



# Australian Industry Greenhouse Network (AIGN)

## A Submission to the Senate Inquiry into Australia's Response to Global Warming

October 1999

This submission represents the broad based views of industry. Industry Associations endorsing the submission are as follows:

- **Australian Aluminium Council**
- **Australian Automobile Association**
- **Australian Coal Association**
- **Australian Gas Association**
- **Australian Institute of Petroleum**
- **Australian Petroleum Production and Exploration Association**
- **Business Council of Australia**
- **Cement Industry Federation**
- **Electricity Supply Association of Australia**
- **Federal Chamber of Automotive Industries**
- **Minerals Council of Australia**
- **Plastics and Chemical Industries Association**
- **Pulp and Paper Manufacturers Federation of Australia**

**Industry associations and individual businesses associated with the preparation of this submission may make submissions in their own right.**

## Overview

### **Context:**

The Australian Industry Greenhouse Network (AIGN) welcomes the opportunity to comment on Australia's climate change policy response. The AIGN supports Australia's commitment to accept a fair share of the burden in a global response to the global problem of climate change, while not compromising the competitiveness of Australian industry. In doing so it is important to recognise that a number of features of Australia's economic and geopolitical circumstances and the nature of the Kyoto Protocol mean that it is necessary that we approach climate change policy in a careful and measured way fully assessing and understanding the implications and risks of our actions.

With much of Australian industry competing in both export and domestic markets with producers in countries where emissions are unconstrained, there is considerable risk and uncertainty associated with the whole issue of the nation's greenhouse policy response. Under such circumstances the appropriate action is to pursue policies that are both flexible and cost effective in their own right and lay the foundations to achieve further reductions if and when this is necessary.

Australia's response to the greenhouse issue has to be evaluated in a conceptual framework that articulates how the economic well being of the citizens (particularly those in regional Australia) is linked with the success of Australian industries and enterprises. Success is fundamentally determined by competitiveness and in Australia's case, it is heavily dependant on the reliable availability of competitively priced energy.

### **Current Policies and Programs:**

Australia currently has a wide range of generally appropriate and effective greenhouse policies and has been particularly adept at developing worthwhile programs involving partnerships between government, industry and the community. The *Greenhouse Challenge*, for example, is recognised internationally for its success in achieving significant emission abatement through cooperative agreements between industry and government.

This success has been confirmed recently by a comprehensive review that concluded "the *Greenhouse Challenge* is demonstrating that significant greenhouse gas emission abatement actions are taking place in industry, which will contribute to Australia's achievement of commitments under the United Nations Framework Convention on Climate Change (FCCC)".

In particular, the available data indicates that in 2000 the actions being undertaken by industrial end-users will result in 23.5 Mt CO<sub>2</sub>-e (carbon dioxide equivalent) per annum, or 16 per cent less emissions compared to what would have occurred in the absence of those actions. Over the period 1995 to 2000, participants in industrial end-use sectors are expecting very limited emissions growth (2.1 Mt CO<sub>2</sub>-e or only 1.6 per cent). The review also found that the *Greenhouse Challenge* has succeeded in achieving broad and diverse participation across industry.

### **Further Policies and Programs:**

In further developing policy, attention needs to be given to enhancing the *Greenhouse Challenge* to allow further emissions reductions through more comprehensive coverage (transport – maritime, air, rail and road; government services; agriculture, etc) and where appropriate, negotiated agreements with companies and sectors. The first step in such a process would be to ensure that current and future participants will not be disadvantaged by such action. If this can be assured companies and sectors will see less risk in exploring further emission abatement opportunities under this program.

There are also good indicators that the success of the *Greenhouse Challenge* will be repeated in newer partnership programs such as *Cities for Climate Protection™* and *Household Greenhouse Action* providing they are effectively resourced and obtain political support. The AIGN believes that such programs should obtain the highest priority in the further development of Australia's greenhouse response program.

Also worthy of support are programs that develop Australia's knowledge of and capacity to utilise carbon sinks. Australia is uniquely placed among developed countries in having the capacity and incentive to sequester significant amounts of carbon through forestry projects, environmental plantings and improved land management and agricultural practices. Vast areas of Australia are being degraded through salinity, acidity and erosion and would benefit from reforestation, revegetation and rehabilitation. Programs to foster and facilitate such activity such as the *Plantations – 2020 vision* program, *Bush for Greenhouse* and the *National Carbon Accounting System for Land Based Sources and Sinks* need to continue to be supported.

#### **Renewable energy:**

In the area of promoting the development and use of renewable energy sources, the AIGN supports such programs as the *Renewable Energy Showcase*, *Renewable Energy Commercialisation Program*, *Renewable Energy Industry Program*, *Renewable Energy Equity Fund*, *Renewable Remote Power Generation Program* and the *Photovoltaic Rebate Program*. These programs provide information to the market and overcome some possible market failures in the areas of research and development. The AIGN notes that these programs total over \$380 million and represent a major commitment and require challenging intervention in this emerging industry sector.

However, the AIGN has particular concerns about the current Working Group implementation recommendations for the *Mandatory Targets for the Uptake of Renewable Energy in Power Supplies* (the 2% renewables target). This measure, as currently planned, would be an expensive means of reducing greenhouse gas emissions and an ineffective way of promoting low carbon intensity renewable energy technologies such as photovoltaics and wind.

The measure, as currently proposed for implementation, is estimated to save 5Mt of greenhouse gas emissions at a cost of A\$40 to A\$80 per tonne of CO<sub>2</sub>-e. This represents a very high cost per tonne of emissions saved, well above any realistic assessment of the maximum international permit price that would encourage ratification of the Kyoto Protocol<sup>1</sup>. In addition, there is serious doubt about whether the measure, as it stands, would have any appreciable impact on promoting an internationally competitive renewables industry.

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<sup>1</sup> Note that although the US Administration has estimated permit prices in the range of A\$6 to A\$10 per tonne of CO<sub>2</sub> e under the Kyoto Protocol, they have not even attempted to get support from Congress for its ratification.

### **Emissions trading:**

Emissions trading is currently under negotiation internationally and is being considered domestically. The AIGN supports the process of stakeholder consultation currently underway but believes that extensive further analysis of options and impacts are needed before any definite move is made to implement a comprehensive emissions trading scheme. Even if such a scheme is deemed worthwhile, timing will be critical if Australia is not to impose costly restrictions on industry and the national economy for potentially little or no environmental benefit. Particular attention needs to be given to progress in international trading and ensuring that any domestic scheme is compatible and benefits from access to international credits.

A range of corporate, national and international voluntary trading systems are emerging to facilitate learning and to potentially allow companies to hedge their risk. Participation in these schemes must continue to be strictly voluntary, with recognition of the possibility that their effectiveness as hedges may be compromised because the Kyoto Protocol rules are still being negotiated.

### **Other measures:**

Other priorities for the ongoing development of national greenhouse policy should include:

- i) management of land clearance and the pursuit of forestry and land rehabilitation programs that have economic and/or environmental benefits as well as greenhouse abatement. The review of *Greenhouse Challenge* identified these areas as potential opportunities for future extension of the coverage of the *Challenge*;
- ii) micro-economic reform in the energy markets to ensure full and efficient competition in electricity and gas markets. This will allow cost competitive fuel switching, co-generation and renewable energy systems to develop and, over time, reduce the greenhouse intensity of energy supply.
- iii) increased focus on promoting end user energy efficiency in such areas as buildings, transport and urban infrastructure to extend what is underway under the *Greenhouse Challenge*, *Energy Efficiency Best Practice* and *Energy Performance Standards* programs.
- iv) coordinated national R&D effort to address fuel conversion efficiency, lower emitting transport (maritime, air, rail and road), resource processing and agricultural systems, and sequestration technologies.

## **Issues**

*The AIGN offers the following comments against the Inquiry's Terms of Reference.*

**The progress and adequacy of Australia's policies to reduce global warming, including:**

**a) The effectiveness of Australian policies to reduce greenhouse emissions, in the light of Australia's commitments under the Framework Convention on Climate Change including:**

- (i) whether Australia is likely to meet its commitments under the Framework Convention and the December 1997 Kyoto Protocol, and the potential costs if it does not;**
- (ii) the international response to the Framework Convention;**

**Australian policies in an international context**

The AIGN believes Australia's current greenhouse policies are generally appropriate and effective given Australia's commitments under the FCCC and the level of uncertainty that pervades this area of global policy. As discussed later in this submission, most will provide a solid foundation from which to develop further measures as appropriate in response to international developments. The current uncertain state of global greenhouse policy does not, however, justify additional mandatory measures that could jeopardise Australia's economic growth and competitiveness.

Many important issues need to be resolved before the Kyoto Protocol is likely to be ratified by the requisite number of parties and consequently come into force. Critical aspects include the flexibility mechanisms, sinks and meaningful progress on the issue of developing country commitments.. Under the Protocol, the national 'targets' are the starting points in the proposed system with flexibility to meet the collective target for all Annex 1 countries at the lowest cost. The European Union (EU) has already foreshadowed that, at a minimum<sup>2</sup>, they intend to use the "bubble" flexibility mechanisms to redistribute the 'targets' between the members of the EU, with adjustments from the average of 92% down to 79% and up to 127%. Therefore, the commitments are only workable and efficient in the context of a fully operational Kyoto Protocol. (See Attachment 1 for more discussion of this issue.)

Before entry into force of the Kyoto Protocol, it is potentially costly for countries such as Australia to undertake emission abatement measures that could damage their international competitiveness with no guarantee that other countries will act in the same way. Hence we need to give priority to flexible cooperative measures which have least negative impact on competitiveness, investment, regional development and jobs.

Currently only 16 countries, all non-Annex 1, have ratified the Kyoto Protocol. Many others are still considering and analysing whether they can realistically meet their part of the Kyoto commitment.

Even if the Kyoto Protocol enters into force it suffers from a fundamental flaw that presents Australia and other trading nations with a particular problem. Although non-Annex 1 countries account for a significant and growing share of global emissions they are not subject to any binding emission constraints under the Protocol. Consequently, Australian businesses,

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<sup>2</sup> A number have also indicated that because of the growth trends in their emissions they will also need to use the other flexibility mechanisms.

especially those in energy and emissions intensive sectors, could be rendered uncompetitive against developing country producers with no emission constraints. Trade exposed economies like Australia could well incur significant economic costs for no global environmental benefit as they attempt to meet their Kyoto commitments.

It is widely understood that the Kyoto Protocol alone will not be effective in terms of its objective to limit global greenhouse emissions until this problem is addressed. Non-Annex 1 countries need to be on a committed path to progressively accept binding emission limits. Until this occurs Australia needs to concentrate on policies that are worthwhile in their own right and not damaging to our economy. This position is consistent with the position of most developed countries, whether explicitly stated or not. Countries are understandably very reluctant to implement policies that will damage the competitiveness of their export or import competing industries. This is evidenced by various forms of exemptions from measures in EU countries and in the case of some countries like the US, the absence measures that would impact on industry costs combined with the presence of incentives for win-win actions.

The AIGN therefore considers that an essential objective of the international negotiations has to be the expansion of the coverage of commitments under the Kyoto Protocol to include key non-Annex 1 country competitors to Australia. At a minimum, the Protocol should not be ratified until there is agreed process for coverage to be extended in the future to include major emitting developing countries such as China, India, Brazil, the ASEAN countries and the OPEC countries. This process must also include non-Annex 1 members of the OECD, namely Korea and Mexico.

In the shorter-term, internationally, the AIGN believes the key objective has to be to get clarification (in a form acceptable to Australia especially from a comprehensiveness and trade competitiveness point of view) of key aspects of the Kyoto Protocol. This should include clarification in relation to sinks and the operation of the flexibility mechanisms including the “bubble” mechanism and its interaction with the other mechanisms.

**(iii) the development of an effective international and domestic emissions trading system; see Item a) xi**

**(iv) the effectiveness of Australia’s policies in comparison to international practice, such as emissions trading regimes and other measures;**

The AIGN believes that many of Australia’s current greenhouse policies are in the forefront of effective international practice. Two broad areas of policy that demonstrate this effectiveness are those involving business and community partnerships and those dealing with carbon sequestration.

### **Partnership programs**

Particularly effective in Australia have been policies that involve cooperation with industry and other segments of the community to change attitudes and behaviour and lay the long-term foundations for a more energy and emission efficient future. In many ways such programs are ideal responses in the current circumstances – very flexible, manage risk well and also

establish processes for measuring, reporting and forecasting emissions at the enterprise level. They are capable of making a significant contribution to our national effort and therefore need to be extended to the widest possible coverage.

### ***Greenhouse Challenge***

The best established of these policies is the *Greenhouse Challenge* program involving cooperative partnership between industry and the government to abate emissions. The program was initiated in 1995 as a joint industry-government initiative and it has proved very effective.

A recent comprehensive review of the *Greenhouse Challenge* program managed by a Steering Group, chaired by Professor Stuart Harris of the Australian National University, concluded that “the *Greenhouse Challenge* is demonstrating that significant greenhouse gas emission abatement actions are taking place in industry, which will contribute to Australia’s achievement of commitments under the United Nations Framework Convention on Climate Change (FCCC)”.

In particular, the available data indicates that in 2000 the actions being undertaken by industrial end-users will result in 23.5 Mt CO<sub>2</sub>-e per annum, or 16 per cent, less emissions compared to what would have occurred in the absence of those actions. Over the period 1995 to 2000, participants in industrial end-use sectors are expecting very limited emissions growth (2.1 Mt CO<sub>2</sub>-e or only 1.6 per cent).

The review also found that the *Greenhouse Challenge* has succeeded in achieving broad and diverse participation across industry. Over five hundred public and private organisations, both large and small, from virtually every industrial sector are participating in the *Greenhouse Challenge* or have indicated their desire to participate. In many sectors close to 100 per cent coverage has been achieved. A more detailed discussion of the features of the *Greenhouse Challenge* is presented under **Item a) ix**, dealing with the effectiveness of industry programs.

The AIGN believes the Government’s focus on extending the “partnership” concept to other sections of the community is well founded and provides the best avenue for the ongoing development of greenhouse policy. Useful work is being done on such programs as:

#### ***Cities for Climate Protection™ (CCP™)***

*CCP™* is a voluntary scheme through which local governments quantify their emissions, then develop and implement action plans to reduce them, particularly through community partnerships. Australia has already achieved a comparatively high level of participation in this international program.

#### ***Household Greenhouse Action***

*Household Greenhouse Action* aims to bring together the various spheres of government, key industries and professional organisations in broadly based partnerships to develop effective strategies to address residential energy use and greenhouse emissions.

#### ***International Greenhouse Partnerships program***

The partnership approach is also being used to develop relationships with other countries to abate emissions. Two of the so-called Kyoto flexibility mechanisms - the Clean Development

Mechanism and Joint Implementation - will allow emission credits to be generated through mutually beneficial project based investment involving emission abatement. The Clean Development Mechanism is the only provision of the Kyoto Protocol that can effectively engage developing countries in the process of addressing global emissions.

The current program managed by the *International Greenhouse Partnerships Office* in the Department of Industry, Science and Resources is designed to ensure that Australia and Australian industry gains experience in the operation of these mechanisms. It also contributes to 'capacity building' in partner (usually developing) countries enhancing their capacity to manage and abate emissions.

### **Carbon sequestration programs**

Australia's policies dealing with the measuring, monitoring and certifying of vegetative carbon sinks are well founded and in the forefront of international developments in this area. Australia, unlike most other countries, has the potential to sequester significant quantities of carbon in new forests, environmental plantings and agricultural soils. In both cases significant additional economic and environmental benefits can accrue from this activity. Key policy programs include:

#### ***Plantations – 2020 vision***

This program aims to treble Australia's plantation estate by 2020 and thereby increase carbon sequestration. The program is being conducted in collaboration with State governments and industry. In absolute terms the increase in the plantation estate is likely to be of the order of 2 million hectares.

#### ***Bush for Greenhouse (BFG)***

BFG will encourage private funding into much needed land rehabilitation projects by providing recognition for the stored carbon reservoir created. Projects selected would have significant carbon sink potential as well as meeting a range of other environmental objectives.

#### ***National Carbon Accounting System for Land Based Sources and Sinks***

Given the potential benefits for Australia from encouraging forestry and revegetation projects it is important that carbon sinks can be counted towards meeting our Kyoto commitment. The priority that is currently being given to the development of a robust national carbon accounting system and establishing internationally credible standards of measurement and monitoring is well justified.

#### ***Other sequestration opportunities***

Non-forest sequestration opportunities such as changed agricultural practices are being undertaken and need to be promoted and recognised. (also see *Item c) vi*).

### **Comparison with other countries**

In international comparisons, Australia is well placed when our national circumstances are taken into account. Now that the once off factors (eg East Germany and the UK 'dash for

gas') in Europe are no longer having a masking effect, the EU per capita emissions are trending upwards. Australia's Kyoto Protocol commitment of 108% is tougher on a per capita basis than the overall EU 92% because of their very low population growth. Also, as already noted, the EU has foreshadowed redistribution of targets within the EU to recognise the higher growth expected in some countries such as Ireland (113%), Spain (115%) and Portugal (127%).

With respect to policies Australia is also well placed. Few others if any have a dedicated and well resourced greenhouse agency such as the Australian Greenhouse Office. While several other countries have voluntary abatement programs few have proved as effective as the *Greenhouse Challenge* in limiting growth in end-user emissions for participants. If this can be continued and extended to all other sectors and emitters, Australia would be on track for a good domestic result.

The EU for a number of years has been advocating a uniform energy tax for its members but has not been successful in implementing it because unanimous agreement cannot be reached among members. However, some members of the EU have, like Australia, demonstrated that partnership programs are a more effective approach to early action.

Also worth noting is the continued subsidisation of coal production in several EU countries. In the conclusion to a paper by Anderson K. and W. McKibbin (1997) "Reducing Coal Subsidies and Trade Barriers: Their Contribution to Greenhouse Gas Abatement" the authors stated: "Model-based empirical evidence suggests that the gradual removal of production subsidies in the OECD and the removal of distortions to coal markets in developing and transition economies can potentially reduce global emissions of carbon dioxide by up to 8 per cent relative to emissions that otherwise would have been experienced early next century." They went on to observe "Thankfully the process of lowering coal subsidies and trade barriers has already begun, with some EU economies (most notably Belgium and the UK) already advanced in dismantling their coal production subsidies and others (France and Germany) beginning to do so."

In addition, Australia's efforts compare favourably with the US effort (relative to the size of the economies) to abate greenhouse emissions with voluntary and Government funded programs.

- (v) **the level, and greenhouse implications, of the direct and indirect economic incentives currently offered to both fossil fuel and renewable energy projects; (see *Item b*)**
- (vi) **the effectiveness of existing local, state and federal government policies and programs and their implementation; (see also *Item a iv*)**

The Partnership Programs discussed under *Item a iv* operate at all levels of Government with goods results. However several of these are relatively new and need continued support to increase the comprehensiveness of Australia's efforts to abate greenhouse emissions. Also, as noted in *Item a ix*, there are a number of opportunities to extend (including increased

involvement of state and local governments) the successful and well established program, the *Greenhouse Challenge*.

Although the National Greenhouse Strategy provides a framework for coordination of greenhouse action across all levels of government, there is not an adequate process for ensuring that the greenhouse objectives are consistent with the other objectives (including economic growth, new investment, jobs and regional development) of all three levels of government.

Another area where more coordination between all levels of government is needed, is the establishment of an overall land management strategy that takes account of both the emissions and the sinks under Article 3.3 and potentially under Article 3.4 of the Kyoto Protocol. Without such coordination there is a real danger that the sinks will be separated and sold and someone (probably Governments) will be left with the emission debits from land clearing and any other debits that may have to be included such as loss of forest cover and/or harvesting.

**(vii) the economic, employment and development consequences of greenhouse abatement measures with particular reference to regional Australia and the differential impact on each State and Territory;**

Given the high correlation between energy intensive and resource industry location and major areas of regional development, there is a high potential for substantial and disproportionate costs to be borne by relatively few Australians in non-urban areas. Resource and energy intensive industries have been and will continue to be critical for regional development in the Gippsland, Latrobe Valley, Portland, and Geelong regions of Victoria; the Hunter Valley region in NSW the Spencer Gulf region of South Australia; Gladstone and other regional areas in Queensland, as well as the Cooper Basin (of SA and Qld); the Western Australian Kalgoorlie and Murchison regions; and, the Northern Territory. In addition, agricultural industry – as a key to the well being of regional Australia - faces considerable economic risk from greenhouse measures.

**(viii) the social and equity consequences of greenhouse abatement; (also see *Item a) vii* above)**

In the absence of deliberate government action to spread the costs of meeting the Kyoto commitments across all members of the Australian community, the costs will primarily fall on carbon intensive businesses, their employees and shareholders, the companies and employees and shareholders in associated businesses, and the communities that rely on those businesses. Climate change is a global issue and Australia will play its part in meeting the challenges that lie ahead. In so doing, Australia takes on a national commitment to be shared by all.

In saying that the costs must be borne by all Australians equitably, the AIGN is not suggesting that certain businesses or communities be afforded ongoing protection from the inevitable consequences of restructuring the Australian economy to be less carbon intensive than would otherwise have been the case. On the contrary, in the context of the international community taking on, long-term, the task of reducing global greenhouse gas emissions, there will be no place for economically inefficient and costly protection measures.

**(ix) the effectiveness of industry programs and policies in actual emission reduction;**

In considering the effectiveness of industry programs in Australia it is worth examining in more detail the success of the *Greenhouse Challenge* program.

The *Greenhouse Challenge* is a joint voluntary initiative between the national Government and industry in Australia to abate greenhouse gas emissions. Participating organisations sign agreements with the Government, which provide a framework for undertaking and reporting on actions to abate emissions. The *Greenhouse Challenge* was launched in 1995 with a strong sense of ownership and commitment on the part of both the government and industry. A recent review has evaluated its achievements to date and has made recommendations about its future. The findings of the review are worth highlighting in this context:

**1. Emissions Abatement**

The review found that through the *Greenhouse Challenge* significant greenhouse gas emission abatement actions are taking place in industry, which will contribute to Australia's achievement of commitments under the United Nations Framework Convention on Climate Change (FCCC). In particular, the data available indicates that in 2000 the actions being undertaken by industrial end-users will result in 23.5 Mt CO<sub>2</sub>-e per annum, or 16 per cent less emissions compared to what would have occurred in the absence of those actions. On the same basis, electricity generators and distributors are expecting 5 Mt CO<sub>2</sub>-e per annum or 3 per cent less in emissions in 2000. Participants are undertaking a wide range of abatement actions including investments in new technology and sinks, process and energy efficiency improvements, fuel switching, and the capture of fugitive emissions.

Over the period 1995 to 2000, participants in industrial end-use sectors are expecting very limited emissions growth (2.1 Mt CO<sub>2</sub>-e or 1.6 per cent) with a number of sectors, including oil and gas extraction, cement and coal mining, expecting absolute declines. Over the same period, as a result of growth in electricity demand associated with growth in GDP (21 per cent) and population (6 per cent), the electricity generation and distribution sector is projecting absolute emissions growth of 31.4 Mt CO<sub>2</sub>-e or 22.8 per cent.

**2. Participation**

The review also found that the *Greenhouse Challenge* has succeeded in achieving broad and diverse participation. As at 1 July 1999, 224 large and medium-sized organisations had signed agreements and another 178 had indicated through a formal letter of intent their desire to join. A further 153 small organisations are involved through partnership arrangements with large participating organisations. Public and private organisations, both large and small, from virtually every industrial sector have joined the *Greenhouse Challenge*.

The *Greenhouse Challenge* has excellent coverage of emissions in some key areas including 100 per cent coverage of aluminium and cement production, 98 per cent of oil and gas extraction and electricity generation and distribution and 91 per cent of coal mining. In other

areas, however, coverage is less comprehensive, often significantly so, and opportunities remain for increasing the coverage, by targeting large emitters not yet on the program and a number of sectors with relatively low participation.

### **3. Building Capacity in Industry and Government**

The review of the *Greenhouse Challenge* found that the program is a vehicle for industry and government to learn by doing. Expertise is being built on how to identify, monitor, manage and report greenhouse gas emissions at the level of individual organisations. Within participating organisations, decision-making frameworks and processes are being developed to address emission reduction options. Within government, a more detailed understanding of the emission profiles is emerging along with a greater understanding of how more efficient and effective policies and measures can be developed. This capacity is essential to a better understanding of the mechanisms and frameworks required in addressing greenhouse gas emissions and the scope for individual organisations to abate emissions.

#### **Future of the *Greenhouse Challenge***

The review observed that the *Greenhouse Challenge* operates in a dynamic policy context and has demonstrated that it is a flexible program that can remain effective in a changing environment.

The *Greenhouse Challenge* is now one part, but a very important part, of a broader framework of policies and measures that are contributing to the undertaking Australia made at Kyoto.

Many lessons have been learned about the design and operation of the *Greenhouse Challenge* since its launch in 1995. There are opportunities to improve the design and operation of the program by learning from experience to date. Specific examples include recruitment strategies, technical support and reporting.

#### **Recommendations from the Review report**

Recognising both the changing context and the lessons learned to date, the Evaluation Steering Group recommends that:

- the *Greenhouse Challenge* be continued as a joint collaborative government and industry initiative;
- participation in the *Greenhouse Challenge* remain voluntary;
- inventories and action plans for existing participants be extended beyond 2000;
- participation in the *Challenge* be expanded with a particular focus on major emission sources and those sectors currently not well represented;
- recruitment strategies be developed that ensure maximum abatement and participation recognising the need to develop priorities for participation coverage;

- emissions reporting include a 1990 baseline where possible;
- government and industry collaborate to develop measures to respond to a range of *Greenhouse Challenge* program design issues identified in this report;
- government and industry explore means by which developments in other areas of national greenhouse policy (eg energy efficiency benchmarking) can be used to improve effectiveness of emission abatement actions under the *Challenge*;
- the government consider how data collected under the *Challenge* can be used more systematically to inform the broader greenhouse debate and the development of other policies and measures; and,
- in the context of other policies and measures under consideration (eg emissions permit trading), it be noted that industry has requested that assurance be given that organisations will not be disadvantaged for taking voluntary action now relative to organisations not taking such action.

**(x) Australia's contribution to global greenhouse gas abatement through export of alternative energy sources;**

Australian LNG exports have generated a significant greenhouse benefit globally. Emissions produced during production are more than offset by emission savings in importing countries. Similarly, export of Australian coal coupled with improved combustion technologies offer net global greenhouse benefits.

In addition, Australian companies are participating in projects through the Government's International Partnerships Program. Currently these projects are part of the Activities Jointly Implemented (AIJ) pilot program and their status needs to be recognised under the Clean Development Program (CDM). The slow progress of the international negotiations is a constraint on the expansion of such activity.

Australia also contributes to global restraint on greenhouse emissions growth through the export of efficiently produced energy intensive commodities and products.

**(xi) additional measures including, but not limited to, carbon trading;**

**Additional measures**

The success to date of voluntary action programs discussed under *Item (a)* (above) points the way ahead for greenhouse policy in the medium-term. Further, the uncertainty of the international policy debate cautions against Australia taking any further action that impacts on our competitiveness.

(i) Voluntary action schemes need to be extended to cover as much of the community as possible. This is already the intention for such programs as *Cities for Climate Protection™*

and *Household Greenhouse Action* but it is important that they are adequately resources and supported politically as the *Greenhouse Challenge* has been.

(ii) Established voluntary action schemes need to continue to evolve to improve effectiveness without conflicting with possible future policies such as emissions trading. In the case of the *Greenhouse Challenge*, participants need to be assured as soon as possible that they will not be disadvantaged by their involvement. The ‘no-disadvantage’ principle then needs to be operationalised.

‘Baseline protection’ is one approach to implementing the ‘no-disadvantage’ principle that needs to be evaluated. The objective of baseline protection is to ensure that emitters who take early action to reduce their emissions are not disadvantaged. The concept involves companies and the government agreeing on a baseline level of company emissions that is net of any greenhouse abatement activity. This baseline then becomes the basis for any future company commitment or emission cap.

Canadian government and industry are currently moving to incorporate baseline protection into their voluntary action program. Under their approach companies may apply for emission reductions that have occurred since 1 January 1990 to be registered for the purposes of baseline protection. Eligible emission reductions must be real, measurable and verifiable.

With effective baseline protection in place, companies can be assured that further emission abatement action will be officially recognised. This could pave the way for more detailed negotiated agreements between industry and government, leading to further emission reductions.

Many of the issues related to the possible implementation of emissions trading, such as sectoral coverage and the need for effective monitoring, verification and compliance procedures, would be much better understood by both government and industry through the process of developing negotiated agreements under the *Greenhouse Challenge*.

### **Emissions trading**

The AIGN supports a considered approach to examining the technical issues involved in a national emissions trading (NET) system. It is actively participating in the public consultation process based on the Australian Greenhouse Office (AGO) discussion paper series.

Many key issues cannot be considered in isolation from each other or from strategic national interest issues, including those still being negotiated internationally. It would be premature to attempt resolution of many of these issues without more consideration and analysis of options and results from the continuing international negotiations.

Greenhouse is a global issue requiring global solutions. Hence the AIGN does not support early, unilateral implementation of a NET system. Such a development would have no observable impact on global emissions but it would have a major negative impact on Australia’s national interest in terms of investment, economic growth and jobs. While integration of a NET system with the international flexibility mechanisms has the potential to minimise the cost of meeting Australia’s Kyoto Protocol obligation, it does not address the loss of competitiveness relative to non-Annex 1 countries. This is a key consideration,

because the Government's greenhouse policy, as set out in the Prime Minister's November 1997 statement, is to promote the national interest in terms of employment and industry competitiveness while assuming a fair share of the worldwide burden to address climate change issue.

The AIGN is concerned that the current debate relies on a number of simplifying assumptions to remove the uncertainty associated with the actual Protocol regime risk that Australia and other countries face. Critically, these simplifications include the assumption that Australia (and others) will ratify the Kyoto Protocol without any restraint on future emissions from developing countries. While these assumptions provide a reasonable starting point for consideration of a NET system, they should not hinder or bypass consideration of the fundamental national interest issues that must be addressed before ratification.

The limitations of these assumptions and the possible future international developments indicate that a great deal more analysis needs to be undertaken over the next few years at a higher level of sophistication than is currently possible. Hence, the AIGN believes it is premature to finalise answers to most of the critical questions about the optimum design of a NET. Therefore, we recommend an ongoing process that takes account of changes to relevant circumstances, and that allows the progressive refinement of the design of a possible NET system. The AIGN considers that COP6 will be an important milestone and that this meeting should be followed by further consultations with stakeholders, and detailed analysis to see if there is sufficient certainty at that point to make firmer decisions about a NET system and its design.

While it is too early to finalise decisions on a NET system, the AIGN would support early action by governments which:

- ❖ adopts the 'no disadvantage principle' for government measures already in place, and initiates work to identify what this means in practice for each emitter liable to these measures;
- ❖ decides that before any additional measures that are demonstrated to be in the national interest are implemented by governments, the implementation plan will include a clear definition of how the 'no disadvantage principle' will be applied;
- ❖ establishes a framework for government policy formulation that is transparent and predictable; and
- ❖ ensures a free flow of information to the community about the ongoing negotiations of the Kyoto Protocol to assist everyone make more informed judgements, without government intervention, about the potential future costs, risks, and implications of abatement and sequestration action prior to 2008.

While the AIGN believes that considerable further work and progress of international negotiations is required to resolve the allocation design issues, our current views are that any NET scheme should be designed in a way that:

#### **1. Minimises sovereign risk.**

There are two key elements to this. First, the launch of such a scheme should avoid undermining, as far as possible, existing contracts. And equally, it should not undermine previous commitments by the Government upon which commercial decisions have been

based, such as policy assurances, specific project approvals or agreements made under the *Greenhouse Challenge* Program.

**2. Takes careful account of equity and the national interest in determining allocation of initial permits**

At the least, this would mean taking account of:

- ❖ emission baselines for businesses;
- ❖ 'no disadvantage' to those that have complied with government schemes to abate emissions or enhance sinks, imposed on them prior to the NET system;
- ❖ expected loss of business value in many sectors and the expected gain in business value in some sectors;
- ❖ loss in returns to labour in many sectors and gains in some others; and,
- ❖ regional impacts.

**3. Fully recognises all aspects of 'sharing the burden' of the Kyoto Protocol.**

The AIGN believes the current level of uncertainty about the final nature of the Protocol and its implementation mechanisms prevent any detailed prejudgement of how the equity criteria should be defined and met.

**4. Recognises and addresses the potential for market power to be exercised**

In the international context, potential market power is a major issue for Australia in view of the small size of the Australian market (about 2% of the potential Annex 1 market). As in other commodity markets, Australia would be a price taker in an international permit market. AIGN suggests that Australia needs to carefully evaluate the risks and implications of market power in any international trading scheme on a NET system before finalising design and implementation plans.

Regime risk and uncertainty must be managed and decisions on the design of a NET system will need to be made in a 'real world' and 'real time' political and economic framework, as distinct to a simplified and static conceptual framework. The AIGN believes there is a great deal of analysis and debate which will need to take place before the community can be confident that the optimum design features of a NET system, including the method of allocation, the frequency of allocation, and the tenure of permits, can be identified and agreed. Industry is a key stakeholder and, if after a strategic review, a NET system emerges as the preferred way forward, there will need to be a further process of intense interactive evaluation of all of the design issues.

**(xii) the adequacy and effectiveness of greenhouse gas emission inventories; and**

The Australian National Greenhouse Gas Inventory (NGGI) meets, and in a number of areas exceeds, the requirements of the IPCC inventory guidelines. In addition, Australia has made substantial contributions to the development of the IPCC inventory methods and guidelines. The Australian inventory workbooks provide a transparent explanation of the approaches

taken and have been used to develop workbooks to support the *Greenhouse Challenge* program.

These efforts to apply the methods to industry sectors and enterprise levels through the *Greenhouse Challenge* program have in turn resulted in improvements that have been incorporated into the NNGI process. Further work to develop more comprehensive end-use greenhouse emission inventories would increase understanding and accountability for greenhouse emissions.

**(xiii) the potential for carbon leakage associated with energy intensive industries to countries not party to the framework convention;**

Given the structure of the Kyoto Protocol with some countries potentially bound by emission limitation commitments and others not there is every likelihood of carbon leakage. This leakage can occur in several ways.

i) Australian exporters becoming uncompetitive

Higher costs for Australian exporters could render them uncompetitive in international markets. Producers from countries where emissions are unconstrained would capture market share from Australian producers thus leading to carbon leakage. If the non-Annex 1 producers emit more greenhouse gases per unit than Australian producers do, global emissions could increase as a result.

By way of example, two major Australian industries at risk in this way are the aluminium industry and the LNG industry. In the first case, there is vigorous competition to attract new investment in aluminium smelters to a number of non-Annex 1 countries in Africa, South America, the Middle East, China and India. In the latter case Australian LNG competes with Indonesian, Malaysian and Middle East LNG into Japan. Further, Australia is competing for new investment opportunities in LNG projects to gain access to Korea, China and Taiwan markets. The demand for LNG will remain in all these countries, the only issue is whether Australian LNG will be unnecessarily disadvantaged.

ii) Australian producers become uncompetitive against imports

A range of energy intensive Australian industries face tough import competition from developing countries, with prices in the Australian market generally reflecting import parity. The impact of these imports on the Australian market can be exacerbated by dumping activity, and several cases are currently under investigation. Higher costs associated with emission constraints in Australia could make these industries uncompetitive against such imports, again leading to carbon leakage. Among the sectors potentially facing this situation are petroleum refining, pulp and paper, cement, plastics and chemicals, non-ferrous metals and steel.

In both situations Australian industry and the Australian economy would suffer for no reduction in global emissions.

**(b) Whether Australian government programs and policies, both State and Federal, are sufficient to provide for the development in Australia of emerging renewable energy, energy efficiency industries, the more efficient use of energy sources, the implementation of new energy technologies (eg fuel cells, hydrogen), including:**

- (i) the effectiveness of Australia's efforts in relation to other governments; and**
- (ii) the potential of these technologies to contribute to a reduction in Australia's greenhouse emissions;**

### **Emerging renewable energy industries**

There are currently a range of policies in place to foster the development of emerging renewable energy industries. These include:

From the 1997 Prime Minister's Statement

- *\$10.5M Renewable Energy Showcase*
- *\$29.5M Renewable Energy Commercialisation Program*
- *\$4.0M Renewable Energy Industry Program*
- *\$21.0M Renewable Energy Equity Fund*
- *\$2.0M Ethanol Pilot Plant*

From the 1999 ANTS Measures for a Better Environment

- *\$264.0M Renewable Remote Power Generation Program*
- *\$31.0M Photovoltaic Rebate Program*
- *\$26.0 Extension to Renewable Energy Commercialisation Program*

These programs, totalling \$388 million, appropriately support research, development and commercialisation of new technology and provides information to investors and consumers. In so doing they address possible impediments in the development and marketing of new technologies.

Ultimately, however, the most important influence on the development of competitive renewable and energy efficient industries and services will be the market demand for those products and services.

### ***Mandatory 2% renewable and specified waste energy product energy sources target***

The design of this artificial demand side program designed to promote the development of the renewable energy industry and the use of specified waste energy products in Australia is of major concern to the AIGN. The AIGN believes changes are needed to the current implementation plan to impose mandatory targets on electricity retailers and other large electricity buyers because there is no consensus from the States, Territories and industry about the current proposal. It is seen as an expensive means of reducing greenhouse gas emissions and an ineffective way of promoting low carbon intensity renewable energy technologies.

As proposed, the measure is estimated to save 5Mt of greenhouse gas emissions at a cost of A\$40 to A\$80 per tonne of CO<sub>2</sub>. By most assessments this represents a very high cost per tonne of emissions saved, well above a realistic judgement about the maximum international permit price that would encourage ratification of the Kyoto Protocol<sup>3</sup>.

In terms of economic impacts, it is likely to require \$2-4 billion investment cost and electricity costs are expected to rise by 2.4 - 5%. The resulting increased costs to domestic consumers will add to inflation and be regressive. It is worth noting that the UK's renewable program cost was 0.7% and has recently been scaled back to 0.3% of electricity sales.

### **Energy efficiency initiatives including the more efficient use of energy sources;**

There is a need for continued focus on promoting end user energy efficiency in such areas as buildings, transport and urban infrastructure to extend what is underway under the programs such as *Greenhouse Challenge*, *Energy Efficiency Best Practice* and *Energy Performance Standards* for appliances and electrical equipment.

### **Implementation of new energy technologies (eg fuel cells, hydrogen)**

Australia's support for R&D into these new technologies should continue and also take advantage of similar work in other countries and the International Energy Agency. These technologies will not have significant impact in the short-term, however they have considerable long-term potential.

### **(c) Potential improvements to Australia's policies to reduce greenhouse emissions, in the light of available studies of:**

- (i) current and projected fossil fuel use in Australia, taking into account the effects of current greenhouse reduction policies, trends in transport use of fuels, the use of energy by high-demand manufacturing, and changes to electricity ownership and generation;**

Domestically, and within the national strategic policy framework, AIGN believes Australia needs to focus on five priorities for action within the National Greenhouse Strategy.

1. The *Greenhouse Challenge* Program has to be used as a vehicle for facilitating all sectors of the economy taking all practicable abatement actions. As outlined above, the *Challenge* Program has already achieved substantial abatement action in key sectors (100 per cent coverage of steel, aluminium and cement, 98 per cent coverage for oil and gas extraction and electricity generation, 91 per cent coverage for coal mining).

However, more can be done:

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<sup>3</sup> The US Administration has implied it would contemplate a price of A\$6 to A\$10 per tonne of CO<sub>2</sub> equivalent, however, even at that price the US Congress remains to be convinced to support the Kyoto Protocol. That is, the cost of implementing this measure could be **5 to 10 times higher** than buying emission permits on the international market (if such a market is established).

- Existing participants should be encouraged to extend the duration of their commitments beyond 2000.
  - The gaps in the coverage of the large emitters (eg in energy intensive manufacturing) need to be actively addressed.
  - Sectors with low coverage (for example transport - maritime, air, rail and road; agriculture; and government services) need to be targeted for increased participation in the Program.
  - Participants need to look at how the outcomes of other government programs (for example bush for greenhouse and benchmarking of industry energy efficiency) can be used to identify new commercially practicable action under Challenge Program agreements.
  - Participants need to be assured that they will not be disadvantaged for taking early action when subsequent policy measures are introduced.
  - There is an urgent need to better understand the distribution of high growth in emissions and the growth in domestic energy use and commercial services are two that need careful examination.
2. It is urgent that the States/Territories agree to take responsibility for any future emission liabilities relating to land clearance and to pursue win/win agriculture and forestry programs (that is, those that will give other economic or environmental gains in addition to greenhouse abatement).
  3. Continued effort is required to progress micro-economic reform in the energy markets to enable alternative energy sources and energy transformation systems to compete on their merits and not be constrained by market impediments. This will allow co-generation and renewable energy systems to develop appropriate niche markets, particularly in remote areas.

In Asia, Australian LNG exports mean a low carbon/low particulate fuel for new electricity generation (with greenhouse, urban air quality and acid rain/agriculture productivity benefits). Similarly, Australian coal exports coupled with improved combustion technologies offer improved environmental outcomes.

4. An increased focus is needed on end user efficiency, particularly end users not covered under *Greenhouse Challenge* – buildings, transport and the potential for long-term changes to urban design and transport modes (fast trains etc.)
5. A coordinated, national, strategically targeted R&D effort must be initiated. It needs to be developed under a transparent strategic plan and could address:
  - technologies (eg clean coal, fuel cells, gas to liquids) for a less carbon intensive energy mix;
  - technologies for transport and agriculture (including technologies to adapt to climate change);
  - cost effective technologies for less energy use in energy intensive, resource processing, value-adding industries; and,
  - sequestration options.

This activity should be a priority for the use of some of the money allocated in the ANTS Measures for a Better Environment package.

The AIGN believes that such a package is consistent with the Government's stated principles for evaluation of policy. It places Australia at the forefront of international action and, perhaps more importantly, is consistent with national strategic priorities, while ensuring Australia carries a fair share of the global burden to reduce greenhouse emissions.

**(ii) projected climate change impacts on Australian industries, such as fishing, tourism, agriculture and others;**

The AIGN believes that more research is needed before the regional and sectoral impacts of climate change can be assessed. Such impacts cannot, at this time, be forecast with sufficient certainty to be used for impact assessment; at best the CSIRO and others can suggest possible scenarios. Similarly, costs of impacts and adaptation programs need improved regional climate change forecasts to be meaningful.

**(iii) estimated costs of such economic impacts, to assist cost-benefit analysis of various climate change abatement programs and policies; (see comments above)**

**(iv) the impact of current land management practices and policies on current and projected greenhouse emissions, and the potential for Australian agriculture in greenhouse abatement measures;**

Agricultural practices that increase soil carbon have potential multiple benefits and need to be encouraged, evaluated and supported for recognition in the international negotiations. In addition, there is a need to investigate the potential for win-win changes to other agricultural practices that may reduce losses of nitrogen as nitrous oxide and reduce emissions from the prescribed burning of savanna. The CSIRO research into reducing methane produced by animals needs further development to become a commercially viable way of improving animal productivity as well as reducing greenhouse emissions.

**(v) the potential role for vegetation as carbon sinks and emission reduction by decreasing land clearing; and**

Land clearing remains a significant contributor to Australia's net emissions. The AIGN believes that governments with responsibility for land management need to accept responsibility for managing land clearing and other land use activities recognising that any net emissions under Article 3.3 or Article 3.4 will be a liability. The AIGN sees a significant but balanced role for carbon sinks in Australia's greenhouse response. There is a need to recognise the complexity and risks associated with sinks over the longer-term and ensure that these are taken into account in the accounting and crediting arrangements. Potential generally relates on two types of activity:

### ***a) Commercial forests as carbon sinks***

Forests sequester carbon as they grow and they hold that carbon out of the atmosphere as long as they are maintained. Over its growing cycle, say 30 years, typical commercial forests in Australia can sequester 550 to 1100 t CO<sub>2</sub> ha (depending on species, rainfall, etc.)

With large areas of suitable land and a healthy market for timber products commercial forestry could well provide good potential for emissions sinks

An issue with commercial forestry is how to deal with the harvesting. Current IPCC guidelines require that once timber is harvested it should be assumed that the sequestered carbon is released. However, it is also true that many timber products, such as timber used in construction and furniture, are long lived and continue to store carbon. Official recognition of this sequestered carbon would strengthen the value of forests as sinks.

In any case, a net increase in the total national plantation estate over time will constitute a growth in the volume of sequestered carbon and this is the aim of the government's *Plantations – 2020 vision* program referred to under ***Item a) iv***.

### ***b) Environmental plantings as carbon sinks***

Of particular interest for Australia is the opportunity to undertake badly needed environmental rehabilitation at the same time as creating a permanent carbon sink. Vast areas in Australia could benefit from revegetation, particularly with native species, to mitigate erosion and salinity problems, improve biodiversity and manage water catchment.

While the relative permanence of environmental plantings enhances their value as a carbon sink, they also tend to have a lower sequestration capacity per hectare and are more variable in their sink performance. The newly established *Bush for Greenhouse* program aims to foster corporate interest in environmental plantings by holding out the prospect of associated carbon credits.

If Australia is to fully utilise its sink potential there is a need to establish effective monitoring and verification procedures to ensure that sinks generate genuine emission offsets. Research in this area will be given a significant boost through the recent establishment of the *Cooperative Research Centre for Carbon Accounting Systems*. Ongoing and secure support for this centre will be very important.

### **(vi) the availability and effectiveness of other means of sequestration as an abatement option**

After sequestration through vegetation and retention in soils, the next most promising means of sequestering greenhouse gases is reinjection into oil and gas wells or natural underground reservoirs. To fully examine this, investigation of the technology in the LNG industry's Geodisc R&D project needs to be duplicated for flue gases from power stations. This should be a priority for the use of some of the money allocated in the ANTS package.

## Attachment 1

### Australia's obligations if the Kyoto Protocol comes into force and if Australia ratifies it.

*The frequent and simplified statement: "to limit or cap emissions to 108% of the 1990 emissions" is not accurate or complete.* It implies an obligation that has a very high probability of being more onerous and threatening to Australia's national interest than the actual obligation.

Australia's (and other Annex 1 countries) actual emissions limitation obligation would be as defined in Article 3 of the Protocol.

*The Parties included in Annex I shall, **individually or jointly**, ensure that their **aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012.***

Hence, the obligation to limit their aggregate emissions is shared by the Annex 1 Parties. All relevant provisions of Article 3 and Annex B have to be taken into account to determine what the obligation would be for an individual Annex 1 Party. These include:

- ❖ Paragraph 7 applies the Annex B percentage to the 1990 emissions (including emissions from LUC if applicable) to give a paragraph 7 (or initial) assigned amount.
- ❖ Paragraph 3 and potentially paragraph 4 adds to the paragraph 7 (or initial) assigned amount an amount equal to the net sequestration in LUC&F sinks.
- ❖ Paragraph 12 adds to the paragraph 7 (or initial) assigned amount any certified emissions reductions acquired from CDM (Article 12) projects.
- ❖ Paragraphs 10 and 11 add to or subtract from the paragraph 7 (or initial) assigned amount the acquired or transferred assigned amounts arising from JI or ET (Articles 6 and 17).

The Protocol also has provisions under Article 4 for a group of Annex 1 Parties to effectively transfer portions of their initial allocations between Parties without changing their aggregate initial assigned amount.

This analysis shows that the Protocol would not establish an absolute or fixed emissions limit for any individual Annex 1 Party when all the provisions are taken into account. The consequences of this are easiest to consider in an emissions trading context. The Kyoto Protocol would constrain<sup>4</sup> the number of emissions permits/credits that the Australian Government could issue for the first commitment period. The Government's authority to issue permits/credits equals the initial assigned amount for Australia (108% of the 1990 emissions including land clearing) plus credits for net sinks in the LUC&F sector (once the rules have been finalised). Emissions above the level covered by the permits/credits that the Australian Government can issue would need to be covered by trading/acquiring permits/credits first issued by some other Annex 1 Government (based on their initial assigned amount plus their net sinks) or by credits issued under the CDM for projects in a Non-Annex 1 country.

The need for full use/operation of all the provisions of the Kyoto Protocol has been reinforced by the results from a number of economic models<sup>5</sup> of the Protocol's provisions. These models all indicate that **unilateral action** to meet the initial (or paragraph 3.7) assigned amount would be **more than twice as costly for Australia** as would be the case with effective operation of all the provisions of the Protocol.

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<sup>4</sup> However inclusion of net sinks means that the constraint is not an absolute limit.

<sup>5</sup> ABARE's GTEM, McKibbin/Wilcoxon's G-Cubed and all nine models in a recent study by the Stanford Energy Modelling Forum where Australia was grouped with Canada and New Zealand.