please find enclosed a copy of The Australia Institute's third submission to the Senate Inquiry into Australia's Response to Global Warming. As indicated in our letter dated 27 October 1999 we will be making further submissions. Electronic versions of all submissions are available on request.

Yours sincerely

Hal Turton
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The Australia Institute Submission Number 3

Subsidies to the aluminium industry and climate change

Submission to Senate Environment References Committee

Inquiry into Australia's Response to Global Warming

17 November 1999

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Contents

Executive summary

The aluminium smelting industry accounts for 16% of greenhouse gas emissions from the electricity sector and 6.5% of Australia's total emissions (excluding land-use change). The aluminium industry has been a strident voice in the debate over climate change policy and has lead industry resistance to effective measures to cut emissions.

The industry argues that it is of great economic importance to Australia, especially for the foreign exchange its exports earn. It frequently threatens governments with the prospect of closing down its Australian smelters and moving offshore if it is forced to pay higher prices for electricity as a result of climate change policies. Since the Kyoto Protocol was agreed in December 1997, it has argued that the burden for cutting emissions should be placed on other sectors of the economy and households rather than being distributed equally across polluting sectors.

In this paper the aluminium smelting industry is examined in detail to test the claims of the industry, and to ask whether Australia would be any worse off if the aluminium smelting industry carried through with its threat to move elsewhere.

Of the total aluminium output of Australia's six smelters, 79% is exported. These exports were worth around A$2.8 billion in 1998. Exports of the entire aluminium industry, including bauxite and alumina, totalled A$6.5 billion. The smelting industry employed around 5350 people in 1995-96 with an average wage of A$41,200 per annum.

Overall, around 59% of the output of the aluminium smelting industry in Australia is foreign owned, with Japanese (17%), British (14%) and US (12%) interests dominant. The level of control is substantially higher.

The prices paid for electricity by aluminium smelters are set in long-term contracts and are a closely kept secret. However, enough information is available to make a good estimate of the extent of subsidies. The general belief in the electricity industry is that smelters pay between 1.5 and 2.5 cents/kWh for delivered electricity compared to around 5-6 c/kWh paid by other large industrial users. The former Victorian Treasurer revealed that other high-voltage customers were paying up to three times the price paid by the two Victorian smelters. The Victorian Auditor-General estimates that in 1997-98 the Victorian Treasury paid $180 million to the State Electricity Commission to subsidise the cost of electricity to the two smelters (Portland and Point Henry), indicating a subsidy of 2 c/kWh. On the basis of all available evidence, the total subsidy to aluminium smelters in Australia amounts to A$410 million per annum.

In addition, the aluminium smelting industry is responsible for a large proportion of greenhouse gas pollution, a cost imposed on others which can be valued by the anticipated cost of permits to emit greenhouse gases. The industry has said that it believes it should not be required to pay the costs of its pollution, and that other sectors of the economy should bear all of the burden. The failure to pay for the costs of the pollution for which it is responsible amounts to an additional subsidy to aluminium smelting. At a conservative price for an emission permit of A$15/tonne CO_2, this additional subsidy amounts to A$430 million per annum. The extent of the subsidies to aluminium smelting – in absolute terms and per employee – is

summarised in the table. It shows that the subsidy to aluminium smelting in Australia is A$840 million per annum or $157,000 per employee.

Subsidies to the Australian aluminium smelting industry (A$)

Subsidy	Amount	Per employee
Financial subsidy from underpriced electricity	$410 m	$76,600
Uncompensated costs of greenhouse gas emissions	$430 m	$80,400
Total subsidies	$840 m	$157,000

If the aluminium smelters carried through with their threat to shift out of Australia in response to the introduction of greenhouse gas abatement policies, the analysis above indicates that their departure would result in a net economic benefit to Australia. Every dollar of income from primary aluminium exports has a resource cost of $1.24. Through industry development programs and wage subsidies, the $410 million in direct financial subsidies freed up could be used to provide many more jobs than the industry currently provides. Indeed, all of the industry's employees could be paid $70,000 to stay at home and there would still be funds left over.

In addition, by saving 28.5 Mt in greenhouse gas emissions per year – 6.5% of Australia's total emissions (excluding land clearing) – the departure of the industry would make it a great deal easier for Australia to meet its Kyoto target by freeing up a large tranche of emissions for other, unsubsidised sectors.

The large subsidies received by aluminium smelters in Australia are almost certainly contrary to the provisions of the General Agreement on Tariffs and Trade, especially as 79% of the product is exported. It seems likely that the Australian subsidies have not been challenged in the WTO because the same companies that dominate the Australian smelting industry also dominate the industries in the other producing countries. Thus a challenge would be a challenge by these companies against themselves, upsetting the global system of public subsidies the industry has managed to put in place. If the Australian Government were to mount a challenge on behalf of taxpayers and electricity consumers in Australia, a favourable ruling may provide legal grounds for State governments to escape from their onerous contracts with the smelters.

In terms of policy development, effective greenhouse gas abatement policies will ensure that every industry and consumer takes responsibility for their own contribution to climate change. The aluminium industry is not taking economic responsibility for its own activities, relying on large subsidies to be competitive. By its efforts to undermine the development of emission reduction policies the industry has illustrated it is also unwilling to take responsibility for its greenhouse gas emissions. The aluminium smelters should be recognised as a heavily-subsidised, selfish and largely foreign owned industry. Their threats of relocation and carbon leakage should not undermine the development of sound emission abatement policies.

1. The aluminium smelting industry and the climate change debate[1]

In accordance with the terms of reference, this submission seeks to illustrate some of the direct and indirect incentives encouraging the consumption of predominantly fossil fuel-sourced energy by the aluminium smelting industry. Such incentives are particularly important where they undermine the effectiveness of industry programs and policies designed to reduce greenhouse gas emissions. This submission analyses one particular industry – aluminium smelting – and examines the impact this industry has on climate change, and attempts to contrast this with the economic and employment benefits created by the industry. The purpose of this analysis is to provide policy-makers with an insight into one of the industries that is actively undermining attempts to improve Australia's emission reduction policies.

The aluminium industry has been a vociferous opponent of policy proposals aimed at reducing Australia's energy emissions, except those policies that are voluntary and relatively ineffective. It has successfully lobbied the Federal Government to defer the introduction of the 2% renewables policy that the Prime Minister promised in November 1997. It has often been the most strident voice heard from industry. In the lead-up to the agreement to restrict greenhouse gas emissions at the Kyoto conference in November 1997 it was at the forefront of industry claims that mandatory targets would cause severe economic damage in Australia. In more recent times it has argued that the burden for cutting emissions should be placed on other sectors of the economy and households rather than being distributed equally across the economy. Its constant refrain is that measures to restrict emissions will damage its international competitiveness resulting in lost market share and a decline in Australian economic welfare.

The aluminium industry was one of the business groups to contribute $50,000 to gain a place on the Steering Committee of ABARE's MEGABARE model that was used to justify the Government's position in the preparation for the Kyoto conference. It is also a prominent member of the Australian Industry Greenhouse Network (AIGN), the industry lobby whose principal aim is to head off effective abatement policies. Aluminium companies were some of the largest sponsors of the 'Countdown to Kyoto' conference in Canberra in August 1997 organised by the far-right US organisation Frontiers of Freedom and the Australian APEC Study Centre. The conference featured Senator Chuck Hagel and Congressman John Dingell, two ultra-conservative US politicians who reject greenhouse science and want no action taken.[2]

The aluminium industry, through its industry association, the Australian Aluminium Council (AAC), argues that the industry is of great economic importance to Australia, especially for the foreign exchange it earns. It frequently threatens governments with the prospect of closing down its Australian smelters and moving offshore if it is forced to pay higher prices for electricity as a result of climate change policies.

The various claims of the aluminium industry have not been questioned, but *prima facie* there are doubts about the contribution of the industry, especially its smelting component, to Australian economic welfare. In this paper the aluminium smelting

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[1] Thanks are due to Hugh Saddler and Alan Pears for reading and commenting on drafts of this paper.

[2] These facts help to explain why the confidential media strategy for the conference, prepared by Hannagan Bushnell, described government and corporate attitudes to the conference as 'ambivalent'.

industry is examined in some detail to test the claims of the industry, and to ask whether Australia would be any worse off if the aluminium smelting industry carried through with its threat to move elsewhere.

2. Structure of the aluminium smelting industry

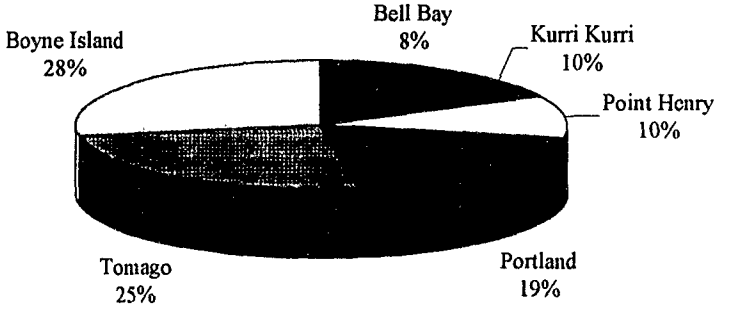
Components and emissions

The aluminium industry can be divided into four stages of production – bauxite mining, alumina refining, aluminium smelting and fabrication. It is estimated that each stage adds an order of magnitude to the value of the product, i.e. on a per tonne basis aluminium is ten times the value of alumina which is in turn ten times the value of bauxite (AAC 1997). There are six smelters in Australia, three large ones at Boyne Island, Tomago and Portland and three smaller ones at Kurri Kurri, Point Henry and Bell Bay (see Figure 1).

Smelting is the most energy-intensive stage of aluminium production, being entirely dependent on large amounts of electricity to reduce aluminium oxide (alumina) to aluminium metal. Aluminium smelting uses 14% of Australia's total electricity production and accounts for 25 Mt of CO_2 emitted from the electricity industry. Consequently, it is responsible for 16% of total greenhouse gas emissions from the electricity sector.[3]

The National Greenhouse Gas Inventory Committee estimates that an additional 2 Mt of CO_2 is released during the aluminium smelting process as a result of the oxidation of carbon anodes, and another 1.4 Mt of CO_2-equivalents in the form of perflourocarbons (NGGIC 1999, p. 71). The total sector emissions of 28 Mt CO_2 amount to 6.5% of Australia's total greenhouse gas emissions from all sources (excluding forest and grassland conversion).

Figure 1 Smelter shares of Australian aluminium production capacity 1998 (1,750,000 tonnes pa)



[3] Taking account of the shares of aluminium produced using electricity from Victorian brown coal, NSW and Queensland black coal and Tasmanian hydro.

Production

According to the International Primary Aluminium Institute (IPAI), total primary aluminium production in Oceania (Australia and New Zealand) in 1998 was 1,934,000 tonnes.[4] This amount was produced by six Australian smelters and one New Zealand smelter. The Australian Aluminium Council (AAC) estimates that the Australian contribution was 1,626,000 tonnes.[5] According to company information, Australian capacity is around 1,750,000 tonnes per annum.[6] The structure and organisation of the Australian smelting industry is presented in Table 1.

The AAC estimates that Australia exported around 1,282,000 tonnes of aluminium metal in 1998 (around 79% of production) worth around $2.8 billion, based on an average price of A$2194/tonne (Capral Annual Report 1998, p. 2). The entire aluminium industry (including bauxite and alumina, but excluding finished products) earned A$6.5 billion in export revenue in 1998.

Turnover and profit

The Industry Commission estimates that in 1995-96 the aluminium smelting industry had a turnover of $3.9 billion (IC 1998, p. 19). Profit margins in the Australian primary aluminium industry appear slim, although profits reported in Australia may be artificially low due to transfer pricing. Capral's smelting and trading operations generated earnings before interest and tax of $39 million in 1998 (Capral Annual Report 1998, p. 2). The Boyne Island smelter, producing almost 500,000 tonnes of aluminium metal per annum, and returned an operating profit before tax of only $11.2 million to Comalco (54% owner) in 1998 (Annual Report 1999, p. 60). WMC earned $320 million in 1998 from its 40% share of Alcoa's aluminium operations (WMC 1999, p. 18). However, 80% of sales value was from alumina, not aluminium.[7] CSR earned a net profit before abnormals of $57 million from its 70% share in Gove Aluminium, a part owner of the Tomago smelter (36%), but again Gove Aluminium has a large alumina business and it is difficult to determine the profit attributable to smelting.

Employment and wages

The Industry Commission estimates that in 1995-96, the aluminium smelting industry employed around 5350 people (IC 1998, p. 99). This is consistent with the information available from companies as presented in Table 1.

The average wage in the aluminium smelting industry in 1995-6 was $41,200 per annum (IC 1998, p. 98-99). Based on total employment numbers, the total value of wages paid in the smelting industry is $220 million per year.

Electricity consumption

The smelting of aluminium is the most energy-intensive stage of aluminium production, with each tonne of aluminium requiring around 15 MWh of electricity.

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[4] http://www.world-aluminium.org/

[5] http://www.aluminium.org.au/

[6] Excluding 20,000 tonnes of recycled aluminium at Kurri Kurri – see Table 1.

[7] Based on production (WMC 1999, p.18) and prices for alumina and primary aluminium (LME, 1998).

Table 1 Australian smelters: location, ownership, production, employment and electricity consumption (1998)

Location	Owner/ Operator	Production capacity (tonnes pa)	Employment	Power contract/consumption (MW)	Energy consumption[a] (GWh)
Bell Bay Tasmania	Comalco	142,000	600 direct 100 contract	256 HEC	2250
Boyne Island Queensland	Boyne Smelters	490,000	900 prior to start-up of Line 3	>800 NRG/ Comalco	7000
Kurri Kurri NSW	Capral	150,000 (+20,000 recycling)	2500 in all operations[f]	300 (est)[d] Delta Energy[e]	2600
Point Henry Victoria	Alcoa of Australia	185,000	1100 incl. Anglesea power station	375 SECV[g]	3300
Portland Victoria	Portland Smelter Services	345,000	Ne	620 SECV[g]	5400
Tomago NSW	Tomago Alumin-ium	440,000	1100	690 Macquarie Generation	6050
Total		**1,750,000**	**5346[b]**	**3040**	**26600[c]**

a. Assuming 24-hour, 365-day consumption of contracted load. Importantly, maximum load allowable under contract may not always be drawn.
b. Based on Industry Commission estimates for 1995-96 (IC 1998, p. 99).
c. This is consistent with the IPAI's estimate of 27,400 GWh consumed in Oceania-based smelters in 1997 (to make 1,804,000 tonnes).
d. Based on consumption of similar plants.
e. Contract expired in 1999 (IC 1998, p. 72).
f. Including fabrication. On the basis of employment in other smelters, Capral's smelting operations probably employ 600-800.
g. The Point Henry and Portland smelters have contracts with the Smelter Trader of the State Electricity Corporation of Victoria (the shell of the former operator of the Victorian electricity system) which has a long-term supply contract with Edison Mission Energy (Victorian Treasury 1998, p. A4-116).

Sources: Boyne Island (http://www.comalco.com.au/05_operations/06_boyneisland.htm, http://www.networks.digital.com/dr/stories/boyne-01.html);
Bell Bay (http://www.comalco.com.au/05_operations/05_bellbay.htm);
Tomago (http://www.tomago.com.au/public/brochure.html);
Kurri Kurri (Capral Annual Report 1998);
Portland and Point Henry (http://www.energy.dtf.vic.gov.au/domino/web_notes/energy/dtf_epd_www.nsf/WebPages/Aluminium, http://library.northernlight.com/ML19990823090004797.html?cb=&dx=#doc, Victorian Auditor-General http://www.audit.vic.gov.au/sfo98/afs9808.htm, ALCOA http://www.alcoa.com/news/newsbriefs/australia.asp, http://www.alcoa.com/frameset.asp?page=%2Fbusiness%2Fworldwide%2Fby%5Flocation%2Faustralia%2Findex%2Easp, WMC Annual Report 1998, Alcoa 1999, p. 5.2);
General: Industry Commission 1998; Tomago (http://www.tomago.com.au/)

The Australian industry consumed a total of around 25 TWh in 1997 (IPAI 1999). This equates to around 14% of all electricity generated in Australia – total electricity generation in 1997 was 183 TWh (IEA 1999, p. II.273) – and a higher proportion of electricity available for final consumption after transmission losses and electricity used in generation.[8] Electricity consumption for each smelter is presented in Table 1.

The AAC estimates that 'energy constitutes about one-third of the total costs of production of aluminium' (AAC 1997). This concurs with information from Comalco: 'electricity is a major raw material, accounting for nearly one third of the total cost of converting alumina to metal'.[9] In contrast, the Industry Commission, in a major study on the aluminium industry, suggests that energy costs amount to around 22% of the total costs of aluminium smelting (IC 1998, p. 26–7). This difference reflects the distinction between operating costs and total production costs (see ABARE 1992, p. 3).

3. Ownership of the industry

The majority of Australia's aluminium production is owned and controlled by foreign companies (see Figure 2). The only operation that is not owned by major overseas aluminium interests is Capral, operating the smelter at Kurri Kurri.[10] The ownership structure of each smelter is shown in Figures 3a-f. Comalco and Alcoa of Australia are the dominant operators in the industry. Alcoa of Australia is owned by its United States counterpart, ALCOA (USA) (60%) and Western Mining Corporation (39.25%). Comalco is mostly owned by Rio Tinto (72.4% at 30 June 1999). Rio Tinto, after a merger with the British Rio Tinto plc, is now effectively foreign owned.[11] A number of Japanese firms are also involved in the Australian smelting industry, as are a number of major European aluminium companies. Appendix 1 provides the references for the information presented in Figure 3 along with a more detailed picture of the ownership structure of aluminium smelting in Australia.

Overall, around 59% of the output of the aluminium smelting industry in Australia is foreign owned with Japanese (17%), British (14%) and US (12%) interests dominant. The level of control depends on the definition of a 'controlling interests' but is substantially higher.

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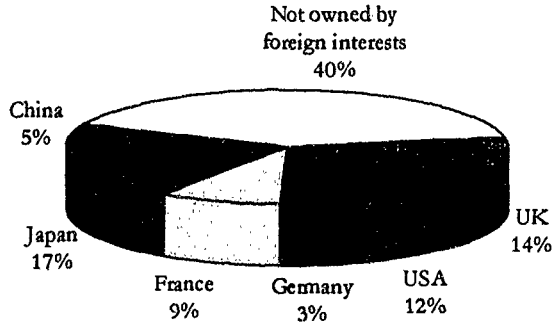
[8] ABARE estimates that 168 TWh were available for final consumption in 1997–98 (Bush *et al.* 1999, Table A10) with the difference accounted for by own-use and transmission losses.

[9] http://www.comalco.com.au/05_operations/05_bellbay.htm

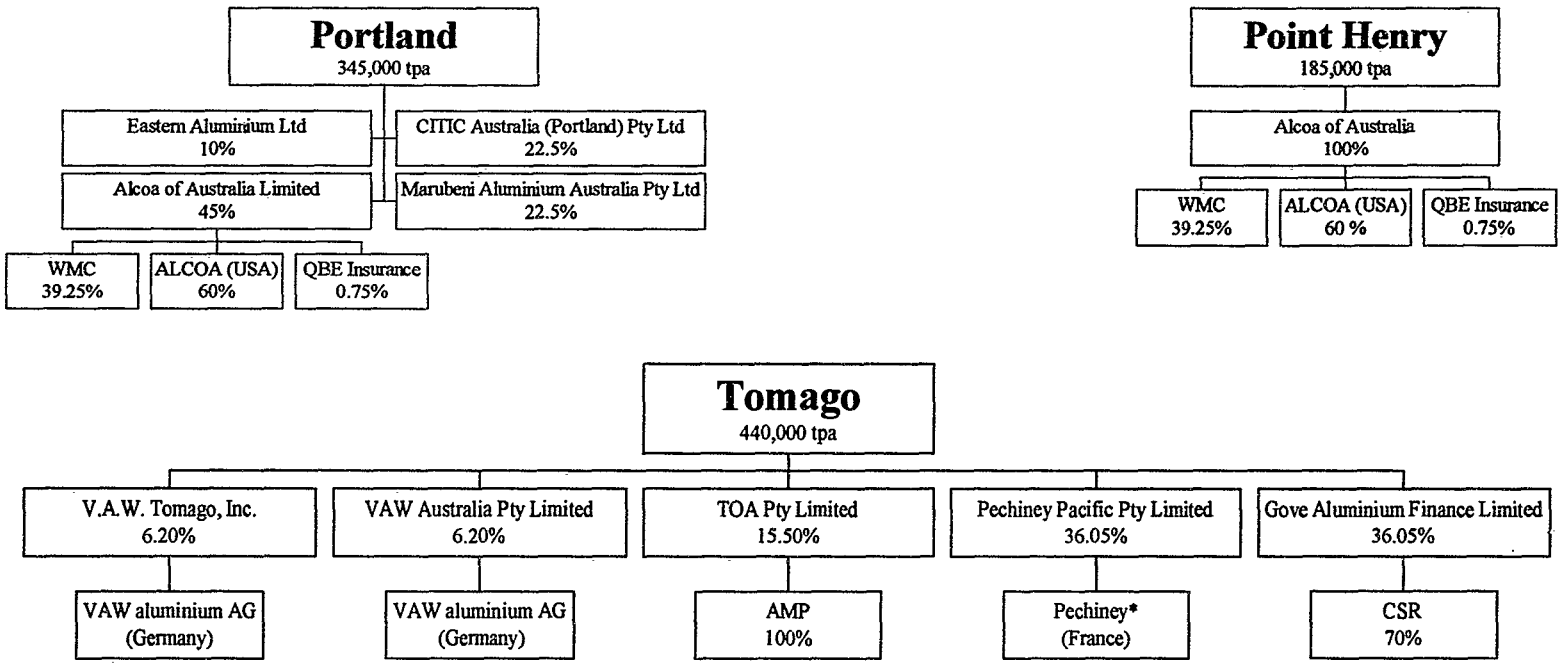
[10] Capral was formerly known as Alcan Australia and was owned by Alcan (Canada) until 1994.

[11] The merger was designed to 'place the shareholders of both companies in substantially the same position as if they held shares in a single enterprise who owned all of the assets of both companies' (Annual Report 1999, p. 71). To this effect, 'any dividend or capital distribution per Rio Tinto plc Ordinary Share shall be matched by an equal dividend or capital distribution per Rio Tinto Limited Share (and vice versa)'. As at 26 February 1999, Rio Tinto plc had 1,060 million shares on issue and Rio Tinto Ltd had 602 million. The merger agreement essentially makes one Rio Tinto plc share worth one Rio Tinto Ltd share, with the combined entity having 1,662 million shares on issue. In addition, Rio Tinto plc also owns 48.75% (294 million shares) of Rio Tinto Ltd.

Figure 2 Ownership of Australian primary aluminium production

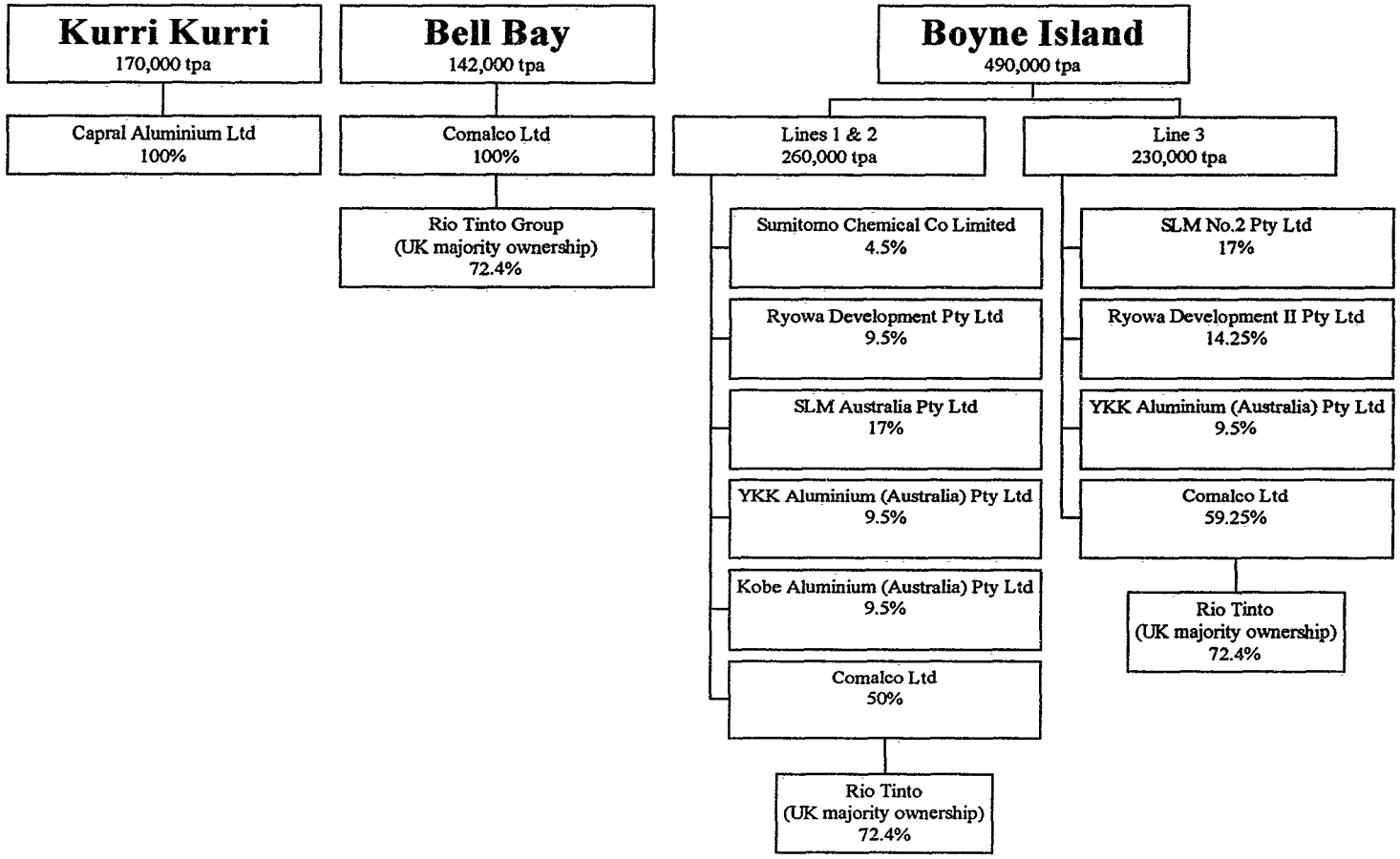


Figures 3a–c Ownership of the Portland, Point Henry and Tomago smelters



* Pechiney is planning to merge with Alcan (Canada) and algroup (Switzerland)

Figures 3d–f Ownership of the Kurri Kurri, Bell Bay and Boyne Island smelters



4. Electricity pricing and subsidies

Prices paid by aluminium smelters for electricity are locked in by long-term contracts, often covering 20 to 30 year periods. Over the years, State governments with surplus generation capacity have offered low-priced electricity to attract new aluminium smelters.

The prices are a closely kept secret, but there are enough pieces of information available to build a reasonably accurate picture. While noting that the price paid for electricity 'is not publicly available', the Industry Commission confirms common knowledge in the industry that smelters receive cheaper electricity than similar large industrial consumers (IC 1998, p. 69).

This is consistent with a 1992 ABARE study into the aluminium industry which concluded that 'in 1991 the average Western world price was US1.92c/kWh, with the Australian price being around this average' (ABARE 1992, p. 4). During 1991 the Australian dollar was valued between 75 and 80 US cents.[12] Accordingly, the ABARE report suggests Australian prices were around 2.4-2.6 c/kWh. Since smelters typically operate under long-term contracts it is reasonable to assume similar, if not lower, prices are paid now. Although smelter contracts are not affected by price movements in the National Electricity Market (NEM), any new contracts, or the renegotiation of existing contracts, may be affected by the lower electricity prices prevailing in the NEM (market prices have fallen throughout Australia since 1992, see Quiggin *et al.* 1998, pp. 52–53). However, flexible tariff arrangements that link the price of electricity to the price of aluminium may have slightly increased the price paid by smelters since world aluminium prices have risen a little since 1991 – see Appendix 2 – although for some smelters, notably Portland, the aluminium price has recently been below the 'formula floor' threshold (Eastern Aluminium 1999, p. 3).

Discussions with industry experts indicate that aluminium smelters pay 1.5-2.5 c/kWh for delivered electricity. This compares with 5-6 c/kWh for other large industrial users operating in the competitive market, suggesting a price difference of 2.4-4.5 c/kWh. The former Victorian Treasurer, Alan Stockdale, has said that other high voltage industrial customers in Victoria were paying up to three times the price paid by the Portland and Point Henry smelters (Stockdale 1995).

Only in Victoria is hard information on the electricity pricing arrangements for smelters publicly available. Electricity is supplied to the Portland and Point Henry smelters under a flexible tariff contract established in 1984 and running to 2016. The Victorian Department of Treasury & Finance has described the contracts to supply Portland and Point Henry with electricity from Loy Yang B as 'onerous and unfavourable' and indicated in 1997 that they were 'costing the Government over $200 million per year' (Department of Treasury & Finance 1997, p. 19). The Victorian Auditor-General estimates that in 1997-98 the Victorian Treasury made payments totalling $180 million to the State Electricity Commission of Victoria (SECV) to subsidise the cost of electricity supplied to the aluminium smelters (Auditor-General's Report on the Victorian Government's Finances, 1997-98).[13] The

[12] US Fed Reserve, http://www.bog.frb.fed.us/releases/H10/hist/dat96_al.txt

[13] The SECV is the shell of the organisation that ran the Victorian electricity industry before privatisation. The Smelter Trader arm of the SECV has negotiated a hedge contract with Edison

Auditor-General went on to estimate that the net present value of Victoria's liabilities under this pricing contract amounts to $1.3 billion.

Since the two Victorian smelters had supply contracts for around 8,700 GWh of electricity in 1998, the subsidy equates to around 2 c/kWh. This is consistent with the lower end of industry estimates of the deviation from the price established for large industrial consumers in the competitive market.

The Victorian smelters account for 33% of total electricity consumption by the industry (Table 1). Some evidence suggests that other Australian smelters receive electricity at similar prices to the Victorian smelters.[14] For example, the Industry Commission indicates that the Tomago smelter was being supplied electricity at a price that was '"in the market" for a smelter of its size'. On the other hand, Capral believes it is paying more for electricity than its interstate counterparts (IC 1998, p. 69). It has been suggested that Victorian smelters pay $14 per MWh, Tomago pays $22 per MWh and Capral around $27 per MWh (*Australian Financial Review* 1 July 1999, p. 72). Based on the audited subsidy to Victorian smelters, it appears that Tomago receives a subsidy of around 1.2 cents/kWh, and Capral around 0.7 cents/kWh.[15] This indicates that the industry as a whole receives a subsidy of around 1.5 cents/kWh and possibly higher. On the basis of the Victorian subsidy identified by Treasurer Stockdale, and the estimates of prices for electricity paid by Victorian and other smelters, we estimate that the total subsidy to the aluminium smelters in Australia due to low-priced electricity is $410 million per annum.[16]

The direct financial subsidy provided to the industry by taxpayers and other electricity consumers amounts to a large proportion of total industry costs. If electricity costs comprise one third of total operating costs, and smelters pay around 60% (probably at most) of the market price for electricity supplied to large industrial customers then the subsidy accounts for around 13% of total industry costs. This suggests that all of the profits of the industry are provided by subsidies paid for by taxpayers and other electricity consumers. Furthermore, most of these profits do not accrue in Australia but are repatriated to foreign parent companies.

Mission Energy which fixes the price paid for electricity at $23.95 per MWh. The SECV is then required to supply electricity to the Portland and Point Henry smelters according to a contract negotiated in 1984. Effectively, the SECV operates as a loss-making middleman between the generator and smelters. http://www.audit.vic.gov.au/sfo98/afs9808.htm

[14] The long-run marginal cost of generating electricity is about the same in Victoria and NSW. Although fuel costs using Victorian brown coal are much lower than for NSW black coal, the capital costs of power plants burning brown coal are higher since they must be much bigger due to the low calorific value of brown coal.

[15] This assumes that market (unsubsidised) prices in Victoria and NSW are the same (that is, customers have access to the NEM). Queensland market prices are likely to be at least those in NSW and Victoria.

[16] It is important to note that the Gladstone Power Station is partially owned by the operators of the Boyne Island smelter. It has been suggested that the Comalco-led consortium purchased this power station in 1994 for considerably less than the Goss Government was asking and made the expansion of the Boyne smelter conditional on such a favourable deal. Whether this is true or not, it is apparent that Comalco would not have purchased the power station unless they believed they could get cheaper power. Accordingly, it has been assumed that Boyne Island receives a similar subisdy to smelters elsewhere in Australia (although the subsidy was in the form of a cheap power station). A similar assumption has been made with regard to power supplied to Point Henry from the Anglesea power station, although in this case part of the subsidy is in the form of coal exempt from State levies.

A number of reasons have been put forward to explain why the aluminium smelters pay lower prices than other business and residential consumers for electricity (eg. IC 1998, p.69). Firstly, it is suggested that smelters demand a continuous base load which is advantageous to the generators. This provides more certainty of demand for generators.

Secondly, it is argued that smelters are usually located close to power stations, thereby reducing transmission costs. However, the weighted average distance of smelters from their generators is over 100 kilometres (an average heavily influenced by Portland's distance from the Latrobe Valley).[17] It is unlikely that other large industrial users are much further on average from their electricity suppliers. Moreover, the price estimates above already take into account the delivery costs, although in the case of the Portland smelter the Victorian Hamer Government heavily subsidised the construction of high-voltage transmission lines (Blake 1991).

Thirdly, smelters draw a high voltage load, reducing transmission losses. Contrary to this, it might be noted that Treasurer Stockdale referred to the fact that other *high voltage* industrial customers in Victoria were paying up to three times the price paid by the smelters. Tariff estimates from Citipower indicate that high voltage customers pay around 4.5 cents/kWh. This is probably close to the price smelters would be paying in the absence of subsidies.

Fourthly, electricity supply contracts generally contain 'take or pay' provisions, guaranteeing the smelters will pay for the electricity whether they use it or not, thereby contributing to certainty of demand for the generators.

The subsidy estimates presented earlier take into account the various arguments presented above. For example, the power contract the SECV has with Edison Mission Energy for the supply of the Portland and Point Henry smelters is essentially a contract for a continuous base load at high voltage. If Point Henry and Portland were paying a market price they would pay the same price paid by the SECV, not around $200 million per annum less. Accordingly, whatever the merits of the arguments for large industrial users of electricity receiving cheaper power, the estimate of the total electricity subsidy to the industry used in this paper incorporates these arguments.

5. Costs of pollution from the aluminium smelting industry

In 1997 the electricity sector accounted for 35% of Australia's total greenhouse gas emissions (excluding forest and grassland conversion, NGGIC 1999, p. xix). As we have seen, the aluminium smelting industry accounts for 14% of the total electricity consumed in Australia. It accounts for 16% of greenhouse gas emissions from the electricity industry, a higher share because one-third of the industry's power is drawn from Victorian brown coal-fired power stations which are more polluting than those

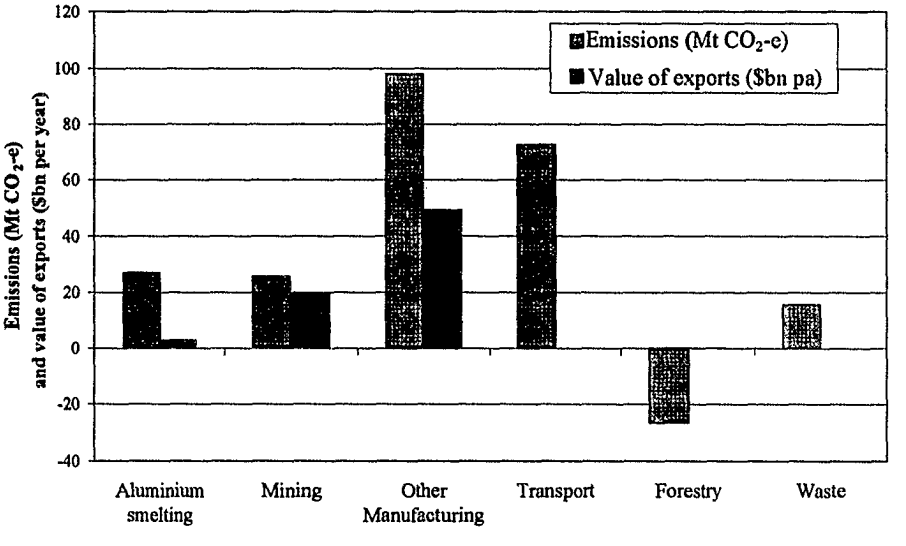
[17] The Gladstone Power Station and the Boyne Island smelter are taken to be immediately adjacent. The Point Henry smelter is around 30 km from the Anglesea Power Station. The distance from the Tomago smelter to Macquarie Generation's Bayswater power station is at least 40 km, a similar the distance between Capral's Kurri Kurri smelter and Vales Point. The Bell Bay smelter is at least 50 km from Potina. The distance from Loy Yang B (Latrobe Valley) to the Portland smelter is estimated to be at least 400 km. Additional power for Point Henry (Anglesea is only 150 MW) needs to travel over 100 km, also from Loy Yang B.

located elsewhere in Australia.[18] Figure 4 compares the quantity of emissions from aluminium smelting with those released from other activities.

The development of nascent markets for greenhouse gas emission permits allows a price to put on the greenhouse pollution for which various activities are responsible. In a recent paper, the Australian Greenhouse Office (AGO) reviewed the range of estimates of prices of a permit to emit one tonne of CO_2 that might prevail in an international system of emissions trading. It gave a range of A$10-A$50/t CO_2 and settled on A$30/t CO_2 as a best estimate (AGO 1999, p. 13-15). The Australia Institute has also reviewed the evidence and suggests that, in a domestic trading system, a price of A$20/t CO_2 may be more accurate, with a lower figure for an international system (Hamilton and Turton 1999, p. 36–37). In this analysis we assume a world permit price of $15/t CO_2, half that indicated by the AGO.

On this basis, the emissions saved from the aluminium smelting industry – 25 Mt CO_2 from electricity generation and 3.5 Mt CO_2-e from smelting itself – are valued at $430 million per annum. This is the value of the additional subsidy provided to the aluminium smelting industry by the fact that it is not at present required to pay for the damage to the climate system that its emissions are responsible for. Looked at another way, the claim by the aluminium industry that it should be excused from the need to hold emission permits if Australia adopts emissions trading or equivalent policy measures, or that it should be granted permits to cover its emissions at no charge, is in fact a call for an additional financial subsidy to the industry of $430 million per annum.

Figure 4 Comparison of emissions from various sectors, 1997



Sources: NGGIC 1999, p. xix; Bush *et al.* 1999, Table A10; GCO 1997, p. 29; ABS 5422.0

[18] Although this is somewhat offset by the fact that Bell Bay in Tasmania draws its power from emission-free hydroelectric power. State-specific emission factor were obtained from the Greenhouse Challenge Workbook (GCO 1997, p. 29)

6. Implications of the subsidisation of aluminium smelting industry

In sum, the analysis of shows that the aluminium smelting industry receives $410 million annually in financial subsidies paid for by taxpayers and other electricity consumers to subsidise its cheap electricity, and is receiving another $430 million in subsidies through its failure to pay for its share of the costs associated with Australia's greenhouse gas emissions.

The subsidies to the aluminium smelting industry, expressed in absolute terms and per employee, are summarised in Table 2. They amount to around $157,000 per employee each year. This compares to the industry's average wage in 1995-6 of $41,200 per annum. The total annual subsidy of $840 million compares to the industry's total annual wage bill of approximately $220 million.

These subsidies almost certainly exceed the profits generated in the industry, profits that are mostly remitted to the foreign companies that control the industry. While the industry earns substantial export income, the extent of the subsidies mean that every dollar of income from aluminium exports has a resource cost of $1.11 if only electricity subsidies are included, and $1.24 if the costs of pollution are also added.

Table 2 Subsidies to the aluminium smelting industry

Subsidy	Amount	Per employee
Financial subsidy from underpriced electricity	$410 m	$76,600
Uncompensated costs of greenhouse gas emissions	$430 m	$80,400
Total subsidies	$840 m	$157,000

Note: Employment includes employees at Bell Bay.

If the aluminium smelters carried through with their threat to shift out of Australia in response to the introduction of greenhouse gas abatement policies, the analysis above indicates that their departure would result in a net economic benefit to Australia. Through industry development programs and wage subsidies, the $410 million in direct financial subsidies freed up could be used to provide many more jobs than the industry currently provides. Indeed, all of the industry's employees could be paid $70,000 to stay at home and there would still be funds left over.

In addition, by saving 28.5 million tonnes of greenhouse gas emissions per year – 6.5% of Australia's total emissions (excluding land clearing) – the departure of the industry would make it a great deal easier for Australia to meet its 108% Kyoto target.

The large subsidies received by aluminium smelters in Australia are almost certainly a subsidy under the World Trade Organization (WTO) definition. They meet the three criteria: they are (i) a financial contribution (ii) by a government or public body which (iii) confers an industry-specific benefit. The adverse effect would easily be shown to be 'actionable' since the subsidies exceed the WTO benchmark of 5% of the value of the product. Other consumers of electricity suffer adverse effects and, since 79% of the product is exported, competitors in other countries face a disadvantage.

The question arises as to why smelting companies in another aluminium-producing country (such as Canada, the Former Soviet Union or the USA) have not demanded that their government challenge Australia's export subsidies at the WTO. The answer seems to be that the same companies that dominate the Australian smelting industry also dominate the industries in the other producing countries. Rio Tinto, ALCOA, Pechiney and VAW have aluminium interests around the globe. Thus a challenge would be a challenge by these companies against themselves. Having persuaded governments in the other main producing countries to provide similar levels of subsidy,[19] the major corporations are loath to upset the global structure they have built up.

The problem lies in large measure in the secrecy surrounding electricity contracts. This secrecy is contrary to good policy as it has been the means by which huge subsidies have been concealed. The Federal Government's National Greenhouse Strategy appears to recognise this problem by requiring acceleration of energy market reform including 'transparent funding of network cross-pricing subsidies' and 'removal of derogations as quickly as feasible' (NGS 1998, p. 42). The Federal Government should acknowledge that the subsidies to aluminium smelting mean that Australia's greenhouse gas emissions are substantially higher than they would be if smelters had to pay the market price. If the Australian Government were to mount a challenge on behalf of taxpayers and electricity consumers in Australia, a favourable ruling may provide legal grounds for State governments to escape from their onerous contracts with the smelters.

7. Concluding comments

This submission has clearly identified a subsidy to the aluminium smelting industry that provides a perverse incentive to consume electricity, most of which is generated from fossil fuels. This incentive runs counter to, and in all likelihood overwhelms, many existing industry programs and policies aimed at reducing greenhouse gas emissions. Importantly, this industry has consistently opposed almost every policy aimed at emissions abatement, except those that are voluntary and largely ineffective.

The aluminium smelters already receive special treatment compared to other industries within Australia. The industry's threats about the consequences for aluminium smelting if greenhouse gas reduction policies are implemented is a poorly disguised attempt to maintain and extend its extensive subsidies. The analysis presented above illustrates that, in terms of resource cost, the smelting industry is probably costing Australia more than it is contributing and therefore if the aluminium smelters carry out their threat to relocate offshore it may well benefit Australia.

This conclusion is confirmed by a University of Tasmania cost-benefit study of Comalco's Bell Bay smelter which concluded the state would be better off if the smelter closed down, not least because it would release a large amount of electricity to be sold at market prices (CREA 1993). As Bell Bay is supplied by hydro-power, it does not benefit from the additional greenhouse subsidy of smelters on the mainland.

[19] According to ABARE estimates, earlier this decade some US aluminium smelters received electricity for –US0.5 cents/kWh, i.e. they were paid to consume electricity (ABARE 1992, p. 28). ABARE also estimated that smelters in Canada and Venezuela paid US0.5-0.9 cents/kWh for hydroelectricity – regarded as the cheapest form of electricity because governments often subsidise the large capital costs of dam construction (ABARE 1992, p. 28).

On the other hand, if Australian smelters shifted to countries that do not have greenhouse gas reduction obligations, this would lead to some carbon leakage and may not reduce global greenhouse gas emissions. Although the potential for carbon leakage is a relevant concern, it should not undermine efforts to develop sound domestic policy measures to reduce greenhouse emissions. Australia has little to lose by calling the bluff of the aluminium smelters.

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Appendix 1 Ownership of primary aluminium production in Australia

Location	Production (tonnes pa)	Primary Ownership		Secondary ownership		Foreign owned or controlled		Ownership of Production		
								Foreign owned (tonnes pa)	No foreign interest (tonnes pa)	Total (tonnes pa)
Kurri Kurri	170000	100%	Capral	100%	No large or controlling interest	0%		0	170000	170000
Bell Bay	142000	100%	Comalco	72.40%	Rio Tinto Group	81.40%	Rio Tinto plc / UK	83700	58300	142000
Boyne Island										
Lines 1 & 2	260000	50%	Comalco	72.40%	Rio Tinto Group	81.40%	Rio Tinto plc / UK	76600	53400	130000
		17%	SLM Australia	Control	Sumitomo Light Metal Industries (Japan)	100%	Japan	44200	0	44200
		9.50%	Kobe Aluminium (Aust)	Control	Kobe Steel Ltd	100%	Japan	24700	0	24700
		9.50%	YKK Aluminium (Aust)	Control	Yoshida Koghyo KK	100%	Japan	24700	0	24700
		9.50%	Ryowa Develop.	Control	Mitsubishi Corp	100%	Japan	24700	0	24700
		4.50%	Sumitomo Chem	Control	Sumitomo Chem	100%	Japan	11700	0	11700
Line 3	230000	59.25%	Comalco	72.40%	Rio Tinto Group	81.40%	Rio Tinto plc / UK	80300	55975	136275
		17%	SLM No. 2	Control	Sumitomo Light Metal Industries	100%	Japan	39100	0	39100
		9.50%	YKK Aluminium (Aust)	Control	Yoshida Koghyo KK	100%	Japan	21850	0	21850
		14.25%	Ryowa Develop.	Control	Mitsubishi Corp	100%	Japan	32775	0	32775
Portland	345000	45%	Alcoa Aust/AWAC	60%	ALCOA*	100%	USA	93150	0	93150
				39.25%	WMC	0%		0	60950	60950
				0.75%	QBE Insurance Group	0%		0	1150	1150

Location	Production (tonnes pa)	Primary Ownership		Secondary ownership		Foreign owned or controlled		Foreign owned (tonnes pa)	No foreign interest (tonnes pa)	Total (tonnes pa)
Portland continued		10%	Eastern Alumin	16%	CITIC	100%	China	5520	0	5520
				11%	ALCOA*	100%	USA	3630	0	3630
				27%	QBE Insurance Group	0%		0	9300	9300
				47%	No large interest	0%	est	0	16050	16050
		22.5%	Marubeni	Control	Marubeni	100%	Japan	77625	0	77625
		22.5%	CITIC Australia	Control	CITIC	100%	China	77625	0	77625
Point Henry	185000	100%	Alcoa Aust/AWAC	60%	ALCOA*	100%	USA	111000	0	111000
				39.25%	WMC	0%		0	72600	72600
				0.75%	QBE Insurance Group	0%		0	1400	1400
Tomago	440000	36.05%	Pechiney Pacific	Control	Pechiney*	100%	France	158620	0	158620
		36.05%	Gove Alumin	70%	CSR	0%		0	158620	158620
		15.50%	TOA	100%	AMP	0%		0	68200	68200
		6.20%	VAW Aust	Control	VAW (Germany)	100%	Germany	27280	0	27280
		6.20%	VAW Tomago	Control	VAW (Germany)	100%	Germany	27280	0	27280
Total	**1772000**							**1046055**	**725945**	**1772000**
								59%	**41%**	**100%**

* Pechiney is planning to merge with Alcan (Canada) and algroup (Switzerland). Alcoa is planning to merge with Reynolds.

Note: Some columns do not add exactly due to rounding.

Ownership structure references

Boyne Smelters Ltd

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http://www.energy.dtf.vic.gov.au/domino/web_notes/energy/dtf_epd_www.nsf/WebPages/Aluminium
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Point Henry

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Bell Bay

http://www.comalco.com.au/05_operations/05_bellbay.htm
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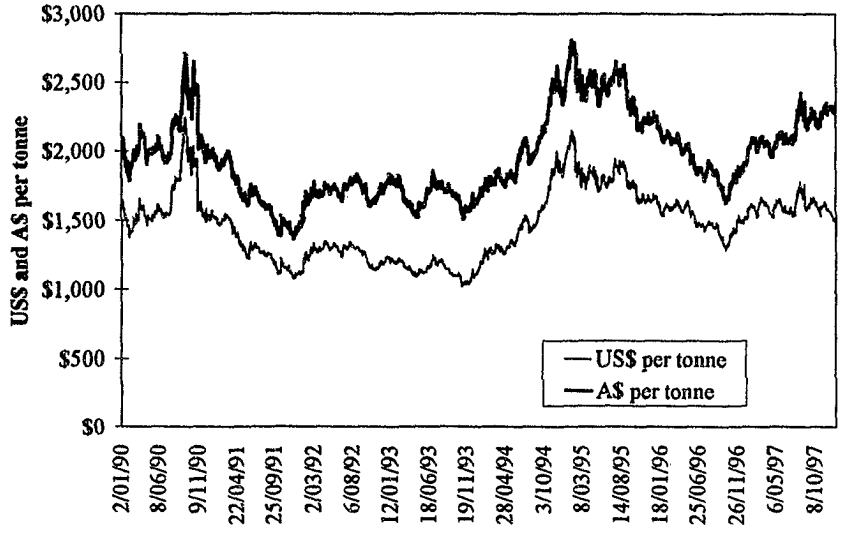
Kurri Kurri

http://www.capral-aluminium.com.au/smelting&trading/index.html

General

ABN-AMRO (*pers. comm.*)

Appendix 2 Aluminium cash price, 1990-1997



Source: London Metal Exchange (http://www.lme.co.uk/Stats.htm) and USA Federal Reserve (http://www.bog.frb.fed.us/releases/H10/hist/dat96_al.txt).

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SENATE ENVIRONMENT, COMMUNICATIONS, INFORMATION TECHNOLOGY AND THE ARTS REFERENCES COMMITTEE

Inquiry into Australia's Response to Global Warming

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17/12/99

The Secretary
Senate Environment Committee

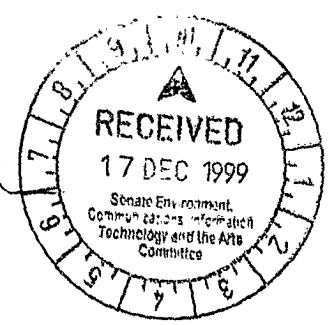
Dear Mr Selth

Please find enclosed the Australia Institute's latest submission to the Committee's Inquiry into Australia's Response to Global Warming. The submission – entitled "Land-use change and Australia's Kyoto target – is, I believe, of the utmost importance in understanding the implications of the Kyoto Protocol for Australia.

Yours sincerely

Clive Hamilton

Clive Hamilton
Executive Director



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The Australia Institute Submission Number 4

Land-use change and Australia's Kyoto target

Submission to Senate Environment References Committee

Inquiry into Australia's Response to Global Warming

December 1999

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Contents

Executive Summary

Although the Government's 'victory' in achieving a target of 108% under the Kyoto Protocol has received much publicity, in fact the last-minute insertion of the 'Australia clause' of the Protocol is arguably of greater significance.

The Australia clause allows countries to include emissions from land clearing to be added to their 1990 baseline to calculate the emissions target in the Kyoto commitment period of 2008-2012. In practice, it applies only to Australia. Higher baseline emissions imply a higher target, and if emissions from land clearing are declining for other reasons, this frees up allowable emissions for other sectors.

The bulk of land clearing occurs in Queensland – 70% of the Australian total in 1990 and 93% in 1997. Net emissions from land clearing (known as Forest and Grassland Conversion) were high in the 1990 base year but have since fallen sharply – from 102.7 million tonnes of carbon dioxide equivalent (Mt CO_2-e) in 1990 to 64.8 Mt in 1997, a decline of 37% over 6 years. Emissions from land clearing fell from 20.9% of Australia's total emissions in 1990 to 13.1% in 1997. The reasons for this decline are unclear but are probably related to the declining commercial profitability of clearing for grazing in the 1980s and 1990s and the fact that the best grazing land was converted in earlier decades.

The course of emissions from land clearing between now and the commitment period will have a major bearing on how much fossil emissions can increase. Three scenarios are considered:

1. The rates of land clearing that prevailed in 1997 remain unchanged through to 2010. In this case emissions from land clearing will be 54 Mt CO_2-e in 2010.

2. Land clearing falls by 20,000 ha per year from 2000, a policy announced by the Prime Minister in November 1997. In this scenario emissions from land clearing fall to 29 Mt CO_2-e in 2010.

3. No net loss of vegetation from 2001, the objective of the Federal Government's Bushcare program. In this scenario emissions from land clearing fall to 8 Mt CO_2-e in 2010.

Simple calculations show that even if rates of land clearing do not continue to decline (Scenario 1) then emissions from Australia's fossil fuel and other sectors can increase by 22% while Australia remains within the 8% overall target set at Kyoto. If the Government implements its announced plan to reduce land clearing by 20,000 ha/an then emissions from the fossil fuel and other sectors can increase by 28%.

If the Government succeeds in implementing its Bushcare objective of no net loss of vegetation then fossil and other emissions can increase by 33% above 1990 levels while Australia still meets its overall Kyoto target.

If Australia had agreed at Kyoto to reduce land clearing emissions to 29 Mt by 2010 and to limit fossil emissions growth to 18% above 1990 levels by 2010 – both of which were clearly announced Government policies – then Australia could have agreed to a target of 100% of 1990 emissions by 2008-2012 and avoided a great deal of international criticism.

Estimates of Australia's emissions from land clearing are extremely sensitive to estimates of the area cleared in each relevant year. According to the official inventory the area cleared fell by half between 1990 and 1991, from 675,000 ha to 331,000 ha. If the precipitate decline in rates of land clearing had occurred one year earlier (that is, before the Kyoto base year) then Australia's Kyoto target would be substantially lower – 528 Mt instead of 560 Mt.

Thus the fact that the large fall in the rate of land clearing occurred in 1991, and not in 1990 or earlier, was extremely fortuitous for it means that Australia's total allowable emissions under the Protocol are 6% higher than they might otherwise be, an extra tranche of emissions that may be worth $640 million in emission permits. The 6% is a very large number by any standard and Australia's land clearing data will undoubtedly attract intense scrutiny from other Parties to the Framework Convention.

1. The Australia clause

A proper understanding of Australia's Kyoto commitment is impossible without appreciating the unique role of land clearing in Australia's total greenhouse gas emissions. Although the Government's 'victory' in achieving a target of 108% has received much publicity, in fact the last-minute insertion of the 'Australia clause' in Article 3.7 of the Protocol is arguably of greater significance.

The clause allows the inclusion in the 1990 base year of net emissions from land clearing and thus increases the allowable target emissions in the commitment period 2008-2012. The clause, which effectively benefits only Australia, was included in the dying hours of the negotiations at Kyoto. The world's negotiators, preoccupied with the bigger issues involving the USA, Japan and the European Union were unaware of the implications of its inclusion.[1] As the implications have become clearer, other nations have reacted with dismay.[2] There are now officers in the European Union whose duties include monitoring the issue of land-use change in Australia, and who are better informed on the question than all but a handful of Australians.[3]

The Australia clause states:

> Those parties included in Annex 1 for whom land-use change and forestry constituted a net source of greenhouse gas emissions in 1990 shall include in their 1990 emissions base year or period the aggregate anthropogenic carbon dioxide equivalent emissions by sources minus removals by sinks in 1990 from land-use change for the purpose of calculating their assigned amount.

The implications of the Australia clause have been examined in detail by Hamilton and Vellen (1999) in a paper published in the international scientific journal *Environmental Science and Policy*. That analysis was based on the official 1996 inventory of greenhouse gas emissions published by the Australian Government in 1998. The 1997 inventory, released in September 1999, contains data for 1997 and revised estimates of emissions for the years 1990-1996. The estimates for emissions from land-use change, now known as forest and grassland conversion (F&GC), have been extensively revised on the basis of remotely sensed data.

This submission updates the analysis in Hamilton and Vellen using the new data from the 1997 inventory and analyses the policy implications.[4]

---

[1] The Government has argued that the figures on land-use change were included in Australia's national communication and were not concealed. While this is so, the implications were not spelled out and there is little doubt that negotiators from other countries did not appreciate the significance of the clause for Australia's target.

[2] An issue covered in another of the Institute's submissions.

[3] There is a well-sourced report that a team of French scientists travelling unofficially on tourist visas spent some weeks in Australia in early 1999 quietly gathering information on land-use change in Australia in the context of the Kyoto Protocol. Their visit included several field trips to Queensland and western NSW.

[4] The methodology for estimating emissions from LUC (see Hamilton and Vellen 1999) did not change in the 1997 inventory. The changes were in the data for area cleared and carbon content of woody roots.

In the inventory the Land Use Change and Forestry (LUC&F) sector has four subsectors, of which the first two are the important ones:

- Forest and Other Woody Biomass
- Forest and Grassland Conversion (F&GC)
- Abandonment of managed lands (not estimated)
- Other (including non-CO2 from fire and pasture improvement).

This paper focuses on changes in emissions from the F&GC subsector (i.e. land clearing). Although Australia is a world-leader in research in this area, the estimates in the inventory of emissions from land clearing remain very uncertain. The Australian Government argues that it excludes land-use change emissions from the national totals of the inventories because of concern about the accuracy of land conversion data and the emissions that are generated from this activity. However, this uncertainty does not provide a reason for ignoring F&GC in the development of a policy response to climate change, especially as the final numbers agreed will have a substantial effect on allowable emissions from fossil sources. Moreover, uncertainties in the estimation of emissions from agriculture are also large, but this has not provided a reason to exclude them from the totals.

2. Comprehensive emissions

The Australia clause in Article 3.7 of the Kyoto Protocol allows Australia to increase its 1990 baseline emissions.[5] If emissions from F&GC form a large proportion of total emissions, and those emissions are falling irrespective of actions taken to reduce greenhouse gas emissions, then this will permit a greater expansion of emissions from fossil fuels than the 108% target suggests. This paper makes estimates of the extent to which the inclusion of the Australia clause will permit the expansion of fossil sectors by the commitment period 2008-2012.

But first there is an important issue concerning the interpretation of Article 3.7 that has a major bearing on the calculation of base year emissions. The clause provides a trigger which permits a Party to include land use change emissions in its base year amount; it applies to "[t]hose Parties ... for whom land-use change and forestry constituted a net source of greenhouse gas emissions in 1990 ...". This trigger applies almost exclusively to Australia.[6]

However, the clause goes on to say that those Parties to whom this applies "shall include in their 1990 emissions base year or period the aggregate anthropogenic carbon dioxide equivalent emissions by sources minus removals by sinks in 1990 *from land-use change*

[5] This is referred to in Europe as 'baseline inflation' (see eg. Oberthur and Ott 1999, p. 134).
[6] Britain and Estonia have net emissions from land use change and forestry, but the numbers are very small.

for the purposes of calculating their assigned amount" (emphasis added). In other words, while the trigger mechanism refers to emissions from both land-use change and forestry, the affected parties shall include in their base year calculations net emissions and removals from land-use change but not from forestry.

Since the forestry sector in Australia is a net sink in the terms of the Protocol, the effect of both including land-use change and excluding forestry is to increase Australia's base year emissions. In our view it is quite inconsistent to treat land use change and forestry in different ways and acceptance of the wording of Article 3.7 may have been a mistake on the part of the negotiators in the last hours of the Kyoto Conference.

Nevertheless, in calculating Australia's emissions task below we have interpreted the clause literally to exclude net emissions from forestry from the base year. This is the interpretation favoured by the Australian Government. It increases base year emissions and therefore the allowable emissions in the commitment period when the 108% factor is applied.

In Table 1 we set out Australia's comprehensive emissions for 1990-1997 measured in millions of tonnes of carbon dioxide equivalent (Mt CO_2-e) using the figures from the most recent inventory issued in September 1999. Following the IPCC, the term 'comprehensive' is used to refer to emissions of all gases from all sources and all sinks. Table 1 is necessary because the Australian inventory does not include emissions from land-use change in the summary tables of emissions, so it is not possible to get the full picture from the inventory. The Government claims that this is because emissions from land clearing are more uncertain than emissions from other sources, but this is not a valid reason to obscure Australia's total emissions picture.

Table 1 Emissions by sector and comprehensive emissions, Australia 1990-1997 (Mt CO_2-e)

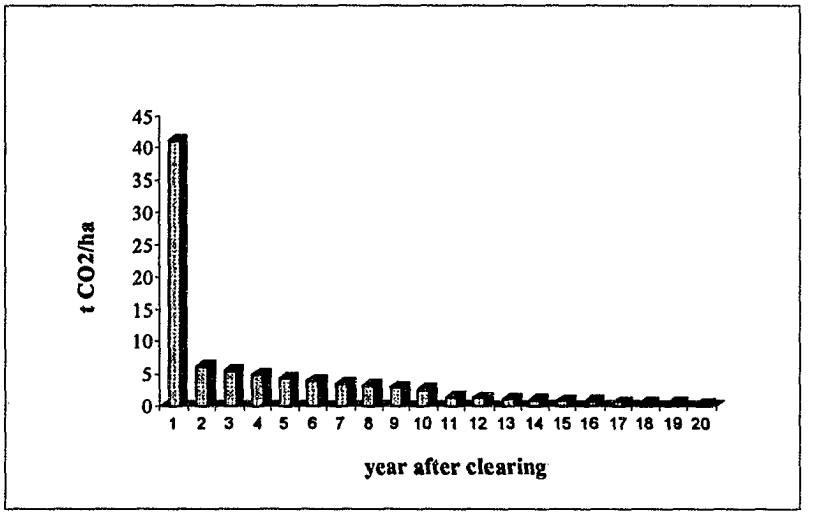
	1990	1991	1992	1993	1994	1995	1996	1997
Total comprehensive emissions	491.3	464.2	462.5	463.6	465.2	476.2	491.0	496.1
Total comprehensive emissions less Forestry and other	518.4	490.7	489.5	490.2	490.9	501.2	515.9	522.6
Energy	296.7	298.4	302.4	305.0	308.6	321.3	331.9	339.0
Industrial processes	12.1	11.7	10.4	10.2	9.9	9.0	9.2	9.0
Waste	14.8	15.1	15.3	15.6	15.6	15.2	15.3	15.6
Agriculture	92.1	92.5	91.3	92.0	92.0	93.0	92.9	94.2
LUC&F (total net)	75.6	46.5	43.1	40.8	39.1	37.7	41.7	38.3
F&GC (net)	102.7	73.0	70.1	67.4	64.8	62.7	66.6	64.8
Forestry and other (net)	-27.1	-26.5	-27.0	-26.6	-25.7	-25.0	-24.9	-26.5

Source: Derived from NGGIC 1999c, Appendix 1

3. Emission scenarios

What is the likely path of emissions from F&GC between 1990 and 2008-2012? We calculate three scenarios that vary with respect to the assumed rates of decline in emissions from land-use change. The analysis employs a model of emissions from land-use change incorporating decay functions for above-ground and below-ground biomass of various forms. Figure 1 shows the profile of emissions from one hectare of land for the first 20 years after clearing. Most of the emissions occur in the first year due to burning of above-ground biomass. After 10 years all above-ground and below-ground biomass is assumed to have decayed, leaving only continued emissions from soil carbon being released according to an exponential decay function.

Figure 1 Total net CO2 emissions from one hectare of cleared woodland (tCO2/ha)



Source: Institute estimates based on NGGIC 1997 methodology and data.
Note that in Figure 1 emissions are measured in C rather than CO_2.

It should be noted from Table 1 that net emissions from F&GC have been falling sharply – from 102.7 Mt in 1990 to 64.8 Mt in 1997, a decline of 37% over 6 years. Put another way, emissions from F&GC fell from 20.9% of Australia's total emissions in 1990 to 13.1% in 1997. The reasons for this decline are unclear but are probably related to the declining commercial profitability of clearing for grazing in Queensland in the 1980s and 1990s and the fact that the best grazing land was converted in earlier decades. The sharp decline in area cleared between 1990 and 1991 is discussed in Section 5 below. Three scenarios for emissions from F&GC are worthy of consideration.

Scenario 1 This scenario assumes that the rates of land clearing that prevailed in 1997 remain unchanged through to 2010. In this case we estimate that emissions from LUC will be 54 Mt CO_2-e in 2010. This figure has been calculated using the same

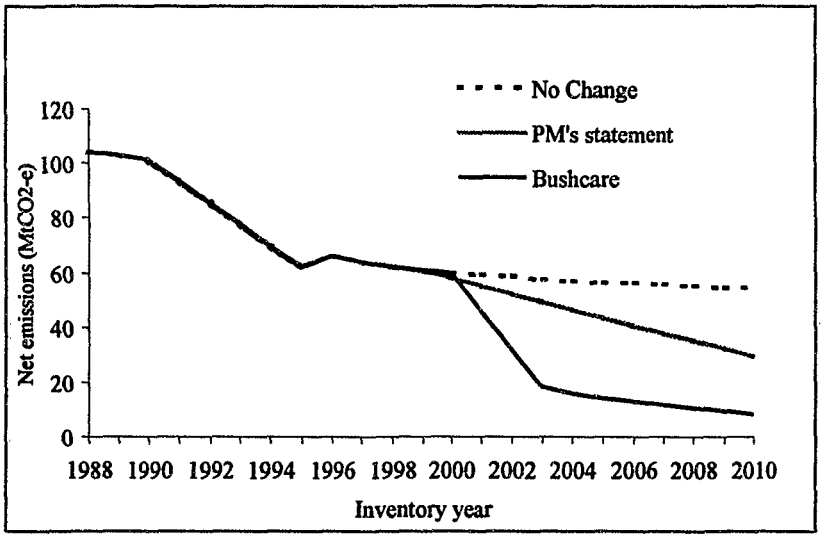
methodology and data as updated in the inventory (NGGIC 1997) and reflects the fact that a decline in land clearing in a given year will drag down emissions for more than 20 years due to the decay rates assumed in the methodology.

Scenario 2 This scenario is based on the statement by the Prime Minister in November 1997 that announced measures that are expected to see land clearing fall by 20,000 ha/a. We assume that this starts in the year 2000 and is sustained through to 2010. In this scenario emissions from F&GC fall to 29 Mt CO_2-e in 2010.

Scenario 3 The third scenario is based on the stated objective of the Federal Government's Bushcare program, i.e. no net loss of vegetation from the year 2000.[7] This has been interpreted to mean zero net clearing from 2002 onwards, with the rate halved in 2001. In this scenario emissions from F&GC are expected to fall to 8 Mt CO_2-e in 2010.

Figure 2 shows the path of net emissions from F&GC under the three scenarios.

Figure 2 Net emissions from F&GC 1990-2010, three scenarios (Mt CO_2-e)



[7] This is the interpretation put on the Bushcare program in media reports of correspondence between Senator Hill and State Governments (see, eg. ABC TV, 7.30 Report, 6 October 1999). The official objectives of the program are less clear. The national goal of Bushcare is to 'reverse the long term decline in the quality and extent of Australia's native vegetation'.

4. Australia's emissions task

Combining the estimated comprehensive emissions in 1990, the Kyoto 108% target, and the land-clearing scenarios we can estimate Australia's fossil emissions allowable under the Protocol. Table 2 sets out the emissions task facing Australia when all sources and sinks are included. In the table, Australia's total emissions are divided into just two categories:

1. net emissions from all sources other than land-use change (F&GC), including forestry, which we refer to as 'fossil fuels plus'; and

2. net emissions from land use change (excluding forestry), i.e. F&GC.

Australia's target (or QELRO) under the Kyoto Protocol is 108% of 1990 base year emissions by the 2008-2012 commitment period. This has been applied in Table 2 to total comprehensive emissions in the 1990 base year to calculate Australia's assigned amount or target.

It is apparent from Table 2 that even if rates of land clearing do not continue to decline (Scenario 1) then emissions from Australia's fossil fuels plus sectors can increase by 22% while Australia remains within the 8% overall target set at Kyoto. If the Government implements its announced plan to reduce land clearing by 20,000 ha/a, and emissions from F&GC fall to 29 Mt in 2010, then emissions from the fossil fuel plus sectors can increase by 28%.

If the Government succeeds in implementing its Bushcare objective of no net loss of vegetation then emissions from land-use change will fall to 8 Mt in 2010. This will allow fossil and other emissions to increase by 33% above 1990 levels while Australia still meets its overall Kyoto target.

The comprehensive inventory figures calculated for this paper reveal some interesting trends. Figure 3 shows the change in emissions from all sources. While total comprehensive emissions declined sharply between 1990 and 1992, they turned upward in 1993 and have risen rapidly since 1994. This is because, in the absence of adequate policy response in the energy sectors, the fall in emissions from land-use change (unrelated to greenhouse policy) has not been able to continue to offset the rapid growth in emissions from the fossil fuel sectors. This is apparent in Figure 4 which shows the changing sectoral shares of Australia's comprehensive emissions.

Table 2 Australian emissions from fossil fuels and F&GC under three land-clearing scenarios, 1990 and 2008-2012 (Mt)

	Mt CO_2-e	Change on 1990
1990 emissions		
Fossil fuels plus	416	
F&GC	103	
Total	518	
2008-2012 emissions: Scenario 1	No change	
Kyoto target[a]	560	+108%
Expected F&GC emissions[b]	54	-48%
Fossil fuels plus target	506	+122%
2008-2012 emissions: Scenario 2	PM's	
Kyoto target[a]	560	+108%
Expected F&GC emissions[b]	29	-72%
Fossil fuels plus target	531	+128%
2008-2012 emissions: Scenario 3	Bushcare	
Kyoto target[a]	560	+108%
Expected F&GC emissions[b]	8	-92%
Fossil fuels plus target	552	+133%

a. Calculated as a percentage increase on the relevant 1990 total emissions.
b. Calculated as a percentage fall on the relevant 1990 F&GC emissions.

Figure 3 Total comprehensive greenhouse gas emissions for Australia 1990-1997 (Mt CO_2-e)

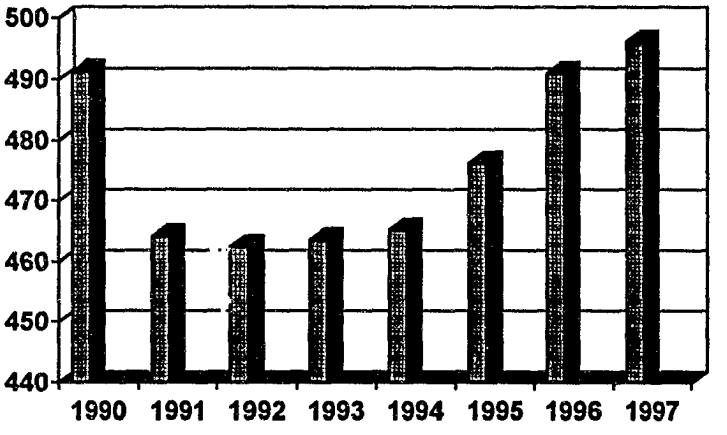
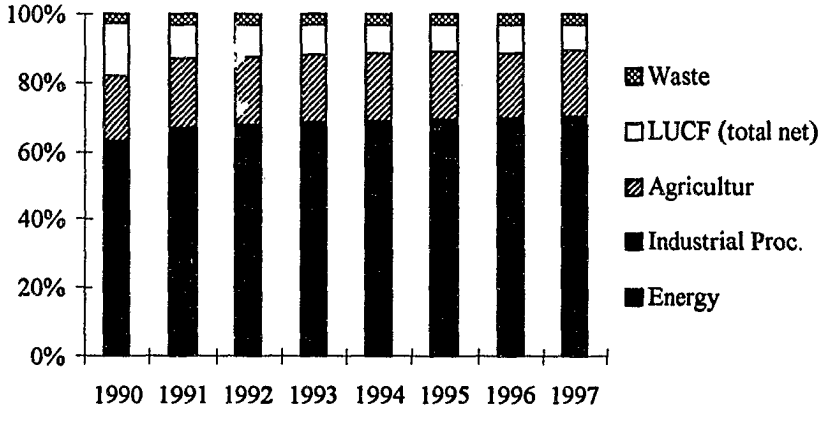


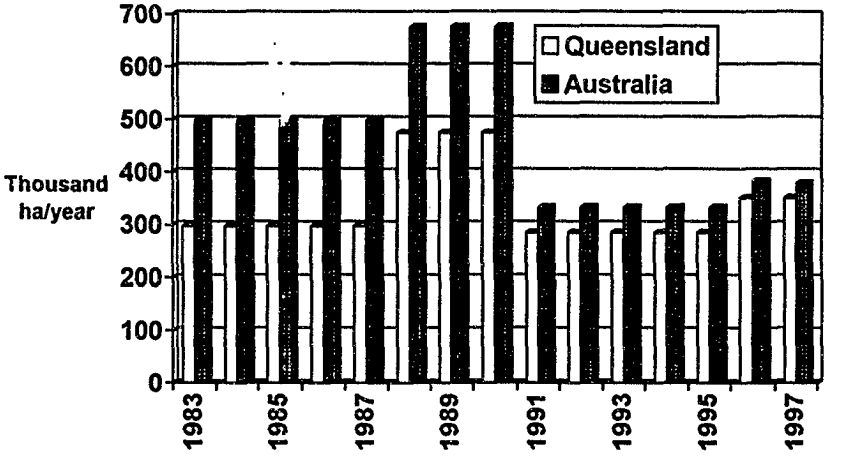
Figure 4 Shares of total comprehensive emissions in Australia by sector 1990-1997 (%)



5. Estimates of rates of land clearing

Emissions from F&GC depend first and foremost on estimates of rates of land clearing. These data have been the focus of a considerable amount of work over recent years with information drawn initially from rough and ready estimates in the field and increasingly from much more accurate remotely sensed data, i.e. satellite imagery. The latest inventory relies more heavily than the previous one on satellite imagery but acknowledges that the work is on-going. The land-clearing data which form the basis of estimates of emissions from F&GC in the latest inventory are summarised in Table 3. The annual land clearing for Queensland and Australia as a whole are graphed in Figure 5.

Figure 5 Land-clearing rates in Australia and Queensland 1983-1997 (000 ha/year)



Source: NGGIC 1999c, Table 1

It is apparent that the bulk of land clearing occurs in Queensland – 70% of the Australian total in 1990 and 93% in 1997. The Queensland data are derived from the SLATS research project (Statewide Landcover And Trees Study) (NGGIC 1999c). The inventory notes that the 1990 clearing figure for Queensland (475,000 ha) is an 'interim sample' figure only. It recommends a high degree of caution and suggests that the true figure could lie in the range of 350,000 to 600,000 ha/y (NGGIC 1999c).

Table 3 Land-clearing rates by State used in the 1997 inventory (000 ha/year)

Year	QLD	NSW	WA	Others	TOTAL
1983	298	52	93	55	498
1984	298	52	93	55	498
1985	298	52	93	55	498
1986	298	52	93	55	498
1987	298	52	93	55	498
1988	475	52	93	55	675
1989	475	52	93	55	675
1990	475	52	93	55	675
1991	285	16	21	8	331
1992	285	16	21	8	331
1993	285	16	21	8	331
1994	285	16	21	8	331
1995	285	16	21	8	331
1996	350	16	6	8	382
1997	350	16	2	8	378

Source: NGGIC 1999c, Table 1

Figure 5 and Table 3 show a sharp increase in land clearing between 1987 and 1988 followed by a halving of the rate between 1990 and 1991, from 675,000 ha to 331,000 ha. This estimate of a sharp decline in the rate of land clearing has major implications for Australia's Kyoto target. The previous section of this paper showed that Australia's Kyoto target in the commitment period, 108% of 1990 emissions, amounts to 560 Mt CO_2-e. If the precipitate decline in rates of land clearing had occurred one year earlier (that is, before the Kyoto base year) then Australia's Kyoto target would be substantially lower. The Institute estimates that the new target would be 528 Mt.[8] Thus the fact that the large fall in the rate of land clearing occurred in 1991, and not in 1990 or earlier, was extremely fortuitous for it means that Australia's total allowable emissions under the

[8] Obtained from Table 1 above by shifting the F&GC (net) row one year to the left so that net emissions in 1990 are 73.0 instead of 102.7 Mt.

Protocol are 6% higher than they might otherwise be. While enormous diplomatic effort was invested in gaining agreement to an 8% headline increase in emissions under the Protocol, a mere measurement decision makes a 6% difference in the target as a result of the Australia clause. This is a very large number by any standard and Australia's land clearing data will undoubtedly attract intense scrutiny from other Parties to the Framework Convention.

6. Conclusions and policy implications

The land-clearing loop-hole

The analysis of Australia's comprehensive greenhouse gas emissions using the latest official inventory shows that the expected decline in land clearing will mean that emissions from fossil and other sources will be able to increase by between 22% and 33% rather than the 8% figure anticipated at Kyoto.

The inclusion of the 'Australia clause' in the Kyoto Protocol opened up a large loop-hole which only one country is in a position to exploit. Parties other than Australia were unaware of the implications of this clause at Kyoto. Had they been aware of them, the land-clearing concession made to Australia would have perhaps provided the Kyoto negotiators from other Parties with the evidence to demand that Australia cut its emissions by considerably *more* than Europe, Japan and the USA.

Is it apparent from the analysis above that land-clearing emissions have become Australia's equivalent to Russian 'hot air', a phenomenon that is causing serious division amongst the Parties to the Protocol. Instead of fossil emissions declining due to industrial shutdown, as in the Russian case, land-use emissions are falling due to commercial factors unrelated to greenhouse policy. This why a recent European analysis of the Kyoto Protocol drew the following conclusion: 'The Kyoto targets surely have two main winners: Russia and Australia'.[9]

If Australia had agreed at Kyoto to reduce land clearing emissions to 29 Mt by 2010 and to limit fossil emissions growth to 18% above 1990 levels by 2010 – both of which were Government policies – then Australia could have agreed to a target of 100% of 1990 emissions by 2008-2012. As it stands, Australia's fossil emissions will be able to increase by up to 33% while other industrialised countries are cutting their fossil emissions. This is especially anomalous since, as we have shown elsewhere (Hamilton 1997), Australia will find it *easier* to cut fossil emissions than most other industrialised countries.

This paper has also demonstrated the extreme sensitivity of estimates of land-clearing emissions to technical measurement decisions. We noted that if the estimated fall in land clearing rates had occurred in 1990 rather than 1991, as the inventory shows, then this would result in a fall of fully 6% in Australia's allowable emissions in the commitment

[9] The authors go on to observe that the Australian deal 'has set a bad precedent for future negotiations, especially with regard to developing countries' (Oberthur and Ott 1999, pp. 137-38).

period. This sensitivity can be illustrated in another way. The revision to estimates of land clearing emissions in the 1997 inventory resulted in a 14% increase in estimated 1990 base year emissions (from 90 to 103 Mt). If tradable emission permits are valued at $20 per tonne of CO_2,[10] then this single revision to the inventory is worth $260 million to Australia. The fact that the sharp fall in rates of land clearing are reported to have occurred between 1990 and 1991, and not between 1989 and 1990, results in an additional 32 Mt of allowable emissions valued at $640 million.

Policy errors

The opportunity to end land clearing provides a means of making a large contribution to meeting Australia's Kyoto target very cheaply. It is, moreover, a Federal Government policy objective for reasons unrelated to climate change. Based on ABARE data, Ryan (1997) has estimated that the cost of ending land clearing in terms of forgone agricultural output would be less than $2 per tonne of CO_2 emissions saved. This compares with the AGO's best estimate of the abatement cost of $30 a tonne, and the Australia Institute's $20 a tonne of CO_2.[11] This suggests that ending land clearing in Queensland would make a very large a contribution to meeting Australia's Kyoto target at around one-tenth the cost of other measures.

However, current Federal Government policies appear to be working in the opposite direction, especially in pursuit of the Bushcare program objective of no net clearing of land by 2000. Environment Minister Senator Robert Hill was recently reported to have threatened to withhold $34 million in Bushcare grants to Queensland because it seems unlikely to meet the objective. As a result of this pressure from Canberra, and the expectation that the Queensland Government will respond by introducing legislative restrictions on land clearing on both freehold and lease-hold land, land holders in Queensland have reportedly increased clearing activity greatly. Bulldozers are reported to be working 24-hours a day including under floodlights at night.[12]

The error in this approach, and the solution to it, are obvious. Instead of withholding funds if landholders clear land, it would make sense to use the money to compensate landholders who agree not to clear. If 350,000 ha are being cleared each year in Queensland (the inventory figure for 1997) then $34 million amounts to around $100/ha. This compares to the estimated economic value of land clearing in Queensland of around $40/ha.[13] On average, each hectare of land cleared results in the net release of at least 87 tonnes of CO_2-e.[14] In other words, instead of withholding funds if land clearing is not stopped, the funds should be used to compensate land holders for not clearing. This would be a much more effective means to end land clearing.

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[10] See the discussion of prices of emission permits in Hamilton and Turton (1999).

[11] ABARE has estimated the marginal cost of abatement to be several times higher.

[12] *Sydney Morning Herald*, 30 October 1999; ABC TV 7.30 Report, 6 October 1999.

[13] This is the capitalised value of lost income streams as a result of proposed restrictions on tree clearing in Queensland, estimated in ABARE (1995), Table 5.1.

[14] Uses inventory methodology and a time frame of 20 years for soil carbon applied to Queensland woodland. A more inclusive estimate would be substantially higher.

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Inquiry into Australia's Response to Global Warming

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Australia Institute Submission Number 5

Assessment of Policies

The Greenhouse Challenge Program

Submission to Senate Environment References Committee

Inquiry into Australia's Response to Global Warming

9 March 2000

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Executive Summary

The Greenhouse Challenge Program (GCP) is the flagship greenhouse policy of the Federal Government and is used consistently to demonstrate its commitment to reducing emissions. Proper evaluation of the Program's effectiveness must be based on a clear assessment of the extent to which the participating companies actually reduce their emissions *below the levels they would reach* without the Program.

However, the Program is plagued by systematic overstatement of its achievements in cutting emissions. It is accepted within the Greenhouse Challenge office that most of the baseline projections are highly unreliable and that the claimed reductions in emissions have little meaning.

An evaluation of the Program conducted by the Government in 1999 concluded that it has been very successful in achieving greenhouse gas emission abatement in industry. The conclusion is wholly without foundation. The evaluation failed to carry out the most basic task – to test the claims of GCP participants against the evidence of real emission cuts. Polluting industries have used the results of the evaluation to strengthen their political arguments against mandatory emission abatement policies. The composition of the evaluation team was heavily biased in favour of those who want the GCP to be seen to be successful.

An independent evaluation of the GCP commissioned by the Government in 1996 was highly critical of the assumptions on which estimated reductions are made. The report concluded that only 17% of the emission reductions planned by the companies examined could in any sense be attributed to the Program; 83% of claimed reductions would have happened anyway.

The Greenhouse Challenge office has been preoccupied with signing up companies in order to meet the Prime Minister's target of 500 large and medium-sized companies by the year 2000. As a result, the quality of the agreements has been sacrificed for quantity.

The Program's marketing strategy is explicitly designed to promote the green credentials of participating firms. Some admit that part of their motivation for joining the Challenge was to promote a 'clean and green' image. But in the absence of independently verified real reductions in emissions, the GCP looks like a publicly funded PR exercise for Australia's biggest polluters.

By creating the impression that greenhouse polluters are doing the right thing, the Greenhouse Challenge Program has blunted public demands for more effective action. Arguably, the Program is doing more harm than good.

1. Introduction

By 1995 the failure of the National Greenhouse Response Strategy to reduce the growth of Australia's emissions was apparent to all. Amid pressures for a carbon tax, the Labor Government introduced additional measures in its 'Greenhouse 21C' program announced in March 1995. The most important of the new measures was the Greenhouse Challenge Program. From the outset it was supported enthusiastically by industry as an effective means of heading off mandatory measures. The GCP gave major fossil-fuel based firms an opportunity to demonstrate their willingness to respond to community concern over climate change while avoiding compulsory measures that might impose costs on business.

Prime Minister Howard's November 1997 statement on climate change reaffirmed the importance of the Greenhouse Challenge Program with an additional allocation of $27 million.[1] In the statement, the Prime Minister committed the Government to increasing the number of large and medium-sized participating companies from 100 to 500 by the year 2000 and to more than 1000 companies by 2005. In the two years since the statement, the Greenhouse Challenge program has assumed an even more central role in the Government's climate change policy arsenal.

The Greenhouse Challenge Program (GCP) is now the flagship greenhouse policy of the Federal Government. At both national and international forums the Government has consistently used the program as a demonstration of its commitment to reducing emissions.

2. The Additionality Problem

While the GCP has a number of official objectives, the first and most important is to achieve reduction of greenhouse gas emissions by the participating companies. In the absence of this objective the Program has little point. Thus in assessing of the effectiveness of the policy, the critical test is the extent to which it has succeeded in reducing greenhouse gas emissions *below the levels they would otherwise reach.* This last phrase is vital. It is impossible to judge the effectiveness of the GCP without making a convincing case about what the levels of emissions would have been in the absence of the program.

In the terms of the Kyoto Protocol, the issue of determining the baseline is referred to as the problem of 'additionality'. The concept appears in Article 6 of the Protocol establishing joint implementation – under which Annex B countries may obtain credits by investing in emission reduction projects in other Annex B countries – and Article 12 creating the Clean Development Mechanism – under which Annex B countries may obtain credits by investing in emission reduction projects in developing countries. The Protocol states that credits may be obtained only for projects that result in emission reductions (or sink enhancements) *additional to any that would otherwise occur.*

In the case of the GCP, the key question is the extent to which greenhouse gases emitted by participating companies are lower in the year 2000 than they would have

[1] 'Safeguarding the Future: Australia's Response to Climate Change', Statement by the Prime Minister of Australia, 20 November 1997.

been without the Program where both are compared from a given starting point (1990 in the case of two-thirds of end-use emitters, and 1995 for the rest). Assessing the effectiveness of the GCP therefore hinges on the development of credible projections of baseline emissions, that is, the emissions that would have occurred in the absence of the Program.

The first point to note is that the task of describing the baseline path is the sole responsibility of the participating companies, although they are required to follow the guidelines laid down in the GCP workbooks. Self-assessment without independent verification provides an incentive to overstate expected emissions growth, for a company that exaggerates its baseline emissions will appear to have reduced its emissions by more and will therefore receive more plaudits from the Government and will be able to portray itself as a good corporate citizen.

In fact, there are grounds for believing that the program is plagued by systematic 'baseline inflation'. It is accepted within the Greenhouse Challenge office that administers the program that most of the baseline projections are highly unreliable and that the claimed reductions in emissions have little meaning. This is partly because, despite the existence of the workbooks, there is no consistent approach to developing baselines. Nor is there any independent audit of the baselines, the actual emissions and the reported reductions in emissions. It appears that no Challenge plans submitted to the office have been rejected or sent back for major revisions.

There are two approaches to defining baselines. The 'frozen efficiency approach' assumes that the energy used per unit of output, and other factors that influence emission levels (such as the fuel mix), will remain unchanged in the period up to the target date. Future emissions are therefore arrived at by multiplying the fixed emission intensity factor by the expected level of output.

The 'business-as-usual approach' attempts to incorporate for each company the improvements in energy efficiency that would occur under normal business plans, that is, in the absence of the GCP. This approach also accounts for expected changes in the fuel mix.

As energy efficiency is improving most of the time – large-scale economic models typically assume a rate of improvement of 1% to 1.5% per annum – the frozen efficiency approach inevitably generates higher baselines than the business-as-usual approach. Use of it will make the emissions reduction due to the GCP appear larger. Since nearly all participants report baselines calculated using frozen efficiency assumptions the reported emission reductions have a built-in bias. How great is this bias? This question can only be answered by detailed case studies of participants in the Program, but there are grounds (discussed below) for believing that the bias is very large.

This situation is reinforced by the absence of any process of independent verification of the claims made by the participants or the Government as to the impact of the Program. As the agreements are secret and the matters are technically complex, independent opinion is essential if the public is to have confidence that tax-payers' funds are being spent effectively. After reviewing the reporting and verification process of the GCP, Roger Burritt, an environmental accountant at the ANU, concluded:

> ... at times the AGO seems more concerned about the credibility of its Program, rather than the credibility of the information reported to the public.[2]

3. The 1999 Evaluation Report

The GCP has recently been the subject of an evaluation by the Government. The Report of the evaluation team concluded as follows:

> The Greenhouse Challenge is demonstrating that significant greenhouse gas emission abatement actions are taking place in industry ... In particular, the data available indicates [sic] that in 2000 the actions being undertaken by industrial end-users will result in 23.5 Mt CO_2-e (equivalent) per annum, or 16 per cent less emissions compared to what would have occurred in the absence of these actions.[3]

As we have seen, the words 'compared to what would have occurred in the absence of these actions' are of critical importance. This finding has been seized upon by supporters of the Program as a vindication of its effectiveness. Reporting on the evaluation, the Australian Greenhouse Office stated boldly in its newsletter:

> The Greenhouse Challenge program has been very successful in achieving greenhouse emission abatement in industry.[4]

Polluting industries have used the results of the evaluation to reinforce their political arguments against mandatory emission abatement policies. For example, quoting the Evaluation Report's 16% figure, the newsletter of the World Coal Institute proclaimed last December:

> The release of Australia's Greenhouse Challenge Evaluation report has demonstrated the value of voluntary action, and provided industry with an argument against mandatory measures to curb greenhouse gas emissions.[5]

In fact, the conclusion of the Evaluation Report is wholly without foundation. The evaluation failed to carry out the most basic task – to test the claims of GCP participants against the evidence of real emission cuts. It simply reported the claims of the companies as if they were fact and did not raise doubts about the veracity of the figures.

Although the evaluation team noted that it is difficult to separate emission reductions that are due to the Program from those that would have occurred anyway, and that the frozen efficiency assumption is deficient, none of the caveats that the evaluation team noted in the body of the text were included in the executive summary.

One of the more remarkable, if unintended, revelations of the Evaluation Report centred on a survey of participants conducted by the Greenhouse Challenge office.

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[2] Roger Burritt, 'Commonwealth Greenhouse Challenge – the reporting and verification process', *Australian Journal of Environmental Management*, Volume 6, March 1999, p. 50

[3] Australian Greenhouse Office, Greenhouse Challenge Evaluation Report 1999, p. 3.

[4] *The Challenge*, Newsletter of the AGO, Summer 1999, Issue No. 14

[5] *Ecoal*, the quarterly newsletter of the World Coal Institute, Volume 32 December 1999.

> ... over half of surveyed participants indicated that the Challenge played an important role in stimulating abatement action. On this basis it is clear that many actions would not have occurred without the Challenge (p. 46).[6]

The implication of this seems to have escaped the evaluation team. The survey showed that nearly half of the participants in the GCP admitted that the Program did not stimulate them to *any* abatement action. Since stimulating abatement action is the very purpose of the Program, the Program appears to be condemned by nearly half of the participants as ineffective. The companies in question, it should be stressed, have a strong incentive to say that participation *has* induced them to change their behaviour.

Membership of the evaluation team

It is difficult to avoid the conclusion that the evaluation was a political exercise rather than a serious attempt at policy evaluation. This conclusion is reinforced by examination of the membership of the evaluation team. Three of the seven members were drawn from various parts of the federal bureaucracy each of which has an interest in portraying the Program in a good light – the Australian Greenhouse Office, the Department of Industry, Science and Resources and the Department of Agriculture, Fisheries and Forestry. It would be very difficult for representatives of these parts of the bureaucracy to mount serious criticisms of the Government's flagship greenhouse program.

Another three members of the team were drawn from the fossil fuel industries – Mr John Eyles of the Australian Industry Greenhouse Network, Mr Barry Jones of the petroleum industry association and Dr John Tilley of the Cement Industry Federation. Each of these industry groups has a strong interest in bolstering the credibility of the voluntary program.

Finally, the team was chaired by Professor Stuart Harris of the ANU. Professor Harris proved to be an unwavering supporter of, and advocate for, the Government's position in the lead-up to the Kyoto Conference. In particular, he chaired the Steering Committee that oversaw ABARE's greenhouse modelling. Senator Parer was forced to reveal, after sustained questioning in the Senate, that the MEGABARE model was funded largely by the fossil fuel industry, members of which paid $50,000 for a seat on the Steering Committee, an arrangement that was severely criticised by the Commonwealth Ombudsman who said that it had damaged the credibility of the research.[7]

Given the extent of the Government's investment of political capital in the GCP at home and abroad, it is difficult to imagine an evaluation team constituted in this way reaching conclusions that undermined the Program's credibility.

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[6] According to the *Environmental Manager* newsletter (October 26, 1999), the figure was 58%, but this figure was actually omitted from the report made available to the public.

[7] Commonwealth Ombudsman 1998. Report of the investigation into ABARE's External Funding of Climate Change Economic Modelling, February

4. The 1996 Evaluation

Although it is difficult to separate the effects of the GCP from business-as-usual activities, it is not impossible. As it happens, there has been an independent study commissioned by the Government that attempted a proper evaluation of the effectiveness of the Program. This study was not made public until the former Energy Minister Senator Parer inadvertently agreed to release it under questioning from a Senate Estimates Committee in 1996.[8]

The report was carried out by two leading energy consulting firms, George Wilkenfeld and Associates and Economic and Energy Analysis, and is dated July 1996.[9] The evaluation included a detailed assessment of the first four confidential agreements signed under the Challenge, those with BHP, Shell, CRA and ICI. While the 1996 report covered only four agreements, albeit with major industrial polluters, it is the only hard evidence available on the effectiveness of the GCP in achieving real emission abatement.

The report was very critical of the use of the frozen efficiency assumption, suggesting that it

> is an entirely artificial concept ..., and does not reflect what would have been likely to occur even in the absence of the GCP (p. 27).

The authors asked which of the emission-cutting projects detailed in the four agreements would have been implemented for normal commercial reasons in the absence of the Challenge. In other words, they engaged in an independent process of baseline testing. By examining each of the proposed actions set out in the agreements they were able to estimate the proportion of the claimed reductions in emissions anticipated by the agreements that would have occurred under business-as-usual (BAU) conditions. They concluded:

> This suggests that about 83% of the emissions reduction would most likely be realised in a BAU scenario (p. 28).

In other words, only 17% of the emission reductions planned by these companies could in any sense be attributed to the Greenhouse Challenge Program. On this basis, the only hard evidence we have, the emission reduction estimate endorsed by the 1999 evaluation of 23.5 Mt CO_2-e is in reality more like 4 Mt CO_2-e, and the 16% reduction claimed should in fact be less than 3%.

At one level, the 1996 report is a damning one for the Greenhouse Challenge Program. It refutes the claims by the Government and industry that voluntary agreements are adequate and effective means of tackling climate change. On the other hand, the GCP was explicitly designed to be a 'no-regrets' measure, that is, one that would not require polluters to undertake any measures that have a net cost to the company, and so it is perhaps not surprising to find that participants loaded up their

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[8] Inadvertently in the sense that he appeared unaware of the contents of the report and their significance.

[9] Prepared for the Greenhouse Challenge Office, the report is titled 'Evaluating the Greenhouse Challenge – Issues and Options'.

agreements with projects that were already on the drawing boards so that only a sixth of their reported actions were stimulated by the GCP.

The 1999 Evaluation Report makes no mention of the 1996 evaluation, the only independent evidence as to the effectiveness of the Greenhouse Challenge Program. This is inexplicable, unless one views the 1999 evaluation as a (rather unsophisticated) whitewash.

The conclusions of the 1996 evaluation report are consistent with international studies of the effectiveness of voluntary agreements. For example, a study by Torvanger and Skodvin of voluntary agreements throughout the OECD concluded that they are largely ineffective, although they have some attraction as supplements to traditional command and control or market-based policy tools.

> Given their undocumented environmental effectiveness, it is odd that EAs [voluntary environmental agreements] have gained such widespread recognition by governments as an instrument for environmental management.[10]

5. The GCP as a Public Relations Exercise

A substantial portion of the GCP budget has been devoted to promoting the Program and the participants in it. Expensive publications lauding the achievements of major firms are commonplace, and ministers have been on hand to launch one batch of agreements after another. The Government has bought full-page newspaper advertisements congratulating the major firms for their commitment.[11] In other words, the Federal Government has been spending substantial amounts of public funds promoting the environmental records of major firms.

The GCO's marketing strategy is explicitly designed to promote the green credentials of participating firms, some of which are honest enough to admit that part of their motivation for joining the Challenge was to promote a 'clean and green' image.[12] The Challenge's Implementation Plan is designed in part to assist companies to obtain media coverage for their 'commitment' to reduce greenhouse gases. According to one participating company: 'The Greenhouse Challenge gave us the public relations benefit, which was a big plus'. However, some participants believe that the Government is not working hard enough at promoting their green credentials. According to the 1999 evaluation report:

> Although there has been a lot of promotional and publicity work done through the Challenge some survey respondents indicated that they would like the public profile of the Challenge lifted (p. 59).

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[10] Asbjorn Torvanger and Tora Skodvin, 'Implementing the Kyoto Protocol: The role of environmental agreements', CICERO Report 1999:4 (www.cicero.uio.no)

[11] A full-page advertisement in a major broadsheet costs around $30,000-$40,000. One taken out in the *Weekend Australian* on 3-4 May 1997, gave prominence to the environmental credentials of Pasminco, the mining company that has recently had a class action launched against its lead smelter by nearby residents who claim severe health damage.

[12] The 1999 evaluation report says 20% of surveyed participants acknowledged this (p. 59)

A case could be made for promoting the benefits of the Program if the Program were achieving substantial cuts in Australia's emissions. But in the absence of independently verified real reductions in emissions, the GCP looks like a publicly funded PR exercise for Australia's biggest polluting firms. By creating the impression that greenhouse polluters are doing the right thing, the Greenhouse Challenge program has blunted public demands for more effective action. Arguably, the Program may be having a detrimental effect on Australia's attempts to cut greenhouse gas emissions.

6. Administration of the Program

The Greenhouse Challenge office has been preoccupied with signing up companies in order to meet the Prime Minister's target of 500 large and medium-sized companies by the year 2000.[13] Meeting the Prime Minister's target has meant that the process of ensuring that the program is actually making a difference has been neglected. As a result, the quality of the agreements has been sacrificed for quantity.

Moreover, there is a view within the AGO that the large emitters are not pursuing their agreements with vigour, while smaller emitters (which are often large firms) are taking it more seriously. There are two possible explanations for this. The first is that the large emitters are major fossil-fuel based firms that have been heavily involved in the greenhouse debate for many years and understand that the GCP is more concerned with appearance than substance. The smaller emitters, being late-comers, are less inclined to look behind the façade.

The second is that large emitters have put everything else on hold until they know the Government's decision on emissions trading. The introduction of a cap-and-trade emission permit system will make the GCP redundant for all firms that have legislated emission caps. A baseline-and-credit trading system would probably draw heavily on information in GCP agreements in order to establish baselines for major polluters. The targets in the agreements themselves would be redundant, although the actions specified in the agreements would provide a guide to some the activities that may generate credits.

There is a view that the petroleum and electricity industries have captured the strategy committee that oversees the work of the Greenhouse Challenge office. They are interested in maintaining the emphasis on quantity rather than quality, and want any strengthening of reporting and verification delayed until the broader policy environment becomes clearer.

Major polluters have more recently attempted to extract additional commercial advantage from the Greenhouse Challenge Program. As discussions over the introduction of emissions trading progress, some industry groups have argued that polluters that have made sacrifices by cutting their emissions before the Kyoto commitment period should be rewarded. According to this view, achievements under the Greenhouse Challenge Program should be the basis for assessing the extent of this

[13] A deadline which, strictly speaking, has already passed. The 1999 evaluation reported that as at 1 July 1999, 224 organisations had signed agreements and a further 178 had signed letters of intent (p. 31).

'credit for early action'. In a hard-to-obtain speech given on 12th December 1998, Senator Hill indicated that GHC participants would be given credit for early action.

However, the explicit 'no-regrets' basis of Greenhouse Challenge agreements means that companies are being encouraged to undertake actions that are commercially beneficial and, as we have seen, would for the most part have been undertaken anyway. It would be extraordinary if these companies were rewarded for undertaking activities that have been in their own commercial interests. The attempt by big polluters to double dip is a salutary reminder of just how insincere and avaricious Australia's fossil industries have been throughout the whole greenhouse debate.

7. Conclusions

The political value of the Greenhouse Challenge Program has been considerable. It has enabled many major polluters to create the impression that they are concerned about climate change and are willing to make their contribution. Industry has frequently used the existence of the Program to deflect demands to take more serious action to cut emissions. It has also been of value to the Government; while appearing to act on the issue it has not alienated industry. It has also provided it with ammunition with which to respond to the sustained attacks on Australia abroad. Predictably, the sacrifice for this politically convenient solution has been the failure to reduce greenhouse gas emissions, the putative objective of the policy.

It is difficult to avoid the conclusion that the Greenhouse Challenge Program has been an elaborate public relations exercise providing free publicity to major polluting firms with minimal impact on greenhouse gas emissions.

Although voluntary agreements will never make a major contribution to cutting greenhouse gas emissions, ensuring the GCP at least meets its stated objectives would require each agreement to be based on credible estimates of business-as-usual emissions. Agreements should be approved only if the Greenhouse Challenge office is convinced that the company is making a serious effort to cut emissions below the level they would otherwise reach. The claimed emissions reductions would need to be verified by independent auditing. However, the evidence suggests that such a process of 'due diligence' would cause the emissions reductions attributable to the Program to shrink to such an extent that the need for mandatory measures would become manifest.

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Inquiry into Australia's Response to Global Warming

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To: Mututu, Angela (SEN)
Subject: Australia Institute revised sub

Angela

Clive Hamilton of the Australia Institute has just sent me this more recent sub 79e - ie. replaces the one he has just sent us. Apparently this version has several corrections in it.

Cheers, Dave

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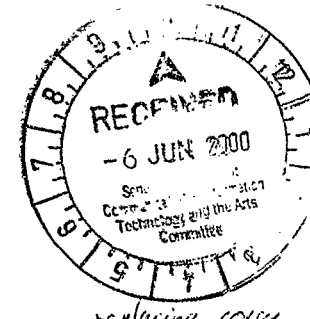
Australia Institute Submission Number 6

The Development of Australia's Position on Climate Change, and its Implications

Submission to Senate Environment References Committee

Inquiry into Australia's Response to Global Warming



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Contents

This paper analyses key events in the preparations for the Kyoto conference on climate change in December 1997. It argues that the Howard Government's pursuit of its climate change agenda resulted in the corruption of the policy process in Canberra with lasting effects on the ability of key departments to provide frank and fearless advice. Moreover, the diplomatic fall-out from Australia's 'victory' at Kyoto will be felt for a long time as it has transformed international perceptions of Australia. Instead of being regarded as a leading global citizen concerned for protection of the environment, Australia is seen to be an obstructionist and laggard nation.

The paper also argues that climate change policy became driven by a narrow and irrational preoccupation with protecting energy-intensive exports, one that contradicted the idea of making Australia a technologically sophisticated producer of high value-added manufactured goods and services. The dogmatism with which climate change policy was pursued damaged both efforts to solve the global problem of climate change and the integrity of the Australian system of government.

1. The international campaign leading to Kyoto

The 1995 Berlin Mandate to the UN Framework Convention on Climate Change confirmed the intention of industrialized countries to cut their greenhouse gas emissions to agree to mandatory greenhouse gas emission reductions and set in train a process of negotiations leading to the Kyoto conference in December 1997.

In contrast to the progressive role played by Australia at the 1992 Rio Convention that established the Framework Convention, by the end of 1997 Australia was being described in the world's press as a 'pariah nation'. In 1996 and 1997 the Howard Government mounted a vigorous and expensive international campaign to prosecute its case on climate change. As the campaign evolved, it became increasingly clear that the intention of the Australian Government was to undermine the proposed implementation of mandatory emission reductions, especially the model proposed by the European Union that would have required uniform reductions for Annex 1 industrialised countries of 15 per cent below 1990 levels by 2010. If it could not prevent international agreement on mandatory reduction targets, it was determined to gain special concessions for Australia.

The year 1997 was one of intense diplomatic activity with frequent ministerial trips abroad. In addition, dozens of trips overseas were made by officers of the Department of Foreign Affairs and Trade (DFAT) and the Australian Bureau of Agricultural and Resource Economics (ABARE) who toured the globe attempting to persuade the rest of the world of the merits of Australia's case.

Essentially, the Government argued that, due to Australia's heavy reliance on fossil fuels, uniform emission reduction requirements would impose an unfair economic burden on Australia. It advocated a complicated formula for 'differentiated' targets, which would award a more lenient task to Australia than other countries. The Australian Government claimed that such a proposal was consistent with the Framework Convention's reference to 'common but differentiated responsibilities'.[1]

Most experts outside of the Australian Government and the fossil fuel industries took a contrary view – that Australia's heavy dependence on fossil fuels would make it easier for it to cut emissions by a uniform proportion, and that Australia's exceptionally high per capita emissions made pleas for special consideration perverse. As will become apparent below, Australia failed to convince other countries of the merits of its position,

[1] The phrase 'common but differentiated responsibilities' was first used in the Framework Convention and reiterated in the Berlin Mandate. As a matter of record it should be made clear that the phrase referred to the 'common but differentiated responsibilities and respective capabilities' *between developed and developing countries*. It is important to recognise this because the Australian Government used the phrase to give legitimacy to its differentiation argument in the lead-up to the Kyoto Conference. This was intended to give the impression that the Framework Convention and the Berlin Mandate provided the principle on which the Australian case was based. This was a misuse of the wording of the Convention for it was never understood to apply to 'differentiated responsibilities' among the rich countries. The errors in the Australian Government's argument have been dealt with in detail in other publications by the Australia Institute, including its submission to the Senate Inquiry into Global Warming 'Common Misconceptions in the Climate Change Debate', December 1999.

and its campaign was met around the world with skepticism and at times undisguised hostility.

Throughout 1997 various senior ministers returned from abroad claiming that the world was being won around to Australia's position. Environment Minister Robert Hill was publicly upbeat, despite the evidence to the contrary. Deputy Prime Minister Tim Fischer returned from Paris in May claiming that Australia had made a breakthrough in moves to persuade other countries of the error of uniform targets. "We're no longer alone as recently portrayed," he said.[2]

Prime Minister Howard said in the aftermath of his visit to the US in early July: "I got a lot further on greenhouse gas emissions than I ever dreamt possible".[3] However, it was clear to close observers that the reality was quite different; there was an accumulation of evidence that the rest of the world found the Australian position to be unconvincing and self-serving. The Foreign Minister Alexander Downer inadvertently gave the game away in a speech to a Melbourne business seminar on 7th July by conceding that Australia's attempts to put its case were sometimes met with "quite openly hostile opposition".[4]

The Australian Government's case was subjected to a devastating attack from Timothy Wirth, US Under-Secretary for Global Affairs, during a satellite linkup arranged by the US Information Service on 23rd July 1997. Much of the lobbying by the Australian Government had been directed at the USA, yet Mr Wirth said that the US Government did not understand Australia's differentiation position.

> There's ... an Australian suggestion that there be some sort of differentiation. ... We look forward to really learning what that means. We're not sure what differentiation means.[5]

These comments were a serious diplomatic slap in the face for the Prime Minister since he had a week or so earlier met with President Clinton to explain the Australian position. Mr Howard's position was based on economic modelling by the Australian Bureau of Agricultural and Resource Economics (ABARE). In response to a question about the results of the model Mr Wirth replied that we should "look at what those people are smoking".

At home and abroad, Australia was increasingly characterised as a 'pariah nation', bracketed with the OPEC countries and seen to be pursuing narrow self-interest with little regard for the environment or the diplomatic implications of seeking special concessions. This was especially apparent at the preparatory meeting of the parties in Bonn in June 1997 where Australian NGOs attacked the Government's arguments and economic modelling.

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[2] *The Canberra Times*, May 25 1997

[3] *The Australian*, 24 July 1997, p. 3

[4] 'Australia and Climate Change', Address to the Global Emissions Agreements and Australian Business Conference, Melbourne, 7 July 1997.

[5] ABC Radio, 'PM', 23 July 1997. See also reports on 24 July 1997 in the *Sydney Morning Herald*, p. 10, *The Australian*, p. 3, *Australian Financial Review*, p. 5 and *The Age*, p. 7

Writing in June 1997 from New York, the *Sydney Morning Herald's* correspondent James Woodford observed:

> ... nothing so far has won the world over to Australia's cause and there is every indication that the world will not tolerate anything but acceptance of binding greenhouse gas targets. ....
>
> No Australian would have enjoyed joining the *Herald* or the ABC at the press conference held by three British Cabinet ministers, who effectively humiliated Australia in front of the world's media.
>
> The British Foreign Secretary, Mr Robin Cook, was so sarcastic in his put-down of Australia's stance on greenhouse that almost the entire room burst into sniggers at the Federal Government's expense.[6]

At the same time, Britain's Prime Minister Tony Blair demanded an end to 'special pleading' by industrialised countries.

In November 1996, US President Clinton had given a speech in Port Douglas, Queensland, in which he criticised Australia's opposition to binding targets. In April 1997, Japanese Prime Minister Hashimoto said, while in Australia, that the Australian position would be hard to sell to the rest of the world. In May 1997, German Chancellor Helmut Kohl, also on a visit to Australia, pointedly refused to acknowledge the Government's arguments. In June 1997, a spokesman for Britain's environment minister said: 'The Australian proposal flies in the face of the polluter-pays principle. As a high per capita emitter, Australia should be doing more – not less – than others if there were to be differentiation.'[7] In August 1997, leaked DFAT papers reported that Germany was 'very angry' with Australia for its demands for differentiation.[8]

2. The ABARE embarrassment

The development of climate change policy has been marked by a number of severe failures in the policy advisory function of the Australian Public Service. To support its case at home and abroad, the Government asked ABARE, the research bureau of the then Department of Primary Industries and Energy, to provide estimates of the economic costs of cutting emissions using its MEGABARE model. ABARE's modelling work provided the basis for a number of publications, including two by the Department of Foreign Affairs and Trade (DFAT), and these documents were carried around the world in the briefcases of ministers and public servants in their mission to influence world opinion.

From the outset, ABARE's modelling came under severe criticism for what it included and what it left out. The critics pointed out, *inter alia*, that the MEGABARE model failed to allow for technological change in response to policies to cut emissions, excluded assessment of the benefits of reducing emissions, ignored emissions from land clearing,

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[6] *Sydney Morning Herald*, 25 June 1997, p. 4
[7] *Australian Financial Review*, 30 June 1997, p. 1
[8] *Sydney Morning Herald*, 26 August 1997

seriously overstated the likelihood of jobs going off-shore, and employed various presentational ticks that gave a grossly misleading picture of the economic costs of reducing emissions.[9]

Economists outside of ABARE concluded that the MEGABARE model did not provide accurate or reliable estimates of the economic impacts of emission reduction policies and should be disregarded. They advised the Australian Government to draw on alternative sources of economic advice, ones that give more comprehensive, considered, transparent and dispassionate assessments. A statement signed by 131 professional economists – including 16 professors of economics – was issued in June 1997 declaring that the ABARE modelling overstated the costs of abatement measures and underestimated the benefits. The economists said that 'policy options are available that would slow climate change without harming living standards in Australia, and these may in fact improve Australian productivity in the long term'.

Ironically, careful examination of the MEGABARE modelling results revealed that they showed that the costs of reducing emissions in Australia would be extremely small, despite the fact that the MEGABARE model was constructed in ways that exaggerated the costs of greenhouse gas reduction measures. The Government could claim that Australia faced ruinous costs because ABARE of a number of statistical tricks in the presentation of its modelling results.[10]

The 1995 MEGABARE results indicated that real gross national expenditure (GNE) would fall below the 'business-as-usual' path by amounts ranging from -0.27 per cent in the year 2000 to -0.49 per cent in 2020. The point lost on most commentators, including Government ministers, was that this did not mean that the *growth rate* of GNE would be lower by these amounts, but that absolute levels of real GNE would be lower by these amounts. These are very small changes by any standard. Clearly a projected fall in GNE by half a percent over a 25-year period will be swamped by many other changes in the economy. It was pointed out that if the Australian economy grows on average by 3.5% then per capita incomes would reach double the current levels around 1st January 2025. If Australia adhered to its international commitments and reduced its emissions then, according to the MEGABARE estimates, the doubling of per capita incomes would have to wait until around 1st March 2025, a delay of two months.

On advice from ABARE, Senator Parer declared in the Senate on 26th November 1996, and many times subsequently, that stabilisation of greenhouse gas emissions at 1990 levels by the year 2000 would

> be equivalent to a ... reduction in the savings of a family of four of about $7,600.

The only way for ABARE to make its numbers 'look big' was to take a series of very small numbers over a very long period (25 years from 1996-2020), aggregate them (after

[9] For a comprehensive critique see C. Hamilton and J. Quiggin, *Economic Analysis of Greenhouse Policy: A layperson's guide to the perils of economic modelling* Australia Institute Discussion Paper No. 15, December 1997.

[10] This is explained in more detail in Hamilton and Quiggin, ibid.

discounting) and then calculate the impact on 'a family of four'. In effect, ABARE took the model results, multiplied by 60 and then put them into a media release. The $7,600 per 'average family' should in truth have been compared to the accumulated expenditure over the same period which, in present value terms, would be around $1.86 million for 'a family of four'.

However, the most damaging criticism of ABARE's modelling work emerged in May 1997 from information extracted by sustained questioning in Parliament of the Minister for Resources and Energy, Senator Warwick Parer. The Minister revealed that most of the funding for the modelling work had been received from businesses and business organisations involved in the fossil fuel industry, including the Australian Coal Association, the Australian Aluminium Council, BHP, CRA, the Business Council of Australia, the Electricity Supply Association of Australia, Exxon, Mobil and Texaco.[11] These organisations paid $50,000 for a seat on the Steering Committee overseeing the modelling work. The Australian Conservation Foundation (ACF) applied for membership and asked for the fee to be waived. The Executive Director of ABARE, Dr Brian Fisher refused to do so, without providing an explanation.

The question that all but those involved asked themselves was what these companies expected to receive in return for $50,000 per year. In its promotional material, ABARE promised that Steering Committee members would 'oversight the model's development' and 'advise on project management matters'. ABARE wrote to prospective contributors that project management would be guided by the Steering Committee members who will provide 'a sounding board on policy, research and strategic issues'.[12] The point was that these corporations and business associations would not have continued funding the modelling work if the results were not serving their commercial interests. It was naïve, if not foolish, to believe otherwise.

At the time, and perhaps subsequently, the Executive Director of ABARE, Dr Brian Fisher, and the Chair of the Steering Committee, Professor Stuart Harris of the ANU,[13] could not understand the improper nature of this arrangement. The extraordinary political naiveté of ABARE is reflected in its belief that the rest of the world would view as objective and credible a model funded largely by those with a powerful commercial interest in its outcomes. In fact, the MEGABARE model was viewed with derision abroad, all the more so once its funding arrangements were revealed. For many observers, ABARE's handling of the climate change issue has been an object lesson in the politicisation of the Australian Public Service.[14] As if to compensate for the external attacks, in February 1997 the Prime Minister awarded ABARE a special public serve prize for its MEGABARE work.

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[11] Senate Hansard, Questions on Notice No. 565, 2 May 1997.

[12] The quotations are from the report by the Commonwealth Ombudsman, Report of the investigation into ABARE's External Funding of Climate Change Economic Modelling, February 1998. pp. 9, 10.

[13] Between 1984 and 1988, Professor Harris was the Secretary of DFAT.

[14] At a briefing in Canberra after Kyoto, an ABARE officer revealed the peculiar worldview that underlay ABARE's modelling. When asked to describe the Umbrella Group (consisting of Australia, USA, Japan and Russia, *inter alia*) he said that it represents the 'free world', as if nine years after the fall of the Berlin Wall the Cold War were still being fought, and the EU is not part of the 'free world'.

The ethical problems with industry funding were not lost on Professor Alan Powell of Monash University, an eminent economist long associated with the ORANI model. Professor Powell was employed by ABARE to provide high-level independent advice on ABARE's climate change modelling work. On 16th July 1997, four months before Kyoto, he resigned from his advisory position. In his resignation letter, supplied to the ACF after a freedom of information request, Professor Powell cited private sector funding as posing 'major risks for the integrity and efficacy with which modelling work can be done'. He wrote that the problem is made especially severe when government 'seeks to use results from a semi-secret proprietary model as a basis for justifying its policy position'. This constellation of circumstances, he wrote, 'is diametrically opposed to all that I have stood for during my 30 years as a policy modeller. To continue on the Steering Committee of MEGABARE ... would be hypocrisy of a high order'.

Dr Fisher was not insensitive to the political impact of a high profile resignation citing moral indignation at industry funding. In his letter of reply to Professor Powell Dr Fisher said that his resignation would harm the credibility of GIGABARE, the successor to MEGABARE. He urged him to reconsider because 'your continued involvement on the Steering Committee is of great importance to the success and credibility of the GIGABARE project and because your departure would inevitably be damaging to it'. Dr Fisher then invited Professor Powell to nominate his own sum in return for staying on at ABARE. 'I would therefore like to take the opportunity to propose that we establish an extended – say three years – and preferably full time contract at your nominated consultancy rate to assist in the further development and documentation of the model.' Professor Powell did not consent to the inducement. His resignation was not formally accepted until early in 1998, after the Kyoto conference, and ABARE subsequently lost interest. Fortunately for ABARE's already battered image, the facts about Powell's resignation did not become public until February 1998, well after the Kyoto conference.[15]

One of Powell's concerns was that ABARE did not subject its work to a proper process of peer review. This may appear puzzling in the light of unequivocal statements to the Senate by Senator Parer that the MEGABARE modelling had been peer reviewed. He made this statement on advice from ABARE, but it was not true. Minister Parer claimed that the Monash University's Centre of Policy Studies had refereed MEGABARE, as had Professor Randy Wigle of Wilfred Laurier University in Canada. However, Professor Peter Dixon of the Centre of Policy Studies denied that he or his organisation had ever refereed the model and said that he wished ABARE would stop claiming that he or his Centre had refereed it. Professor Wigle indicated that he had done no more than make a commentary on a preliminary version of a report on joint implementation, so it was quite inaccurate to claim that he refereed the model.[16] Despite requests to Senator Parer from the Democrats, ABARE refused to make available any referees' reports on the spurious grounds that they were in some sense confidential. If there had been a 'serious and useful

[15] See, for example, *The Sydney Morning Herald*, 4 February 1998, p. 3. *The Canberra Times* revisited the issue on 12th December 1998 with a story headed 'Private funding drives expert off job'.

[16] Professor Dixon and Professor Wigle made these observations in personal communications with the author. Professor Dixon also made the position clear to the Ombudsman.

intellectual exchange', as ABARE claimed, they were unwilling to allow anyone else to see the results.

In June 1997 the Australian Conservation Foundation asked the Commonwealth Ombudsman to investigate the funding arrangements and operation of the Steering Committee established by ABARE to oversee its climate change modelling. An investigation was conducted over the last months of 1997 and a report was prepared by the time of the Kyoto conference. The investigation centered on the funding of ABARE's research and the role of the Steering Committee and did not attempt to assess the quality or impartiality of the modelling work.

The Ombudsman withheld release of her report until February 1998, after Kyoto. The report concluded that by limiting membership of the Steering Committee to organizations willing to pay $50,000, ABARE had failed to protect itself adequately from 'allegations of undue influence by vested interests'. Its practices 'could create a reasonable public perception that the research projects were weighted in favour of the interests of Australian industry'. She also stressed that ABARE had misled readers of its reports by failing to acknowledge the financial contributions of industry. The Ombudsman concluded that the Government's climate change analysis was 'compromised' and that ABARE management had displayed 'poor judgement'.[17]

The Ombudsman's report was very damaging to ABARE's standing and vindicated the Government's critics. For instance, Senator Meg Lees, the leader of the Australian Democrats, issued a press release that opened: 'The Howard Government's pigheaded defense of the ABARE greenhouse models – ripped apart by the Commonwealth Ombudsman in a damning report today – has jeopardised the credibility of the nation ...'.[18]

Dr Fisher rejected most of the Ombudsman's conclusions and refused to acknowledge that accepting funds from vested interests was improper. He did concede that it was an error not to anticipate the 'misunderstandings' and the 'political use' that would be made of the funding arrangements.

As the attacks on the credibility of the modelling reached a crescendo in the weeks before Kyoto, one of the members of the Steering Committee from a fossil fuel company was heard musing over whether his organisation should 'ask for our money back'. At Kyoto, US fossil fuel lobbyists used ABARE's work to support their case for no agreement. Many staff of ABARE who were not involved in the climate change modelling have distanced themselves from that work and believe that it has damaged the credibility of ABARE as an independent and professional research organisation. To the extent that ABARE is known overseas, it is known mostly for its MEGABARE model.

Fraying nerves were displayed at a conference held in Bonn in early August 1997 in preparation for Kyoto. Speaking at an event organised by the US-based Center for

[17] Commonwealth Ombudsman, Report of the investigation into ABARE's External Funding of Climate Change Economic Modelling, February 1998.
[18] Australian Democrats, 3 February 1998.

International Environmental Law the author made a presentation critical of the MEGABARE model's assumptions and the interpretation of the results. Several members of the Australian delegation were present, including Dr Fisher.[19] In question time Dr Fisher launched a long and bitter defence of ABARE that attracted the following observations the next day in ECO, the daily NGO newsletter:

> To the amusement (and astonishment) of the audience, the reaction of the Australian delegation was anything but clinical. Most of the heat was generated by Brian Fisher ('Mr Megabare') who took umbrage at criticisms of ABARE's modelling work. ... No wonder the Aussies are feeling sensitive... but tantrums from the floor may not catch on as a negotiating tactic.[20]

3. The role of Warwick Parer

While the environment minister had formal carriage of climate change policy, the 'whole-of-government' approach adopted by the Howard Government, coupled with the compliance of the Minister for the Environment, saw the formulation of climate change policy dominated by the industry and energy departments. As argued later, the environment department had been progressively co-opted into an industry viewpoint. In the crucial period leading up to the Kyoto conference, Australia's Minister for Resources and Energy was Senator Warwick Parer from Queensland, an untiring defender of the fossil fuel industries in general and the coal industry in particular.

In the 1970s Warwick Parer managed the development of a coal mine in Queensland and in 1978 he became chair of the Australian Coal Exporters industry body. He entered the Senate in 1984 but remained involved in coal mining through his chairmanship of Queensland Coal Mine Management, a position from which he resigned only when he became a minister in March 1996.[21]

Throughout 1997 Senator Parer issued media releases and gave speeches talking up the future of the Australian coal industry, lauding coal as the 'corner-stone of economic growth in the Asian region well into the next century' and praising 'clean coal'.[22] He made it clear that the Government would refuse to take any measures to reduce emissions that had any effect on economic growth or employment.[23]

So preoccupied was he with defending the coal industry that Senator Parer seemed never to understand fully the issues involved in greenhouse science and greenhouse policy. Indeed, in an address to an industry conference in March 1997 Parer actually declared that he did not believe in the greenhouse effect, a position at direct variance with that of the Government.

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[19] Keen to avoid giving the Government a veneer of respectability, Australian environment groups had refused a Government invitation to join the delegation to Bonn, and subsequently to Kyoto. At Kyoto, members of the Australian delegation who were not part of the core team spent many days wandering aimlessly around the conference venue.

[20] ECO Vol. XCVI Issue No. 7, 6 August 1997

[21] See *Courier Mail*, 25 March 1998, p. 2

[22] Media Release 17 February 1997.

[23] See, for example, *The Age*, 30 July 1997, p.8

> I don't have any figures to back this up, but I think people will say in 10 years that it [greenhouse] was the Club of Rome.[24]

In March 1998 Senator Parer became embroiled in a scandal that was ultimately to lead to his downfall. It was revealed that Senator Parer had breached the Prime Minister's ministerial guidelines by holding $2 million of shares in a company that owned three coal mines in Queensland. The Prime Minister defended Senator Parer, described in the press as his 'former flatmate and one-time numbers man'.[25] Writing in the *Australian Financial Review*, Michelle Grattan expressed the common view of independent opinion:

> Senator Parer has been caught on toast with a potential conflict of interest. He has a big investment in a company operating in the coal-mining sector, over which he has direct ministerial responsibility.[26]

When the scandal broke, the Australian Democrats were particularly incensed at Parer's earlier decision to abolish the Energy Research and Development Corporation, a body whose purpose was to develop energy technologies that would substitute for coal. Senator Lees said:

> How can a government minister contribute to a decision, which effectively nobbles the development of competition to an industry in which he has such a significant interest?[27]

Subsequent revelations over Parer's financial interests in a company named White Rhinos Pty Ltd and share holdings in Telstra, and the sacking of the Minister's own press secretary for share holdings in breach of the code of ministerial conduct, reinforced the belief of many in and out of government that Senator Parer was a poor choice as minister for climate change policy. Parer hung on with Howard's support, but he was severely wounded and quietly resigned from the ministry in October 1998 and the Senate in February 1999.[28]

The fact that the Howard Government appointed as the Minister for Resources and Energy a man who rejected greenhouse science, defended the interests of the coal industry at every opportunity and had a large personal financial stake in coal mining is indicative of its approach to the climate change issue.

4. DFAT gets religion

Throughout 1996 and especially in 1997, the Department of Foreign Affairs and Trade (DFAT) became dominated by a rigid view of climate change policy in which the 'national interest' became inseparable from the commercial interests of the fossil fuel

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[24] *The Sydney Morning Herald*, 14 March 1997, p. 8
[25] *Australian Financial Review*, 12 March 1998, p. 1
[26] *Australian Financial Review*, 12 March 1998, p. 4
[27] *The Canberra Times*, 23 March 1998, p. 1
[28] On March 8th 2000, the *Australian Financial Review* reported that Parer "has been appointed a director of several coal companies at the centre of conflict of interest allegations that plunged the Howard Government into crisis".

industry. Journalists who attended briefings by DFAT soon after it took the lead on climate change policy in 1996 reported that even ABARE's arguments appeared subtle compared to the crude position taken by DFAT. Officers working in the climate change area in DFAT at the time have noted that climate change policy took on the air of 'religious fanaticism' in which no dissent or questioning was tolerated.[29] Junior officers who felt uncomfortable with the uncompromising position Australia took were brow-beaten into acquiescence. The head of the Climate Change Branch, Meg McDonald, approached her task with unusual zeal.[30] The branch experienced severe morale problems. Many foreign affairs officers join the service because they believe that their work helps make the world a better place. Those charged with prosecuting the Government's climate change position felt that they were, in the words of one, 'doing the government's dirty work' and became ashamed rather than proud of their work. The staff turnover rate was 'huge'.

The Europeans were clearly identified by the Government and DFAT as the enemy. The EU was arguing for a uniform 15 per cent cut in emissions over 1990 levels by 2010, an outcome seen by the Australian Government as a severe threat to Australia's continued prosperity. Australian environmentalists who criticised the Government's position were viewed as traitors.[31] Astonishingly, diplomats abroad were instructed that they were not to communicate any criticism of the Australian position to the Government; ministers were only interested in good news.[32] This explains the strange dissonance at the time in which independent observers were hearing severe and repeated international criticism of Australia while the Government continued to insist that other countries were coming around to acceptance of the Australian position and especially its case for 'differentiation'.[33] The Australian Government and its climate change advisers had become disconnected from reality.

In the weeks before Kyoto Australia also earned the hostility of developing countries by joining with the USA to call for mandatory emission reductions for developing countries. This was a shock for developing countries as there was no expectation that they should join the rich countries in taking on mandatory targets at Kyoto. This principle – based on the fact that rich countries were responsible for the problem and could do most to solve it – was enshrined in all of the agreements leading to Kyoto. The 1992 Framework Convention stated that 'the developed countries should take the lead in combating climate change and the adverse effects thereof', a principle reaffirmed in the 1995 Berlin

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[29] The author has discussed these issues in detail with three former DFAT officers intimately familiar with the climate change campaign.

[30] The Climate Change Branch was created in 1996 and disbanded after the Kyoto Conference. It recruited economists in particular.

[31] Fossil fuel industry sources described the work of the Australia Institute (which published several papers critical of the Australian position) as 'sedition'.

[32] There was an in-house DFAT joke that said that all inbound cablegrams must begin with the words "Australia's objectives were fully achieved". However, some bad news did filter through. Leaked cablegrams between DFAT and Australian embassies revealed that the German Government was "very angry" at Australia's bid to be allowed to increase its emissions substantially (*Sydney Morning Herald*, 26th August 1997).

[33] See for example *The Canberra Times*, 25th May 1997 in which Deputy Prime Minister Tim Fischer is quoted as saying after a meeting with the Europeans: 'We're finally starting to make a few hard yards'.

Mandate that set the world on the road to Kyoto in November 1997. Both the Convention and the Mandate also reaffirmed the commitment of wealthy countries to provide technological and financial support to developing countries so that they could introduce energy efficiency programs. There was no challenge to these views until weeks before the Kyoto conference. As late as July 1997 DFAT still adhered to the consensus world view that Kyoto was aimed at gaining commitments only from industrialised countries. In a briefing on the need for differentiation DFAT wrote:

> Only then would developing countries be able to come on board *in future rounds of negotiations*, taking on commitments commensurate with their individual growth and development needs.[34]

Even as late as 20th November the Prime Minister was saying: 'Over time, developing countries must become involved'.[35] A few months before the Kyoto Conference conservative forces in the USA opposed to any agreement – the fossil fuel lobby backed by Senate Republicans – suddenly began to argue that it would be 'unfair' and ineffectual if the proposed mandatory targets were adopted by developed countries only, and that no agreement would be acceptable without developing countries also signing on to mandatory targets. The Australian fossil fuel lobby took up the cry and the Howard Government adopted the same position as the Senate Republicans.[36]

At Kyoto, these same forces managed through threats and noisy lobbying to make the issue of developing country participation appear to be one of the key negotiating questions, even though no other party took the argument seriously. In response to requests from the USA, Chairman Raoul Estrada repeatedly ruled that the terms of the Berlin Mandate excluded discussion of developing country commitments. Journalists and commentators unfamiliar with the background to the negotiations mistakenly began to write that developing countries had 'refused to sign' the Protocol.[37]

It was not only the morale of DFAT and the credibility of ABARE that suffered severely. The environment department – renamed Environment Australia in 1996 – also suffered as a source of independent policy advice. Traditionally, the environment department's role was to provide a counter to the voice of industry departments (some of which were subject to client capture). While the entrenchment of sustainability as a policy principle may eventually make such a division in the bureaucracy redundant, in practice the 'whole-of-government approach' pursued by the Coalition Government resulted not in balance but in a comprehensive victory for the industry worldview. In the area of climate change policy, the Environment Department was gradually emasculated as a source of

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[34] DFAT, *Climate Change: Australia's Approach*, July 1997. Emphasis added.

[35] Speech to Parliament.

[36] The decision by the Australian Government in 1998 not to ratify the Kyoto Protocol until the US had done so made Australia's foreign policy hostage to the decisions of the US Senate, since the US Government has made it clear it would ratify if it could get it through a hostile Senate.

[37] The *Australian Financial Review* went so far as to list developing countries amongst the 'winners' from the Kyoto negotiations! (12 December 1997). Given that developing countries will suffer most from climate change and that industrialised countries are responsible for the bulk of emissions, the fact that a national newspaper could make such an astonishing statement is indicative of the power of the fossil fuel lobby's PR campaign. (The AFR's Lenore Taylor was one of the few journalists to remain unmoved by it.)

policy advice arguing in favour of more environmental protection. This was achieved in part by some appointments to senior positions of people drawn from Departments of Foreign Affairs and Trade, Primary Industries and Energy, and Prime Minister and Cabinet. In some cases, their first concern was bureaucratic survival and the application of economic rationalist principles to environmental policy. At the same time, Environment Minister Senator Hill applied sustained pressure on his department to toe the new whole-of-government line. Since, perhaps uniquely among federal departments, the Environment Department has attracted large numbers of officers with a particular interest in and commitment to the stated objective of the department – in this case to protect Australia's natural environment – it is hardly surprising that the new regime in Environment Australia saw the department begin to leak seriously. On several occasions, management called in the Federal Police to attempt to identify the sources of the leaks and to deter other whistle-blowers.

The extent to which Environment Australia had strayed from its role as a source of frank and fearless advice became apparent during the debate over the environmental effects of the Howard Government's GST package, especially the proposed 35 per cent cut in the price of diesel for heavy vehicles. For a decade the department had argued that the best approach to environmental problems was the use of 'economic instruments', that is, to change behaviour through the price mechanism. Officials of the department appeared before the Senate Inquiry into the GST to argue that the sharp cut in the price of diesel would have no effect on consumption of diesel. The department even went so far as to employ the argument that the increased economic growth that the GST would induce would allow more resources to be devoted to environmental protection. These arguments were developed for the department by Dr Vivek Tulpule, one of the chief MEGABARE modellers who had been appointed to a more senior position in Environment Australia.

5. Fall-out in the Pacific

The issues were brought into sharp relief at the annual South Pacific Forum in September 1997. The forum brings together the Pacific island states and Australia and New Zealand. The latter have played a major role historically in protecting and supporting the Pacific nations and Australia is seen as a regional superpower. While the Howard Government saw Australia as the country with the most to lose from mandatory emission cuts at Kyoto, the nations of the Alliance of Small Island States (AOSIS) saw themselves as having the most to gain. The Intergovernmental Panel on Climate Change (IPCC) has predicted sea-level rise of up to 95 centimeters by the end of the 21st century, rises that would seriously jeopardise low-lying islands in the Pacific. Some would simply disappear. In addition, an increase in extreme weather events is expected to result in more devastating cyclones.

Climate change dominated the Forum. The Australian media, including commercial television, followed the Prime Minster and for the first time focussed intently on the greenhouse issue. It resulted in consistently damaging PR for the Government. The unapologetic self-interest of the Australian position attracted severe criticism from some Pacific leaders and Australian commentators. Prime Minister Howard was seen to be unconcerned and obdurate. Conscious of the approach of the Kyoto conference, the

Pacific Island nations drafted a strongly worded statement calling on the world to take firm measures to cut emissions. Prime Minister Howard insisted on watering it down, even raising the prospect of withdrawal of foreign aid, and in cartoons and commentaries was characterised as acting as a regional bully. Tuvalu Prime Minister Bikenibeu Paeniu was reported as saying: 'Being small, we depend on them so much we had to give in'.[38] Newspapers carried headlines such as 'Australia sinks low in Pacific' and 'Beggaring our Neighbours'.[39] Even the conservative business daily, the *Australian Financial Review*, editorialised against the Government's 'ham-fisted diplomacy' and 'intransigent stand'. Moreover, in the same newspaper – one that had conducted several vociferous campaigns predicting economic ruin from measures to restrict emissions – one of its most conservative economic writers called for the introduction of a carbon tax.

The Australian Prime Minister dismissed the concerns of Pacific Island states as 'exaggerated' and 'apocalyptic' and even questioned the science of climate change suggesting that 'the jury is still out'. It was pointed out that if 2,500 of the world's top climate scientists produce a comprehensive report predicting that your country may well disappear under rising seas, this does indeed look like an apocalypse. Perceptions of the crude selfishness of the Australian position were reinforced when comments by the Government's chief economic adviser on climate change were circulated at the Forum. Dr Brian Fisher had told a conference in London that it may be more efficient to evacuate small island states subject to inundation rather than require industrialised countries like Australia to reduce their emissions.[40]

6. Desperation as Kyoto approaches

Meanwhile, the fossil fuel lobby had been actively pushing the Government to harden its position even further. The staging of a conference on 19-21 August 1997 called 'Countdown to Kyoto' intensified the febrile atmosphere. The conference, held in Canberra, was convened jointly by the Australian APEC Study Centre, based at Monash University and chaired by the anti-greenhouse ultra-libertarian and former Australian Ambassador to the GATT Alan Oxley, and the Frontiers of Freedom Institute. The Frontiers of Freedom Institute is a far-right US 'think tank'.[41] A fundraising letter from the Institute declared that the aim of the conference was to 'offer world leaders the tools to break with the Kyoto treaty'. The conference was the brainchild of Hugh Morgan, Managing Director of the mining company WMC,[42] and sponsored by a number of fossil fuel, aluminium and other corporations. Even at this stage, some members of the Business Council of Australia (BCA) were becoming uncomfortable with the stridency of their organisation's stance on greenhouse. There was vigorous resistance within BHP, for instance, to joining the conference sponsors' list.

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[38] Environmental News Service, September 22, 1997

[39] *The Canberra Times* 21 September 1997; *The Age* 18 September 1997.

[40] The comments were reported in *The Weekend Australian*, 8-9 June 1996, p. 8.

[41] Even the conference's highly confidential media strategy – prepared by PR firm Hannagan Bushnell and leaked to environment groups – noted that the 'backing of Frontiers of Freedom and known US right-wingers make obvious targets for green counter-moves'.

[42] WMC is a company that makes a great deal of its 'commitment to the environment'. This is ironic given the stance Mr Morgan has taken on many environmental issues.

'Countdown to Kyoto' featured prominent anti-greenhouse science activist Pat Michaels and right-wing US politicians Senator Chuck Hagel, Congressman John Dingell and Senator Malcolm Wallop. Wallop was chair of the Frontiers of Freedom Institute and co-chaired the conference. He is strongly pro-guns, wants a total end to all social security and believes that the American people are 'more patriotic' and more inclined to 'do what is right' than any other people in the world.[43] Deputy Prime Minister Tim Fischer and Environment Minister Robert Hill were on the program, although the Government appeared to keep some distance from the conference, fearing being tarnished by its extremism. The rapporteur was former Queensland National Party Senator John Stone. Although the conference may have succeeded in stiffening the Government's resolve, it was a public relations flop, with Greenpeace mounting disruptive actions.

In August 1997 no less than seven of the Federal Government's most senior ministers travelled to Japan to lobby against uniform emission reduction targets.[44] The Government made increasingly exaggerated claims about the economic effects of uniform emission reduction targets on Australia, including that wages would fall by 20 per cent by 2020, that petrol prices would double and that 90,000 jobs would be lost.[45] These claims, based on unpublished 'research' by DFAT, were so manifestly absurd that they could be taken seriously only in an atmosphere of hysteria. The estimates were orders of magnitude higher than those estimated by ABARE, which itself engaged in serious exaggeration of the economic costs of abatement, while wholly ignoring the benefits.

At around this time, the Government was disconcerted by the release of a US Government report that showed that the costs of emissions abatement for Australia would be much lower than the Howard Government maintained and that, far from Australia suffering disproportionately, Europe, Japan and Canada would be hit harder than Australia, with only the USA experiencing a lower economic impact.[46] Drawing on the discredited MEGABARE results, the Australian Government claimed that the per capita economic costs of the European plan would be 22 times higher in Australia than in Europe.[47] Unlike the MEGABARE work, the US study had been extensively refereed, and the reports of the referees were made public.

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[43] Quoted in ACF Media Briefing, August 1997.

[44] *The Age* 30 July 1997

[45] See, e.g., *The Canberra Times*, 25 June 1997, p. 1; *Australian Financial Review*, 23 September 1997, p. 4. On the basis of a one-page survey of companies and state government departments, DFAT's estimate was arrived at by estimating the number of jobs expected from planned major investments over a five-year period ($68 billion worth). "If all of these projects were to proceed it is estimated that around 90,000 long term jobs could be created. As a result of relative increases in cost pressures [due to greenhouse abatement measures] ... there would be possible reassessment of the viability of some of these projects" (AFR 29 September 1997 p. 3). Documents obtained by the ACF under FOI laws showed that some state government's distanced themselves from the employment claims. On this basis the Prime Minister, whipped into a frenzy by the Business Council of Australia and the Australian Industry Greenhouse Network, claimed that 90,000 jobs would be lost if uniform targets were adopted.

[46] Interagency Analytical Team, 'Economic Effects of Global Climate Change Policies' 1997.

[47] This was a fanciful claim, the error of which ought to have been obvious to anyone who thought about it. It was repeated many times – see, for example, Tim Fisher quoted in *AFR* May 26 1997.

The American modelling came on top of a study commissioned by the German Government of the implications of the various proposals for differentiated targets that had been put forward. The study considered the country targets that would be allocated under a number of different sets of differentiation criteria, and concluded that Australia would be allocated a more *stringent* target than most other countries. This study exposed the tendentious nature of the complicated differentiation formula proposed by Australia, one that looked increasingly as though it had been developed not on the basis of any accepted principles of fairness but with the express purpose of giving its proponents an unfair benefit. It was this sort of analysis that informed the negotiators from other countries when they sat across the table listening to claims that Australia would be particularly disadvantaged by uniform targets.[48]

The Australian Government itself had commissioned a comprehensive study of the comparative energy efficiency performance of the Australian economy from the foremost world expert in the area, Dr Lee Schipper of the International Energy Agency and the Lawrence Berkeley Laboratories. To the extent that Australia was shown to be a laggard in pursuing energy efficiency compared to other OECD countries, this fact would gainsay Australian Government arguments that uniform targets would be more costly for Australia than other countries. Although the picture to emerge varied from sector to sector, the overall conclusion was that Australia had not performed very well. The results were embarrassing and the Government would not release the study. Nevertheless, some comments by Schipper were published in the energy journal of the Department of Primary Industry and Energy. The journal reported:

> Schipper's personal view is that the high greenhouse gas to GDP countries in the long run will have an easier time than low greenhouse gas to GDP countries.

Directly contradicting the Government's claim that Australia's high fossil fuel dependence would make emission cuts more costly, Schipper said that countries such as Australia with very high emissions "have more squeeze than countries that for whatever reason have low emissions".[49]

The Australian case was further undermined in November by leaked documents suggesting that Australia was preparing to withdraw from the negotiations.[50] While it is more difficult to persuade other parties of the seriousness of one's commitment if it is known you have an exit strategy, a known willingness to withdraw may have strengthened the Government's position as it signalled to the rest of the world its unwillingness to compromise. The Government itself may have leaked the documents. At the same time a confidential briefing paper showed that the Government was

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[48] A discussion that the author had with a senior member of the German delegation at the June 1997 Bonn conference revealed that some European delegates had an extraordinarily detailed understanding of the Australian economy, the role of fossil fuels in it and the economic and trade implications of emission reduction targets. Their knowledge was certainly much deeper than that of most of the Australian Government's ministers who spoke on the issue, especially Howard, Downer, Parer and Fischer.

[49] *Australian Energy News*, September 1997, p. 13. The Schipper study remains unpublished at the time of writing.

[50] *Australian Financial Review*, 14th November, 1997

preparing to argue that trade agreements should override any agreement under the Climate Change Convention in the hope that the WTO would rule out trade sanctions against parties that refused to sign.

The Government's protestations that it took climate change seriously looked more disingenuous after revelations that the centrepiece of its emissions reductions policy, the Greenhouse Challenge Program of voluntary agreements with industry, were more window dressing than serious policy. A consultants' report leaked two weeks before Kyoto estimated that around 83 per cent of the claimed emissions reductions under the program would have happened in the absence of the program as a result of normal business decisions unrelated to greenhouse gas emissions.[51]

One key issue that had been wholly ignored by the Government was that of emissions from land clearing, which the official greenhouse gas inventory showed accounted for around 20 per cent of Australia's total emissions in 1990, the expected base year for the treaty. As the inventory also showed that emissions from land clearing were declining rapidly, the issue seemed to some to be the critical issue for Australia. After dismissing the issue for two years, the Government suddenly changed its mind on 20th November 1997 after a meeting between the Prime Minister and a delegation of business people and scientists. The meeting was arranged, after extensive efforts, by Mr Robert Vincin, a businessman associated with KPMG specialising in the development of plantations as sinks. Mr Vincin was also the secretary of the Prime Minister's local branch of the Liberal Party. Other members of the delegation included Liberal Party grandee Sir John Carrick and Professor Ian Noble, an expert on terrestrial carbon systems from the ANU.[52] As a result of this meeting, less than two weeks before the Kyoto conference, the membership of the Australian delegation was, on the Prime Minister's instructions, substantially changed and the land-clearing issue became a key one.

On 20th November, the Prime Minister made a statement to Parliament announcing a major policy initiative. The policy document, 'Safeguarding the Future: Australia's Response to Climate Change', was a last-minute attempt to boost Australia's negotiating credibility, as it was apparent to everyone at home and abroad that Australia was doing almost nothing to restrain the growth in emissions. The Prime Minister began by saying that: 'We have also made it plain that we are not prepared to see Australian jobs sacrificed' and that 'Australia's campaign for equity and realism has won wider support'. He went on to announce 'the largest and most far-reaching package of measures to address climate change ever undertaken by any government in Australia'. Consistent with the hyperbole of the times, he could have added that it was the best package 'since the dawn of time in this great continent', for past practice provided an extremely low hurdle.

The Prime Minister claimed that the measures would reduce the growth of Australia's emissions from 28 per cent to 18 per cent above 1990 levels by 2010, but would not risk '90,000 potential jobs' as threatened by some proposals. Reflecting the Government's

[51] *Australian Financial Review* 14th November 1997
[52] *Sydney Morning Herald*, 24 November 1997, p. 1

continued inability to grasp the seriousness of the issue and the need to initiate a process of widespread structural change in the economy, Mr Howard declared: 'We are prepared to ask industry to do more than they may otherwise be prepared to do', as if this were a bold step forward. He announced that the package would be funded to the tune of $180 million over five years, 'a significant sum by any standards'. The gloss was taken off the message when it was pointed out that this amounted to the cost of one bus ticket per Australian per year, an amount that seemed to many to be entirely incommensurate with the seriousness of the climate change problem.

Just prior to Kyoto an opinion poll conducted by the Herald/AC Nielsen-McNair showed that 90 per cent of Australians were either concerned or very concerned about global warming, 79 per cent felt that Australia should sign a treaty to cut emissions and 68 per cent said economic pain should not stop such a treaty being signed.[53] Perhaps more disquieting for the Government, a survey of 2,200 Australian company directors showed that nearly half favoured legally binding global greenhouse gas reduction targets.[54]

7. The Kyoto negotiating strategy

In contrast to its previous active role in conferences leading to Kyoto, the Australian approach to the Kyoto negotiations was surprisingly low-key. It could afford to take a back seat, for the parameters of Australia's participation in any final agreement had been communicated to the rest of the world. While the negotiations flowed back and forth between the major parties – USA, Europe and Japan, with the G77 group of developing countries becoming involved at certain points – a number of smaller issues involving less important countries would be resolved only when the key issues had been agreed by the big players. Australia had made it very clear that it would sooner walk out than sign up to an unacceptable deal. This was a powerful bargaining chip for a country that had decided to discard any concern to maintain diplomatic respect. Consensus was a *sine qua non* for a protocol to emerge from Kyoto. It would be impossible to enforce obligations to cut emissions if a country like Australia – rich and with the highest per capita emissions in the world – refused to cooperate. Moreover, the prospects for bringing developing countries into the target setting process at a later date would be destroyed. The Howard Government knew all of this.

Leading the delegation, Senator Hill arrived in Kyoto with a set of instructions in his back pocket. He was to hold out and refuse to sign anything that did not include Australia's two key demands – provision for a large increase in emissions for Australia and the inclusion of emissions from land clearing in the base year. The latter was critical. Despite subsequent denials, Hill carried with him modelling of the implications of inclusion of land clearing for Australia's fossil fuel target.[55] Since emissions from land clearing had declined sharply since 1990, inclusion of them in the base year would allow

[53] *Sydney Morning Herald*, 26 November 1997, p. 1
[54] *Australian Financial Review*, 10 October 1997, p. 11
[55] Professor Graham Farquar, an expert in the terrestrial carbon cycle from the ANU, provided the modelling. Professor Farquar was a very late inclusion in the delegation and was on hand to advise on details of the land clearing and forestry issues.

fossil emissions to increase to at least 120 per cent while still coming in under an overall target of 105-110 per cent. The Prime Minister had said in his parliamentary statement on 20th November that the 'far-reaching package of measures' could cut Australia's emissions to 118 per cent, and that that was the best Australia could do. It was made quite clear from the outset by the Conference Chair, Raoul Estrada, that Australia would get nothing like the 'headline' increase of 18 per cent it sought, with a maximum increase for any country of 10 per cent at the very most.[56] Thus the inclusion of land clearing was for the Australian Government non-negotiable.[57]

Hill also had a strategy for winning public support at home for the Government's position. He held frequent private briefings for the Australian media contingent from which foreign journalists and other Australians were excluded. This appeared to be an attempt to exploit the patriotism of media representatives and to persuade them, by taking them into the Government's confidence, that the Government's position must be in the national interest and that the national interest was being threatened by powerful opponents who, while appealing to environmental imperatives, were pursuing their own trade interests through subterfuge.

The negotiations dragged on and it was only in the last hours, after the clock had been stopped at midnight on Wednesday 10th December, that delegates and others began to believe that the conference would succeed in reaching agreement. While the major industrialized economies agreed to cut their emissions by between 6 per cent and 8 per cent below 1990 levels, Australia won an 8 per cent increase over 1990 levels. After the main players had finalised a deal in the early hours of Thursday 11th December, and the conference chair Raoul Estrada for the last time went through the agreed text clause by clause, Senator Hill rose to insist on the insertion of the 'Australia clause' in Article 3.7. The rest of the world had a vague sense of the implications of the Australia clause, but there was no willingness to allow the protocol to founder on a possibly small concession to a relatively small polluter. The clause was agreed to at 1.42 am. Writing for *The Australian*, Robert Garran and Stephen Lunn captured the drama of the moment:

> So after Senator Hills' interjection, Mr Estrada added a new sentence to the clause, tailor-made to give Australia the escape hatch it was seeking. ... These were the words which saved the conference and allowed Australia to join the protocol ...[58]

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[56] *The Australian*, 4 December 1997, p. 6

[57] This has subsequently been confirmed. In evidence to the Senate Inquiry into Global Warming on 10th March 2000, the head of the Australian Greenhouse Office Ms Gwen Andrews said that the Government expects Australia's emissions to reach 118-120 per cent of 1990 levels in the commitment period 2008-2012. When asked how Australia would meet its 108 per cent Kyoto target, Ms Andrews said that the Government would have recourse to falling emissions from land clearing. In addition, in a private briefing in 1999 Dr David Harrison, the head of the AGO's emissions trading area, was asked whether Australia would be selling surplus emission permits provided by the 'Australia clause' that allows Australia to include emissions from land clearing in the base year. He replied that Australia would not sell its surpluses because the rest of the world would feel that it had been 'dudded' by Australia at Kyoto.

[58] December 12 1997, pp. 1 & 5

The Australian media became caught up in the Government's euphoria and carried headlines such as 'Emission accomplished', 'Australia's greenhouse triumph' and 'Our 1.42am greenhouse coup', thereby endorsing the Government's view that it was protecting the 'national interest'. However, public comment following Kyoto was very critical of the Government with many letter writers and radio commentators expressing shame that Australia had dragged the negotiations backwards on this crucial environmental issue. Cartoonists were struck by the irony of an environment minister celebrating success at watering down an international environment treaty. Shadow environment spokesman Duncan Kerr described the task given to Australia by the Kyoto Protocol as a 'three-inch putt'.

Subsequent comments from many delegates and observers from other countries confirmed that Australia won extraordinary concessions through threatening to wreck the consensus. While all countries negotiated with the national interest in mind, none defined their interests so narrowly and to the exclusion of the global problem of climate change itself. The Executive Director of the Convention Secretariat, Michael Zammit Cutajar, had early in the conference referred to every country except Australia being committed to its success.[59] The Chair of the Conference, Raoul Estrada, stated explicitly that Australia had been allowed to have its way only in the interests of obtaining unanimous agreement.[60]

The Australian negotiating strategy was no surprise: the Howard Government had been threatening to withdraw for some months before Kyoto. If any larger power, or a small number of countries, had behaved in the same way as Australia, agreement would never have been reached. Australia therefore took advantage of the more responsible approach adopted by other countries and exploited the fact that agreement on mandatory targets by all Annex 1 countries was essential to obtaining a protocol.

8. International reaction to the Australian deal

Australia's negotiating tactics, and the 'victory' they delivered, generated worldwide resentment. The chief European negotiator, Ms Ritt Bjerregaard, said that the outcome for Australia was a mistake, that Australia had made a misleading case and 'got away with it', and that this would not be forgotten.[61] She was also quoted as saying in reference to Australia's 108 per cent target: 'It's quite clear we have a problem. ... Maybe the pressure was not strong enough on Australia, and we will think about that for next time'.[62] The EU's spokesman on environmental policy, Peter Jorgensen, said that the Australian increase was 'wrong and immoral. It's a disgrace and it will have to change'.[63] Some conservative US and Canadian commentators immediately began to ask

[59] *Sydney Morning Herald*, 1 December 1997, p. 1
[60] *Australian Financial Review*, 13 December 1997, p. 31
[61] *Sydney Morning Herald*, 12 December 1997, p. 1.
[62] *The Australian*, December 12, 1997 p. 5
[63] *Sydney Morning Herald*, 19 December 1997, p. 10. In a letter to the author in mid 1998, Ms Bjerregaard wrote in reference to Australia's target: 'I hope I can rely on the Institute and its partners to press for full and immediate action to implement the targets – *however unsatisfactory* – agreed in Kyoto' (emphasis added).

why their countries had not won such concessions.[64] Leading developing countries were reported to be preparing to use the Australian precedent as the basis for a refusal to cut their emissions.[65]

It might be argued that while Australia's tactics were crude and dishonest, the strategy worked. Australia got what it wanted. But being seen to be a good global citizen was sacrificed in the process, and the coin of good citizenship is valuable partly because it influences how Australians feel about themselves and partly because it influences how other nations deal with us. Some observers with inside knowledge believe that Australia's stance before and during the Kyoto conference has resulted in serious diplomatic damage to Australia, damage that has been manifested in subsequent negotiations. As the *Sydney Morning Herald* noted soon after the deal, the Australian victory may come to be seen as 'too clever by half'.[66] It is not possible to attribute setbacks to specific causes with any certainty, not least because many factors influence negotiators, but well-placed observers[67] have linked the following events to Australia's climate change stance on climate change. In each case, there was a perception that diplomats from other countries had factored in Australia's stance in the lead-up to and at Kyoto.

- Australia's failure to secure a seat on the UN Security Council is seen to be in part a response to the decline in Australia's credibility on climate change in the lead-up to Kyoto.

- The failure in July 1997 of Australia's nomination of Professor Ivan Shearer as a judge on the International Tribunal for the Law of the Sea was in part due our climate change stance.

- The failure of Australia's candidate for the position of Commissioner on the Limits of the Continental Shelf was influenced by poor perceptions of Australia after Kyoto.

- In negotiations with Japan over access to Southern Bluefin Tuna fisheries after Kyoto, Australia's ability to press the case for sustainable management was compromised by its performance at Kyoto.

In July 1998, US Secretary of State Dr Madeleine Albright devoted the only public speech of her visit to Australia to climate change, urging a reluctant Canberra to cooperate with the Clinton Administration to pursue emission reductions vigorously.[68]

Academic commentaries are now emerging on the events surrounding the agreement at Kyoto. German academics Sebastian Oberthur and Hermann Ott have analysed the positions of the parties in preparation for and at the Kyoto conference in their recent book *The Kyoto Protocol*. In the early negotiations following the 1995 Berlin Mandate, they

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[64] *Sydney Morning Herald*, 18 December 1997, p. 13
[65] *Sydney Morning Herald*, 19 December 1997, p. 10
[66] *Sydney Morning Herald*, 18 December 1997, p. 13
[67] Including current and former DFAT officials who must remain anonymous.
[68] *Australian Financial Review*, July 31 1998

bracketed Australia with OPEC and Russia as the principal obstacles to progress and referred to Prime Minister Howard's threat to withdraw from the Framework Convention in 1999. They are highly critical of the MEGABARE modelling, noting that the results of the model 'were soon revealed to be biased as it was largely funded by the fossil fuel industry and no expert review was conducted'.[69]

Oberthur and Ott drew the following conclusions:

> The Kyoto targets surely have two main winners: Russia and Australia. ... The considerable increase in emissions allowed to Australia ... has set a bad precedent for future negotiations, especially with regard to developing countries.[70]

There was indeed a deep contradiction between Australia's demand that developing countries adopt targets, while securing a deal that will undermine efforts to bring developing countries into the process in the future. In pursuing its position with so little regard to the consequences of climate change or to the international principles of justice such as polluter pays, Australia has given away any moral authority it might have had to persuade poor countries to join the target-setting process. With respect to negotiations subsequent to Kyoto, Oberthur and Ott describe Australia as a 'laggard' country 'striving to delay action further'.[71] More recently, a Canadian newspaper has described Australia as a 'notorious laggard' in accepting the need to act on climate change.[72]

Curiously, while Senator Hill seemed jubilant about the 'Australia clause' on land clearing immediately after the event, in later comments on what happened at Kyoto he seemed reluctant to mention it, to the point of being misleading. In a letter published in *The Australian* (31 December 1997) and in a speech on 30 January 1998 to the Committee for the Economic Development of Australia, Hill did not mention land clearing *at all*, but stated simply that Australia had been looking at emission increases of 43 per cent and was now looking at an 8 per cent increase, a difference which he said would be challenging. This observation is quite misleading as it compares an alleged 43 per cent rise in emissions from sources other than land clearing with an 8 per cent increase in emissions from all sources including land clearing. So began the process of attempting to talk down the victory at Kyoto.

The widespread impression that, despite its great victory at Kyoto, the Australian Government was not serious about cutting emissions was reinforced by revelations in September 1998 that Cabinet had secretly decided not to ratify the Protocol unless the US had. The decision became public when Senator Parer could not resist bragging about it to a meeting of fossil fuel lobbyists. According to the minutes of the meeting, Parer also

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[69] S. Oberthur and H. Ott, *The Kyoto Protocol* (Springer, Berlin 1999) pp. 52, 71
[70] *ibid.* pp. 137-38
[71] *ibid.* p. 301
[72] *Globe and Mail*, 15 December 1999

said that officers at the Australian Greenhouse Office had warned him that Australia's special deal had signalled to industry that it could 'sit back and do nothing'.[73]

The implications of the Australia clause have attracted quiet scrutiny from other countries, especially in Europe, and may provide grounds for 'payback', since the rules for carbon accounting are yet to be finalised. There are perhaps 20 people in the world who have a thorough understanding of land-use change and greenhouse gas emissions in Australia – half a dozen of them are in European capitals. Although it has not been possible to verify the story, it is reported that a team of French specialists travelling on tourist visas visited Australia in early 1999 and made a number of trips to regional Queensland and NSW to investigate the carbon implications of land clearing and forestry. Negotiations at the Sixth Conference of the Parties in The Hague in November 2000 are expected to be critical.

9. The pre-eminence of trade policy[74]

It is worth dwelling further on the nature of the worldview that lay behind the development of Australia's climate change policy. It has rightly been noted that climate change policy in Australia is also industry development policy. Any effective greenhouse policies will over time induce structural changes in the economy that favour low and zero-emission industries. On the other hand, policies that reduce the burden of emission reduction on heavy emitters will favour the development of fossil fuel-based industries. These policies include ineffectual voluntary agreements, delaying international negotiations, emphasis on sinks instead of reducing emissions and grandfathering of emission permits (which represents the actual sequence of approaches in Australia). Adoption of new policies to meet greenhouse targets will clearly involve some industry restructuring over time, which in turn will require a changed vision of the future development of Australian industry.

The last two decades of economic liberalisation have in fact seen extraordinary policy-induced restructuring of the Australian economy. Restructuring has affected major export and import-competing industries. This experience suggests that some restructuring of industry should be something policy-makers take in their stride. However, this was not the case when it came to developing Australia's position for the Kyoto conference at the end of 1997, and has not changed since Kyoto. The few sectors of Australian industry which might face significant relative decline arising from a vigorous greenhouse response have been seen as almost sacrosanct, to be protected without regard for the greenhouse implications and the inevitable adjustments that must be made over time.

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[73] *Canberra Times*, 24 September 1998, p. 1. In a letter dated 15 October 1998, a spokesman for the European Union wrote: 'Making ratification of the Protocol dependant upon ratification by other Parties could lead to a deadlock situation where everybody waits for the others to move first. Such a situation would have clearly detrimental effects on the environment and as such would be in contradiction with the objectives of the Convention'.

[74] I am very grateful to Paul Pollard for drafting this section.

It might be argued that the reason for this unwillingness to accept economic restructuring in response to climate change has been due to the fact that, while all other changes were motivated by the pursuit of perceived economic efficiency, change in this case was for environmental reasons, outside the framework of 'economic efficiency'. However, a more persuasive explanation lies in the fact that the fossil fuel-based sectors were the sectors that had been ceded by policy makers extraordinary importance in Australia's response to economic globalisation.

Trade policy as foreign policy

To explain the inordinate importance attached to the fossil fuel-based sectors, it is necessary to go back to the merger of the Departments of Trade and Foreign Affairs in 1987. At the time trade was seen within the bureaucracy as the poor cousin, but in subsequent years the merger took the form of a takeover of foreign affairs by trade. To some extent this was to be expected, as the Cold War gave way to the 'new world order' of globalisation in which strategic considerations were increasingly replaced by economic ones. However, the goals of Australia's diplomacy became unduly skewed towards the promotion of trade interests at the expense of broader concerns such as global environmental issues, human rights and peace. The 'national interest' was redefined and became identified with immediate trade interests so that the Government could repeatedly argue that any agreement to reduce our greenhouse emissions was 'against the national interest', as if Australians had no interest in contributing to the protection of the world from the effects of climate change. Within the bureaucracy the attraction of tangible and immediate benefits, such as mineral exports, increasingly overshadowed less tangible long-term objectives such as climate protection.

The shift in the culture of DFAT was on full display in the 1997 White Paper on Australia's foreign and trade policies. Titled *In the National Interest*, it was drafted by the Department of Foreign Affairs and Trade, and issued under the names of the foreign affairs and trade ministers. In the new doctrine, the complexity and nuance of Australia's relations with the rest of the world have been reduced largely to simple trade and economic questions. Most of the text is devoted to these issues. Issues such as human rights and defence security are reduced to perfunctory insertions. Many issues such as immigration and communications are barely discussed and, ominously for Australia's emerging climate change position, global environmental issues are presented as threats to trade interests.

The flavour of the document is perhaps best demonstrated in the overview, where the WTO and APEC are mentioned in the second paragraph as beacons of hope for Australia, while the UN is left to the sixth paragraph and treated in a deprecatory way. Thereafter the UN is discussed only once. The limited worldview evident from *In the National Interest* is in fact no more than a faithful reflection of the dominant view in DFAT. Recent history – including the collapse of the WTO negotiations, the disastrous turn of events in Australia's relationship with Indonesia, the resurgence of the UN in international diplomacy and the impacts of the Asian financial crisis – have shown just how crude this utilitarian worldview proved to be.

The new doctrine went further than an assertion of the economic above all else. It was also built on a view that Australia's economic interests in the world lay largely in promoting exports of a particular type. This 'export promotion' view of the world is set out in another 1997 document, the Government's annual *Trade Outlook and Objectives Statement*. Deploring the falling level of Australian exports as a proportion of total world exports, the document is preoccupied with 'export wins' and 'export performance', displaying meaningless statistics designed to alarm the reader. There is no mention of the complexities of trade, or discussion of the need to balance trade interests against other objectives.[75]

This facile view again reflects the preoccupation of official policy makers. It is understandable that some trade officials become preoccupied with 'export wins'; what is not acceptable is that this view comes to dominate policy making on international issues generally, as was the case with climate change.

In the case of climate change, this preoccupation took the form of seeking to protect one particular form of exports – energy exports and exports of commodities with a major energy input, such as certain refined metals – to Asia. It is evident that Australia's changing economic relationships had led policy makers to the conclusion that Australia's global economic prospects would be anchored in the export of energy and embodied energy to Asia. This belief underpinned Australia's approach to climate change negotiations. Thus, the Kyoto conference

> has the potential to impact on sectors in which Australia's production and exports are specialised and which provide a large proportion of the benefits of trade liberalisation to the economy. This is of particular concern to Australia, which has a largely unique position because of its energy resources and recent strong growth in emissions-intensive exports.[76]

In its Background Briefing of July 1996 for the Second Conference of the Parties the Government declared:

> As part of the Asia-Pacific region, many of Australia's interests coincide with those of our Asian neighbours, many of whom are undergoing rapid development. Unlike, for example, the European Union, Australia exports about 60 per cent of its goods to Asia, and almost half of our trade is with non-OECD countries. Fuel and mineral resources comprise some of the fundamentals of our trade and our comparative trade advantage. We are the world's largest coal exporter, the third largest aluminium exporter and the third largest energy exporter among OECD countries. .... Australia's energy competitiveness and resource endowment means that our carbon intensive industries are likely to expand in the future rather than to contract, particularly to meet the requirements of the Asia-Pacific region.

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[75] By way of anecdote, a senior official of DFAT, in conversation with the author, said that he did not believe that the benefits of free trade were all they were made out to be but that he would continue to write briefs urging the Government to pursue greater trade liberalisation because to swim against the free trade tide would require too much effort and jeopardise his career.

[76] DFAT, *Trade Outlook and Objectives Statement* 1997, p. 27

Thus a fixed view about the basis of Australia's economic survival in a globalising world dominated Australia's position on climate change; Australia was to survive by specialising in energy and energy-embodied exports to Asia. Clearly the prospect of having to reduce carbon emissions was seen as a severe blow to such hopes. It provided the basis for Australia's own differentiation formula in the lead up to Kyoto. Though the actual formula made no headway whatever and was abandoned a few weeks prior to Kyoto, the fixed view about Australia's future remained solid.[77]

Simplified views in complex issues tend to take on a life of their own, and this simplified view undoubtedly became dominant in the development of climate change policy. Within the bureaucracy, and especially in DFAT, DPIE and ABARE, no questioning was allowed of the belief that of Australia's vital national interests lay in trade promotion of certain commodities to certain regions of the world. It permeated the Government's approach to greenhouse and became a form of conservative political correctness. What was lacking was proper debate and longer-term strategic analysis of an inescapable global challenge, something that has been noted by others as lacking in DFAT in other contexts.[78] A handful of senior officers were responsible for this state of affairs. While junior officers provide advice on particular aspects of policy, the senior officers have a responsibility to balance and integrate the range of factors contributing to the national interest. However, none of this penetrated the smug culture of DFAT.

The overwhelming importance attached to energy-intensive exports as the road to economic prosperity had some untoward consequences. Firstly, it relegated visions of Australia's future being built on technological sophistication to irrelevance, so that talk of the clever country became idle. Businesses developing renewable energy and energy efficiency technologies searched in vain for a sympathetic ear in Canberra.

Secondly, it ceded enormous political influence to energy-intensive export industries – both exporters of fuels and of energy-intensive products – with executives having free and frequent access to the relevant ministers, and the ministers making it clear to the bureaucrats that the industries' views were the Government's views, to the point where a situation in which the fossil fuel industries oversaw the formulation of greenhouse policy modelling was not seen as improper.

Events have subsequently eroded the basis of the official view of Australia's place in the world. With respect to the importance placed on the Asia-Pacific region, the enormous emphasis given to our unique relationship with Asia has diminished since the Asian financial crisis, as a result of which Australia successfully switched to other markets.

In addition, economists have been warning for decades of the risks of heavy reliance on exports of commodities such as coal and bulk metals because it weakens other export and

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[77] See Australia Institute, *A Poisoned Chalice: Australia and the Kyoto Protocol*, Australia Institute Background Paper No. 13, June 1998

[78] See, for example, Peter Urban writing in the *Canberra Times* 16 September 1999. Urban's views are significant as he was the chief economist at DFAT at the time of Kyoto and had been responsible for commissioning the DFAT/ABARE study that formed the basis of Australia's international lobbying campaign in the lead-up to the Kyoto conference, a role he now appears to regret.

import-competing industries. While a country cannot be expected to prevent a profitable mine from opening (unless there are other compelling reasons), policy should not be used to further push a country in this direction. It makes Australia vulnerable to commodity price fluctuations, builds in dependence on depleting resources, develops capital intensity rather than skilled employment growth and discourages technological progress.

In sum, Australian policy in the lead-up to the Kyoto conference was possessed by an irrational preoccupation with protecting energy, mineral and metal exports. Thus the need for restructuring of these industries in response to climate change was resisted at all stages, despite its inevitability. In contrast to the unsympathetic reception typically given to industries complaining of the costs of change, the self-interested complaints of firms in these industries (many of which are foreign-owned) found fertile bureaucratic ground. While this preoccupation is less stridently proclaimed now, there is no evidence of a transition to a new vision. The Government since Kyoto has been reluctant to develop policies that will guide the structural change that meeting the emission targets will require.

The system of government broke down in the development and prosecution of climate change policy. The various arms of the bureaucracy failed to provide a balanced assessment of what was in Australia's interests and became captured by the preoccupations of a narrow section of Australian industry to the neglect of the economy more broadly and to Australia's interests beyond short-term mineral exports. Within the Government and the public service, the official position became unchallenged dogma as a result of which frank and fearless advice became impossible, and, in tactics usually associated with authoritarian states, outside critics were vilified as 'traitors'. Ultimately, the fanaticism with which the Federal Government pursued its position was damaging not only for attempts to arrest the global problem of climate change but for the system of governance in Australia.

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