Economic Opportunities in Sustainability

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We are on the verge of an enormous industrial transition, one based on the principles of sustainability. For those businesses in Australia that have not woken up to the importance of sustainability, here is a question:

Why is it that many of the world's biggest corporations are attempting to build sustainability into the framework they use for doing business? It is no longer possible to dismiss it as a fad. The pressures can only intensify.

These major corporations understand that it is increasingly difficult to prosper in today's world if they do not accommodate the concerns of the range of community interests. While governments may have become more reluctant to impose restrictions and conditions on business, civil society has become more vigilant at exposing and punishing firms that contravene social norms.

The case of Monsanto rightly sends shivers down the spines of executives everywhere. Here was a corporation – the world's biggest GM company – that thought it had all of the answers. It even thought it knew better than the community how to pursue sustainability. With an arrogant, one-size-fits-all mentality, and a tendency to believe its own PR about how its GM products would save the world, it handled its entry into Europe so badly that the company was virtually destroyed.

Another object lesson in how we ignore sustainability at our peril has been provided by the foot-and-mouth and mad cow disease outbreaks in Britain. As the magnitude of the foot-and-mouth disaster dawned on the British Government, Prime Minister Tony Blair mused in public over whether cheap food from industrial farming was worth the risk, and what it would cost to make British farming sustainable. Britain has learned what it costs to be unsustainable.

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[1] Most of this lecture is drawn from material in my forthcoming book titled *Running From the Storm: The development of climate change policy in Australia* (University of New South Wales Press 2001). References for quotes etc can be found there.

Europe shows one future path for Australian farming: highly intensive farming based on feedlots, fertilisers and an increasingly fine sub-division of tasks – production line farming that allowed foot-and-mouth to spread with frightening speed.

Cows that eat grass do not catch mad cow disease. Beef farming in Australia is much less dependent on intensive feedlots where cows are served up the pulverised brains of their kin. Cows that wander over paddocks are also much less likely to catch foot and moth disease than herds standing flank-to-flank in muddy pens. Yet the pressures to intensify farming are being felt in Australia.

At present, Japanese consumers are willing to pay a 20 per cent price premium for Tasmanian salmon because, unlike salmon from Canada, it is free of salmonid diseases. Yet Tasmanian salmon farmers are fighting a rear-guard action against a determination by the WTO that Australia must allow imports of salmon products that may carry diseases.

Australian agriculture manages to retain a 'clean and green' image that translates directly into a marketing advantage, and the comparative 'naturalness' of Australian produce is exploited to the full in our marketing abroad. In a real sense our status as a biological island is now the basis of the 'comparative advantage' that Australian agriculture enjoys and, as wealthy consumers become more discriminating, it can only become more valuable.

But this advantage would be swept away by a few outbreaks of foot and mouth or a few beef contamination scares. Of course, the clean green image is something of a façade. Australian agriculture has developed through systematic degradation of the natural environment, and only in the last decade or two have physical barriers – limits on water, death by salination and crippling weed infestations – forced primary producers to confront sustainability as a matter of survival.

The enemy of sustainability is short-termism, a mindset that has dogged Australian business and politics since white settlement. We refuse to think about the future. Oddly enough, there is a lot of money to be made by those who are willing to think a little more about sustainability. For instance, in NSW, the Sustainable Energy Development Authority has been helping businesses invest in energy efficiency, and internal rates of return of 35% are common. In other words, money invested in

improved energy efficiency has a pay back period of a couple of years, and it is clear profit thereafter.

The people who advise the Federal Government on climate change say that this is impossible because all businesses behave rationally, just as they do in the textbooks. The Executive Director of ABARE, Brian Fisher, is in the habit of saying that if there is $10 lying on the ground then someone will pick it up. So there can be no energy saving free lunches. But in real life, the $10 may be hidden under a rock. The role of SEDA is simply to lift up the rock.

There are some nice stories. At the urging of SEDA one company, a NSW registered club, employed an expert to do an energy audit in order to reduce its crippling electricity bills. The auditor decided to have a look at the lighting and went up into the ceiling to get a top-down view. He discovered that it was a false ceiling, that the old ceiling still was till there with its lighting, and that the lights had been left on. The lights were doing a very good job of illuminating the cavity between the ceilings, and the club slashed its energy bills by turning off a switch.

The Kyoto Protocol

Let me turn to the issue of climate change, for here we have an environmental problem of frightening proportions, but one also that provides enormous opportunities to reward innovative responses. Western Australians ought to be especially concerned with the issue, for there is a serious question about just how livable southwest WA will be if nothing is done. The CSIRO's best projections show that by 2070n the region is expected to be on average 6 degrees warmer. Imagine living through a Perth summer in which the number of days with temperatures over 35 degrees doubled or trebled, the likely outcome.

In addition, the CSIRO projections show serious drying the southwest WA, with a 60 per cent reduction in rainfall in winter and spring and, possible, autumn by 2070. A hot dry region will become a lot hotter and a lot drier.

How has business reacted to the unfolding events around climate change? Within weeks of the Kyoto conference at the end of 1997 a vital question emerged: Would the Protocol induce industry to embark on an investment wave that would take the

world into the next energy revolution? Or would the agreement be undermined by filibustering, exploitation of loopholes, and refusal to comply? The response of industry is therefore pivotal to the success of the agreement.

The early signs were positive. After Kyoto, business opposition to emission reductions began to splinter. A growing number of oil company executives shifted away from their hard-line oppositionist stance and accepted the science on global warming. In the months after Kyoto, senior executives from British Petroleum (BP), Royal Dutch Shell, Texaco and Sun Oil made public comments indicating that they now took climate change seriously and that oil companies will need to make substantial changes. According to the *Washington Post*:

> One oil industry official recently warned his colleagues not to fall into the trap faced by the tobacco industry, which for years denied that cigarettes were addictive.

Despite continued and powerful opposition from some quarters, the Kyoto agreement appears to have stimulated a significant reorientation of thinking in the board rooms of the world's major energy producing and energy using corporations. Interest in substitutes for fossil fuels has been boosted. Big corporations including Enron and BP (now merged with Amoco) now dominate the solar energy industry, previously the preserve of small, innovative venture capitalists and ethical investors.

The wind energy industry is booming internationally with over 20,000 turbines producing electricity worldwide. The European Union expects to increase the contribution of renewable energy sources from 4 per cent to 8 per cent of the total by 2005 with wind energy playing a major part. Installed wind energy capacity has been growing at 40 per cent a year since 1991. In some countries wind energy is already competitive with fossil fuel power even without accounting for the environmental benefits. The unit price of wind energy is expected to fall by another 20-30 per cent over the next several years. The wind industry is also a major employer. In Denmark it now employs more people than the fishing industry.

The *Financial Times* reported late last year that investor interest in renewable energy companies had 'swung dramatically' over the previous few years with most interest in

wind power systems. Investment in wind power is expected to total US$27 billion between 2000 and 2005 and by 2020 global wind power generation will be equivalent to 200 large power stations. The four biggest companies in the solar power field are large enterprises – Germany's Siemens, Kyocera and Sharp in Japan and BP in the UK.

Attitudes in the auto industry have also changed. While we should treat stories of revolution in the auto industry with caution (as it is a frequently observed sociological fact that Americans are addicted to gasoline), vehicle technology is undergoing a transformation. Within the next decade or so, zero-emissions technologies such as fuel cells will become commercially viable. Already hybrid vehicles, such as Toyota's new Prius models, with half the fuel consumption of current new vehicles, are being produced in large numbers at close to competitive prices. Honda, Ford, General Motors and Chrysler are all investing heavily in fuel cell, electric and hybrid vehicles. One senior Ford executive has predicted that by 2015 barely half the cars will have internal combustion engines and the president of GM was widely quoted as saying that the end of the internal combustion engine is now in sight.

To the surprise of almost everyone, the world's business leaders meeting at the World Economic Forum in Davos last year declared that climate change is the greatest threat facing the world.

Australian business reaction

What can be said about Australian business reaction to the Kyoto Protocol? It was not long before the Kyoto agreement began to expose cracks in the previously united front of industry in Australia. The natural gas industry, in particular, had unaccountably maintained a position of public solidarity with the other fossil fuel industries, even though it was apparent to everyone that natural gas, with half of the greenhouse gas emissions of coal and oil per unit of energy delivered, would be the big winner from any requirement to cut emissions.

In 1999 it was reported that the Australian Gas Association (AGA), under its new Executive Director Bill Nagle, had broken away from the main fossil fuel lobby group, the Australian Industry Greenhouse Network (AIGN). The break caused considerable anxiety among some executives of gas companies, especially those whose interests overlapped with coal and oil.

But the commercial imperatives would win out. The AGA released a report in February 2000 confirming that electricity from gas-fired generators has around half of the greenhouse gas emissions of coal-fired electricity (AGA 2000). One of the biggest gas companies, AGL, went further. In a submission to a parliamentary inquiry in September 2000 it argued that:

> The Kyoto Protocol represents a critical first step in the process of reducing global greenhouse gas emissions and, as a wealthy nation with one of the highest per capita emissions, Australia has a responsibility to take a leadership role internationally.

AGL criticised the approval of new coal-fired power plants in Queensland, called on the Government to ratify the Kyoto Protocol without delay, and supported the rapid introduction of a domestic emissions trading scheme.

Late last year, BHP, under its new American managing director Paul Anderson, released a proposal for implementing 'credit for early action' based on the introduction of a domestic emissions trading system in advance of the international one. BHP's move caused anxiety within the BCA, but it was only pursuing its long-term commercial interests, since it figured it could cut its emissions fairly easily, perhaps more easily than its competitors.

The Howard Government was embarrassed in June 1999 when the Prime Minister's Science, Engineering and Innovation Council (PMSEIC), which draws together high-powered business interests and eminent scientists, issued a report that urged the Government to go from a defensive to an attacking position on climate change policy. The report noted that Kyoto is a watershed in the global greenhouse debate and argued that it is a powerful instrument of change that is ignored at great cost. It drew an analogy with earlier industrial and social movements.

> In each, attitudes changed from defence and denial, to recognition of opportunities, and ultimately to the realisation that what is right for the community in the long term can be good for the growth and profits of industry

> … Increasingly the world's major corporations accept this transition. …. The working group believes … that those industries and countries which choose to do nothing may well in the long run be seriously disadvantaged …. If we wait for ratification while other countries act, Australia runs the risk of missing out on global opportunities, and may be left behind in terms of greenhouse compliance (PMSEIC 1999 p. 3).

The report went on to observe that 'Kyoto has created a new business environment in which new industries, markets and technologies can flourish' (PMSEIC 1999 p. 4) and urged the Howard Government to adopt policies that would see Australia capture at least five per cent of the huge world market for greenhouse technologies.

PMSEIC provided some examples of where the future lies. Visy Industries' new pulp and paper mill at Tumut in NSW is an example of world's best environmental practice. It will be more than 65% self-sufficient in energy, use minimal quantities of water and use waste wood, including thinnings from plantations as its raw material. All of this is built into the processing technology of the plant. It will use co-generation technology that captures and uses waste heat, and uses renewable biomass as far as possible.

The PMSEIC report lists a number of other projects that will make substantial contributions to sustainability, including the Axcess Australia Hybrid-Electric Car, a solid waste energy recycling facility planned for Wollongong, the Australian Ceramic Fuel Cell Corporation, vaccines for cattle that reduce methane emissions that may generate up to $600 million in emission credits, and Perth's Transcom Engine Corporation's natural gas vehicle technology.

The Howard Government buried the PMSEIC report. Despite the credentials of its authors, it is advice the Government simply does not want to hear.

The Hague Conference

Although The Hague conference broke up in disarray in December last year, it was apparent how much the world had changed since Kyoto three years earlier. Corporate and political acceptance of the need to act had spread to even some of the most

resistant quarters. The reaction of business groups to the collapse of the talks reinforced this perception. The representative of the International Chamber of Commerce declared: 'Business is disappointed with the outcome'. And it was scarcely believable to find Glenn Kelly, executive director of the Global Climate Coalition, the principal anti-greenhouse US business lobby, declare: 'American businesses looking for the rules of the road under the Kyoto protocol have been left high and dry'.

As the chief US negotiator Frank Loy observed: 'The consensus on climate change has deepened in the last three years. Nowhere is this truer than in the business community. They went to Kyoto largely to block action, but they have come to The Hague to contribute constructively'. A spokesman for General Motors said: 'It's not like we sent people over there to kill it. If we were given mandates, and targets to hit, there are a lot of technologies we have to meet them.'

The Hague Conference collapsed in the last days of the Clinton Administration, but it did so under the shadow of George W. Bush's imminent presidency. In March 2001, Bush made his infamous statement that Kyoto was "fatally flawed" and the US would not ratify. No-one in the Bush Administration was prepared for the extraordinary reaction from within the USA and, especially, from the rest of the world. Bush's actions served to unite the Europeans as never before. All of the major newspapers in Europe and the USA attacked Bush, and European governments used some very undiplomatic language to berate the US for its arrogant unilateralism, including the dubbing of Bush in the British parliament as the "toxic Texan". Japan's Prime Minister Junichoro Koizumi called Bush's repudiation of Kyoto 'truly deplorable'. While Bush's camp expected the issue to blow over, the attacks were unrelenting, and in an interview on his first hundred days in office Bush conceded that his handling of climate change was his biggest mistake.

The US pronouncement that Kyoto was dead in fact served to resuscitate it. For the first time, the question of trade sanctions against industrialised nations that refused to ratify was seriously canvassed. Britain's Deputy Prime Minister John Prescott warned the US of trade consequences and in early July this year the European Parliament, declaring itself 'severely disappointed' by the 'unilateral and non-cooperative' position taken by the US, called on the EU to launch initiatives under the World Trade Organization to prevent non-ratifying countries from securing any trade advantage.[i] The Howard Government should take note.

Within the US the reaction to Bush's repudiation of Kyoto was almost uniformly negative. Nor was it short-lived. *Business Week* observed that Bush's Administration 'was caught off guard by the negative reaction he has been receiving from corporate groups – usually a Republican's best friends'. The same magazine had earlier observed that 'business is increasingly convinced that a global accord to regulate emissions is inevitable' and that US industry fears that it will be shut out of the opportunities provided by emissions trading.

Increasingly, attention is being turned away from the costs of cutting emissions to the costs of doing nothing. A study released in February 2001 by Munich Re, the world's largest reinsurance company, estimates that damage from climate change could amount to US$500 billion by the middle of the century. The head of research at Munich Re was quoted as saying: 'There is reason to fear that climate change will lead to natural catastrophes of hitherto unknown force and frequency.' The November 2000 floods in the UK were a severe shock to the insurance industry, and it is likely that it will rewrite policies to exclude cover for this type of weather event in future. Property in some areas will become uninsurable leading to collapses in the property market for affected houses.

One insurance industry leader – Andrew Dlugolecki, the director of general insurance development at CGNU – told a meeting at The Hague conference that damage from climate induced disasters could soon exceed the capacity of the industry to absorb the claims. He quoted a sobering statistic: Global economic losses from natural disasters have risen at an annual rate of 10 per cent over the last four decades, reaching US$100 billion in 1999. At this rate, by 2065 the cost of damage would exceed global GDP, a disastrous situation. Yet this rate of growth of insurance payouts is entirely feasible. To avoid this outcome, Mr Dlugolecki called for a cut in emissions of 60 per cent 'very soon'.

These developments provided the background to the resumption in July of COP6 in Bonn. No-one was prepared for the astonishing agreement in which the parties resolved most of the outstanding issues. Although the agreement deviated little from the one that caused The Hague conference to collapse, the parties were determined not to allow the USA to undo a decade of negotiated progress. Delegates cheered and hugged each other as the gavel came down and UK Minister for the Environment

Michael Meacher described it as ‘a brilliant day for the environment’. The US head of delegation, Paula Dobriansky, was booed by delegates.

Environmentalists dubbed the agreement ‘Kyoto Lite’ for, at the insistence of Australia, Canada and Japan, it enshrined most of the loopholes they had resisted so strongly. But it was generally held that, in the circumstances created by The Hague collapse and the American withdrawal, something was better than nothing. There is a view that although the modified Kyoto deal will not ensure major cuts in emissions, it will send an unambiguous message to the business community that the process of cutting emissions is here to stay.

In Canberra, there is an inability to understand all of this. The Government is gripped by a form of autism; in the face of a new threat from the outside world, it retreats into familiar rituals involving talking up the mining industry, hoping that the threat will just go away.

Yet the last two decades of economic liberalisation have in fact seen extraordinary policy-induced restructuring of the Australian economy, affecting major export and import-competing industries. This experience suggests that some restructuring of industry should be something policy-makers take in their stride. However, this was not the case when it came to developing Australia’s position for the Kyoto conference at the end of 1997, and has not changed since Kyoto. The few sectors of Australian industry that might face significant relative decline arising from a vigorous greenhouse response have been seen as almost sacrosanct, to be protected without regard for the greenhouse implications and the inevitable adjustments that must be made over time, or the damage to the new industries that must replace them.

Deep cuts

Let me finish by taking a longer-term view. It is easy to become caught up in arguments over the detailed definitions and proposed loopholes in the Kyoto Protocol and to forget that its implementation would be no more than a small first step on the path to achieving a safe level of global greenhouse gas emissions. While climate scientists have made it clear that in order to stabilise climate change emissions must be cut by 70 plus per cent, the Protocol would require industrialised countries to cut their emissions by a mere 5.2 per cent, reduced to perhaps 2 per cent at Bonn. From

this perspective, The Hague and Bonn conferences can be viewed as a drawn out squabble over whether countries can avoid undertaking emission cuts that in themselves would make little difference (although it remains true that targets in subsequent commitment periods ought to make real inroads).

One of the more significant strands of debate now emerging is a proposal for 'deep cuts', emission cuts of 70 per cent or more by around the middle of the century. Such proposals describe detailed energy scenarios designed to achieve deep cuts including a range of efficiency measures and greatly extended use of renewable energy.

The most compelling is by the UK Royal Commission on Environmental Pollution. Its report, released months before The Hague, recommends that: 'The government should now adopt a strategy which puts the UK on a path to reducing carbon dioxide emissions by some 60 per cent from current levels by about 2050'. A study by the Tellus Institute described a similar emissions reduction path for the USA.

While there is no time to go into detail, there are several broad lessons for Australia when we take the deep cuts scenario seriously, as we must.

1. Global greenhouse gas emissions will need to be reduced to around 20-30% of their current levels by the end of the century or before, and rich countries like Australia may have to reduce their emissions by even more.

2. In describing energy scenarios, the first consideration is the rate of growth of demand for energy, which in turn depends on the rate of economic growth and the rate of progress in energy efficiency. Demand management is vital. We must cap the growth in energy demand.

3. Energy used for transportation will be based on hydrogen. In Australia, we should start planning for the transition from the carbon economy to the hydrogen economy, and instead of basing our economic future on our ability to dig stuff out of the ground, we should actively pursue a future in which we use renewable energy to make hydrogen that will fuel our cars and buses and power our houses.

4. Renewable energy from several sources will be the principal source of electricity.

5. Coal will continue to play a significant role only if there are cost-effective technologies for the capture of CO_2 and its long-term safe storage underground or,

possible, in the deep ocean. The need to dispose of CO_2 will substantially increase the cost of coal-fired generation.

6. Coal or gas-fired generation may survive in the longer term as a stand-by source of electricity to meet periodic shortfalls when renewable sources such as wind and tidal power are at a low point or to meet peak demand in very cold or very hot periods. Fossil fuels may thus become a reserve source of energy.

Studies such as those by the UK Royal Commission are extremely important because they show what is possible with some planning and political will.

While on the one hand the emission reductions mandated by the Kyoto Protocol are seen by some to be too difficult to meet, there is a sense in which they are in fact too small to be achievable. Cuts in the order of a few per cent turn out to be easy to meet through sinks, additional activities and flexibility mechanisms such as CDM. In other words, they are small enough to avoid through loopholes.

Deep cuts force us to imagine energy economies radically different from the present ones. Such a change also has the effect of engaging the public in a serious debate about transformation of the structure of the economy in a low-carbon future. Although the scenarios vary, one thing is clear: no matter what we do, the contribution of coal will fall drastically over the next 50 years.

Climate change is the international environmental issue *par excellence.* While there are no moral grounds for asking developing countries to begin restricting their emissions until rich countries have shown the way, in the long term, avoiding potentially catastrophic climate change will require coordinated global efforts involving all countries. But involvement of developing countries must be done in an equitable way.

The central notion that draws together these strands is the policy framework known as contraction and convergence (C&C), an idea that is destined to be one of the most far-reaching of the 21st century. The idea behind contraction and convergence is simple: global emissions of greenhouse gases must fall sharply (to 20-30 % of current levels) in order to reach a safe level (contraction) and the only fair way for this to happen is on the basis of equal per capita emissions for all people in the world (convergence).

It would require the nations of the world to agree that by some specified date, say 2030, the entitlement to emit of each inhabitant of the Earth would be the same, and

that this entitlement would gradually be reduced so that by some later date, say 2100, total global emissions would have fallen to 20-30 per cent of current levels. Instead of emitting around 27 tonnes of greenhouse gases, each Australian would be entitled to emit only one or two tonnes.

The attraction of C&C is that is takes a global approach to climate change based on equity, where equity is defined as 'equal rights to the use of the limited amount of the resources of the global commons that is consistent with sustainability'. At present, rich countries, and especially the USA, Canada and Australia, are grossly over-using the common atmosphere as a dumping ground for their wastes.

C&C would allow developing countries to increase their emissions per capita for a time, albeit at a slower rate, before needing to reduce emissions to reach per capita equality by the agreed target date. In the case of some of the poorest countries, per capita emissions may remain below the agreed per capita rate at the time of convergence on equal per capita rights. In that case, they would have surplus emission rights.

Trading in emission rights would be an essential aspect of C&C so that, beyond say 2030, if an Australian or an American wanted to emit more greenhouse gases into the global commons than they were entitled to then they would need to buy the right to do so from others with surplus entitlements – Bangladeshi farmers for instance. Trading would allow impoverished people to be rewarded for their abstemiousness in the use of energy, a fitting acknowledgment that their poverty has saved the world from an even more serious climate change problem. It would, moreover, result in a transfer of resources to poorer countries from richer countries, and especially from the most energy profligate countries, while acting as a strong incentive for everyone to reduce their greenhouse gas emissions.

Is contraction and convergence pie in the sky? There is no doubt that it is a radical approach with far-reaching implications for the management of the Earth's common resources. It would redraw the legal and ethical relationships between nations and initiate an era of supranational management of those environmental issues that cross national borders. Difficult, yes; but what is the alternative? In one form or another, the idea of contraction and convergence is gathering some influential supporters. They include: the GLOBE grouping of world parliamentarians, the heads of the Non-

Aligned Movement, the European Parliament, environment ministers from several countries, Klaus Toepfer (Director of the UN Environment Programme), Raul Estrada (Chair of the Kyoto Conference), Sir John Houghton (Co-Chair of the IPCC's Working Group 1), Jan Pronk (Chair of COP6) and the UK Royal Commission on Environmental Pollution. The framework has attracted strong support from governments and NGOs in the Third World. At The Hague conference, French President Jacques Chirac declared: 'France proposes that we set as our ultimate objective the convergence of per capita emissions'.

The practical and ethical arguments for contraction and convergence are compelling and the concept is likely to be one of the fundamental issues of the century as the Earth becomes hotter than it has been for tens of thousands of years, as the oceans lap lands that have not felt the sea for just as long, and as countries rich and poor are visited by more and more extreme weather events. Convergence on equal per capita emissions is a particular challenge for countries with high per capita emissions but its ethical foundations are unassailable. Australia's per capita emissions of 26.7 tonnes of CO_2 per person may well be the highest in the world. Contemplating a reduction to a sustainable global level of around one tonne per person ought to concentrate the minds of politicians and bureaucrats, as well as those of ordinary citizens, and will make the quarrelling over the minor cuts agreed at Kyoto appear inconsequential.

[i] *Environment News Service*, July 6 2001