

Australia and the Economic Implications of Greenhouse Gas Emissions Policy

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The UN Framework Convention on Climate Change was held in Rio de Janeiro in 1992 to “prevent dangerous anthropogenic interference with the climate system”. Specifically, it sought to curb the emission of greenhouse gases such as carbon dioxide in order to prevent the possibility of global warming. In 1997, the Convention’s decision-making body, the ‘Conference of the Parties’, met in Berlin to follow up on the progress made in Rio. A general agreement was made that the developed nations should negotiate greenhouse gas emission reductions for the period beyond 2000. Negotiations are still being made as of today, and they will be finalised by the Conference of the Parties in Kyoto, December 1997. However, one of two International policy scenarios seem likely to emerge:

1.OECD countries reduce carbon dioxide emissions from fossil fuel combustion to 1990 levels by 2010 and to 10% below 1990 levels by 2020.

2.OECD countries reduce carbon dioxide emissions from fossil fuel combustion to 15% below 1990 levels by 2010 and hold stable until 2020.

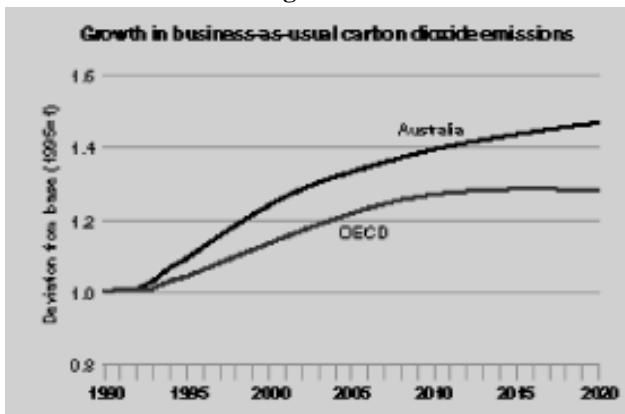
The second scenario is similar to the proposal made by the European Union at international climate change negotiations held in Bonn in March 1997. However, both scenarios involve uniform reduction targets for the OECD, and this leads to highly uneven burdens imposed on the member nations. This is very true in Australia’s case, which is in one of the worst, if not the worst, situations regarding economic costs due to greenhouse gas abatement strategies. The uniform reduction targets are inequitable, unworkable and ultimately counterproductive, and the Australian government is pushing for differentiated greenhouse gas reductions which recognise the circumstances of each country’s economic situation.

As recognised by the Australian Bureau of Agricultural and Resource Economics (ABARE), the forced reduction of greenhouse gas emissions impose economic costs and welfare losses (losses in real gross national expenditure) via two mutually enhancing channels. Firstly, as emission restrictions force producers and consumers to move to more expensive yet less carbon intensive alternative fuels, there is an increase in industrial production costs and consumer prices. Higher costs mean less economic activity, with negative implications for income and economic welfare. Secondly, emission restrictions will impact the international trading system. The trade in fossil fuels such as coal will decline as nations experience reduced demand and prices for their fossil fuel exports. Nations that rely on the export of fossil fuel intensive products such as metal ore extracts will suffer as their industrial base is eroded by non-OECD competition, which is not subject to emission restrictions and their

associated costs. In response, the affected industries will relocate in non-OECD nations to capitalise on increased price competitiveness. Both channels lead to reduced international purchasing power associated with declining export earnings. The standard of living will suffer as a result.

An examination of the Australian demographic and economic outlook

Figure 1



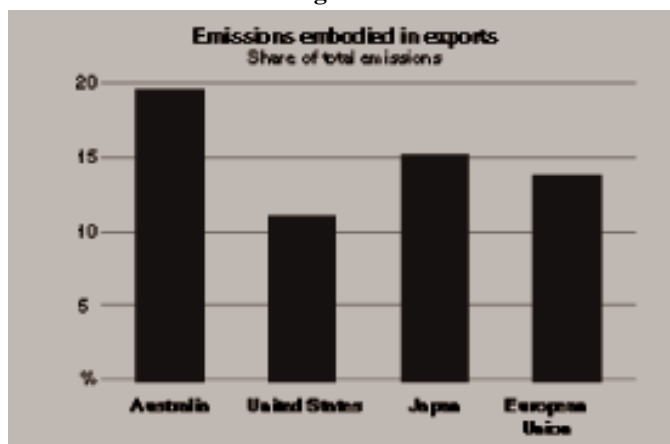
explains the very high growth of 40% in greenhouse emissions predicted over the next 30 years illustrated by figure 1. Australia is a nation of relatively high population growth. Over the next 10 years, Australia's population will grow by 10.5%, that is a full 6.5 percentage points above the OECD average. In contrast, many EU nations are experiencing

stable or declining, populations. Thus even if per capita greenhouse emissions were kept constant, the absolute output would climb considerably in Australia's case, making a uniform restriction on emissions very difficult as found by Dr Rob Sturgiss in a Treasury research paper in 1995.

Australian power generation is very carbon intensive. Coal combustion is the heaviest emitter of carbon dioxide, the principal greenhouse gas, and coal power supplies 80% of Australia's electricity needs. Unfortunately for Australia, no low cost alternative for coal exists as an option. A survey by 'The Economist' shows that Britain was able to cut carbon dioxide emissions by 4% over 1990 to 2000. This is mainly due to the switching from coal to North Sea gas, which is also very cheap for Britain. In future, nations such as France, Japan and the United States can expand their nuclear power capacities. Thus while these alternative fuels exist for other OECD nations, Australia would be forced to move to a much costlier fuel, as nuclear power seems politically unfeasible.

Australian exports are more dominated by energy intensive products than the rest of the OECD. Figure 2 shows that these products account for 20% of total emissions, while for the EU and the USA, it is much lower. As the Asia Pacific region moves to freer trade,

Figure 2



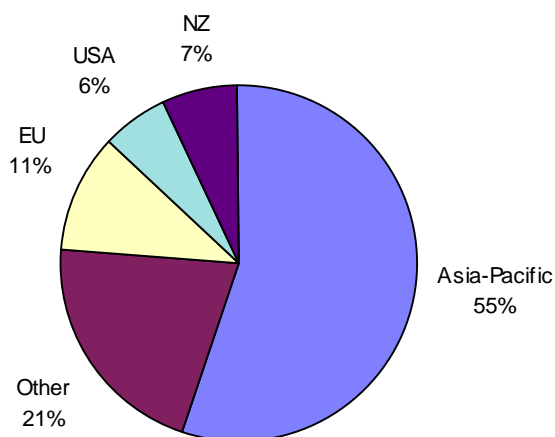
nations are focusing on their comparative advantage. In Australia's case, the comparative advantage lies in energy intensive products such as coal, aluminium, other metal ores and minerals.

There is also much indication that this export growth in energy intensive products is set to continue strongly well into the next century. Australia is in a position to export heavily to the Asia Pacific region encompassing all the world's fastest growing economies.

These exports will consist of energy, raw materials and the processed extracts of raw materials, all carbon intensive industries. Figure 3 shows the dominance of the Asia Pacific in terms of export market share, and the spectacular growth of these economies will only increase this share, serving to fuel the growth of Australian exports. This area shows the brightest prospects for continuing Australian prosperity, but it also accounts for much of Australia's projected greenhouse gas emissions growth.

Uniform greenhouse gas reductions across the OECD are set to damage the Australian economy very heavily. As described, high population growth

Figure 3
Percentage of Exports '95-'96



Source: ABS Australian Economic Indicators, Cat No 1350.0 to August 1996

Figure 4



makes it more difficult for Australia to stabilise emissions in the first place. A study by the MEGABARE simulation model of the Australian economy presents a daunting picture summarised in figure 4. A projected 24% decrease in coal output will arise due to decreased demand both

domestically and internationally. At home, policies designed to reduce carbon dioxide emissions will require a significant shift away from coal power. Thus the \$4 billion growth in coal electricity generation is threatened. The planned \$2 billion Collie power station would be axed. Australian export markets will shrink as overseas, other OECD nations that traditionally import energy, such

as Japan, will also move away from carbon intensive fuels such as coal. However, Australia is a major supplier of coal to Japan and had been set to expand aggressively into the Asia Pacific. Altogether, the projected \$8 billion growth of coal exports is immediately under threat. The damage extends deeply into aluminium, ferrous and non-ferrous metals. ABARE has identified \$18 billion - \$22 billion worth of projects that are immediately threatened by emissions abatement strategies. \$2.8 billion worth of iron and steel plant construction such as the planned Kingstream Resources smelter would be abandoned. The \$5.1 billion worth of aluminium refineries on the drawing board, such as Comalco's Boyne Island and Gladstone projects are all under doubt. These cuts are just the immediately foreseeable examples and do not include the longer term migration of these industries out of Australia due to the higher costs of power generation. Hence we will see the 60% decline (from business as usual levels) in non-ferrous metals and the 30% decline in iron and steel. Energy intensive industries are Australia's

comparative advantage, yet this growing export base is set to be steadily eroded should uniform greenhouse emission reduction targets be enforced. This has severe implications for Australia's balance of trade and export earnings.

The economic welfare and prosperity of Australia is jeopardised in this scenario, much more so than the EU or the USA. The significant structural adjustment would involve a major shift of resources away from the industries that were previously assured to be the sectors of greatest prospects, namely mining and metals production.

Several simulation models provide a reasonably, consistent outlook. The various versions of the ORANI models of the Australian economy point to a small increase in the manufacturing and agriculture sectors, in line with MEGABARE forecasts. Nevertheless, the result is an excess labour supply as they are released from declining mining and metal production. Figure 5 shows that Australian real wages will fall in the order of 19% (relative to business as usual) to sustain

Figure 5

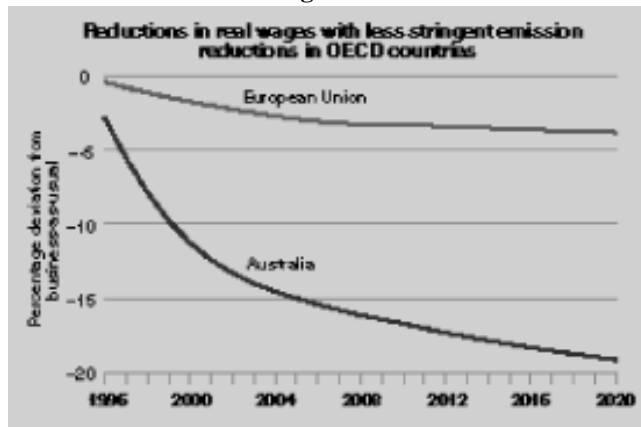
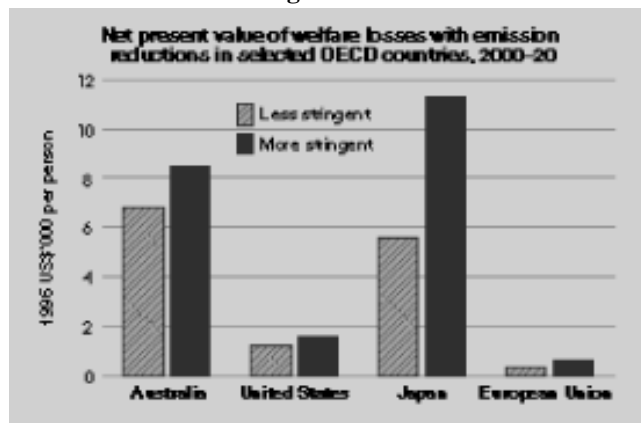
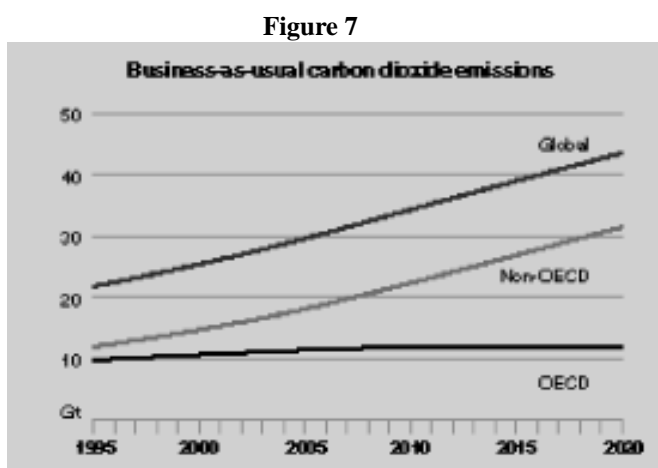


Figure 6



employment levels, while for the EU, it is only 4%. The total cost to output is a 2% decline of Australian GDP up to 2010. However, the impact will not be evenly shared across the economy, with the mining and metal production sectors being hit hardest. Such a decline will devastate regional economies across Australia. According to the Australian government, (figure 6) the Australian would suffer a welfare loss 14-22 times that of the European and 5-6 times that of the American. Clearly, this is not an equitable situation. The uniform reduction targets are plainly more costly to Australia than most of the OECD. Only Japan faces similar welfare losses.

Another fundamental flaw in the proposals put forward by the Convention of the Parties is its failure to encompass the developing nations in negotiations for emission reduction. As figure 7 shows, non-OECD nations will triple their greenhouse gas emissions up to 2020. Meanwhile, the OECD output will, as a share of global output, decline from 45% in 1995 to 28% in 2020 and global greenhouse output will double by



2020. Hence ultimately, for greenhouse gas reduction targets to be effective, all nations must be included in negotiations. Of course it is unreasonable to demand the developing nations to adopt the same policies of emission restrictions with all their associated costs. However, OECD centred emission abatement strategies actually encourage the non-OECD to increase emissions beyond business as usual levels. This phenomenon, called 'carbon leakage' occurs as energy intensive industries in the OECD move to non-OECD nations to escape rising production costs as energy becomes more expensive. Industries such as aluminium refining require vast quantities of cheap energy, and it is these industries that are most likely to migrate, increasing non-OECD emissions. As previously pointed out, Australia is highly vulnerable to such industrial relocation, and would suffer an erosion of her export base. Several simulation models, notably MEGABARE, several ORANI models and IMP, estimate global emissions to be a mere 6.3%-7.0% lower than business as usual levels by 2020 if one of the uniform reduction scenarios was made global policy. Such a minor change in emissions is at an enormous economic cost in nations like Australia and Japan. Thus the proposals put forward by the Conference of the Parties are somewhat counterproductive and very limited in scope.

The Australian government recognises that the proposals involving uniform reductions in emissions across the OECD are highly inequitable and

counterproductive. The limited scope of these policies can not justify the severe burden placed on nations such as Australia. The Framework Convention in Rio 1992 recognised the uneven impact of emission cuts, and Article 4.10 (the ‘fossil-fuel clause’) addresses this situation by requiring policies to take individual circumstances into account. In the quest for simple policies that facilitate agreement, the EU’s proposal at Berlin and Bonn for uniform targets ignores Article 4.10. Curiously, the EU’s proposal allows variation of targets amongst the EU members, yet demands uniformity, from the rest of the globe. In response, the Australian government, backed by major industrial players, has invested much money and diplomatic effort in the campaign for ‘differentiation’ where equal costs would be imposed amongst OECD nations. Despite much opprobrium from the EU and elements within the USA, Australia has gathered a small ‘good coalition’ of support including, Norway, Poland and Japan. It must be kept in mind that Australia does not carry much diplomatic clout, and that the battle for differentiation is an uphill one. The outcome in Kyoto in December 1997 is still much in doubt, but the Australian Government is concentrating on swaying the USA against the EU, by stressing that American interests are better served by pursuing differentiation. It is even more uncertain what a properly, differentiated proposal would be.

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