2000 AATSE Symposium

21-22 November 2000

"Sustainable Australia"

Greenhouse, Sustainability and Industry

An Industry View

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Some weeks ago, aware that the parties to the UN Framework Convention on Climate Change (FCCC), would be meeting at The Hague at this time, Professor Nicklin asked me to present "an industry view" on "Greenhouse, Sustainability and Industry".

The first point to be made is that there are many industry views, and as the debate on greenhouse has evolved since the mid-1980s, companies have changed positions, and some eminent people, including scientists, have done likewise. Australia has a strategic position in this debate because we are the world's largest coal exporter, and our coal-based electricity is extremely competitive by world standards. At the same time Australia is home to a large number of companies that are headquartered in Europe or in North America and these companies tend to reflect the view from head-quarters rather than from an Australian perspective.

A conversation which took place in October 1997 had a profound impact on me and I would like to share it with you. My interlocutor was the chief executive of a very large resources-based corporation. We had been discussing issues very similar to the issues we are discussing today and with a degree of intensity that was the consequence of strongly differing views. Thinking that I had not really understood his position, and desperately trying to get his point across, he exclaimed:

"Hugh, don't you understand? My organisation is run by Greenpeace today, and it is my job to ensure that Greenpeace is running yours tomorrow."

Now I am a lawyer by training. I'm not an engineer or a scientist, but I've spent my working life with engineers and scientists, and after a while you acquire a feel for scientific integrity and technological authority.

In following the greenhouse debate with growing concern over the past ten years or so I have come to the view that there are very few people in the world who really know this topic in its

full breadth and depth. And I find the repeated assertion about the two and half thousand scientists who are telling us to sign onto the Kyoto pledge, and that we must inquire no further, an extraordinary proposition. That is a matter to which I will return.

As I said, I'm a lawyer by training, and fundamental to the law, when a matter is put to trial, is the distinction between the criminal law, where a conviction should be handed down only when it is ascertained "beyond all reasonable doubt"; and the civil law, where judgment is based "on the balance of probability."

There is a world of difference between these two standards of proof, and we have inherited this distinction because a criminal conviction carries not only serious penalties, but more importantly, loss of reputation.

So when we consider the arguments concerning global climate change and the programme of de-carbonisation that is urged upon us, the consequences which will follow if we get this matter wrong are so profound, that we can very reasonably ask why proof beyond all reasonable doubt should not be required.

The argument that to wait for proof beyond reasonable doubt may leave it too late to save mankind, is an evasion of responsibility. If that principle were incorporated into our criminal law a large proportion of our population would be incarcerated because there were arguable grounds to fear for the safety of our persons and property if they were left to run free.

The precautionary principle is not used in criminal trials.

I am putting forward a view on Kyoto from industry. There is no agreement within industry on these issues so there is no "industry view". The industry in which I have spent my working life, the mining industry, has been at the centre of environmental debates for at least twenty years. Mining does have a big impact on those areas where an economic ore-body is found and subsequently developed. But the areas of land in which we are involved are minuscule compared with the cities we live in, and the roads we drive on. But we are at the centre of community interest in what we do. We accept that. If the nation at large does not wish to have a mining industry in its country then that view will prevail. There's no doubt about that.

My own company is committed to the highest environmental standards. We are committed to transparency; we have external review; and we have been recognised for our public reporting in this field. We are active in industry bodies, at home and abroad, in which improvement in environmental performance, industry stewardship if you like, is the primary focus of activity.

So asking some basic questions about the Kyoto Protocol, and expressing deep concerns about the consequences of Kyoto for Australia, does not imply any resiling from the best environmental standards in our operations, or in the design of any new project we might undertake.

That is the preamble. Now to my topic, which contains three key words. "Greenhouse", "sustainability" and "industry". Two of those words are well-defined and I think widely understood.

"Greenhouse" is the word used to describe a scientific hypothesis, first proposed by Arrhenius more than a century ago, in which the differential properties of water vapour and CO_2 with respect to infra-red and ultra-violet radiation lead, so it is argued, to heat entrapment by the atmosphere, and thus to an increase in the earth's temperature.

"Industry" is a word usually associated with smoke-stacks and production lines. However banking, insurance and agriculture, for example, have long been accepted as industries by industrial relations experts, amongst others, so we can assume a much wider definition than would have been accepted a century ago.

"Sustainability" however, is a much more contentious word. Some have labelled it a "humpty-dumpty" word, suggesting that it means whatever you want it to mean. But there are some examples of unsustainability in Australian industry which, in my view, cannot be contested, and I will focus on them subsequently.

The word "sustainability" came into prominence with the Brundtland Report of 1987 "Our Common Future", and its emphasis on "sustainable development". Energy production and consumption was a major theme of that report, and the Brundtland authors proclaimed the desirability of a world with a low-energy future, in which the developed world halves its per capita energy consumption and the developing world increases its per capita energy consumption by a mere 30 per cent. They wrote that:

> "*fundamental political and institutional shifts are required to restructure investment potential in order to move along these lower, more energy-efficient paths*."

It is, however, impossible to conceive of people living in a modern, industrial society without consuming energy at the levels now characteristic of countries such as Australia. Modernity and the use of energy are so inextricably linked together that going back to using whale oil for lighting, oxen for ploughing, horses attached to a tread-mill for motor power, canals and barges for transporting goods and sailing ships for international travel and trade, is simply not an option. Even a proposal that we should forego the means of heating and cooling our houses which very many Australians now enjoy, is not likely to win popular support.

And what is true for Australians is true for other peoples. Thus the combination of world population growth, and demand around the globe for a quality of life similar to that which we take for granted in Australia, means therefore, that global primary energy consumption will, unless there is some unanticipated global upheaval or catastrophe, increase markedly during the next half century.

So the Brundtland proposal to reduce energy consumption in the developed world to half its current level is indeed a revolutionary one.

The primary reason which was advanced by the Brundtland authors to justify such an upheaval was:

> ** the serious probability of climate change generated by the 'greenhouse effect' of gases emitted to the atmosphere, the most important of which is CO_2 produced from the combustion of fossil fuels;*

The Brundtland Report came out in 1987, before the unusually hot and cyclonic North American summer of 1988, when James Hansen lit the greenhouse fuse at a Senate Committee hearing chaired by the then Senator Al Gore. That unseasonal North American summer turned greenhouse from a barely discernible issue, into a mainstream issue in American politics.

On the back of that hot summer, and the momentum which the Environmentalist movement sustained thereafter, President Bush eventually decided, in 1992, to go to Rio, and the US Senate ratified the UN Framework Convention on Climate Change, (UNFCCC). The Parties to the UNFCCC subsequently adopted the draft of the Kyoto Protocol in December 1997. Prior to Kyoto, in August 1997, the US Senate voted 95 – 0, disavowing the proposed protocol. Two caveats were adopted in that resolution. The first was no economic detriment to the US. The second was the full participation of developing countries in any regime of de-carbonisation.

Since the Rio Earth summit of 1992, the ratification of the UN Framework Convention on Climate Change (UNFCCC), and the agreement on the text of the Kyoto Protocol, in December 1997, the debate about greenhouse science, global warming and the de-carbonisation of our economy, has been confined to a comparatively small segment of the Australian people.

But within that small circle there are strong views. On the one hand there are those who are convinced, some of them passionately convinced, that greenhouse is a very serious problem, a planet-threatening problem, and those on the other hand who fear that the proposed remedy is far worse than the disease (if there is in fact any illness at all). These people often argue that the time and money spent on greenhouse is detracting attention and energy from real and urgent environmental and social problems. In between, as in every such occasion, there are many involved in the debate who are there for the ride. Despite the comparatively small numbers of people that have been involved, a lot of money has been spent and continues to be spent.

The budget for the Australian Greenhouse Office (AGO) for the current financial year is $230 millions. The Minister for the Environment, Senator Robert Hill, said in Parliament on 9 May last:

> "The Australian Greenhouse Office is the world's only national greenhouse-dedicated agency, established and funded by the Australian Government to help achieve Australia's commitments under the Kyoto Protocol. The Government has provided almost $1 billion over four years - the largest amount of funding per capita in the world".

The CSIRO's budget on climate and atmospheric research is $27 millions.

These are large sums and the politics of greenhouse have become intense and at times acrimonious. This should not surprise anyone. The stakes are very high.

Since September 2000, the Parliament's Joint Standing Committee on Treaties (JSCOT) has been conducting an Inquiry into the Kyoto Protocol. This is the first real opportunity which people outside the executive arms of government have had, using the formal processes of the Parliament, to debate the ambitions of the Kyoto protagonists, and the instruments and the economic, political and trade consequences of the Kyoto Protocol.

The Hansard record of the Inquiry makes for fascinating reading. It is available on ***www.aph.gov.au/house/committee/jsct*** and I commend it to every student of greenhouse, greenhouse politics and of the Kyoto Protocol.

It is widely understood that there are two forms of environmentalism. Geoffrey Blainey calls them "dark green" and "light green". The Dark Greens regard men and women as akin to very large rabbits, with innate tendencies to destroy the planet on which we live, and which require massive predation or culling if the earth is to be saved. I cite two quotations which articulate this Dark Green position.

David Graber, a research biologist with the US National Park Service, reviewed Bill McKibben's best selling "The End of Nature" and concluded thus,:-

> "Human happiness, and certainly human fecundity, are not as important as a wild and healthy planet. I know social scientists who remind me that people are part of nature but it isn't true. Somewhere along the line - at a about a billion years ago, maybe half that - we quit the contract and became a cancer. We have become a plague upon ourselves and upon the Earth. It is cosmically unlikely that the developed world will choose to end its orgy of fossil-energy consumption, and the Third world its suicidal consumption of landscape. Until such time as Homo Sapiens should decide to rejoin nature, some of us can only hope for the right virus to come along."

In similar vein, William Aikin, a contributor to a popular textbook entitled "Earthbound: Introductory Readings in Environmental Ethics" argues

> "Massive human diebacks would be good. It is our duty to cause them. It is our species' duty, relative to the whole, to eliminate 90 per cent of our numbers."

I do not belong to that school of thought.

The Light Greens, whom I like to think of as the "good gardener" environmentalists, are those who cheerfully accept an obligation of stewardship, and who seek to leave the world, or at least his particular patch, in a better condition than when he first began his career as a steward. I would certainly like to be regarded as belonging to this latter school of thought, and I think it is fair comment to say that the Australian mining industry, at least from Essington Lewis on, has thought of itself in this camp.

The good gardener environmentalist is interested in results. In his contemporary Australian manifestation, he wants to see the salinity problems of the Murray Darling Basin solved. This is an example of unsustainability which needs to be addressed, and addressed seriously. But it cannot be addressed regardless of cost. And it is when we consider costs that we have to move into the political realm. The Australian people, as a whole, will have to support the expenditures that are required, and support them without complaint.

Every day we see in the press demands for increased government expenditure in this or that field of social need or human endeavour. The number of claimants increases inexorably, but governments have to find a politically acceptable balance between the demands of the claimants and the resilience of the taxpayer.

The first priority of any government must be the defence of the realm and its continuing territorial integrity. In that context I think we have to accept that the events in East Timor and in other parts of the South West Pacific in the last two years have changed our understanding of our situation in this part of the world. The most important thing we need to remember about East Timor was that the US was not prepared to send any, repeat any, troops. We cannot predict what the future holds for our region. Defence expenditures will have to be increased, and probably significantly increased.

The issue of defence and the purposes of defence expenditures, leads directly to Australia's continuing sovereignty and the impact which Kyoto will have on our sovereignty. Under discussion in The Hague this week are the words which explain and define "compliance", "enforcement", and "facilitation". These are the terms in the Kyoto Protocol which deal with the problems which will arise if and when those countries which have promised to meet CO_2 emission targets, fail to do so. Australia has already exceeded the 108 per cent target we accepted at Kyoto. To bring these concepts, "compliance", "enforcement" and "facilitation" into reality will require an international police power, which will necessarily intrude into our economic and social life in ever increasing detail.

In my view, few countries of the world are prepared for this. To persuade Australians to accept such a commitment will require a capacity for political persuasiveness that we have not observed in our history to date.

A nation with a strong economy, an economy which is growing, which is efficient and competitive, is a nation which is capable of undertaking important social and political commitments, both domestically and internationally. Conversely, poor performance, at least in the corporate world, leads to takeovers and change of ownership.

In economic terms we have done well since the Hawke Government, with the support of the Peacock and then Howard-led Oppositions, began the process of economic reform of the 1980s. But we are going to have to keep moving strongly towards better performance. And it is in this context that I find the proposals set out in the AGO documents for a carbon tax regime, with the implicit recognition or explicit acknowledgment that,

one, billions of dollars worth of our industrial capital stock will become worthless:

two, the creation of many billions of dollars worth of permits to emit CO_2, will divert investment and energy into projects that would otherwise be regarded as dubious:

three, the initial minimum of $12 billions per annum in carbon tax receipts which the AGO has projected could be used, at least in part, for retraining and re-adjustment programmes: and

four, the long cherished objective to add value to the natural resources which are a major part of our national inheritance, is to be cheerfully abandoned:

as an adventure in social engineering which is unlikely to enable a government to stay in office.

On the science of greenhouse I am well aware that the CSIRO and the Met. Bureau are on side of the argument and the "sceptics", to use a polite and rather condescending word, such as Professor Richard Lindzen, Professor of Meteorology at MIT, are on the other. We are laymen in the unenviable situation where a decision is being forced on us, and our role is that of a jury, having to make a decision in a criminal trial, but at the same time under great pressure from the prosecution to reach a verdict, immediately.

Not everyone will concede that the economic consequences of Kyoto for Australia are as horrendous as I have maintained. Indeed there are many Kyoto enthusiasts who say that Kyoto will be costless. But there are some points on which there is no disagreement, and one such matter was ventilated on the ABC's 7:30 Report on Monday, 13 November last. At the conclusion of a one-sided presentation of the issues, Dr Graham Pearman, Head of the CSIRO Division of Atmospheric Research, said, and I quote:

> "The reality of the Protocol as it is at the moment is that even if all of the nations were able to achieve those targets it would hardly make any difference."

Dr Pearman was referring to CO_2 concentrations and their impact on global climate

In support of Dr Pearman, I can also quote Professor Martin Parry, director of the Jackson Environment Institute at the University of East Anglia, and a leading figure in the Inter-Governmental Panel on Climate Change (IPCC) reporting processes. On the ABC's Late Line Live on 8 November last, Professor Parry, in commenting on the negligible impact which the Kyoto targets would have on climate change, stated

"To take a journey of a thousand miles one must begin with a first step."

He added that the Kyoto commitments might be but a "tenth of the whole step that needs to be made."

The 108 per cent target is, therefore, merely the first step in de-carbonisation. The Kyoto protagonists therefore seek much more than 108 per cent. They seek the wholesale de-carbonisation of the Australian economy. A 60 per cent reduction in current CO_2 emissions is often cited as required for "climate stability".

"Business-as-usual" (BAU) predictions indicate Australian CO_2 emissions by 2010 will be at least 145 percent of 1990 levels. The AGO's first estimate of the carbon tax required to achieve the 108 per cent target, instead of the 145% BAU outcome, was $30 per tonne of CO_2 emitted. The Monash econometric modellers commissioned by the Allen Group came up with $44 as

their lowest estimate. To translate the CO_2 tax to a carbon tax requires multiplying by 44/12, ie 3.67. Taking the AGO $30 figure, that in turn translates into a tax on Latrobe Valley brown coal of approximately $25 per tonne depending on the moisture content, and a tax of approx $75 per tonne of Queensland coal depending on the ash content.

These are huge imposts. The cost of brown coal in the slot bunkers in the Latrobe Valley power stations is, I am told, about $2 per tonne. Twenty five dollars on top of two dollars will certainly displace the Latrobe Valley Power Stations from their place at the bottom of the cost curve. (The comments in The Report of the Senate Environment, Communications, Information Technology and Arts References Committee entitled "The Heat Is On: Australia's Greenhouse Future" are noteworthy in this context. See appendix II.)

The costs of coal-based electricity in Eastern Australia are typically between $25 and $40 per MWhr. The cost of so-called renewable electricity, wood-chip fired boilers, wind-mills, and so on, is in the region of $90 to $140 per MWhr. A carbon-dioxide tax at $30 or more would bring windmills into competition with coal-based electricity. At the same time it would destroy one of Australia's most important sources of international comparative advantage - low-cost electricity based on coal. It is noteworthy that nuclear electricity which is more expensive in Australia than coal, but much less expensive than windmills, hardly ever gets consideration in these debates. The European Energy Minister, Loyola De Palacio, speaking at COP VI at The Hague on 15 November, did insist that nuclear power had to be part of the Kyoto outcomes, a stance immediately rejected by US Vice President Al Gore.

Australia is the world's largest exporter of coal. We can produce electricity here at prices which are at the bottom of the international cost-curve. And that imposes upon us a stewardship obligation. Other people want to buy the goods and commodities which we can produce more cheaply than anywhere else, and for Australia to forsake coal and turn to windmills, for example, is to turn our back on the rest of the world.

To meet the Kyoto target, the 108 percent emission goal, means transforming the Australian economy into a high-cost energy economy. The industries which have played the major export role for more than a century, mining and agriculture, will either vanish, or will survive only because the Australian dollar has sunk to unprecedented depths. And this outcome, it is freely admitted, will have no impact whatsoever, even if greenhouse theory is tenable, on temperatures or climate or anything at all connected to the weather. And the 108 percent target is but the first step!

An Australia in which our energy costs are to be tripled or quadrupled is an Australia which will not be able to grow, either in population or in prosperity.

I cannot conceive of an Australia which is able to significantly increase its defence expenditure (much of this expenditure consumed in buying sophisticated platforms and weaponry from overseas); an Australia able to spend, cheerfully, many billions of dollars in solving the salinity problems of the Murray-Darling Basin and parts of WA; an Australia able to project abroad a confidence in our future as a rapidly-growing country with a dynamic economy; but which is, at the same time, embarked on a transformation of our economy from one based on abundant, low-

cost energy, to an economy driven by windmills or their equivalent on the so-called renewable energy cost-curve. And we are asked to go down this road because of an hypothesis about atmospheric carbon dioxide, and climate, which has failed, so the sceptics tell us, to pass the basic experimental tests. In this situation computer models are no substitute for reality.

This brings me back to the science of greenhouse and the decision which is being urged upon us in the name of 2,500 anonymous scientists connected to the IPCC.

The Kyoto Protocol does not mention water vapour. It's primary focus is on carbon dioxide, and in 1980 the measured CO_2 concentration in the atmosphere was approx 335 ppm, ie .0335 per cent. In 1999 the measured concentration was approximately 368 ppm, ie. .0368 per cent, an increase in CO_2 of nearly 10 %.

Given all of the greenhouse chatter one could be forgiven for assuming that CO_2 is the only greenhouse gas which matters. But it is water vapour which provides the overwhelming proportion of the radiation absorption capacity of the atmosphere. Depending on definitions, and different definitions give different answers, it is 98 percent. So a ten percent increase in a gas which provides less than 2 percent of that capacity would not yield a measurable result, unless there were some extremely powerful positive feedback effects at work. Lindzen argues that a doubling of CO_2 could provide a 1 degree increase. To get more than that requires positive feedback loops which are yet to be found.

The CO_2 increases in the atmosphere since, say, the 1850s, are small perturbations to the atmosphere, but the economic consequences to Australia of Kyoto, as I understand them, let alone the more far-reaching de-carbonisation programme which comes after the Kyoto targets have been met, are immense. As jurors in this case, we should ask questions about the immensity of the disjunction between the atmospheric perturbation and the economic consequences.

Such questions are usually met with the response that 2,500 climate scientists agree that increasing atmospheric concentrations of CO_2 are causing global warming, and that we therefore have to set off, without question or protest, down the Kyoto road. In his testimony to JSCOT on November 3 last, Richard Lindzen spoke of this alleged consensus in these words,

> "In the case of the IPCC you have hundreds of scientists, each is working on a couple of pages, none is ever polled to assent to the summary and yet the summary is presented as the consensus of hundreds of scientists, or thousands, or millions. Who knows?
>
> It is not a true statement. One can simply go to any record of how it operates and see that, but it is used as a bludgeon to prevent questioning. This is fundamental to the difference between science as it is used in politics, and science as it is used in science. In politics, science is a source of authority for the promulgation of dogma in support of policy. This is not science. In science, science is a method of examining the world by questioning, analysing and testing hypotheses. At least it used to be."

Appendix I contains some comments made by Richard Lindzen on the significance of the satellite temperature data, and the problem which this evidence poses to the greenhouse hypothesis.

Last August, the man who, on 23 June, 1988, lit the fuse which turned global warming into a mainstream political issue in America, James Hansen, the Director of the GISS Institute in New York, recanted from his earlier position, and took CO_2 off the hook. Other greenhouse gases, he suggested, might be more of a problem. Well, whatever the farmers might think about bovine belching as a trigger for global warming, James Hansen has declared CO_2, "not guilty", and given his primary role in this affair we, as laymen who have to come to a decision concerning Kyoto and de-carbonisation, must give his recantation considerable weight.

There are two other issues in the science debate that I wish to raise. The first is the way in which the astro-physicists have been largely ignored in this debate. US Senator Chuck Hagel, in a speech given in Houston on 7 September, last said this:

> "Some of the most significant studies have been produced by Dr Sallie Baliunas, the Director of Science Programs at the Harvard-Smithsonian Centre for Astrophysics. Using records of changes in the sun's magnetism going back three centuries, she has been able to closely correlate changes in the sun's brightness with temperature changes on earth. Unlike climate models, her studies have been able to explain why most of the Earth's warming in the last 100 years occurred before significant growth in man-made greenhouse gas emissions. According to her work, solar activity may be the most direct factor in global warming. Imagine that: the earth's warming could actually be caused by the sun!"

The second is the way in which predictions of plagues and pestilence, without any scientific credibility, have been used to frighten us. An article entitled "Biting Back" in New Scientist, 23 September, 2000, began with these words:

> "Malaria is marching north and global warming will make it worse, with mosquito armies colonising Europe, the US and highland regions of the South. That's the picture being painted by a panel of UN scientists and several national governments. But for one of the world's senor entomologists, this is not honest science. Paul Reiter, Chief Entomologist at the US Government's Dengue Research Laboratories in Puerto Rico is afraid that `attributing the spread of malaria to global warming could detract from much-needed efforts to combat the disease itself and save lives now."

Dr Reiter was asked the following question:

> "Climate change researchers claim that an increase in extreme weather events will lead to more pools of stagnant water where mosquitos could breed and that higher temperatures kill mosquito predators . ."

He replied:

> "I find this very frustrating. Specialist in my field have had little voice in this debate. Take the IPCC which produced a global assessment of climate change in 1996. The bibliographies of the nine lead authors of the health section showed that between them they had only published six research papers on vector-borne diseases. Nevertheless, they devoted a third of their chapter to speculation on the

> future of those diseases. On the other hand, if you take those of us who don't toe their line, you will find we have well over 600 publications on the subject. It beats me why the IPCC is given such credence while we are branded as sceptics".

At the end of the article we have the following question and answer:
Q. "But can you see why some scientists go on about climate change and infectious disease? It's taken a long, hard fight to get the US to take global warming seriously, and scientists don't want to throw that away. Even the slightest contrarian message can be used by the oil and auto lobby to obstruct efforts to address global warming . . "
A. "You seem to be implying that the ends justifies the means. I disagree. The people who are most vociferous in this debate are simply not familiar with the epidemiology of diseases like malaria and dengue. My interest is in trying to keep the science straight. I love my subject and so do my colleagues. We are greatly concerned that a distorted picture has been presented to the public and is being used to drive policy."

I see those comments as a very telling criticism of the processes which have led us to our present situation.

This conference is about "Sustainable Australia". We are stewards for this continent and we have to admit that we have made mistakes in the past, and that we have to remedy those mistakes. Salinity is the consequence of one such mistake. Other environmental issues also demand our attention. The proper management of our water resources requires urgent consideration. Soil conservation and rehabilitation is another important issue. Addressing these problems will take up scarce resources. We will be failing in our stewardship responsibilities, if in the pursuit of a de-carbonised world, which it is admitted on the present proposals will have no discernible impact on CO_2 concentrations or on climate, we undermine the economic base of this country.

The Brundtland definition of "sustainable development" – ensuring that we meet the needs of the present without compromising the ability of future generations to meet their own needs - fits well with my position on Kyoto.

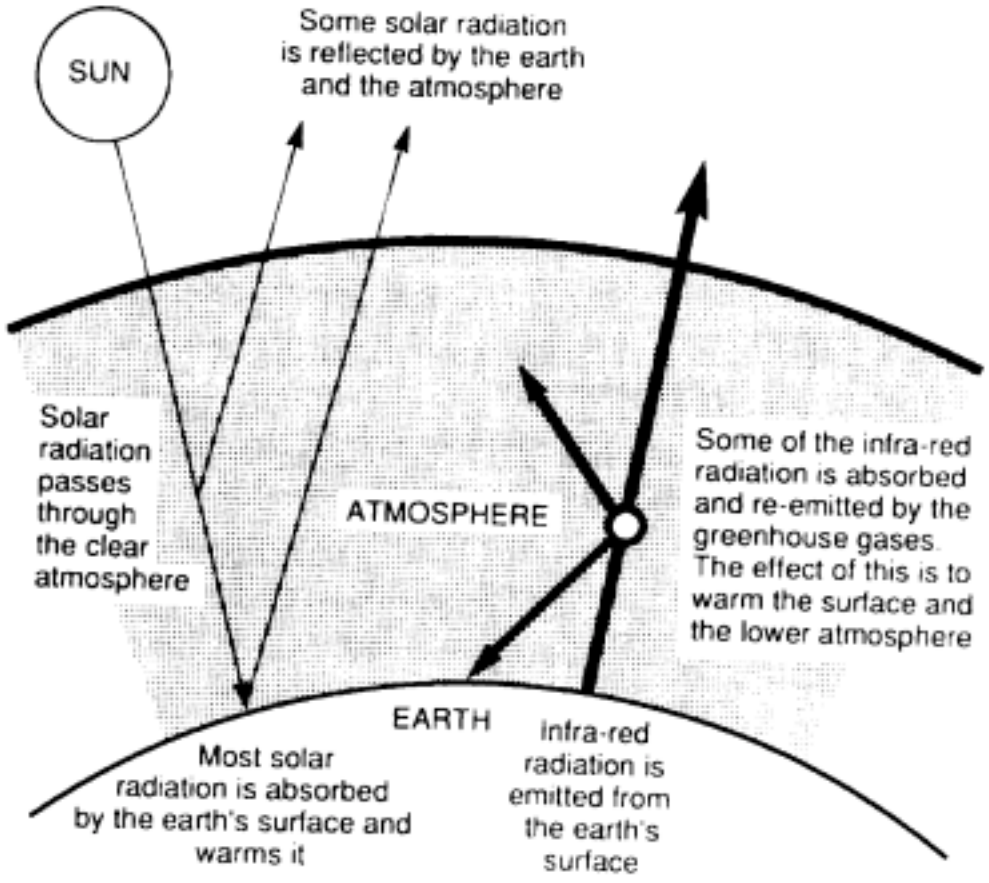
If I were a juror listening to the evidence and contemplating the sentence which would follow a decision of "guilty", I would require more certainty before pronouncing a verdict. If the sentence means major economic dislocation, the loss of tens of thousands of jobs, and social and political tensions of an unparalleled dimension, I would say the jury should stay out and hold its judgment.

In the meantime we should set about, with such resources as we can command, putting to rights the real environmental problems which no one else can remedy but us. Our first priority has to be in Australia, and our limited resources have to be dedicated to where our national interests lie.

Appendix I

Figure 1 is a diagram which has been reproduced very many times. It illustrates the greenhouse hypothesis, at the heart of which is the transparency of greenhouse gases, overwhelmingly water vapour, to ultra-violet radiation from the sun, and their opacity to reflected infra-red radiation from the earth.

Figure 1



During the last two decades CO_2 concentrations in the atmosphere have increased by approximately 10 per cent. Figure 2 (attached) is the satellite temperature data from 1979 up till the present. It shows no tropospheric warming during this period. Richard Lindzen argues:

"The greenhouse effect, though seemingly simple, depends greatly on the highly variable presence of the main greenhouse substances, water vapour and clouds. A doubling of CO_2 alone is only expected to produce about 1C global warming. Greater responses call for strong positive feedbacks to water vapor and clouds -- both of which involve highly contentious uncertainties as admitted in the IPCC reports. The greenhouse effect moreover, properly viewed, involves the warming of the atmosphere which is somehow communicated to the surface. The fact that satellite data for the years since 1979 fail to indicate atmospheric warming implies that the warming observed at the surface is very unlikely to be due to the

greenhouse effect. The above are but a few of the major uncertainties and inconsistencies in the hypothesized role of CO_2 in climate change."

Now it can be argued that a 10 percent increase is not very much, and that twenty years is a very short period. And one can agree wholeheartedly with those arguments. But to then say that we have to embark on a programme of unprecedented economic upheaval because 10 per cent is not very much and twenty years is a short time stretches credulity beyond reason.

The satellite temperature record was first ignored, then attacked, by greenhouse officialdom. Finally it was given official blessing by the National Academy of Sciences in its dichotomous report on the disparity between the surface record and the satellite data early this year. But the necessary consequence of that official imprimatur, is that any surface warming during the last 25 years which can be found to put on the table for discussion purposes, cannot be attributed to greenhouse. Some other cause, natural variability for example, has to be found.

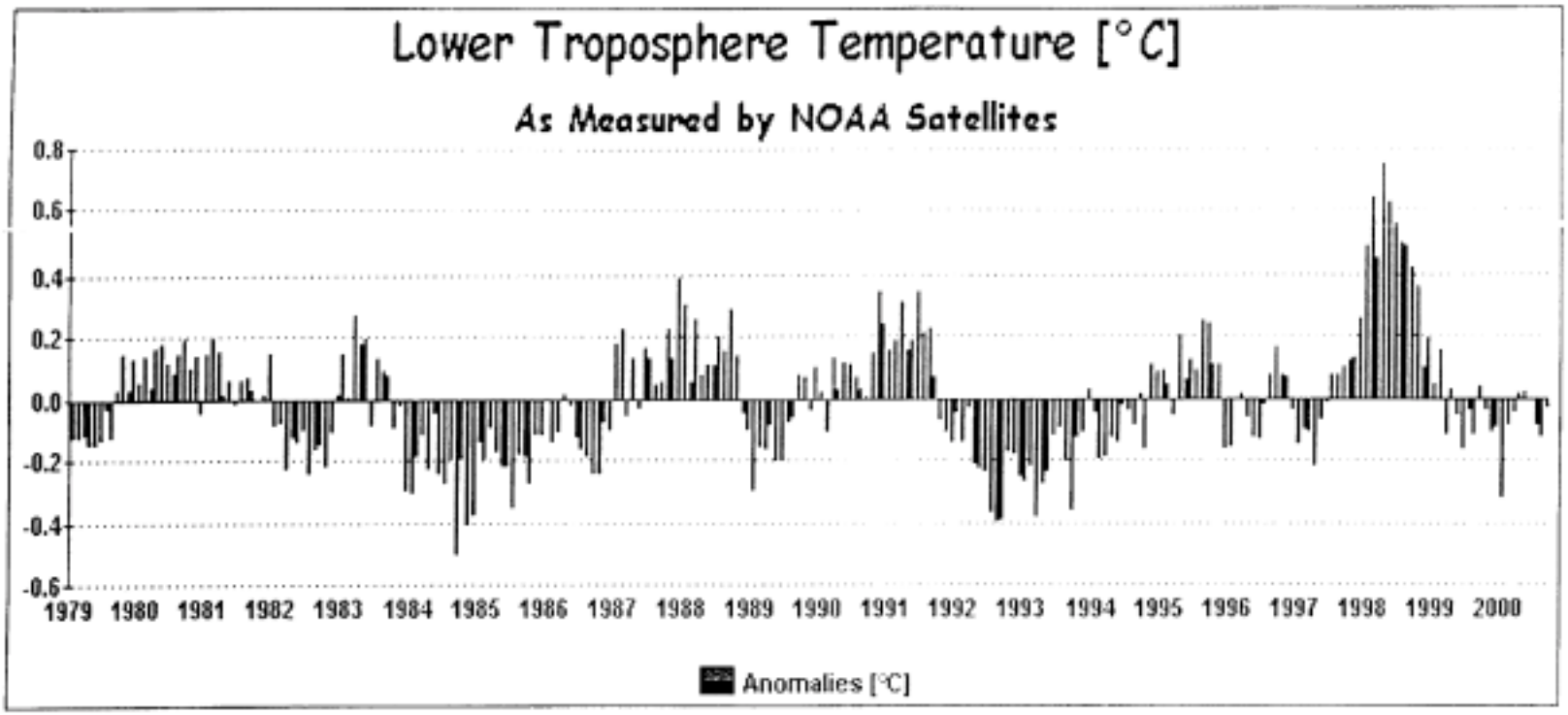


Figure 2

Global trend per decade is +0.046°C. Northern Hemisphere is +0.129°C, Southern Hemisphere is -0.038°C.
Global September 2000 anomaly is -0.025°C, Northern Hemisphere is +0.086°C, Southern Hemisphere is -0.137°C.

NOAA is the National Oceanographic & Atmospherice Administration in the US.

Appendix II

The following extracts from The Report of the Senate Environment, Communications, Information Technology and Arts References Committee entitled "The Heat Is On: Australia's Greenhouse Future", raise important questions about the attitude which the authors have to energy consumption and production in Australia. In particular the competitiveness of the Latrobe Valley power stations in Victoria, which are internationally highly competitive, and contribute significantly to our export performance, appear in these comments to be a matter of regret.

> 5.3 Stationary energy was the major contributor to emissions in 1998, at 56.8 per cent of total national (greenhouse gas) emissions. Between 1990 and 1998, emissions in this sector increased by 24.3 per cent and, in the period 1997 to 1998 alone, increased by 7.6 per cent.
>
> 5.4 This increase far exceeds the rate of increase of other sectors. Most of the increase in emissions in stationary energy is attributable to the generation of electricity, which has recorded an increase of 30.6 per cent since 1990 and 10.3 per cent since 1997. This is a disturbing trend. and it is clear that constraining energy emissions will be a difficult task in Australia's abatement effort.
>
> 5.8 Australia's high energy emissions are a legacy of two main factors: the high dependence on cheap domestic sources of fossil fuel, especially coal, and recent energy market reforms which have seen electricity generation based on the highest carbon content fuels become the most price-competitive in the new deregulated market
>
> 5.9 Since 1995, national energy markets have been subject to widespread economic reform, which, while primarily designed to create greater competition and reduce costs, was also expected to deliver greenhouse benefits in addition to those flowing to consumers. However, the reforms have had many perverse outcomes including dramatic increase in greenhouse emissions.
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> 5.10 In theory, micro-economic reform is intended to open energy markets to greater competition, breaking down the market power of incumbents and thus creating opportunities for alternative fuels and technologies. However, the Committee heard much evidence that the new National Energy Market (NEM) discriminates against gas as a fuel and against the entry of new players and more sustainable technologies. It has also has the perverse effect of making the most emissions-intensive fuel source - brown coal - the most price competitive.

and the last bullet point in 5.12 is important:

> * the introduction of a mechanism to price carbon, either through a carbon tax or a market based system of tradeable emissions permits, which would have the effect of making less emissions-intensive and renewable generation more price competitive.