

The Kyoto Protocol-Issues and Developments through to Conference of the Parties (COP7)

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Current Issues

The Kyoto Protocol Issues and Developments through to Conference of the Parties (COP7)

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The Kyoto commitment and meetings since Kyoto

Australia made an international commitment in December 1997 at Kyoto (Conference of the Parties COP3) to limit its greenhouse gas emissions growth to 108 per cent of its 1990 baseline, which equates to nearly a 30 per cent reduction from its 'business as usual' projections. Australia was one of three countries the other two being Norway and Iceland granted an increase of its emission levels on its 1990 base; an argument won on the concept of 'differentiated targets' based on a country's particular economic circumstance. In contrast, this compares to developed countries collectively agreeing to reduce their aggregate emissions of greenhouse gases by at least 5 per cent from 1990 levels in the first commitment period 2008 2012.

The European Union (EU) has a differentiated internal burden sharing arrangement for the purposes of meeting its commitments. Under this burden sharing arrangement, Portugal and Greece, for example can increase emissions by 27 per cent and 25 per cent respectively, while Germany and Denmark have each agreed to reduce emissions by 21 per cent. This internal burden sharing or 'bubble' arrangement allows the European Union, unlike individual countries such as the United States and Australia, considerable flexibility in attaining its Kyoto commitment.

Since Kyoto, Australia has participated in COP4 (Buenos Aires), COP5 (Bonn), COP6 (The Hague), COP6 Part 2 (Bonn) and COP7, (Marrakesh). The progress of the Protocol could best be described as lengthy, arduous, and complex. A decided negative for the Protocol has been the withdrawal of the United States in March 2001, during the intervening period between COP6 and the reconvened COP 6 Part 2. A Statement by President George W Bush indicated that the United States would not ratify the Protocol as he believed the agreement to be 'fundamentally flawed'. The United States is responsible for around 25 per cent of the world's greenhouse gas emissions.

With the United States declaring its intention not to ratify, it remains imperative that four of the major players including the European Union, Russia, Japan and Canada ratify the Protocol for it to come into effect. The European Union and Japan ratified the Treaty in late May and early June 2002. At the conclusion of the World Summit on Sustainable Development in Johannesburg in early September 2002, Russia and Canada declared their intention to ratify and provide the necessary threshold levels for the Protocol to enter into force, possibly towards the end of 2002. Article 25 of the Protocol requires ratification of 55 parties representing 55 per cent of developed country emissions in 1990 for the Protocol to enter into force as an international agreement.

The talks in The Hague (COP6) floundered, because of disagreement between the European Union and the US relating to the role of the so called 'flexibility mechanisms'. Members of a loosely aligned Umbrella Group including Australia, Canada, Japan, New Zealand, Russia, Iceland, Norway, and Ukraine supported the US position. However, following the withdrawal of the US, broad agreement was reached on outstanding issues between the remaining Parties at COP7 enabling the Protocol to move towards possible ratification in late 2002 or early 2003. Senator Hill, the Australian Government Environment Minister at that time did not attend COP7, as this period was in the lead up to the November 2001 Federal election. Outcomes from COP7 follow (see Outcomes).

Whilst Australia has not agreed to ratify Kyoto it has put in place a broad range of measures representing almost \$1 billion worth of investment, to ensure that the commitment made at Kyoto can be met (for details see [Australian Greenhouse Office](#)).

Background

In November 1997, the Prime Minister released a policy statement, *Safeguarding the Future: Australia's Response to Climate Change* (for details see [Safeguarding the Future](#)). The statement included a package of measures, to which the Prime Minister committed Australia, regardless of the outcome of negotiations at the third Conference of the Parties (COP3), to the United Nations Framework Convention on Climate Change (UNFCCC).

The measures in that package have now been largely implemented. These include the establishment of the Australian Greenhouse Office (AGO), the world's first dedicated greenhouse office, which came into being in April 1998. Included in the policy statement were references to activities relating to renewable energy, energy market reform, the automotive industry incorporating fuel standards, tree planting and revegetation. It also led to the establishment of the greenhouse challenge program (a voluntary cooperative program between industry and government) to undertake to either reduce or abate greenhouse gas emissions. This challenge program has seen companies and associations commit to cutting 20 million tonnes of projected greenhouse gas emissions.[1]

The AGO is responsible for the delivery of most of the measures in the 1997 package. These measures are projected to contain Australia's emissions within a range of 118-120 per cent of the 1990 baseline. This leaves a gap of 10-12 per cent to be made up through a contribution of reduced land clearing to the baseline, new measures at State or Commonwealth level, and the use of the flexibility mechanisms under the Kyoto Protocol.[2] The most recent projections (see section titled Australia's greenhouse gas emissions projections) have Australia's emissions at 111 per cent of the 1990 baseline over the 2008-2012 first assessment period (for details see [Australia's greenhouse gas emissions](#)).

Australia's response to the Kyoto Protocol

The Australian Government released its *National Greenhouse Response Strategy* in November 1998 providing the framework for advancing Australia's domestic greenhouse response into the next century. The Strategy is a product of involvement between the Commonwealth, State and Territory Governments. It has also benefited from the input of industry, non-government organisations and local government. The Strategy is earmarked for review in 2002.

The above document sets out abatement strategies for all of the key sectors that both produce and sequester greenhouse gases, including energy, transport, greenhouse sinks and sustainable land management practices, greenhouse best practice in industrial processes and waste management and adaptation to climate change.

While Australia is only a relatively small greenhouse gas emitter comprising around 1.4 per cent of total world emissions, it registers as a relatively high emitter based on a per capita basis. International Energy Agency data at the end of 1999 indicated energy related emissions in the United States and the Europe (the world's two largest emitters) amounted to 5 585 million tonnes (Mt) and 3 534Mt compared to Australia at 322Mt. However, on a per capita basis, Australia emits 16.95 tonnes, 3rd highest behind the United States at 20.46 tonnes and Luxembourg at 17.19 tonnes.

Whilst a number of commentators give high priority to comparative per capita emissions, it is the absolute level of emissions that impact on global climate change. It is self evident that a larger percentage reduction in Australia's emission levels of 5 per cent amounting to around 26 Mt on 1999 emissions could easily be counteracted by a very small percentage increase in emissions elsewhere in the world. China is the largest emitter among developing countries, and its share of global emissions growth is projected to increase from 12 per cent in 1990 to 20 per cent in 2010.[3]

Whilst data on greenhouse gas emissions for Annex 1 Countries is available (see [Greenhouse gas emissions](#)) world data is harder to access. The International Energy Agency[4] publishes data for carbon dioxide emissions produced from fuel combustion for non OECD countries and in the latest 2001 edition have included methane and nitrous oxide emissions from a number of other sectors for some countries.

Australia's greenhouse gas emissions

Australia's greenhouse gas emissions on a sectorial basis for the years 1990 to 2000 are shown in Table 1. Emerging trends over this period are discussed below.

Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mt CO ₂ -e	Mt CO ₂ -e
	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Mt CO ₂ -e	Change 1990-00	% Change 1990-00
1. All Energy	298.7	300.5	304.5	307.1	312.1	324.4	334.2	342.5	360.5	363.6	371.8	73.1	24.5
Stationary energy	208.5	211.5	212.6	215.0	218.9	226.3	234.2	240.4	258.7	259.8	264.0	55.5	26.6
Transport	61.5	61.0	62.8	63.8	65.6	68.4	70.6	72.4	72.6	73.9	76.3	14.8	24.1
Fugitive	28.8	28.0	29.1	28.3	27.6	29.6	29.4	29.2	31.2	30.1	31.5	2.7	9.4
2. Industrial processes	12.0	11.7	11.5	10.8	10.7	9.7	9.8	9.7	10.9	10.4	10.3	-1.7	-14.3
3. Solvent & other product use	na	na	na	na	na	na	na	na	na	na	na	na	na
4. Agriculture	91.3	91.6	90.2	90.0	89.2	89.3	89.3	91.4	92.4	95.2	98.4	7.1	7.8

5. Land-Use Change and Forestry	85.9	58.4	38.0	43.8	46.5	40.8	37.8	39.5	39.9	38.2	38.0	-47.9	-55.8
6. Waste	15.3	15.6	15.8	16.1	16.1	15.8	15.9	16.1	16.0	16.4	16.7	1.4	9.2
Total	503.3	477.8	460.1	467.3	474.5	479.9	487.1	499.3	519.6	524.0	535.3	32.0	6.3

Source: Australian Greenhouse Office. Mt CO₂ -e is million tonne (Mt) of carbon dioxide equivalent. Note: Tabulation based on UNFCCC Inventory accounting provisions as distinct from 108% target Inventory accounting provisions. Numbers may not add due to rounding.

The data in Table 1 show the dominance of energy production and use as a source of greenhouse gas emissions in Australia. In 2000, the All Energy category accounted for 69.5 per cent of total national emissions, with stationary sources (including power stations) accounting for 49.3 per cent of national emissions; transport 14.3 per cent; fugitive emissions 5.9 per cent and Land Use Change and Forestry 7.1 per cent.

Total emissions have increased by 32.0Mt from 1990 to 2000, an increase of 6.3 per cent. The major part of the increase has occurred in the All Energy sector with an increase of 73.1Mt over the ten-year period, a 24.5 per cent increase. However, emissions from Industrial processes have declined over the ten-year period, largely attributable to changes in the processes used in the aluminium industry. Emissions from the Agriculture sector have increased by 7.1Mt or 7.8 per cent over the ten-year period. Whilst emissions from the Forestry and Other are negative (acting as greenhouse sinks), net emissions from the broader Land Use Change and Forestry sector are positive and amounted to 38Mt in 2000. However, this was a 55.8 per cent decline from the net emissions of 85.9Mt in 1990. The 2000 National Greenhouse Gas Inventory was the first time complete comparative figures for this sector have been reported. Previously only the sink offsets of the Forestry and Other sub sector were reported. The previous reporting effectively indicated that Australia's greenhouse gas emissions growth was much higher than is now the case.

Australia's greenhouse gas emissions have increased by 32Mt over the period 1990 to 2000 or 6.3 per cent, which is below the 8 per cent increase on the 1990 base as agreed under the Kyoto Protocol. However, Table 1 presents emissions according to United Nations Framework Convention on Climate Change (UNFCCC) Inventory accounting provisions, which differ from the Kyoto Target Inventory accounting provisions. According to the 108 per cent target Inventory accounting provisions, Australia's net greenhouse gas emissions totalled 553.0Mt of carbon dioxide equivalent in 2000, a 5 per cent increase (28.4Mt) over the period 1990 to 2000. The key differences in the accounting rules for the two sets of accounting provisions target relate to forest sinks.[5]

Figures in Table 1 indicate the energy sector is one of continuing growth in emissions and an increasing share of Australia's total greenhouse emissions. According to the Australian Greenhouse Office (AGO), emissions in the Energy Sector are expected to grow by over 39 per cent (119 Mt CO₂ -e) between 1990 and 2010. These assumptions reflect continuing growth in GDP, in minerals processing, and in transport and incorporate the main measures expected to reduce emissions - micro-economic reform in the Energy sector, expansion of the Greenhouse Challenge Program and other measures included in the Prime Minister's Greenhouse package 1997.

Australia's greenhouse gas emissions projections

According to the UNFCCC accounting practices, emissions across all sectors in Australia are projected to reach 580Mt CO₂ -e, a 16 per cent increase over 1990 levels in 2010. The projection of emissions includes the performance of greenhouse gas abatement measures which are projected to deliver in aggregate, a reduction of 59Mt CO₂ -e in 2010.

However, assessment of Australia's projections according to Kyoto target rules shows that over the period 2008 2012 emissions would be 111 per cent of 1990 levels on average. The period 2008 2012 is used because this is the target interval applicable to Kyoto targets.

The AGO[6] has outlined a number of significant projection trends including:

- The Energy sector (comprising stationary energy, transport and fugitive) continues to be the most significant source of greenhouse gas emissions (approximately 72 per cent of total emissions in 2010).
- Agriculture emissions are not projected to grow significantly and will contribute approximately 16 per cent of emissions in 2010.
- Industrial process emissions are projected to grow rapidly, but from a small base. They are projected to contribute 4 per cent of projected emissions in 2010.
- The contribution of the Waste sector shrinks slightly as emissions are maintained at 1990 levels.
- The Forestry and Other sub-sectors are expected to sequester approximately 4 per cent of total emissions in 2010.
- Land Use Change emissions are projected to fall to approximately 10 per cent of total net emissions in 2010 from 21 per cent in 1990.

Policy developments

In June 1999, as part of *A New Tax Package*, the government introduced a series of *Measures for a Better Environment* (for details see *Measures for a better environment*). These included new programs to support photovoltaic and other forms of renewable energy, and the use of alternative fuels. A major program, which began on 1 July 2000, is the Greenhouse Gas

Abatement Program (GGAP). The program, funded at \$100 million a year over four years will be used to fund maximum abatement and sequestration opportunities.

Another key development is the progression of policy on emissions trading. During 1999, the AGO published four discussion papers, namely: Establishing the boundaries, Issuing the permits, Crediting the carbon and, Designing the market. The contents and strategies outlined in these papers are expected to lead to the implementation of an emissions trading system in Australia. However, the Government has announced that a domestic trading emissions scheme will not precede the implementation of an international trading scheme.

To date, Australia has been involved with the loosely aligned Umbrella, or like-minded Group of countries in the negotiation of rules pertaining to the use of the flexibility mechanisms under the Protocol. Australia has advocated full use of the flexibility mechanisms in order to reduce the cost of compliance. Australia's position and that of the Umbrella group is opposed by members of the European Union (EU) who have advocated a cap on the use of the flexibility mechanisms. The members of the Umbrella group share similar views on international emissions trading and some other key issues, including sinks.

In addition to the above programs, the Federal Government has mandated a requirement that an additional 2 per cent of electricity will need to be generated from renewable energy sources by 2010 (*The Renewable Energy (Electricity) Act 2000*). The renewable energy industry is gearing up to meet the challenge and opportunity presented by the Federal Government's mandatory renewables target, phasing in from April 2001. The initiative will boost the sale of electricity generated by accredited renewable sources to large electricity retailers and large purchasers by 9 500 GWh per annum by 2010. In addition, the Commonwealth will provide \$381 million in support to the industry over the next four years.[Z] This requirement will increase the electricity generated from renewable sources from the current 10.7 per cent to 12.7 per cent by 2010. The Government introduced a number of amendments to the Renewable Energy Act in mid 2002.

Australia's position on ratification

In June 2002, Prime Minister Howard outlined to the Australian Parliament that on current settings it was not in Australia's interest to ratify the Kyoto Protocol. The Prime Minister has announced that: 'because the arrangements currently exclude and are likely under present settings to continue to exclude both developing countries and the United States, for us to ratify the protocol would cost us jobs and damage our industry'.[8] Nevertheless, the Australian Government has indicated it remains committed to develop and invest funding in programs to meet the target it agreed to at Kyoto. The Government has maintained that the target is on par with the targets taken by other industrialised countries under Kyoto in terms of the economic adjustment required.

In contrast to the Coalition's position, the Labor Party stated that in October 2001[9] it would ratify the Kyoto Protocol if it had won the last Federal election. Whilst the announcement was part of what it believed was a more comprehensive strategy for tackling climate change and its effects on Australia's economy, society and environment, the Labor Party also indicated support for Australia's coal industry which is particularly emission-intensive. The statement acknowledged the importance of coal in the Australian economy its use is a major contributor to Australia's emissions and places emphasis on finding cleaner and more efficient ways of using coal, along with other fuel sources.

Outcomes from COP7

The presence and active participation of Ministers and senior officials at the resumed COP6, or COP Part 2 in July 2001 led to the Bonn Agreement. This reflected a political consensus amongst the international community that the work of the last several years should be brought to completion through political agreement. It was considered imperative that the work of translating the Bonn Agreement into Conference decisions be completed at COP7, Marrakesh.

The principles set out in the Bonn Agreement which were to form the basis for the Marrakesh decisions included:

- Developed countries will provide greater access to funds and technology so developing countries can limit emissions and adapt to climate change.
- Developed countries can receive credit towards their Kyoto emissions targets from 'sinks'.
- Energy efficiency, renewable energy, and forest sink projects to qualify for the Clean Development Mechanism. Developed countries are to refrain from using nuclear facilities in the CDM.
- Use of the Protocol's three flexibility mechanisms should be supplemental to domestic action, but will constitute a significant element of the effort made by each Party.
- The establishment of a Compliance Committee with a facilitative branch and enforcement branch to oversee compliance.

Agreement was reached at Bonn that a penalty would apply to countries that emitted greenhouse gases in excess of their 'assigned amount' under the Protocol. The penalty was set at 1.3, that is, for every carbon equivalent tonne a country emits in excess of its target, it must subsequently reduce its overall emissions total by 1.3 tonnes for the next commitment period.

A key unresolved Bonn issue related to the binding nature of compliance and any consequences for non-compliance. That is, could outcomes of compliance and dispute mechanisms under the Kyoto Protocol produce 'legal consequences' for a country that had ratified? The Bonn agreement essentially deferred this difficult decision for further discussion until after the ratification of the Protocol. This decision didn't move beyond that at Marrakesh.

The resumed COP6 session passed to COP7 a number of negotiating texts on different issues in varying states of finalisation. The principal texts requiring finalisation were the texts on compliance, the text setting out the rules for the Kyoto flexibility mechanisms, and the text on the treatment of sinks.

The final Marrakesh agreement on the operation of the flexibility mechanisms emissions trading, joint implementation and the clean development mechanism included provisions that have the potential to impede the development of an efficient, transparent and competitive international market for emission credits. Most significantly, a 'mandatory commitment period

reserve' has been imposed. This commitment period reserve means that in the period 2008-2012, each country must hold up to 90 per cent of their total emissions in a non-tradeable reserve. This effectively allows trade in only 10 per cent of most countries total emissions. The issue of the interchangeability (or 'fungibility') of the different Kyoto mechanisms (emissions trading, joint implementation and the clean development mechanism) and carbon sinks was resolved. With the exception of some restrictions on the use of sink credits, the units would be interchangeable and of equivalent value. This will allow the most cost-effective mixture of projects and market-based measures to be taken to reduce global emissions, and may significantly lower the cost of complying with the Protocol.

The reconvened COP6 session at Bonn made significant progress on a final text on the rules for carbon sinks. Sinks that can be used to offset emission increases were defined to include a broad range of activities. These activities include growing forests, re-forestation, and improved forestry, cropland and grazing land management practices. No overall limit was placed on the amount of sinks credits that could be claimed; countries instead were given quotas set out in Annex Z of the Bonn agreement that reflected their individual circumstances.[10]

At the previous negotiations, Russia insisted on a footnote being added to its entry in Annex Z. Under the Bonn agreement Russia was assigned 17.63 million tonnes as a ceiling to its use of sinks. At COP7, Russia argued and won an expansion of its previous ceiling to 33 million tonnes.

The sink outcomes incorporate several of Australia's key priorities. These include no restrictions of credits obtained from afforestation and reforestation activities, the inclusion of revegetation as an additional sink activity, and the removal of a substantial and artificial accounting penalty for new fast-growing short-rotation forest plantations, which are particularly relevant to Australia's eucalypt plantations. Sink credits will be specifically designated as 'removal units' and will not be able to be carried forward from the first commitment period to the second commitment period.

In their closing statements at COP7, many Parties expressed satisfaction that consensus had been achieved on all outstanding work under the Buenos Aires Plan of Action (COP4), thus bringing to a close this stage of negotiations, and preparing the way for ratification and entry into force of the Protocol.

For further details see [Outcomes from COP7](#)

Climate change science

On the scientific side and a reminder that global warming is real and a world problem Robert Watson, Chair of the Intergovernmental Panel on Climate Change (IPCC), addressed COP6 and described the current state of scientific understanding of the Earth's climate system. He highlighted the vulnerability of ecological systems, and underlined the need for effective policy and technological responses. He affirmed a projected increase in global mean surface temperatures and a rise in sea levels, and outlined the negative implications of these increases for water resources, agriculture, natural ecosystems and human health.

Preliminary findings of the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) 'Climate Change 2001: The Scientific Basis'[11] released in January 2001, indicated the impact of global warming is more severe than first thought and the aftershocks of climate change will have a profound impact for centuries.

The report is a three-year compilation of the best scientific knowledge about the effects of rising global temperatures and concludes that much of the damage to the environment is already irreversible. Scientists have predicted the earth's temperatures would increase between 1.4 and 5.8 degrees Celsius, pushing sea levels up between 0.09 to 0.88 metres over the next 100 years.

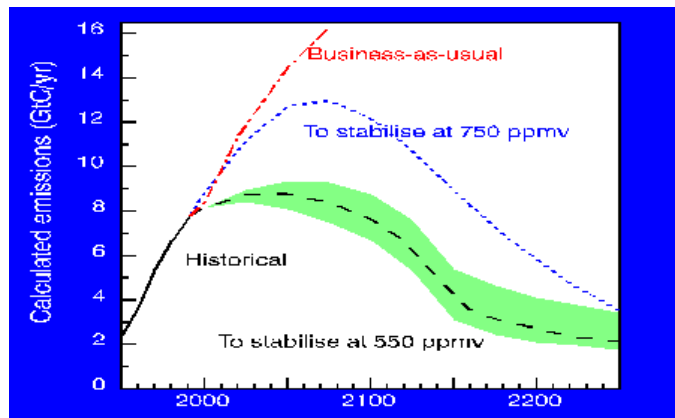
Climatic extremes, such as severe storms, floods and droughts, would become more frequent in many regions in the 21st century. Flooding could displace tens of thousands of people living in countries such as India, China and Bangladesh.

Effect of Kyoto Protocol ratification on world greenhouse gas emissions

The CSIRO Division of Atmospheric Research maintains that for atmospheric concentrations of carbon dioxide to be stabilised at either two or three times the level of pre-industrial times, that is 550 parts per million (ppm) or 750ppm, massive changes in global emissions paths will be required. These paths are outlined in Figure 1.

The ratification of the Kyoto Protocol by Annex 1 countries could only be considered a first step towards the reduction in world wide emissions growth. Greenhouse gas emissions have grown substantially from around 2 Gigatonnes a year (Gt/y) in 1950 to a little over 8 Gt/y in 2000. A business as usual scenario would see emissions grow to around 17 Gt/y by the year 2100.

Figure 1: World emissions paths required to stabilise levels of atmospheric CO₂ concentrations.



Source: CSIRO Department of Atmospheric Research

Even with the ratification of the Kyoto Protocol, greenhouse gas emissions are projected to keep gradually increasing at least until after 2010, and most likely beyond that period as stabilisation of emissions from Annex countries would be more than offset by increases in emissions from non-Annex 1 countries. Most Annex 1 countries emissions levels are now well above what they were in 1990, and emissions from non-Annex 1 countries are expected to overtake Annex 1 countries by around 2005. Greenhouse gases are relatively long lived, and remain in the atmosphere for long periods and add to the 'enhanced greenhouse effect', which is believed responsible for global warming.

For world wide greenhouse gas emissions to follow the lower trend line and result in an eventual doubling of greenhouse gas emissions in the atmosphere since pre-industrial times (550ppm) is highly improbable if one considers the following factors. Of the world's population of around 6 billion people, some 2 billion currently do not have access to reliable power supply and do aspire to having such access. Also, the world population is projected to increase by a further 2 billion people within the next hundred years or so and these people will have a demand for electricity. Much of the world's electricity infrastructure is geared to the use of fossil fuels (coal, gas or oil) and any large-scale switch to a non fossil fuel based infrastructure is unlikely to occur quickly.

The continuation of a business-as-usual scenario without Kyoto would result in greenhouse gas emissions increasing to more than double what they are now or to around 17 Gt/year by 2100. Although the CSIRO Division of Atmospheric Research does not quantify what this would mean in terms of increases in greenhouse gas emission levels in the atmosphere, one surmises that it could result in either a quadrupling or even greater level compared to pre-industrial levels. If such levels were reached, the effects on climate may be profound considering claims that the present increase in atmospheric concentration of around 30 per cent on pre-industrial levels is already having considerable impact.

Some other issues - non environmental

A number of commentators have pointed out that there may be more than environmental considerations at stake in the Kyoto Protocol negotiations. It is evident that the EU has a less onerous task of meeting the Kyoto Protocol undertakings. As such, a hardened approach to the negotiation process may advantage the EU on economic grounds. Firstly, there is the fact that the EU has the flexibility of sharing a 'bubble' arrangement amongst members states, which is equivalent to an opportunity to reduce emissions in the least cost regions. The loosely aligned Umbrella group has argued for similar considerations through the full use of the flexibility mechanisms and the use of sinks, which the EU has objected to vehemently. Also, many European countries generate substantial amount of their electricity through nuclear power plants, which have negligible emissions. As seen earlier, greenhouse gas emissions from stationary energy generation, and in particular coal-fired electricity generation are the most intensive. Furthermore, the EU has little to gain from offsets such as carbon sinks and land use change. It could be suggested, perhaps somewhat cynically, that attempts by the EU to limit the use of such techniques (if in fact they are a valid measurable scientific method of sequestering carbon) is akin to seeking a substantial economic and trade advantage over other Annex 1 countries.

It is also evident that of the substantial number of government participants that attend and are actively involved in Conference of the Parties negotiations for COP7, there were over 4400 participants (well down on previous meetings) from 172 governments only 39 of them are Annex 1 countries that have made a commitment under the Kyoto Protocol to reduce or contain emission levels to some extent. In March 2001, the US administration declared its opposition to the Protocol, stating that it believed it to be 'fatally flawed', as it would damage its economy and exempted developing countries from fully participating. The other countries, G-77/China, although part of the negotiating process, have made no commitments or are they required to under Kyoto to reduce emissions. By around the year 2005, emissions from this group of countries, led by China and India, will surpass the emissions of OECD countries, and are projected to increase rapidly after that date. There could be considerable advantage to non-Annex 1 parties if costs of production of energy intensive industries in Annex 1 party countries were increased substantially because of emission reduction strategies. Competitiveness of such industries in Annex 1 countries would be reduced vis-a-vis similar industries in non-Annex 1 countries.

A key consideration is Australia's trade competitiveness. Our national circumstances are very different from those of most other developed nations. Ours is a small, highly specialised economy. Our strong comparative advantage is in energy intensive production. We have strong trade linkages with developing countries, especially in Asia. Our economy would be especially vulnerable to any outcome that imposed unfair and unrealistic reduction targets. One major shortcoming of a ratified Kyoto Protocol is that without the participation of the United States and the developing world, some 75 per cent of the world's emissions are outside its management and assessment. Furthermore, the undertakings of the Kyoto Protocol as they stand will make little difference on the key objective of stabilisation of greenhouse gases in the atmosphere. The ultimate objective of the United Framework Convention on Climate Change (UNFCCC), from which the Kyoto Protocol has developed is the stabilisation of atmospheric concentrations of greenhouse gases at a level that would prevent dangerous human interference with the climate system. The level at which atmospheric concentrations must be stabilised is

yet to be determined. The Intergovernmental Panel on Climate Change (IPCC) said long ago that stabilising atmospheric concentrations of greenhouse gas emissions at 1990 levels would require an immediate reduction in global emissions of some 60 per cent.

The IPCC statement stands in stark contrast with the present aim of industrialised countries in the Kyoto Protocol to achieve an overall reduction in their greenhouse gas emissions of at least 5 per cent in the period to 2008 2012. Nothing the nations have yet agreed to do comes remotely close to what the IPCC said would be needed to stabilise atmospheric concentrations at today's levels.

However, many commentators have stated that the Kyoto Protocol is at least a start on emissions reductions although the task of decoupling the use of energy and emissions intensity would appear daunting. Despite the uptake and development of many forms of renewable energy biomass, wind and solar energy use projections from the International Energy Agency indicate the bulk of total primary energy supply will remain sourced from fossil based fuels well beyond 2010.

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[8].Prime Minister, The Hon John Howard MP, Representatives, 5 June 2002, Answers to Questions Without Notice, p. 3163.

[9].Kim Beazley Leader of the Opposition, Australian Labor Party, 'Labor's Leadership On Climate Change' Media Statement, 9 October 2001.

[10].Garth Crawford, 'After Marrakesh: Outcomes of COP7 Climate Change Negotiations', Paper delivered to the Australian Gas Association Annual Convention, Sydney, 16 November 2001.

[11].UN warns of global-warming crisis, The Canberra Times, 23 January 2001, p. 2.

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