

**DRAFT**

**REGA Supplementary Submission to the  
Joint Standing Committee on Treaties  
Inquiry into the Kyoto Protocol**

**DECEMBER 2000**

Renewable Energy Generators Australia Ltd



## **Executive Summary**

REGA is the acronym for the Renewable Energy Generators of Australia, an industry body representing the major generators of renewable energy in Australia. The body represents the existing generators of 10.7 per cent of Australia's electricity generation.

The existence of human induced global warming is beyond dispute. It is an important issue facing the international community. REGA shares the sentiments of reputable scientific organisations like the IPCC and the CSIRO, industry groups like BP Amoco and Shell, Non Government Organisations and high-ranking politicians including President Bill Clinton. These proponents clearly state that human induced global warming is a reality, and that it has been caused by the emission of greenhouse gases. The level of these gases in the atmosphere has been significantly increased by the developed world's industrial and transport activities. It is REGA's opinion that ratification of the Kyoto Protocol is a positive mechanism by which Australia can address the immense issue of global warming.

Ratification of the Kyoto Protocol provides the opportunity for Australia to develop 'new economy' industries that are highly rewarding. The global market for renewable energy and greenhouse mitigation technology is immense. REGA is of the opinion that the Kyoto Protocol is an effective mechanism to encourage investment and enable Australian industry to capture a sizeable portion of this rapidly growing market. The Kyoto Protocol is a major business opportunity for Australia because the renewables industry, like the information technology industry, is a major growth area of the world economy.

REGA believes that some economic models greatly over estimate the economic cost to Australia caused by ratification of the Kyoto Protocol. These economic models fail to consider the social and environmental benefits of ratification and the vast opportunities for business to implement 'no regret' mechanisms of emission reduction. The opportunity to diversify the Australian economy by building a large renewable energy industry, plus the environmental, economic and social benefits associated with ratification, make the prospect of ratifying the Protocol highly agreeable.

Decarbonisation of global energy systems is real and happening. There was unanimous support for this notion from more than 160 countries attending the COP6 conference at The Hague in November 2000. It is in Australia's best interest not to ignore this fact. Australia needs to follow the example set by Western Europe and the US and invest in greenhouse-friendly energy sources.

REGA submits that ratification of the Kyoto Protocol will promote long term benefits for Australia. Ratification will serve to enhance our economy, improve our environment, and aid in the development of greenhouse-friendly energy resources. Ratification of the Kyoto Protocol can be a positive experience for Australia.



# 1 Introduction

The goal of the Joint Standing Committee on Treaties (JSCT) Inquiry into the Kyoto Protocol is to “inquire into and report on whether ratification of the Kyoto Protocol on climate change is in Australia’s national interest”. REGA presented an initial submission to the Committee and this supplementary submission is a result of REGA appearing at the public hearing in Melbourne on 13<sup>th</sup> September 2000.

REGA is the acronym for the Renewable Energy Generators of Australia, an industry body representing the major generators of renewable energy in Australia. The body represents the existing generators of 10.7% of Australia’s electricity generation, including hydro (with up to 100 years of operation), bagasse (biomass generation from sugar cane waste), co-generation and the new but rapidly expanding wind generation.

REGA strongly supports the ratification of the Kyoto Protocol, and believes that the Protocol is a valuable tool to use in the effort to reduce the impacts of the accepted notion of human induced global warming.

This supplementary submission is divided into eight sections and discusses:

- Issues and themes from previous submissions to the JSCT Inquiry into the Kyoto Protocol.
- Evidence and Acceptance of the Reality of Global Warming
- How Ratification of the Kyoto Protocol Relates to the New Economy
- Why is it Important for Australia to act on Greenhouse Issues
- The Costs and Losses Associated with Ratification of the Kyoto Protocol
- The Benefits of Ratification
- International Support for REGA’s opinion
- Conclusions

## **2 Issues and Themes from Previous Submissions to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol**

The content of previous submissions to the Inquiry into the Kyoto Protocol has indicated that there are many positive aspects associated with Australia ratifying the Protocol. There is broad consensus amongst the Australian community (academics, industry and business included) that global warming is real, and that it is being accelerated by anthropocentric activity. It is widely recognised that a level of action serving to reduce global greenhouse gas emissions is required. The greenhouse hypothesis needs to be taken seriously and the Renewable Energy Generators of Australia (REGA) share and support these notions.

It is recognised that Australia is in a key position to become a world leader in sustainable energy and environmental protection technology. Initiatives such as ratification of the Kyoto Protocol will send clear messages to business and industrial sectors that Australia is serious about implementing greenhouse gas abatement activities. It will accelerate development of new renewable energy resources and technology. Action aimed at encouraging investment in renewables (eg ratification of the Kyoto Protocol) will serve to reduce Australia's greenhouse gas emissions, and also increase the nation's comparative advantage by enabling us to fully capitalise on the incredibly large international renewable energy and greenhouse-mitigation technology market.

Australia needs to diversify its ageing economy base. Low value commodity exports can not continue to hold balance against high value manufactured imports. Australia needs to invest in a 'new economy'. The good news is that renewable energy and environmental technology are part of the global 'new economy' and ratification of the Kyoto Protocol is a positive step for Australia towards capturing the immense economic benefits of the new international energy market.

Australia is however already beginning to lag behind other nations (Western Europe and the US) in the race to capture this huge market and so prompt policy development and sound leadership is needed by the Australian Government. The Government needs to emplace policies that actively encourage expansion within the renewable energy industry. A sound policy base will enable the renewable energy industry to develop and competitively compete within the global market place. Ratification of the Protocol is a vital step in the process of enhancing Australia's ageing economy.

Evidence has been tabled (The Australia Institute)<sup>1</sup> demonstrating that policy options are available that would enable the slowing of climate change without having negative impacts on employment and living standards within Australia. It is contested that under the Kyoto Protocol national productivity may well improve.

Ratification of the Kyoto Protocol and compliance with the requirements of the Protocol will give many opportunities for Australian business to increase efficiency. If positive approaches are taken towards complying with Kyoto obligations (as opposed to viewing the Protocol as a burden) then businesses stand to gain economic advantages through the implementation of efficiency gains and waste reductions. In

many instances it is cheaper to invest in energy efficiency technology, than it is to actually pay for wasted energy. This is highlighted by the fact that the Australian Bureau of Agricultural and Resource Economics' (ABARE) MEGABARE model (widely recognised as being designed with a bias towards anti ratification) actually shows that over 85% of Australian business activity would either not be adversely affected, or would benefit from application of carbon taxes (Institute Of Engineers Australia)<sup>2</sup>.



It has also been shown by the MEGABARE model (remembering that this model was designed in such a way as to over estimate the cost of ratification to Australia) that the economic cost of ratification would be tiny. It was shown by this model that real Gross National Expenditure (GNE) would fall below 'business as usual' path results by amounts ranging from as little as 0.27% to 0.49% (The Australia Institute)<sup>3</sup>. This represents a very small change, and considering the bias of this model it is most likely that the real change is likely to be even smaller than this.

The Allen Consulting Group<sup>4</sup>, in their presentation to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol, has suggested that ratification of the Protocol would be damaging to the Australian economy. The Allen Consulting Group reported that ratification of the Kyoto Protocol, and the implementation of subsequent abatement activities would, result in a drop in Australia's GDP in the order of 1.5% - 1.9%.

The findings of the Allen Consulting Group report are based upon the MMRFGREEN model, produced by the Centre of Policy Studies at Monash University. This model fails to adequately take into consideration the positive environmental, social and economic benefits that will eventuate if the Kyoto Protocol is ratified. These benefits include a sizeable reduction in the social health costs associated with air pollution. As well as this, ratification of the Protocol will initiate actions that work to

slow the detrimental impact of global warming on important ecosystems and Australia's agriculture industry.

The MMRF-GREEN model assumes that complete efficiency within emission producing activity already exists. The model is based on pure economic theory, which ignores real world conditions, it assumes that if saving a lot more energy (thus reducing greenhouse emissions) were possible at an affordable price, it would already have been implemented. This may be the case in the world of economic-theory perfection, but it is not the case in the real world (Lovins)<sup>5</sup>. The MMRF-GREEN model fails to adequately include 'no regret' mechanisms of emission reduction, overstates the real cost of emission reduction, and hence the impact of ratification of the Kyoto Protocol to Australia.

Australia's energy efficiency performance, compared with other OECD countries, during the years 1972-1994 has been relatively poor. Energy efficiency in Australia has only improved by 1% during this time span, yet in other countries there have been improvements in energy efficiency in the order of 1.5% to 2.7 (The Australia Institute)<sup>6</sup>. Australia has not been making the same commitment to energy efficiency as our counterparts and this makes us look bad in the eyes of the international community. Ratification of the Kyoto Protocol is a mechanism by which Australia can regain respect within the International Community. If Australia ratifies it will be seen as doing its fair share with regards to environmental issues, as opposed to looking for ways to exclude us from playing a role in managing a global problem. Australia actually has the opportunity to become an internationally respected leader with regards to environmental issues.

It is argued by some proponents (eg the Australian Coal Association, the Australian Aluminium Council, the Australian Chamber of Commerce & Industry and others) that the primary flaw with the Kyoto Protocol is that it does not directly involve developing countries in actions to reduce greenhouse emissions. One must consider however, that it is a universally accepted ethical principle that those countries responsible for the increased concentrations of greenhouse gases (GHG's) should be the countries required to do the most to reduce them. It is the developed nations who have produced the vast majority of existing GHG's and so it is these countries, including Australia, who should carry the bulk of the responsibility in reducing GHG emissions.

It should be noted that, even though developing nations are not directly included within the Articles of the Kyoto Protocol, this does not mean these nations will not do anything to reduce GHG emissions. Developing countries are already volunteering to commit to GHG reduction, eg Argentina and Kazakhstan. The Chinese Government has enacted a five-year economic plan that includes substantial emissions reduction activity. China has asserted to the World Trade Organisation (WTO) and the United States that it will reduce emissions by 10% by 2005 as part of its entry into the global trading market (Deloitte Touche Tohmatsu)<sup>7</sup>. This fact demonstrates that while the Kyoto Protocol does not directly incorporate developing countries, it does not mean that these nations will not act in a way that reduces greenhouse gas emissions.

It has been suggested by some Australian industry bodies that the Kyoto Protocol will contribute little to reducing greenhouse gas concentrations on a global scale because

energy intensive projects will migrate from developed countries to developing countries as a result of increased energy prices in Australia. This notion is termed 'carbon shifting' or 'carbon leakage' within the literature. If the world ran perfectly along the lines of economic theory then this may be true, but an analysis of past and present industrial activities and movements demonstrates clearly that this is not the case.

Energy prices are not the main determinant of industrial location, if they were then all European and Japanese factories would have transplanted to countries such as Australia and America to take advantage of much lower energy prices (Lovins)<sup>8</sup>. This is not the case at all, and clearly demonstrates that it is a very simplistic and unreal argument to suggest all the energy intensive industries will vacate Australia if we ratify the Kyoto Protocol.

Analysis of American Industry movement shows that there has been very little transplantation of factories from America to countries like Venezuela and Saudi Arabia that have cheaper energy. In most cases it is not cheap energy which motivates companies to transplant factories, but rather the prospect of cheap labour or better tax rules (Lovins)<sup>9</sup>.



*Vestas Assembly Plant, Ringkobing Denmark*

There is concern amongst Australian industry that any increase in energy costs will undermine its international competitiveness, given that most of the competition for Australian coal and metals like aluminium come from non-Annex 1 countries (Australian Aluminium Council)<sup>10</sup>. This however is an old economy view and takes no consideration of the huge potential to increase energy efficiency within industry and thus offset any energy price rise.



There are numerous examples within the literature demonstrating how progressive companies have used their initiative and invested in energy conservation technology and are now saving themselves millions of dollars per year. Not only does investing in such technology reduce energy costs but it can open up new markets, as the technology is able to be sold, and may well enhance the quality of the product being produced.

A study of Southwire Corporation, an American, energy-intensive maker of cable, rod and wire give an example of savings that can be achieved. This company halved its energy per mass of product over a six-year period. The savings gained from such an action roughly equalled the company's profit during the same period and saved the company from having to sacrifice about 4000 jobs (Lovins)<sup>11</sup>.

It is argued that ratification of the Kyoto Protocol would undermine vital aspects of Australia's comparative advantage; for example, our low cost coal, natural gas and electricity (Lavoisier Group)<sup>12</sup>. This however is not the case. The export of coal has no impact on Australia's greenhouse emissions because under the Kyoto Protocol, emissions only count in the country of combustion (Australian Coal Association)<sup>13</sup>. Australian Coal companies will not be required to buy carbon permits for the GHG's emitted by the combustion of Australian coal in foreign countries and so the price structure of Australian coal is unlikely to be adversely affected.

It is argued by sectors of Australia's industry base, that Australia's reduction task is made more damaging by the nature of the Australian economy (resource based, energy intensive and export oriented). This supposedly means that Australia would benefit less under Kyoto than other Annex 1 countries. The fact that Australia is so dependant on fossil fuels actually means it is easier for Australia to develop and implement currently unused greenhouse friendly energy sources.

Unlike many other developed nations who have already invested heavily in reducing reliance on fossil fuels, Australia has not yet even begun to reduce the amount of fossil fuel it burns. This means that Australia still has all the relatively cheap abatement measures at its disposal, while it is now harder for the countries that have already broken the reliance on fossil fuels to further reduce emissions.

Australia only produces about 1.5 % of the total global GHG emissions. This fact is used by some organisations as a reason why Australia shouldn't ratify the Kyoto Protocol. It is argued that Australia contributes such a small amount of GHG emissions that it is not worth reducing them. At first glance this line of argument seems quite plausible, but when one considers that Australia has the highest per capita GHG emission rate in the world (at 26.7 tCO<sub>2</sub>/an/capita), this line of argument begins to fall down. Australia needs to be seen by the international community to be pulling our weight with regard to emissions reduction. It does not set a very good example to the developing nations of the world (whom Australia is pushing to have included within the Kyoto Protocol) if a 'rich', greenhouse intensive nation like Australia tries to exclude itself from greenhouse abatement activities.

The Australian Aluminium Council argues that the Kyoto Protocol bestows a competitive advantage to electricity intensive industries in non-Annex 1 countries (Australian Aluminium Council)<sup>14</sup>. This line of argument fails to acknowledge that

there are many opportunities for companies to offset electricity price rises (which may not even eventuate) by increasing efficiency. It must also be noted that if Australia does not ratify the Kyoto Protocol then we will be handing over competitive advantage within the renewable energy industry (later shown to be worth billions of dollars) to countries in Western Europe and the US.



### 3 Evidence and Acceptance of the Reality of Global Warming

There is currently a level of universal recognition as to the existence and associated threats of greenhouse-induced climate change. The existence of global warming is beyond dispute. Two thousand eminent scientists from around the world (including Australian scientists from the CSIRO and the Bureau of Meteorology) have pooled their research findings under the umbrella of the Intergovernmental Panel on Climate Change (IPCC). This body of world leading Scientists set up under the United Nations Framework Convention on Climate Change (UNFCCC) are unified in their views that global warming is a reality and is influenced by anthropogenic greenhouse gas emissions. Dr. Robert Watson (Chair of the IPCC), in a presentation to the Sixth Conference of Parties to the United Nations Framework Convention on Climate Change, stated that: <sup>15</sup>

*“the weight of scientific evidence suggests that the observed changes in the Earth’s climate are, at least in part, due to human activities”*

*“global mean surface temperatures are projected to increase by about 1.5 to 6.0°C by 2100...higher than previously expected.”*

*“Without action to limit greenhouse gas emissions the Earth’s Climate will warm at a rate unprecedented in the last 10, 000 years.”*

The views expressed by the IPCC are not in isolation. Leading academics from the Research School of Earth Sciences (RSES) at the Australian National University have stated that:

*“From the authority of our published and unpublished research at RSES on natural variability of climate, on the carbon cycle, on past sea-levels and on past fauna and flora, we are of the firm view that 20<sup>th</sup> Century global warming and sea-level rise are observed and, on scientific grounds, attributed to changes in the Earth’s atmospheric composition caused by human activities”.* <sup>16</sup>

The weight of evidence and scientific backing supports the fact that the enhanced greenhouse effect is real. A wide cross section of scientists, from academic institutions, governments and NGO’s have reached the stage where there is no longer any doubt that greenhouse gas emissions (many of them derived from human induced activity) are playing a leading role in the increase and acceleration of global warming. The level of greenhouse gases in the atmosphere has increased significantly as a result of the developed world’s industrial, transport and agricultural activities.

The Chamber of Commerce and Industry of WA in a paper entitled “The Kyoto Protocol and Greenhouse Emissions” have demonstrated the views of many industries by stating that:

*“There is enough weight of scientific opinion supporting the proposition that human activity is contributing to potentially harmful climatic changes to make this the most probable of prevailing theories. Most importantly, the possible effects of global*

*warming induced by human activity are so severe that they warrant a response even though we do not have complete certainty that the theory is correct. The lack of scientific unanimity presents a case for further research, not a case for doing nothing.”*<sup>17</sup>

The sentiments of leading scientists are gaining recognition throughout the political and business world. Large corporations such as BP Amoco, Shell International, DuPont, Whirlpool and Boeing have removed their support for anti-greenhouse hypothesis organisations such as the Global Climate Change Coalition (GCC), and are now actively funding climate change science through set ups like the Pew Centre for Global Climate Change. These industry giants are, by their actions, demonstrating that there is industry acceptance of the science behind the principles of global warming, and that big business is willing to act on current scientific consensus regarding this issue.

President Bill Clinton in his “State of the Union Address” on 27<sup>th</sup> January 2000, stated that:

*“the greatest environmental challenge of the new century is global warming...if we fail to reduce emissions of greenhouse gases, deadly heat waves and droughts will become more frequent, coastal areas will flood, and economies will be disrupted. That is going to happen unless we act.”*<sup>18</sup>

During the tabling of a report on the 7th November 2000 by the Environment, Communications, Information Technology and Arts Reference Committee on Global Warming and the Convention on Climate Change (Implementation) Bill 1999, Senator Nick Bolkus stated that:

*“The international community has accepted the reality of human-induced climate change, and has begun to heed the warnings of scientists that, if action to reduce emissions is not taken, then this will lead to substantial and damaging changes in global climate over the next century and beyond. A broad range of stakeholders, from energy intensive industries to conservation groups, has endorsed these findings - as has the Howard government. The government does not refute the science or the predictions of climate change.”*<sup>19</sup>

This statement, coupled with the views expressed by President Bill Clinton, large corporations and world leading scientific bodies such as the IPCC state clearly that global warming is a reality, and that it is a cause for major global concern. Global warming is an issue that must be addressed and it is REGA’s opinion that ratification of the Kyoto Protocol is a positive mechanism by which Australia can address the immense issue of global warming.

## 4 The New Economy, An Exciting Turning Point

Australia needs to capitalise in the growth potential of the renewable energy industry that is offered as part of the new global economy. It is REGA's view that ratification of the Kyoto Protocol will greatly benefit Australia by actively encouraging investment in the renewable energy and environmental technology industries.

These industries, as demonstrated by the figures discussed below, are recognised as possessing large-scale employment and economic growth potential. Australia needs to act in a manner that encourages and harnesses this growth potential. The ratification of the Kyoto Protocol is an important step in the process of supporting valuable growth industries that will greatly benefit Australia.

Unlike the 'old economy' industries which dominate Australia (ie. energy intensive commodity export based industries like coal and iron etc.), which have been shedding employee numbers over the last decade, the 'new economy' industry of renewable energy development and export is a proven employment producer. For example:

- The EU expects to create at least 500, 000 new jobs if it meets its Kyoto-related target of doubling renewable energy penetration rates from 6% to 12% of energy supply by 2010 (European Union)<sup>20</sup>.
- Studies in the EU have shown that a 15% reduction in carbon dioxide emissions by 2010 as compared to 1990 will create 1.9 million more jobs than business as usual (Australian Conservation Foundation)<sup>21</sup>.
- The export of wind energy technology earns Denmark US \$1 billion a year (Australian Conservation Foundation)<sup>22</sup>.

Currently, developing renewable energy and environmental technology industries exist in Australia. Yet it is of vital importance that these growth industries receive positive encouragement from the Federal Government if they wish to compete and be at the forefront of the immense global renewable energy /greenhouse mitigation based economy. Investment in these industries requires the correct political and economic signals to provide some measure of investment security.

Intelligent thought and action is required by the Federal Government to ensure that the immense potential of the renewable energy industry is realised. It is REGA's opinion that ratification of the Kyoto Protocol represents a positive step in encouraging future development of an exciting growth industry.

Some positive aspects of the existing Australian renewable energy industry include:

- The industry provides more employment per kWh than fossil fuel sources of electricity generation.
- Wind energy provides 27% more jobs per kWh than coal and 66% more jobs than gas generation (National Wind Co-ordinating Committee)<sup>23</sup>.
- In NSW the renewable energy industry is growing at a rate of 20 % pa, 3% greater than the growth of the IT industry (Ellis & Crawford)<sup>24</sup>.

- The renewable energy industry in NSW alone is expected to be worth around \$1.7 billion dollars by the end of 2000. It is expected that the renewable energy industry in NSW will employ about 6000 people by the end of 2000 (Ellis & Crawford)<sup>25</sup>.

It is interesting to note that in 1996 the Aluminium industry only employed 5350 people Australia wide.

These figures demonstrate the huge potential that exists for a multi-billion dollar renewable energy industry in Australia, an industry that is environmentally friendly, that mitigates Australia's greenhouse liability and has immense export earning potential. Ratification of the Kyoto Protocol will send a positive message to the Australian community that will actively encourage further investment in the renewable energy industry.

REGA's sentiments are shared by the Department of Industry, Science and Resources, who in 1996 published a paper entitled '*Matching Science and Technology to Future Needs: 2010*'.<sup>26</sup> In this paper it is emphasised that 'new economy' industries create jobs and economic growth. For example, the paper outlines that if Australia could capture 2 per cent of the world pollution control market, 150, 000 jobs and \$8 billion in business would be generated.

The Prime Minister's Science, Engineering and Innovations Council (PMSEIC) argues that Australia will pay a heavy price if it postpones the decarbonising of the economy. If Australia waits for ratification of the Kyoto Protocol while other countries act, it runs the risk of missing out on global opportunities. PMSEIC have urged the Government to try and capture 5 per cent of the huge global market for greenhouse technologies and to welcome emission trading ( Clive Hamilton)<sup>27</sup>.

These facts serve yet again to demonstrate just how vital and worthwhile it is for Australia to actively encourage the development of a renewable energy industry. Such an industry would not only benefit the environment, but would also greatly benefit the Australian economy.

Bob Carr, Premier of NSW, while at the Asia – Pacific Economic Summit of 11<sup>th</sup>–13<sup>th</sup> September 2000, stated that:

*“Smart environmental policies can drive innovation, lowering business costs and providing a comparative advantage. Australia is well placed to be a world leader in this economic and environmental race.”*<sup>28</sup>

This statement displays a level of foresight by Bob Carr that is sadly lacking within other realms of Australian Government.

Premier Carr recognises that innovation, one of the underlying traits of the 'new economy', is the key to prosperity. Our nation must actively encourage the transition towards a 'new economy'. Australia is seen as a technological leader in the South East Asia region and has outstanding opportunity to market renewable energy technology and expertise within this region. The immense nature of the renewable energy market in the Asia-Pacific region is outlined in appendix 1, and from this it is clearly apparent that a highly valuable market for renewable energy technology exists.

However, Australia is ‘dragging its feet’ with respect to this large export potential. If Australia is too slow to capitalise on this market, a ‘clever’ country will beat us to it and Australia will continue to be a follower and not a leader in the realm of renewable energy technology and supply.

Dr. David Charles, Director of the Allen Consulting Group, shares this notion. In an address to the Committee for Economic Development of Australia (CEDA), he stated that:

*“unlike production based on physical inputs which is subject to the law of diminishing returns, production based on knowledge driven by network economics appears to demonstrate increasing returns. This places an enormous advantage on first movers who can have their product accepted as the standard in a particular area.”*<sup>29</sup>

This statement raises two important issues related to ratification of the Kyoto Protocol.

1. The current dominant industries in Australia are production oriented and based on physical inputs, and as Dr. Charles outlines they are subject to diminishing returns. This does not paint a very bright future for the Australian economy. Ratification of the Kyoto Protocol will promote the inclusion of increased knowledge in our economy base, by encouraging the development of new technology and ideas (particularly within the environmental mitigation and renewable energy sectors of industry). As outlined by Dr. Charles, growth in these sectors will result in increasing returns for Australia.
2. The last portion of this statement (ie. *this places enormous advantage on first movers who can have their product accepted as a standard in a particular area*) is very clear. If Australia intends on reaping the benefits from the immense global market in renewable energy and environmental mitigation technology then we need to act quickly. Australia has two choices, we can continue along our current path and risk missing out on the lucrative earnings of the global greenhouse abatement technology market, or, we can be pro-active, ratify the Kyoto Protocol and be first movers with respect to capturing a sizeable portion of this immense global market.

These sentiments are reinforced by another statement made by Dr. Charles, Director of the Allen Consulting Group:

*“The reward for speed in bringing new concepts to market can be very considerable, with virtually all the market share being captured by either the first or second company in a particular field — in this game there are no bronze medals.”*<sup>30</sup>

The Australian government needs to send out a signal that encourages Australian industry to invest in renewable energy knowledge and technology. REGA believes that ratification of the Kyoto Protocol will do this.

REGA firmly believes that ratification of the Kyoto Protocol will actively encourage accelerated adoption of many greenhouse responses, including increased investment

in renewable energy technology, that Australia would then be able to market to the Asia-Pacific.

Active encouragement of the renewable energy industry, obtained through ratification of the Kyoto Protocol will not only open up valuable new export markets, it will also actively promote much needed development within regional Australia. The 'new economy' (of which renewable energy and environmental management technology are a part) has the potential to benefit both regional and urban Australia, as it provides a mechanism by which regional Australia (not just the business hubs of Sydney and Melbourne) can tap into and benefit from the new, growing, global economy (Australian Conservation Foundation)<sup>31</sup>.

The renewable industry requires a diverse range of skills and also locations, with many renewable energy sources being in rural areas. The industry provides tremendous potential for growth in existing manufacturing and service industries with associated professional and trade level employment growth within regional communities (ACRE)<sup>32</sup>.

Progression towards capturing the 'new economy', especially in the field of renewable energy and environmental mitigation technology has only positive outcomes for Australia. If however, Australia fails to advance and participate in the new global economy, then we run a grave risk of sinking into economic decline.

Australia's low value commodity exports (eg coal, uranium, iron ore, wheat and woodchips) can not balance against high-value manufactured imports forever. This fact is driving the price of the Australian dollar down. In global circles Australia is viewed as an 'old economy' and this will continue until efforts are made to create a new economy in Australia, an economy that moves us beyond being just a commodity exporter (Australian Conservation Foundation)<sup>33</sup>.

Economists are predicting that unless Australia invests more in the knowledge economy, including environmental investment, the Australian dollar will languish at US30 cents and Australia will slip into economic decline (Australian Financial Review)<sup>34</sup>. It is time for Australia to commit to environmental and economic reform that acts to promote Australia as a world leader in environmental and renewable energy technology and knowledge. The future is bright; Australia simply needs to act.

Other countries, that have in the past had similar economic bases to Australia (ie, commodity based exports) have already seen the sense of investing in the 'new economy'. For example, since 1990 Finland's exports of high technology products have grown from being worth EUR 1 billion to EUR 8 billion per year. High technology products now represent 21 percent of all exported goods from Finland. It is interesting to note that "high-tech" exports in Australia contributed fewer than 6% of all merchandise exports in 1996 (Dr. Batterham)<sup>35</sup>.

The Finnish Government acknowledges that investment in knowledge and skills is Finland's way to success in the global market place of the future. These sentiments are shared by Ireland, whose recent economic success has mostly involved replacing traditional manufacturing industries with rapidly growing IT export industries, such as



computer software (Dr. Batterham)<sup>36</sup>. It is important to realise that the restructuring of the Finnish and the Irish economies did not result in economic demise, but rather spurned a revival, serving to make each country far better off and giving greater economic stability.

Australia needs to take note of countries like Finland and Ireland and realise that investing in, and developing the 'new economy' makes good economic sense. In particular, OECD studies from within the US, Japan, Germany, Canada and the UK have shown that there are high direct rates of return (typically between 10 and 20 per cent) on investment in research and development of high technology products (OECD)<sup>37</sup>.

It is important to realise that if we wait too long before committing to reduce greenhouse gas emissions, and fail to efficiently and adequately invest in renewable energy technology, then Australia will lag behind other nations in the race to capture portions of the lucrative global renewable energy export market.

Just as countries such as Japan and Germany successfully restructured the nature of their economies as a result of the oil crisis in the late 70's (ie reduced their reliance on oil), global forces are now acting to encourage Australia to reduce our reliance on greenhouse polluting coal as an energy source. Japan and Germany have proven that restructuring a nation's economy to reduce reliance on a given energy source is not detrimental to the national economy. Australia should learn from this and commit to reforming its energy base by investing in less polluting sources of energy, including the use of gas and renewable energy sources.

With the application of thought and intellect it becomes obviously clear that it makes economic sense for Australia to embrace the 'new economy'. It is time we diversified our energy-intensive, commodity-export-based economy. The renewable energy industry holds an important position in the new global economy and REGA believes that action which encourages development of Australia's renewable energy industry will hold positive economic outcomes, and place Australia at the forefront of the global economy. The future is bright.



## **5 Dealing with Global Warming and the Kyoto Protocol: Why it is Important for Australia to act on Greenhouse Issues**

*“Atmospheric concentration of the major greenhouse gas, carbon dioxide, is already higher than at any time in the past 400,000 years, and is growing rapidly. The Earth’s ecosystems are already operating in CO<sub>2</sub> concentrations beyond known experience of the past 400,000 years”* (Sustainable Energy Industry Association)<sup>38</sup>

Current scientific consensus, as expressed by reputable organisations like the CSIRO and the IPCC, is that global warming will have detrimental social, environmental and economic impacts. Australia is not immune to the impacts of global warming and so it is of vital importance that we start to implement strategies that serve to reduce the negative impacts of global warming in Australia. These impacts include: (IPCC & CSIRO)<sup>39</sup>

- loss in agricultural production
- accelerated environmental degradation
- higher incidence of disease such as malaria, encephalitis, Ross River fever and dengue fever
- reduction in tourism
- increased storm activity and intensity of tropical cyclones
- increased incidence of drought
- Sea level rise leading to higher storm surges, more frequent coastal flooding and damage to coastal ecosystems.
- More days of high and extreme fire danger
- Loss of biodiversity
- Ecosystem decline
- increase in the number of environmental refugees seeking asylum in Australia

It is important for Australia to act on greenhouse issues because they impose, and will continue to incur, an economic, social and environmental cost to this nation. In a presentation to the Sydney Mining Club on 6 July this year, Gwen Andrews, the CEO of the Australian Greenhouse Office stated that:

*“climate change is predicted to bring many adverse and some beneficial impacts...the areas that will be impacted are pretty clear – water resources, managed and unmanaged ecological systems (eg, coral reefs and forests), human settlements (particularly in low lying areas) and human health through the effects such as the increase of vector borne diseases like malaria”*<sup>40</sup>

*“Scientists point out that Australia is the most vulnerable of all OECD countries, basically because we are at low latitudes and as a result already experience relatively high temperatures”*<sup>40</sup>

*“the most severe effect of climate change for Australia is likely to be a decrease in precipitation – not in all areas, but in areas where it will affect both agriculture and water flows in our rivers”* <sup>40</sup>

It is clearly apparent that the greenhouse effect holds the potential to be economically damaging to Australia. Any reduction in precipitation will put increased stress on our agricultural production and will enhance the already devastating effects of dry land salinity. Australia already has water stressed catchment systems (eg the Murray Darling river system) and these will become even more so through the impacts of global warming, as increased incidence of drought, and increased temperature eventuate (Senator Bolkus)<sup>41</sup>.

It is well documented that as a result of global warming, sea level and ocean temperatures are going to rise. Coral reefs are very vulnerable to changes in climate, and are unlikely to be able to adapt to sustained increases in water temperature (Dr. Watson)<sup>42</sup>. This fact holds potentially disastrous implications for regions such as Queensland. Coral reefs are incredibly biologically diverse marine ecosystems, are important for fisheries, coastal protection, erosion control and tourism. Coral reefs, with particular reference to the Great Barrier Reef are important not just for their environmental values but for the economic underpinning they provide to whole communities. The Great Barrier Reef underpins much of Queensland's economy and is directly and indirectly related to a large proportion of the employment within the State (Senator Bartlett)<sup>43</sup>.

The preceding examples, for which REGA can reference more detailed explanations if required, serve to give a concise example as to why it is important for Australia to act in a way that limits greenhouse gas emissions, acting to reduce the potential impacts of global warming on the nation.

It is REGA's opinion that ratification of the Kyoto Protocol is a positive mechanism by which Australia can act on greenhouse issues, because ratification will actively encourage business/industry to invest in greenhouse friendly technology and processes like renewable energy generation and reduced emissions from industrial processes.



In REGA'S view, it is of the utmost importance that the Australian Government and the business community understand that there will be substantial costs to the economy, the community and to the environment if Australia fails to adequately address the issue of climate change. It is wrong to assume, like some sectors of industry, that the economic cost of reducing emissions is too high to warrant greenhouse action by Australia. The fact of the matter is that Australia needs to address the issue of global warming so as to limit the substantial social, economic and environmental costs that will occur if greenhouse gas emissions are allowed to increase in an unchecked fashion.

The fact that Australia is the most vulnerable (to the impacts of global warming) of all OECD countries gives added importance to the need for Australia to act on greenhouse issues. Since we have the most to lose it would make sense for us to actually do more, not less, than other OECD countries with respect to reducing greenhouse gas emissions.

REGA share the sentiments of Senator Allison, expressed during the tabling of the Report of Environment, Communications, Information Technology and the Arts Reference Committee.<sup>44</sup> Senator Allison commented that early greenhouse action by Australia will place our nation in a more constructive light internationally, as we will be seen as taking positive steps to help not just our own environment and economy, but also to be pulling our weight in the fight against a global problem. Such action would give Australia better bargaining powers at future world summits dealing with greenhouse emissions; it would also set a good example to developing countries, and aid in the persuasion of these countries to commit to reduce emissions.

In summary, it is important for Australia to take action on greenhouse issues because

- Greenhouse issues will have major detrimental effects on the Australian economy, society and environment.
- Being seen to take positive greenhouse action will enhance international opinion of Australia, yielding more respect from the international community.
- It gives an opportunity for Australia to put in place initial actions that will aide in the protection of important industries such as nature-based tourism and agriculture from the damaging impacts of climate change.
- It opens up increased opportunity for Australian businesses to develop and capture markets in renewable energy technology.



## 6 Costs and Losses Associated with Ratification of the Kyoto Protocol

### *The costs implied from economic modelling:*

If one were to take the results derived from the Commonwealth Government's own MEGABARE model and the findings of the Allen Consulting Group (based on the Monash University MMRF-GREEN model) at face value, then it would be easy to suggest that the Kyoto Protocol is too economically damaging for Australia to warrant ratification. However, if these two models are looked at in more detail it becomes apparent that they, like many other economic models which attempt to predict the cost of acting to prevent climate change, are flawed. The models do not give a true representation of the cost of Australia ratifying the Kyoto Protocol, and as such lend a bias to the negative costs of ratification.

Most studies (including the aforementioned studies) dealing with the cost of greenhouse response consider only the economic impacts of response actions. They fail to consider the economic, social and environmental benefits of greenhouse response action and in some cases greatly over state the economic cost of emissions reduction action. For example, ABARE's MEGABARE model ignores non-energy sources of greenhouse gas emissions so that the cost of emissions reduction falls entirely on the energy sector. This has the effect of driving up the estimated costs of emissions reduction (Hamilton & Quiggin)<sup>45</sup>.

ABARE's modelling also failed to allow for technological change in response to policies to cut greenhouse gas emissions. This means that under the ABARE model, any technological developments in energy efficiency, emission reduction and renewable energy production are not allowed for, even though such developments would have a major positive impact on the costs of meeting emission reduction targets (Hamilton & Quiggin)<sup>46</sup>.

Recent studies in the US have revealed that emissions from coal driven power plants are responsible for 30,000 premature deaths in the US every year and 366,000 asthma attacks every year. These occurrences cost \$100 billion in social health per year (Eddie Weekly)<sup>47</sup>. It has been revealed that fine particle pollution contributes to almost 400 premature deaths each year in Sydney alone and that the health costs associated with fine particles in all Australia is at least \$3.7 billion each year (National Environment Protection Council)<sup>48</sup>.

Economic models fail to account for the fact that reducing greenhouse gas emissions will also reduce levels of air pollution and associated social health costs. They fail to include the vast environmental savings that are associated with reducing greenhouse emissions, and as such do not give an accurate verdict as to the cost of greenhouse reduction to society.

Another key flaw of the MMRF-GREEN model (as reported in the Allen Consulting Report) is that there is a lack of recognition for no-regret mechanisms of emissions reduction. The MMRF-GREEN model assumes that complete efficiency within emission producing activity already exists. The model is based on pure economic

theory, which ignores real world conditions, in that it assumes that if saving a lot more energy (thus reducing greenhouse emissions) were possible at an affordable price, it would already have been implemented (Dr. Adams)<sup>49</sup>. This may be the case in the world of economic-theory perfection, but it is not the case in the real world (Lovins)<sup>50</sup>. As such most economic modelling of the cost of greenhouse emission reduction fails to include 'no regret' mechanisms of emission reduction, and over state the real cost of emission reduction to industry.

The Australian Bureau of Statistics estimated that in 1995-1996 an unusually good farm season contributed 1.3% of Australia's GDP growth. If global warming adversely affects farming by increasing the incidence of drought, flood, and pest migration, then loss in GDP contribution from the farming sector alone could outweigh estimates of the cost of greenhouse response activities on the economy (Sustainable Energy Industry Association)<sup>51</sup>. This example serves to illustrate how economic models fail to adequately incorporate environmental costs and benefits, and as such do not give a true representation as to the real costs associated with the ratification of the Kyoto Protocol.

Although it is clearly apparent that economic models are flawed with regards to giving accurate predictions as to the true costs of greenhouse gas abatement strategies, due to their inability to consider environmental and social costs and benefits of abatement, it is still worth considering the findings of some models. As discussed in chapter two, ABARE's MEAGABARE model actually showed that it is likely that ratification of the Kyoto Protocol will impact upon Australia by reducing real Gross National Expenditure (GNE) by 0.27% - 0.49%. This is a tiny amount, especially when one considers that the MEGABARE model has been criticised for being designed in a way that over-emphasises the cost to Australia. The real cost, if environmental and social benefits are considered, is most likely to be even less than this amount (Hamilton & Quiggin)<sup>52</sup>.

It is of interest to note that ABARE's modelling of the economic impact of greenhouse response shows that over 85% of Australian business activity would either not be adversely affected, or would actually benefit from application of carbon taxes (Institute of Engineers)<sup>53</sup>. This demonstrates that in many cases the actual cost to business of reducing greenhouse emissions is very small, as new efficiency mechanisms will actually result in less energy being wasted, and money being saved.

In 1997 the US Government Interagency Analytical Team compiled a study entitled "*Economic Effects of Global Climate Change*". As part of this study the economic effects of ratifying the Kyoto Protocol for a number of countries was determined. The results from this study are shown in Table 1.

Table 1. US Government estimated impacts on GDP of stabilisation of emissions at 1990 levels (Interagency Analytical Team)<sup>54</sup>.

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

The results from this study indicate that under the Kyoto Protocol, Australia's economy would be far better than Canada, Japan, and Western Europe if it ratifies the Kyoto Protocol. These results are greatly different from those obtained by Australian modelling which have been used to suggest that the Kyoto Protocol would impact most heavily upon Australia (eg the MMRF-GREEN model predicts that ratification of the protocol will result in a drop in GDP of 1.9%). The difference between these models (ie a 1.4% difference in the impact on Australian GDP) serves to highlight the inadequacies of economic modelling in relation to analysing the cost of an environmental action.

Australia competes in a global economy. The results gained from the American economic modelling indicate that other OECD countries face a greater cost under the Kyoto Protocol than Australia. This fact is a positive for Australia, as ratification of the Protocol will serve to give Australia an economic advantage.

It is REGA's opinion that economic models greatly over estimate the economic cost to Australia of ratifying the Kyoto Protocol because they fail to consider the social and environmental benefits of ratification. REGA believes that ratification of the Kyoto Protocol provides the opportunity to diversify the Australian economy by building a large renewable energy industry (both domestic and export based), increase environmental and social benefits, and create vast opportunities for business to implement 'no regret' mechanisms of emission reduction. These opportunities make the prospect of ratification highly agreeable.

***The cost to Australian industry:***

Certain sectors of Australian industry are opposed to ratification, because they believe that actions adopted by Australia to initiate emissions reduction will raise the price of energy, thus increasing the price of commodity production, and reduce global markets for Australian products such as coal.

The Australian Aluminium Council has threatened that the aluminium industry, (which employed 5350 people in 1996), would close its Australian smelters and move offshore if it were forced to pay higher prices for electricity. At face value it would seem quite disastrous if this were to occur.

Under closer scrutiny it is revealed that 59% of the Australian aluminium is actually foreign owned (and hence 59% of the profits are leaving Australia anyway). Of

greater interest is the fact that each employee of the aluminium industry is effectively subsidised to the tune of \$157, 000 per annum (The Australia Institute)<sup>55</sup>. This figure is produced by an analysis of the direct financial subsidy given to the industry through the provision of underpriced electricity (\$410 million per annum), and the uncompensated costs of greenhouse gas emissions emitted by the industry (\$430 million per annum).

Another way of expressing these figures is to say that every \$1 of income from aluminium exports has a resource cost of \$1.24. This demonstrates that in the unlikely event of the aluminium industry moving offshore, Australia as a whole would not actually suffer any net economic loss.

In fact if the aluminium industry were to leave Australia then nearly 30 million tonnes in greenhouse gas emissions per year would be saved, thus making it much easier for Australia to meet its Kyoto targets, and minimising the costs to non subsidised Australian industries of meeting abatement levels.

The Australian Coal Association (ACA), in their November submission to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol, (Australian Coal Association)<sup>56</sup> expressed concern that ratification of the Protocol would result in a drop in total coal production. This drop in production is predicted to be in the order of 5% to 24%, depending on whether dependent or independent abatement strategies are adopted by Australia.

ACA have also expressed concern about losing export markets, chiefly in Japan, as it is feared that developed countries will start to reduce their reliance on coal as an energy source under a Kyoto constrained environment. Having said this, ACA expect that the black coal industry will only lose a domestic market share of 3%, and Black coal will still be the main energy source for electricity production in Australia if the Kyoto Protocol is ratified.

It is also expected that future demand for coal will be high in the Asian region, with coal usage estimated to grow at a rate of 4% - 6.4% per year until 2010 (Australian Coal Association)<sup>57</sup>. This growth in coal usage will largely be unaffected by the Kyoto Protocol as it will take place in developing countries.

These figures demonstrate that the Australian coal industry will not suddenly lose all of its markets and become unviable if Australia ratifies the Kyoto Protocol, especially if it capitalises upon the growing coal market in developing countries.

Australian industry must face up to the fact that, within OECD countries, there is a move away from the use of coal as the primary energy source. Australia can not prevent other countries from changing their reliance on coal, rather, Australia should follow the example of regions such as western Europe and the US and invest more money in greenhouse friendly sources of energy, including renewables and combined plant gas power generation.

Decarbonisation of global energy systems is real and happening. It is in the best interest of Australia not to ignore this fact, but rather to act and capture a sizeable portion of the global market of environmentally friendly energy production and usage.



Dr. Charles, of the Allen Consulting Group, in a speech to the Committee for Economic Development of Australia stated that:

*“The sense I have is that in the industrial economy capital equipment and raw materials tended to give it its special character — the process of mass production was one of its hallmarks and output could be thought of as congealed raw materials. What we are seeing now is a dramatic shift from a resource-based to an information-based and hence knowledge intensive economy which buys and sells congealed knowledge; wealth creation is coming from ideas rather than applying energy to raw materials”*<sup>58</sup>

This clearly demonstrates that the way forward for Australia is to invest in and encourage the development of new knowledge based industries. The application of energy to produce raw materials is clearly a part of the old economy, it is not progressive, it is a hindrance to the development of a new competitive economy. Australia needs to move away from the industrial economy, and take hold of the knowledge economy, of which renewable energy technology and environmental mitigation technology are a part.

Knowledge has become the key factor of production and the most important basis of competitive advantage. The following quote by Dr. Charles reflects this development:

*“Competition today is not about capital, but about knowledge, technology and talent. We face a technological quantum leap, companies that don’t invest in higher R&D budgets probably won’t survive the next shake-out”*<sup>59</sup>

Australia is in a position where unless we move investment away from the processes of raw material extraction, and channel it into the development of new-economy industries, our nation may not prosper under the next economic shake up. The advent of the Kyoto Protocol is perhaps a precursor to the beginning of the next shake up, with demand for greenhouse intensive fossil fuels decreasing.

### ***The Monetary Cost of Abatement Activities***

As outlined previously in this submission, REGA are of the opinion that reduction of greenhouse gas emissions to 108% of 1990 levels can be reached in Australia without excessive cost. This is because:

- Compared to other developed countries, Australia has previously invested little in emissions reduction. This was the opinion reached by the OECD’s International Energy Agency when it was reviewing Australia’s energy economy. Lee Schipper of the IEA and Lawrence Berkeley Laboratories have found that overall Australia’s energy efficiency performance through 1973-1994 has been poor compared to other OECD countries, with energy intensities falling by around 1% each year compared to 1.5% to 2.7% in other countries. Australia has not, to any large scale, put in place the use of ‘no regret’ measures of greenhouse gas abatement, and so we still have the option of implementing ‘no-cost’ measures of abatement (Clive Hamilton)<sup>60</sup>.

- Due to the inclusion of the ‘Australia Clause’ in Article 3.7 of the Protocol, Australia is able to capitalise on the fact that vegetation clearing has significantly decreased since 1990 (the year in which the Kyoto baseline is set.). This means that actual emissions of greenhouse gases can increase between 22% to 33%, relative to 1990 levels (depending upon what action is taken to reduce further land clearing) without breaking the overall target of 108% of 1990 emissions. This serves to greatly reduce the level of greenhouse gas abatement required by Australia to meet its Kyoto obligations.<sup>61</sup>

Australia will not be the first country in the world to initiate comprehensive greenhouse emission reduction activities, (such as the use of carbon taxing or emission trading). Numerous studies have shown that environmental taxes actually create jobs, promote new industry development, boost economic growth and enhance competitiveness (Australian Conservation Foundation)<sup>62</sup>.

REGA believes that economic modelling of the cost of ratification is biased towards a negative view of ratification. This is because the economic models fail to adequately address the environmental, social and economic benefits associated with acting to reduce greenhouse emissions, as discussed previously. Economic models also fail to give adequate representation to the existence of ‘no regret’ options for greenhouse reduction, and are therefore unable to accurately predict the true costs/benefits of ratifying the Kyoto Protocol.

In REGA’s opinion, ratification of the Kyoto Protocol will not have a devastating impact upon Australia’s economy, but will promote long term benefits for the nation. Ratification will serve to enhance our economy, improve our environment, and aid in the development of greenhouse friendly energy resources.

## 7 The Benefits of Ratification: How Achievable Are They?

There are many benefits associated with ratification of the Kyoto Protocol (most of which have already been elaborated upon within the body of this submission).

Put simply, ratification will:

- send clear signals to industry and gives incentive to invest in emissions reduction activities.
- foster new industry development, especially within the renewable energy industry (which has the potential to create valued employment within regional Australia).
- provide a positive step in sending the correct political and economic signals to Australian industry so as to provide some measure of investment security.
- enhance Australia's opportunity to capitalise in the immense global market in renewable energy and greenhouse reduction technology (which has the potential to be worth billions of dollars in exports to Australia).
- enhance the global image of Australia's economy through the development of 'new economy' industries that are encouraged by ratification, and aid in the recovery of our low value dollar.
- re-instate Australia's image as being a credible and progressive global citizen, and give us increased bargaining power at future world summits.
- benefit the environment because it serves to reduce airborne pollution, which is also associated with many social health costs.

In addition:

- Decreasing greenhouse emissions will serve to slow the greenhouse effect, there by reducing the predicted detrimental effects on natural ecosystems including reefs, forests and water catchments.
- Global warming is predicted to impact heavily upon the Australian agriculture industry. Ratification is important because it is a step towards slowing the impact of global warming, and hence the slowing the demise of an important industry.

### *How achievable are these benefits.*

REGA contests that the achievement of the stated benefits is comparatively easy and cost efficient. REGA is of the opinion that these benefits will result as flow on effects, provided that the government ratifies the Kyoto Protocol and acts in a progressive and positive manner with respect to meeting the obligations agreed to under the Protocol.

President Bill Clinton is on the record as having stated:

*“Many people will believe that you can not cut greenhouse emissions without slowing economic growth. In the Industrial age that may well have been true. But in this*

*digital economy, it is not true any more. New technologies make it possible to cut harmful emissions and provide new growth”* <sup>63</sup>

If Australia adopts a similar political approach to that expressed by President Clinton, then ratification of the Kyoto Protocol will be a positive experience for Australia and the many benefits that ratification can bring to this nation will be realised.

As expanded upon in chapter 6, the inclusion of the ‘Australia Clause’ in article 3.7 of the Kyoto Protocol, and the fact that Australia has yet to really invest in the process of reducing greenhouse gas emissions, means that Australia’s Kyoto target (ie. emitting only 108% of 1990 GHG emission levels by 2010-2012) is achievable. The renewable energy industry in Australia is confident that if the Government ratifies the Kyoto Protocol, then the industry will be able to play a major role in the mitigation of Australia’s greenhouse liability. The renewable energy industry has immense potential to expand rapidly and reduce greenhouse gas emission levels in Australia, while at the same time developing immense export markets. Australia’s Kyoto targets can be met, and the renewable energy industry is able to play a major role in meeting these targets.

## 8 The World View

The views expressed by REGA within this submission are not isolated opinions. International businesses groups, government organisations and non-government organisations share the sentiments expressed by REGA. The following is a list of quotes from leading sections of the international business and government communities, that outlines the degree of positive support for the notions contained within this submission.

*“The ICC and the WBCSD believe that, individually and collectively, we should take reasonable steps today to prevent or moderate the serious effects which global warming might cause tomorrow.” (World Business Council for Sustainable Development)<sup>64</sup>*

**Note:** The World Business Council for Sustainable Development (WBCSD) is a coalition of some 150 international companies united by a shared commitment to sustainable development. Some of it’s members include: **BP, Daimler Chrysler, Michelin Group, Rio Tinto, Sibirsky Aluminium Group, Shell International, 3M Company, Dow Chemical Company, DuPont, Texaco, Petro-Canada, BHP, Western Power Corporation, Ford Motors and General Motors.**

*“It is important to recognise that businesses can do much to encourage eco-efficient practices and cleaner Production in their operations, but they need an enabling framework from governments.” (President WBCSD)<sup>65</sup>*

*“[In relation to complying with Kyoto targets] simply cutting energy supply, or pricing it out of reach, is no answer. Sustainable economic development requires sufficient, reliable and affordable energy. Fortunately, a range of additional options remains open... much can be achieved in power generation by using renewables, extending the life of nuclear plants and further fuel switching from coal to gas.” (Executive Director, International Energy Agency)<sup>66</sup>*

*“In the World Energy Assessment... we show how cleaner fossil fuel technologies, hybrid renewable energy systems linked to base-load electricity, and safer nuclear power must be nurtured through sound policy and business strategy as part of the energy mix to meet the growing global demand for reliable and sustainable energy by 2020, perhaps 50% higher than it is today, especially in developing countries...We have to act now if we want to get there from here!.” (World Energy Council)<sup>67</sup>*

**Note:** The World Energy Council’s membership is made up of over 90 autonomous Member Committees. Each Member Committee represents the broadest possible range of energy and energy-related interests in its country and often includes representatives from **governments and energy companies.**

*“We believe that the most economically feasible way to meet the long term challenge of climate change is through the development, commercialisation and global implementation of technologies and services to help reduce greenhouse gas emissions.” (Statement supported by The Australian Chamber of Commerce and Industry, The Business Roundtable, and The International Chamber of Commerce and Industry)<sup>68</sup>*

*“Today we must wake up to the fact that all natural resources have a cost. Cutting down on our consumption of raw materials, diversifying our sources of supply, recycling waste, new materials, energy efficiency, and the development of renewable energies: these are the choices that ought to inspire us in our policymaking.”* **(Jacques Chirac, French President)**<sup>69</sup>

*“It is time to get started. The energy system is capital in nature, and the development of new technologies can take decades. Given the lead-time necessary to develop new technologies with their associated systems and infrastructure, we must begin the process without delay.”* **(International Public-Private Collaboration)**<sup>70</sup>

*“Regardless of the fate of any particular treaty or proposal, the reality of a greenhouse constrained future is upon us. Companies that recognise this and begin their transition now will be the leaders of the new economy.”* **(CEO CO2e.com)**<sup>71</sup>

*“Business can and should take concrete steps now in the U.S. and abroad to assess opportunities for emissions reduction, establish and meet emissions reduction objectives, and invest in new, more efficient products, practices, and technologies.”* **(Pew Centre)**<sup>72</sup>

*“We can’t ignore mounting scientific evidence on important issues such as climate change...If you see a risk you have to take precautionary action just as you would in any other aspect of business.”* **(CEO BP)**<sup>73</sup>

*“Climate change is a global phenomenon. Canada intends to achieve the majority of its emission reductions at home because of the economic, competitiveness and clean air benefits that come with these investments. However the government of Canada will support the private sector in maximising export opportunities and pursuing cost effective emission reduction projects abroad.”* **(Government of Canada)**<sup>74</sup>

*“Investment in promising technologies can lead to significant reductions in greenhouse gas emissions if they are used throughout the economy. Their use will also lead to new business opportunities, increased domestic and international market potential and strategic global positioning. By creating an environment in which these technologies can prosper, Canada is encouraging further development and capitalising on the opportunity to show leadership in sustainable development.”* **(Government of Canada)**<sup>75</sup>

The preceding quotes clearly demonstrate that there is immense support within the international business and government community for greenhouse action. REGA are not alone. It is also clear that investment in renewable energy technology is going to play a major role in any fight against greenhouse gas emissions. This fact supports REGA’s stance with regards to the ratification of the Kyoto Protocol.

## 9 Conclusion

REGA believe that there is sufficient scientific evidence for the existence of a human induced greenhouse effect, which is causing global warming. It is REGA's opinion that this fact warrants action by Australia. The Kyoto Protocol is a mechanism that will effectively serve to initiate global reductions in greenhouse gas emissions and Australia should ratify this protocol.

Economic modelling has demonstrated that ratification of the Kyoto Protocol would be detrimental to the Australian economy, yet this modelling has failed to adequately allow for the social, environmental and economic benefits that greenhouse gas abatement hold for Australia. The economic models are biased towards the negative aspects of ratification and do not include provision for the implementation of 'no regret' mechanisms of greenhouse abatement.

Ratification of the Kyoto Protocol will provide many benefits to Australia. These benefits include (but are not limited to):

- Encouragement for the development of 'new economy' industries.
- The opening of immense export markets in renewable energy and greenhouse reduction technology.
- Diversification of the Australian economy.
- Increased environmental protection
- The re-instatement within global perception of Australia as a credible and progressive nation.

REGA urges the Australian Parliament to continue support for the reduction of greenhouse gas emissions and strongly recommends that the Australian Government act in a way that promotes long term benefit to Australia, a way that benefits both current and future generations. REGA recommends that the Australian Government ratify the Kyoto Protocol.

## Appendices

### Appendix 1

<b>Renewable Energy Resources and Market Potential in Asia and the Pacific and Africa</b>								
<b>Country</b>	<b>Biomass (Megawatts)</b>		<b>Geothermal (Megawatts)</b>		<b>Solar (Kilowatthours per Square Meter)</b>		<b>Wind (Megawatts)</b>	
	<b>Market Potential</b>	<b>Resource Assessment</b>	<b>Market Potential</b>	<b>Resource Assessment</b>	<b>Market Potential</b>	<b>Resource Assessment</b>	<b>Market Potential</b>	<b>Resource Assessment</b>
<b>Asia and the Pacific</b>								
China	—	a	600	1, 800	d	4.0	1, 336	253, 000
India	3, 800	17, 000	—	2, 000- 10, 000	e	4.5	3, 065	20, 000- 80, 000
Indonesia	1, 800	10, 000	1, 200	19, 000- 42, 600	—	4.0	—	—
Pakistan	300	—	—	2, 630- 4, 000	—	5.3	—	—
Philippines	9	b	1, 978	70	—	3.9	—	—
Russia	—	c	110	25, 500- 58, 470	—	4.5	200	—
<b>Subtotal</b>	<b>5, 909</b>	<b>27, 000</b>	<b>3, 886</b>	<b>—</b>	<b>100 to 2, 500</b>	<b>26.2</b>	<b>4, 601</b>	<b>273, 000 to 33, 3000</b>
<b>Africa</b>								
South Africa	—	—	—	—	f	6.5	—	1,960
a = 260 million tons oil equivalent. b = 105 million terawatts-electric annual yield. c = 60 million tons oil equivalent. d = 135 peak megawatts. e = 30 peak megawatts. f = 150 peak megawatts through 2010; total, 375 megawatts. Note: Letters indicate availability of only partial totals or totals in different units. Dashes indicate data not available.								

(US Export Council for Renewable Energy)<sup>76</sup>



## Endnotes

- 1 Australia Institute Submission Number 1. Common Misconceptions in the Climate Change Debate, Submission to the Standing Committee on Treaties Inquiry into the Kyoto Protocol. August 2000.
- 2 The institute of Engineers, Australia. Inquiry into the Kyoto Protocol Submission to the Joint Standing Committee on Treaties. September 2000.
- 3 Australia Institute Submission Number 1. Common Misconceptions in the Climate Change Debate, Submission to the Standing Committee on Treaties Inquiry into the Kyoto Protocol. August 2000.
- 4 The Allen Consulting Group. The Kyoto Protocol, *Presentation to the Joint Standing Committee on Treaties*. September 2000.
- 5 Lovins, B. & Hunter Lovins, L. 1998. *Climate: Making Sense and Making Money*. The Rocky Mountain Institute.
- 6 Australia Institute Submission Number 1. *Common Misconceptions in the Climate Change Debate, Submission to the Standing Committee on Treaties Inquiry into the Kyoto Protocol*. August 2000.
- 7 CO<sub>2</sub> Update Issue 18. Deloitte Touche Tohmatsu. 10 November 2000.
- 8 Lovins, B. & Hunter Lovins, L. 1998. *Climate: Making Sense and Making Money*. The Rocky Mountain Institute.
- 9 Ibid.
- 10 Australian Aluminium Council. *Submission to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol*. September 2000. Australian Coal Association. *Submission to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol*. August 2000., Rio Tinto., *Submission on Inquiry into the Kyoto Protocol*. September 2000.
- 11 Lovins, B. & Hunter Lovins, L. *Harnessing Corporate Power to Heal the Planet*. The Rocky Mountain Institute.
- 12 The Lavoisier Group Inc. *Submission to the JSCOT Inquiry into the Kyoto Protocol*. August 2000.
- 13 Australian Coal Association. *Submission to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol*. August 2000.
- 14 Australian Aluminium Council. *Submission to the Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol*. September 2000.
- 15 Watson, R. T. Chair Intergovernmental Panel on Climate Change. *Presentation at the Sixth Conference of Parties to the United Nations Framework Convention on Climate Change*. November 13, 2000.
- 16 Research School of Earth Sciences, Australian National University. *Submission to the Joint Standing Committee on Treaties: Inquiry into the Kyoto Protocol*. August 2000.
- 17 Chamber of Commerce and Industry of WA. *The Kyoto Protocol and Greenhouse Gas Emissions*. November 1999.
- 18 President Bill Clinton. *State of Union Address*. January 27, 2000.
- 19 Senator Bolkus. Tabling of the Convention on Climate Change (Implementation) Bill 1999: Report of Environment, Communications, Information Technology and the Arts Reference Committee. Senate Hansard, November 7, 2000.
- 20 European Union, 1997, Energy for the Future-Renewable Sources of Energy. *White Paper for a community Strategy Action Plan*. Com 997.
- 21 Krockenberger, M., Kinrade, P., Thorman, R., October 2000, *Natural Advantage: A Blueprint for a Sustainable Australia*. Australian Conservation Foundation.

- 22 Crawford, Sebastian, Turning to the Wind, *Habitat*, ACF, Vol 27, No 4, October 1999.
- 23 National Wind Co-ordinating Committee, 1997, *The Effect of Wind Energy Development on State And Local Economies*, Wind Energy Issue Brief No. 5, January 1997
- 24 Ellis, M. and Crawford-Smith, C, 1999, *Renewable Sources of Energy- Current & Potential Utilisation, Technology & Applications*, Report to NSW Department of Energy.
- 25 Ibid.
- 26 *Matching Science and Technology to Future Needs: 2010*. Department of Industry, Science and Resources 1996.
- 27 Hamilton, C. Accounting for Kyoto and Emission Trading. *Address to the Institute of Australia's Corporate Tax Intensive Conference*. Sheraton Towers, Melbourne, 28<sup>th</sup> October 1999.
- 28 Bob Carr. *Address to the Asia – Pacific Economic Summit*. 11<sup>th</sup>–13<sup>th</sup> September 2000.
- 29 Dr. Charles, D. The Allen Consulting Group. *Australia in the Knowledge Economy*. CEDA Seminar Series, Building the Knowledge Economy. Melbourne, November 9, 1999.
- 30 Ibid.
- 31 Krockenberger, M., Kinrade, P., Thorman, R., October 2000, *Natural Advantage: A Blueprint for a Sustainable Australia*. Australian Conservation Foundation.
- 32 Muriel Watt and Hugh Outhred. 1999. *Electricity Industry Sustainability: Policy Options*. ACRE. Murdoch University Australia.
- 33 Krockenberger, M., Kinrade, P., Thorman, R., October 2000, *Natural Advantage: A Blueprint for a Sustainable Australia*. Australian Conservation Foundation
- 34 Taylor, I. Stakes high in knowledge economy race, *Australian Financial Review*, 25 August 2000.
- 35 Dr. Batterham, R. November 2000. *The Chance to Change*. Final Report by the Chief Scientist. Commonwealth of Australia.
- 36 Ibid.
- 37 OECD. *Science, Technology, and Industry Outlook*. September 2000.
- 38 Sustainable Energy Industry Association (Australia). *Global Warming, Presentation to Senate Inquiry into Global Warming*. March 21, 2000.
- 39 Watson, R. T. Chair Intergovernmental Panel on Climate Change. *Presentation at the Sixth Conference of Parties to the United Nations Framework Convention on Climate Change*. November 13, 2000, Climate Impact Group, *Climate Change Scenarios for the Australian Region*, CSIRO Division of Atmospheric Research, Melbourne, 1996.
- 40 *Presentation to the Sydney Mining Club by Gwen Andrews, Chief Executive of Australian Greenhouse Office*. July 6, 2000.
- 41 Senator Bolkus. Tabling of the Convention on Climate Change (Implementation) Bill 1999: *Report of Environment, Communications, Information Technology and the Arts Reference Committee*. Senate Hansard November 7, 2000.
- 42 Watson, R. T. Chair Intergovernmental Panel on Climate Change. *Presentation at the Sixth Conference of Parties to the United Nations Framework Convention on Climate Change*. November 13, 2000.
- 43 Senator Bartlett. *Adjournment: Climate Change*. Senate Hansard. November 6, 2000.

44 Senator Allison. Tabling of the Convention on Climate Change (Implementation)  
 Bill 1999: *Report of Environment, Communications, Information Technology and  
 the Arts Reference Committee*. Senate Hansard November 7, 2000.

45 Hamilton & Quiggin. 1997. *Economic Analysis of Greenhouse Policy. A  
 layperson's guide to the perils of economic modelling. Discussion Paper No. 15.*  
 The Australia Institute.

46 Ibid.

47 Edie Weekly Summaries 20/10/2000. <http://www.edie.net/news/Archive/3386.html>

48 National Environment Protection Council. *Towards a National Environment  
 Protection Measure for Ambient Air Quality*. An NEPC Committee Paper, 1997.

49 Dr Adams, P. Director, Consulting, Centre of Policy Studies, Monash University.  
*Pers. com.* November 2000.

50 Lovins, B. & Hunter Lovins, L. 1998. *Climate: Making Sense and Making  
 Money*. The Rocky Mountain Institute.

51 Sustainable Energy Industry Association (Australia). *Global Warming,  
 Presentation to Senate Inquiry into Global Warming*. March 21, 2000.

52 Hamilton & Quiggin. 1997. *Economic Analysis of Greenhouse Policy. A  
 layperson's guide to the perils of economic modelling. Discussion Paper No. 15.*  
 The Australia Institute.

53 The institute of Engineers, Australia. *Inquiry into the Kyoto Protocol Submission  
 to the Joint Standing Committee on Treaties*. September 2000.

54 Interagency Analytical Team 1997 (US Government) *Economic Effects of Global  
 Climate Change Policies*; In The Australia Institute Submission no.1.

55 *The Aluminium Industry and Climate Change*. Media Release November 11,  
 2000. The Australia Institute. <http://tai.org.au/media.Pralumin.shtml>

56 Australian Coal Association. *Submission to the Joint Standing Committee on  
 Treaties Inquiry into the Kyoto Protocol*. August 2000.

57 Ibid.

58 Dr. Charles, D. The Allen Consulting Group. *Australia in the Knowledge  
 Economy*. CEDA Seminar Series, Building the Knowledge Economy. Melbourne,  
 November 9, 1999.

59 Ibid.

60 Hamilton, C. *Common Misconceptions in the Climate Change Debate*. A  
 submission to the Senate Environment References Committee Inquiry into  
 Australia's Response to Global Warming, November 1999.

61 The Australia Institute. *LandUse change and Australia's Kyoto target.  
 Submission to Senate Environment Reference Committee Inquiry into Australia's  
 Response to Global Warming*. The Australia Institute Submission Number 4.  
 January 2000.

62 Krockenberger, M., Kinrade, P., Thorman, R., October 2000, *Natural Advantage:  
 A Blueprint for a Sustainable Australia*. Australian Conservation Foundation.

63 President Bill Clinton. *State of Union Address*. January 27, 2000.

64 *Business and Climate Change: Case Studies in Greenhouse Gas Reduction  
 (1997)* A report jointly produced by the World Business Council for Sustainable  
 Development.

65 *Cleaner Production and Eco-efficiency-Complementary Approaches to  
 Sustainable Development (1998)* Bjorn Stigson, President World Business  
 Council for Sustainable Development.

- <sup>66</sup> Priddel, R. Executive Director, International Energy Agency, *Remarks to the sixth Conference of the Parties of the United Nations Framework Convention on Climate Change*, the Hague, November 2000.
- <sup>67</sup> Doucet, G. Secretary General, World Energy Council. *Energy System Sustainability in a Global, Competitive Market*, Austria, 11 December 2000?
- <sup>68</sup> The Earth Times, November 21, 2000.
- <sup>69</sup> Jacques Chirac. *Address to the VIth Conference of the Parties to the United Nations Framework Convention on Climate Change*. The Hague. November 20, 2000.
- <sup>70</sup> *Global Energy Technology Strategy, Addressing Climate Change*. Initial Findings from an International Public-Private Collaboration.
- <sup>71</sup> *The Global Hub for Carbon Commerce*. CO2e.com. (In association with PriceWaterhouseCoopers).
- <sup>72</sup> Pew Centre on global Climate Change. The Basics Brochure.
- <sup>73</sup> International Herald Tribune, Saturday-Sunday, November 18-19, 2000.
- <sup>74</sup> Government of Canada Action Plan 2000 on Climate Change.
- <sup>75</sup> Ibid.
- <sup>76</sup> U.S. Export Council for Renewable Energy, *Global Impact Analysis Report*, submitted to the U.S. Department of Energy, Golden Field Office (August 1996).