

# IMPLICATIONS OF A CARBON TAX

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## 1. INTRODUCTION

I could describe, in line with the conference program, some of the successes that are being achieved in industry to control emissions. The individual case studies represented in the Government's Greenhouse Challenge program record impressive achievements and commitments by many of our largest companies and industries. As my last slide today will show, many of those runs — achieved through a voluntary program — are on the scoreboard, and there are more to come.

I could also go into tedious detail of the extensive and intensive modelling work that has been done through the 1990s to identify and quantify the economic impacts of controls on emissions of greenhouse gases — controls which are effected, in most of the macro models, by the device of a tax on emissions of carbon.

But there is plenty of information being disseminated on the Greenhouse Challenge program, and you've heard only yesterday from Vivek Tulpule of ABARE on the economic impact of Kyoto.

I thought it might be more constructive to take a few steps back and make some general remarks about the Australian Government's approach to these negotiations, the national interest which lies behind that policy approach — which is fundamentally about the structure of the Australian economy and our future competitiveness — and the equity principle of 'differentiation' which was the key to an agreement in Kyoto and is essential to the prospect (and environmental imperative, if human-induced global warming proves to be a genuine problem) of obtaining emissions control commitments from non-Annex 1 countries.

Then I'll show you the numbers for Australian emissions to 2010 based on the policies already implemented or announced, and demonstrate to you that anyone proposing a domestic carbon tax in these circumstances must be motivated by revenue considerations. Kyoto and Australia's greenhouse commitments do not require such a tax — and it will be not only misguided but also fraudulent if a carbon tax is proposed on these grounds.

I am conscious that the ground is being staked out in the tax reform debate, and I'm reasonably confident, based on its performance in the international negotiations, that the Government understands that for Australia to be contemplating a tax on carbon would be for us to be taking aim at our foot.

## 2. KYOTO AND AUSTRALIA'S POSITION

Terry McCrann, in his column in *The Australian* on the Australia Day weekend, invoked a nice pre-War quote from Churchill to describe symptoms of drift in the Howard Government's perceived indifference to the dark clouds unfolding on the Asian horizon to our north. Churchill reportedly opined: "So they (the Government) go on in strange paradox, decided only to be undecided, resolved to be irresolute, adamant for drift, solid for fluidity, all-powerful for impotence." Our Government's public response to the Asian meltdown was described by McCrann, amongst other things, as "pompously over-confident" and absurdly resonant of Keating's predilection for making the necessary adjustments by "twiddling the levers".

For political even-handedness, McCrann added that the Asian vista's most depressing cloud was "what can best be described as the bipartisan commitment to policy failure in Canberra".

I like McCrann's rhetoric, and I think the hyperbole does help to highlight real concerns and weaknesses. But generalising from the issue at hand can certainly mislead — and I couldn't help but to recall to myself, when reading his piece, that to say, as he did, "the Howard Government is showing all the signs of drifting through 1998 like a rabbit in the spotlight, frozen by fear and indecision", overlooks the policy beacon the Government installed more than a year ago and followed resolutely through to Kyoto at the end of 1997. (I should add, in parenthesis, that one of McCrann's fellow columnists at *The Australian*, Alan Wood, must have been similarly sceptical about the generalisation, given his acknowledgment of the Government's progress and commitment on industrial relations and workplace reform. And, I'd add also, that one of the silliest pieces written on the Government's greenhouse position prior to Kyoto was a contribution from McCrann. Fellow writer Paul Kelly, for what it's worth, took by far the most intelligent path through the whole — immensely difficult — process of negotiating a COP3 outcome that would not be overwhelmingly contrary to Australia's ability to pay our way in the world.

Some will say the Government should never have had a bar of any of this — the Berlin Mandate or the Protocol: the science is shonky and self-serving; the policy prescriptions are shonky and self-serving; and it would be hard to conceive of any outcome not detrimental to the interests of Australian's who expect living standards (and employment levels) to be maintained.

I have a fair bit of sympathy for this line: I think the science is global warming's Achilles heel<sup>1</sup>; there is no practical or sustainable environmental benefit from emissions reduction commitments confined to Annex 1 countries; the European advocates of stringent controls sought trade advantage against their Japanese and American rivals; so-called "sunrise industries" don't seem to be reluctant about rushing to the familiar trough of "assistance" and "support"; local and global green groups didn't need any prompting to clutch at another (perhaps the ultimate) lance with which to tilt at the dreaded industrial establishment; and there's simply no question that a fossil fuels and energy intensive products exporting country, epitomised by Australia, won't lose as a consequence of international action to curtail emissions. I'll come to that in a few moments.

But the case for participation in the negotiations always rested on the contentious argument that those on the inside of the tent have a better chance of keeping warm and dry. In this case, the wisdom of the argument has been demonstrated beyond. Were the negotiating team weaker, less skilled, less analytical, less insightful or less clear about Australia's interests, it might have been better to have stayed outside. But the Australian negotiators' performance through the whole long process was brilliant.

Special credit must go to Meg McDonald and her team at DFAT, to Brian Fisher and the ABARE modellers and analysts (who took a caning for most of the year and, I regret, are being caned again this year), and to Senator Robert Hill whose toughness and competence paid handsome dividends at the end. Roger Beale and his department, and Paul Barratt and his (then) department were also crucial to the success of Australia's effort.

And none of this would have been possible were it not for the Government's rock solid position with the US in support of "comprehensiveness" and in opposition to "policies and measures", and its preparedness to stand and be counted in opposition to practically all except the Norwegians on "differentiation", the platform accepted, maintained and promoted by the Government from any early stage in the negotiation.

The Prime Minister and his Government, and the Commonwealth officials who developed and implemented the brief, did have the full support of Australian industry through this period, and

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<sup>1</sup> However, BP's John Browne had it about right in London last week when he said: "We've moved .. beyond denial. That is not to say we've reached a point of scientific certainty. We haven't. The science of climate change is still provisional. Maybe it always will be. There is still great uncertainty about cause and effect, about the consequences and about the appropriate response. But there is a growing consensus that this is an issue we have to take seriously." (Speech at Chatham House, 6 February — see BP website.)

I believe that was important. What was disappointing was the propensity of the Opposition to listen to — and evidently believe — the rantings of the green left and the uncomprehending shallowness of most of the press coverage. I see from the ALP Conference that Duncan Kerr has committed a future Labor government to “go beyond the 8% Kyoto target” with, presumably, more stringent controls on emissions. I trust, if they succeed in achieving that, that they don’t give away the hard-won credits to grateful OECD counterparts for nothing!

What was disappointing also, until the very end, was the incredible indifference of State governments to the possible outcomes. If there were bunnies in the greenhouse bandwagon’s headlights last year, the Federal Opposition and most of the States were stock still, staring.

That concludes my little opening polemic. I was asked to talk about something totally hypothetical: the implications of a carbon tax. And I will do that. But perhaps you’ll allow me to start by showing you some characteristics of the Australian economy that are not at all generally appreciated — least of all by most of the journalists who covered the global warming debate. (DFAT’s 163-page paper<sup>2</sup> published last September was altogether too thick for them.)

### **3. ENERGY INTENSITY OF AUSTRALIAN INDUSTRY**

The outcome our negotiators achieved in Kyoto drew expressions of exasperation, even disbelief, from the European Commission and the world’s greens. This is indicative of the fact that most of them have not taken the trouble to understand either Australia’s policy position or the basis for it.

If you were to believe the ACF and Greenpeace (and what you read in the newspapers — nearly all of which is anecdotal and quite possibly accurate) you would have a very low opinion of the efficiency by which Australian industry uses energy.

The impression is wrong, and I think there are two reasons for the misconception: the anecdotes provide no indication of scale (or appropriate weighting), and there is a propensity, including on the part of people and agencies — like the IEA — who should know better, to equate energy ‘intensity’ (that is, the ratio of energy use per dollar of output calculated across more than one activity) to energy ‘efficiency’ (which only applicable to comparable activities — like smelting aluminium, for example, or driving cars).

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<sup>2</sup> Department of Foreign Affairs and Trade, *Australia and Climate Change Negotiations: An Issues Paper*, Canberra, September 1997.

### **3.1.1 Slide: Energy Intensities, Iron and Steel, and Non-Ferrous Metals Industries, Selected Countries/Regions, 1974-1992**

The hazards of aggregating such data across multiple activities — like manufacturing, or the whole economy — are well illustrated by the case of non-ferrous metals, the energy intensity for which (by country) is shown on the lower panel. Australia's performance in this industry class appears disgraceful, at about 5 times the ratio recorded in other OECD countries. And notice the steep increase through the 1980s.

### **3.1.2 Slide: Electricity Consumption per Tonne of Aluminium Metal, by Region**

What the previous chart in fact showed was the transformation of the Australian non-ferrous metals industry into an industry class whose energy requirements became dominated by aluminium smelting.

Interestingly, when a specific measure of energy efficiency is applied in respect of aluminium smelting — electricity per tonne of metal — it is clear that Oceania, which means Australia plus one other smelter, established world best practice with the commissioning of new plant in the early 1980s, and has maintained that premier position.

If the industry is fossilised, so to speak, through the discouragement of investment in new plant and expansions, it will slowly but surely slip back down the efficiency rankings.

### **3.1.3 Slide: Energy Requirements, Australian Manufacturing Industry, Actual and Alternative Scenarios, 1992**

The apparent anomaly I've just mentioned was resolved in an exercise ACIL undertook, a couple of years ago, for the BCA, looking at international comparisons of energy use by industry. We used data from the OECD on real dollar output by industry, and data from the IEA on energy use by industry. Please note that by the statistical conventions we followed, smelting metals and liquefying natural gas — activities we might usually ascribe to the mining sector — were encompassed within "manufacturing".

Tellingly, we calculated that if Australia's total value added from manufacturing were delivered in the same proportions, industry by industry, as Japan's total manufacturing value added, and we retained Australia's set of energy *intensities* by industry, then Australia's energy requirements by this sector would be down by about a third. The reduction is a little less if OECD average value added shares are applied.

What this means is that a critically important part of the explanation for a country's energy intensity is the structure of its industry, the extent to which it has a bias towards industries which are energy intensive. So if you have an industry, like aluminium smelting, that consumes some 18% of the total electricity sent out by power generators (and uses 40% of all the power used by industry) in the four States in which the industry operates here, then that bias is going to be evident.

What's more, this provides a good explanation of why the anecdotes about one office building or another installing devices that save 45% on power bills, however impressive and desirable (assuming the quoted payback periods are real!), are inclined to give a misleading perspective on absolute emissions savings opportunities. If there were an absolute cap on emissions, the commercial office building example would have to be repeated about 250,000 times in order to accommodate a new smelter.

#### **3.1.4 Slide: Aluminium Production per unit GDP, Australia, EU, Japan, USA, 1982 and 1992**

Now I haven't picked on aluminium smelting idly. Electricity typically accounts for 30% of that industry's cash costs (and alumina, also very energy intensive is another major component). The point is that melting metals is the most energy intensive activity undertaken on a commercial basis! (Making glass and bricks and cement are up there as well but relatively small amounts of these are traded.)

And Australia sticks out — with production per dollar of GDP far and away greater than elsewhere in the OECD. Notice also that the extent of Australia's leadership is much greater now than it was a decade ago.

#### **3.1.5 Slide: Refined Copper Production per unit GDP, Australia, EU, Japan, USA, 1982 and 1992**

Now I'm going to flip through a few more slides quickly here to indicate a very similar story for other metals — all of which are big users of energy.

**3.1.6 Slide: Lead Metal Production per unit GDP, Australia, EU, Japan, USA, 1982 and 1992**

**3.1.7 Slide: Zinc Metal Production per unit GDP, Australia, EU, Japan, USA, 1982 and 1992**

**3.1.8 Slide: Ferromanganese Production per unit GDP, Australia, EU, Japan, USA, 1982 and 1992**

**3.1.9 Slide: Crude Steel Production per unit GDP, Australia, EU, Japan, USA, 1982 and 1992**

It is only in this last category, iron and steel, that Australia is back with the pack.

**3.1.10 Slide: Structure of Manufacturing Value Added, Selected Countries/Regions, 1970-1992**

The tendency for metals smelting to be progressively more important to Australia, evident in those bar charts, is replicated on a broader basis. In this chart, we have stacked up the various industries in order of energy intensity, with ‘non-ferrous metals’ — which includes aluminium smelting — on the bottom.

One doesn’t need to analyse the numbers to recognise that something very different has been going on as between Australia and other OECD countries. Our experience is the opposite. While Japan and Europe have been hollowing out their energy intensive industries, Australia has been building them.

**3.1.11 Slide: Aluminium Production, Australia and Japan, 1973-1992**

In many ways, this slide says it all. The aluminium refining industry that existed in Japan before the first oil shock was replaced, pot for pot, in Australia.

Australia, on account of its resource endowment and the human and physical capital accumulated to exploit it, has a comparative advantage in energy intensive industry — energy intensive industries based on fossil fuels.

Importantly, one has to ask the question: is this structural change of the past several decades to stop? This is what is implied in setting a greenhouse gases emissions target tied to a baseline year.

When I look at the resource processing and other projects on the drawing board — in LNG, DRI, aluminium, nickel, zinc, copper, silver, alumina, fertilisers, petrochemicals, paper, food processing, shale oil — the answer is decisively no. If, or as, these projects proceed, the Australian economy will become more energy intensive, not less.

### **3.1.12 Slide: Energy Used in Major Sectors, Selected Countries/Regions, 1992**

It is worth running through a little more background on Australia's energy economy. This slide puts us in our place, in absolute terms.

### **3.1.13 Slide: Energy Usage per Unit GDP in Major Sectors, Selected Countries /Regions, 1992**

When that is recalculated on a per unit GDP basis, a better comparison is possible.

I have plotted the transport sector in aqua, immediately below the axis, and 'other sectors' (mostly households) in dark green at the bottom. As you might expect, Americans use somewhat more energy in transport than we do (certainly per capita), but we're next. In households, the US leads by a long margin, but Europe and Japan are ahead of us.

Everything 'industrial' is above the axis, beginning with electricity generation which, as you can see, is much larger in the US and Australia than elsewhere. I believe the explanation for the high US figure is associated with household or 'other sectors' demand; in Australia, our large non-ferrous metals industry (next up in the pink below the black) is the key.

### **3.1.14 Slide: Structure of Manufacturing Industry, Australia and OECD Average, 1974, 1984, 1992**

Returning to the dynamic theme: this chart shows how energy intensive industries have become successively more prominent in the Australian economy, while other OECD countries have, if anything, seen the departure of these industries.

### **3.1.15 Slide: Energy Intensities, Manufacturing, Selected Countries/Regions, 1974- 1992**

And this chart shows the picture across the whole sector.

The green groups say that having the highest energy intensity in the OECD demonstrates the scope for reduction (they would say "improvement"). The scope is there, of course. But what would it prove? If Australia were to rid itself of energy intensive industry like Japan did,

wouldn't there be another mirror image outside Annex 1 waiting to fill the gap? And what would be the net environmental benefit?

The Australian economy has grown over these couple of decades — and average incomes have grown, albeit more modestly.

Now that we have taken on a fixed target for emissions, we'll certainly be obliged to ensure that the trend evident here levels off. Australians can earn a living doing something else — but can there be any doubt that it'll be harder going if the locomotive of this economy's growth for the past thirty years is put into neutral?

Just a couple more comments on this theme: Peter Walsh's chattering classes clamoured for eons for more “value adding” of minerals and other primary commodities in Australia. In the 1980s the dream was substantially realised — certainly for aluminium. Now, with BHP's HBI plant at Port Hedland and other DRI projects on the horizon, the 1960s dream for substantially upgrading iron ore is also just about reality.

The viability of new investment in such value adding in Australia — whether it is aluminium, iron, nickel, or LNG, to name some of the most prominent — would definitely be in question were the proponents to be obliged to pay significant dollars for emission entitlements or were governments to impose a new tax on them. The competitors for these projects, almost without exception, are located outside Annex 1 countries — and that's a key difference between our situation and that of our OECD counterparts.

#### **4. DIFFERENTIATION**

I think it is also important for me to say a little about differentiation, the central tenet of Australia's negotiating position. I should say it is solidly founded in the principles of “equitable burden sharing” enshrined in the UNFCCC.

The essential problem has been that all countries in the developed world have indicated a preparedness — at Rio, at Berlin, at Geneva, and now at Kyoto — to ‘take the same medicine’ on greenhouse. But if this could mean, as it could to the Europeans, that when the unpleasant potion was dispensed, much would splash from their measure into someone else's, then ‘taking the same medicine’ was not sharing the same pain.

Vivek Tulpule will have indicated yesterday that by ABARE's estimates — which are as good as exist — around half of the total cost to Australians, in terms of expenditure forgone, of OECD efforts to curtail net emissions, arises through the effects on trade and investment. The

cost of emissions abatement here will be only about half the cost we bear. For the Europeans, by contrast, emissions abatement costs are what it's all about — and some of them are easily transferred to somebody else.

This is something I'm (gullibly) prepared to believe many of the Europeans involved don't understand. Let me give you an example.

Danish energy and environment minister Sven Auken skated on a visit to Australia in June that Denmark, by deciding not to build any new coal-fired power stations, is leading the rest of the world in the “war on emissions”. Denmark also decided to burn gas at a power station intended to use coal. It will build more wind farms — which is great, but will still need access to conventional or, horror for Danes!, nuclear power, as backup.

According to the Minister, Denmark can “achieve deep cuts in emissions... at a reasonable cost.” This is no surprise. Denmark can generate electricity from lower carbon fuels, such as gas, and can import electricity, including from zero carbon sources such as hydro and nuclear, at costs little more than coal-fired power. After all, the coal has to be shipped all the way there and unloaded.

As an aside, there's no assurance that imported power ostensibly sourced from carbon-free hydro, for example, is not in fact acquired by substituting coal-fired power generated in a grid interconnected country, possibly, in the future, in Denmark's case, much further east. Electrons don't carry a source label, so what the Danes buy across one border as “clean electricity” may be replaced elsewhere by generation from a coal station. But that's a diversion. Incidentally, the Climate Convention talks have yet to even identify the problem.

What evidently had not dawned on Mr Auken, or he was simply unprepared to accept, is that much of the real cost of these Danish decisions (and similar EU decisions) is borne by *coal exporters* — in South Africa, the Americas and Australia. It is they who will be losing sales, accepting even more depressed prices in remaining markets, and facing diminished business prospects.

In effect, Denmark claims for itself the environmental achievement for which Australian exporters, amongst others, and all who rely on their income, pick up the tab.

This is an example of the kind of inequity which ABARE, DFAT and Australian governments have been trying to explain, at home and overseas, which is represented in the GE models, and which is addressed within the ambit of differentiation.

What we have, in the Kyoto outcome on targets<sup>3</sup>, is a negotiated recognition that the task of curbing Annex 1 emissions of six greenhouse gases<sup>4</sup>, subject to a raft of other (agreed and yet to be agreed<sup>5</sup>) rules about (amongst other things) pre-budget period banking, emissions trading, clean development mechanism credits, the measurement of emissions associated with forestry and land-use change<sup>6</sup> and, importantly, effective sanctions and compliance, to a level in 2008-2012 about 5.9% below baseline 1990/1995 levels, can be shared reasonably equitably by having the EU commit to an 8% cut below baseline, the US minus 7%, Japan and Canada minus 6%, Russia at baseline, and Australia some 8% above it.

Of course, it's the same kind of differentiated targets arrangement that EU members came to amongst themselves at the end of September. That deal, incidentally, presented quite disproportionate burden on Italy and Finland; and Kyoto appears decidedly unfair on Japan, our most important trade partner.

## 5. A CARBON TAX

I mentioned earlier the belated interest of State governments in the international negotiations. It has also been noteworthy that, since the departure of some senior Treasury officials who took an interest in the greenhouse issue some years ago (and were suitably aghast!), the Federal Treasury — normally the bastion of market rectitude — has not been a significant player in government policy formation on greenhouse, notwithstanding its potential to affect

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<sup>3</sup> The Protocol provides for individual country targets to be achieved by the “commitment period” 2008-2012 against 1990 base levels (for the major three gases). Targets accepted include: United States minus 7%, EU minus 8%, Japan minus 6%, Australia plus 8%, Canada minus 6%, New Zealand 0%, Norway plus 1%, Russia 0% and Ukraine 0%.

<sup>4</sup> All six greenhouse gases not covered by the Montreal Protocol are to be included: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. The first three gases will be determined at 1990 levels, the latter three at 1995 levels.

<sup>5</sup> A number of issues have been left to future negotiations by the COP/MOP, issues that are critical to the feasibility of developed countries achieving their commitments. These include defining sinks, elaborating guidelines for emissions trading and joint implementation, developing the working procedures for the Clean Development Mechanism, establishing non-compliance procedures, and determining the process for arriving at future targets and timetables beyond 2012. Resolving these is not a trivial task.

<sup>6</sup> Australia's projected decline in emissions attributed to land clearing between 1990 and 2010 is accommodated (recognised) by a specific clause stating:

"Parties in Annex B for whom land use change and forestry constitutes a net >source of emissions in 1990 shall include in their 1990 emission base the >aggregate anthropogenic CO<sub>2</sub> emissions minus removals from land use changes for the purposes of calculating their assigned amount in Annex B."

the course of the Australian economy by at least as much as any manageable policy issue one could name.

One plausible explanation for Treasury's apparent vacation on this issue — and a ground for much suspicion in industry circles — is that the department is torn between the first order policy questions associated directly with greenhouse response (and their impact on Australian economic performance) and the opportunity that fiscal intervention in the name of environment protection presents to “solve” one of those manageable issues one might name: taxation reform. Frankly, I have no basis to confirm such a proposition. And, I must say, various option proposals emanating from business in relation to tax reform provide a ready pretext for responsible Treasury officials to countenance charges or taxes for environmental “sins” — like emitting carbon dioxide to the atmosphere — amongst possible future means of satisfying revenue requirements.

It will be very costly to Australia if that is the course embarked upon. ABARE has published estimates for simpler scenarios than the package agreed at Kyoto, and no doubt is, amongst others, grappling with estimates of the cost impact. But the abiding reasons why a carbon tax makes no sense are these:

- a carbon tax, without hard to design equivalents for the other five GHGs, would offend the principle of comprehensiveness that has been a pillar of Australian policy on greenhouse response
- taxes can discourage emissions subject to them but cannot encourage sinks (and in this respect are decidedly inferior to tradable permits with credits for sink enhancement)
- we have an energy intensive — and increasingly energy intensive — and carbon intensive economy which is exposed to world markets in which many important competitors will impose no such handicaps on their industries
- the consequences of this reality are that new investment will be directed (or invited) elsewhere and Australia's underlying growth prospects would be diminished
- the signal that a country as energy intensive and fossil fuels dependent as Australia would send to its customers, by imposing a carbon tax on itself, would be salutary, and export markets would be further prejudiced
- while ubiquitous, a carbon tax is a very blunt instrument that would lay some industries to waste while sparing others, that would be as regressive as fuel excise, and that would impact on certain States far more savagely than on others.

In current circumstances, the case for such taxes is more preposterous. Because the very first question must be: what is the rationale for them? The difference between now and pre-Kyoto is that we now have a binding target. But what do we have to do in Australia to achieve it? That question has already been answered by the Government: the response strategy determined to date, including the measures announced by the Prime Minister in November need to be implemented. If they are, and if the official projections are correct, then there is no need for further measures.

### **5.1.1 Slide: Australia's GHG Emissions**

Let me take you through the arithmetic. There is a table at the back of my hand-out that provides the figures behind this chart. It accords with the Government's figuring where I know it, and guesses where I don't. It differs from the Government's figuring in that it balances — which possibly explains why we are yet to see the official figures coherently.

- The figures for emissions and sinks for 1990 and 1995 were published in Australia's second national report to the UNFCCC last November.
- Then I have a column for 2010 under government assumptions of "Business-as-usual" (Bau).
- Next is the expectation for 2010 after allowing for the effects of policy measures, including voluntary restraints under the Greenhouse Challenge program, but prior to the Prime Minister's announcement of new measures in November.
- The '2010 PM Nov' column incorporates the changes announced by the PM, and the arithmetic outlined at his announcement.
- And, for a 'worst case' scenario, the final column substitutes a forecast of Bau energy-related emissions from Warwick McKibbin's G-Cubed model for the whittled-down forecast implicit in the PM's announcement.

These figures cover net emissions of all six GHGs. The importance of the projected reduction in net emissions from land-use change is plain.

What is happening in the energy area warrants elaboration. The Government's Bau estimate for 2010 is 49% above 1990. Measures in place before the PM's pre-Kyoto announcement reduced the figure (by 35Mt CO<sub>2</sub> equivalent) to 37% above 1990. Then the PM's measures found another 26Mt to save, through such things as the "mandatory" target on renewable electricity, bringing the excess over 1990 to 28%.

In effect, the 8% overall increase over 1990 (what Australia agreed to at Kyoto) is applied as follows:

- 17% of the aggregate 1990 base is added to 1990 energy-related emissions
- 1% of the aggregate 1990 base is added to agriculture's 1990 emissions
- 3% of the aggregate 1990 base is subtracted from land-use and forestry's 1990 emissions (that is land-use other than land clearing), and
- 7% of the aggregate 1990 base is subtracted from 1990 emissions attributed to land clearing.

The point is, that by the yardstick of government policy, the Kyoto target will be satisfied without further measures like a tax. This is not to say that the task is easy — certainly when the impossibility of lifting renewables to 11.5% of generation within twelve years is factored in. But, by the principle of differentiation outlined earlier there should, in fact, be a surplus entitlement that can be sold in order to recoup some of that cost — the extra medicine that will spill into Australia's measure — which will be incurred by firms and industries through trade effects.

The questions then become: by what method should that surplus be levered out for sale?; and who owns the property rights in such savings (which might be “banked” or sold internationally)?

Having the Government own them — by implementing a tax system, and by default — would not engender confidence that the opportunity is being taken to maximise the value of the target entitlement. If a surplus is to be generated and traded, tradable permits would represent a decidedly more efficient instrument.

I don't comprehend any argument for taxing carbon or carbon emissions in Australia, of all countries. If the motivation is revenue, there are less damaging targets (in consumption, certainly, rather than production). If the motive is to free some of the emission entitlements implicit in Australia's target for overseas sale, then let the market decide how many to release. Government pricing of carbon emissions is a sure-fire recipe for “government failure”.

