

Climate Change, Emissions Trading and the risk to the Economy

One of the greatest issues facing the world today is climate change and the uncertainties it may bring for environmental, social and economic stability.

Scientists have been studying the Earth's climate for centuries, and predictions of global warming have been documented for years; however, it is only recently that global warming has become an International epidemic. There is now no doubt that the Earth is indeed heating up, although there is still much debate over the foremost cause of worldwide temperature increases (and subsequent environmental effects). Greenhouse gases and their absorption into the atmosphere as a result of human activity has been ranked number one on the list of external influences in climate change.

With an uncertain future ahead, and ambiguous substantiation of scientific studies, prediction models for best- and worst-outcome scenarios may not provide a precise picture of impending climatic outcomes. The main issue now is not whether climate change is occurring or not, but whether the world is environmentally, socially, and economically prepared for the worst-case scenario of climate change.

Research into predicted outcomes of climate change has been conducted in an attempt to model global environmental and economic future. These outcomes vary greatly between countries depending on location, current economic stability and financial capacity to cope with changed made to the current standard of living. *How industries and economic systems cope with climate change impacts depends not only on the extent and rate of climate change, but on the capacity of industry to adapt.*¹

Climate change is a major business risk. As uncertainty increases risk, investment which is required to maintain and grow infrastructure is reduced or delayed.

In Australia, the two industries most at risk from climate change are agriculture and tourism. The tourism in Australia is currently valued at around \$32 billion, with the Great Barrier Reef supporting \$1.5 billion alone. As a result of temperature increases due to greenhouse gases, 60% of the Great Barrier Reef could be bleached with just a 1°C increase from current temperatures (this outcome is in addition to the amount of reef that has already been bleached). Loss of the tourism industry would put the Australian economy under enormous strain, and thus impacts from an environmental view need to be given high priority in projection models.

Agriculture has already suffered a massive blow to its industry with the drought costing Australian agriculture \$13 billion by 2003 and over 70,000 jobs. Climate change will only worsen environmental settings in Australia with NSW predicted to see a 70% increase in drought conditions following a 1°C increase in global temperature. Irrigation will also be majorly affected by reduction in water flows, increased land degradation and salinity which will further reduce yields. Ocean fishery produce are also likely to decrease with increasing temperatures due to warmer oceans and shifting currents. Forestry is forecasted to be the least affected industry, however, lower rainfall and higher risk of bushfire, drought, pests and storms will reduce earnings in regional areas reliant on forestry as a source of economic growth and income.

Emissions trading is one option being considered as a way of reducing carbon emissions (CO₂), and carbon emission equivalents (CO₂e), thereby reducing the effects of man-induced atmospheric gases on global temperature.

How does an emission trading scheme affect business?

Putting a price on carbon, a reasonably low price, in my opinion, is going to encourage technological innovation, is going to encourage alternative sources of energy, it's going to encourage conservation. (Professor Warwick McKibbin)

¹ Australian Business Roundtable on Climate Change, *The Business Case for Early Action*, April 2006

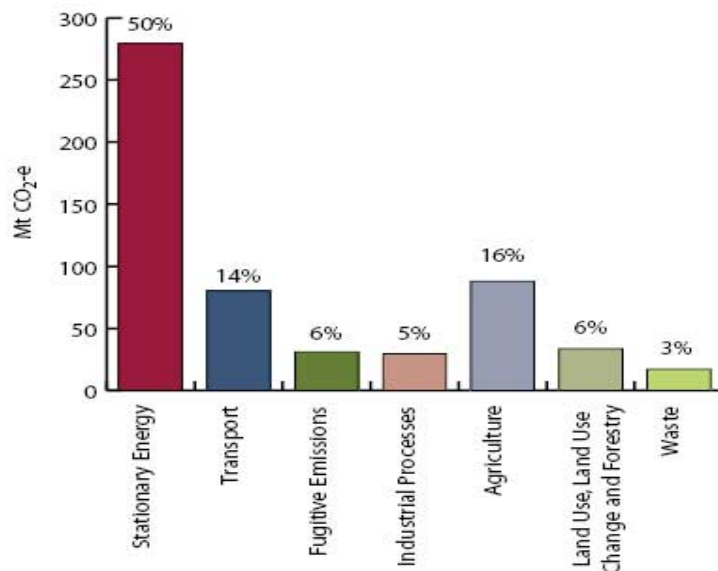
Trading schemes have been in play since the 1960's when the US priced emissions with the view of reducing nitrogen and sulphur oxides in the electricity industry. The most common type of trading systems, and the one being assessed for Australia, is the 'cap and trade' scheme. Under this scheme the government sets a limit on greenhouse gas emissions (i.e. a target or cap) and then distributes tradable permits up to that limit. Businesses will need to hold enough permits to cover the amount of greenhouse gases that they emit per year, with each permit being equivalent to a specified quantity of gas (e.g. one tonne of CO₂-e). The price of permits will be determined by the supply of and demand for permits. The introduction of trading will encourage businesses to find least-cost ways of reducing emissions while still allowing emissions that are most costly to reduce.² Offsets such as forest plantations ('carbon sinks') will also be encouraged for trade under an emissions trading scheme. In order for trading of emissions to be successful a non-compliance regime must be established and a method for monitoring compliance be developed. The time frame for adjustment must be realistic and should allow for a degree of on-going flexibility.

In Australia, the Prime Minister announced the establishment of a joint government-business Task Group on Emissions Trading in December 2006. The Task Group has the role of advising on the nature and design of an effective global emissions trading scheme, and steps that could be taken within Australia that would be consistent with the goal of establishing such a global network. The Task Group submitted their report to the Prime Minister on 31 May 2007 outlining what methods an emissions trading scheme in Australia should follow in order to be successful in reducing emissions at the lowest cost possible.

Who will be Affected by Trading?

Initially, all businesses that emit up to a specified number of greenhouse gas emissions per year will be required to purchase trading permits except for agriculture and land use. Some businesses who are identified as likely to suffer a disproportionate loss of value due to the introduction of carbon prices will be allocated an up-front, once-and-for-all free permits as compensation. How this will be decided upon has not yet been confirmed. Obviously, different industries contribute different amounts of greenhouse gases every year. Thus, some industries will suffer more from carbon pricing than others. The following Figure shows emissions by sector as of 2005.

Figure 1. Emissions by Sector (2005)



Source: AGO

² Australian Government Prime Ministerial Task Group on Emissions Trading, *Report of the Task Group on Emissions Trading*, May 2007

Currently, stationary energy contributes the most to greenhouse gas emissions. Stationary energy includes emissions from electricity generation, and from fuels used in manufacturing, construction and commercial sectors as well as other sources such as domestic heating. The other industries that emit the majority of carbon emissions in Australia are agriculture and transport³. Considering that initially agriculture will be void from the trading system, the two industries most directly affected will be energy and transport. Indirectly however, there will undoubtedly be offset costs such as an increase in the cost of electricity in order to compensate for the extra outlay required by businesses. Thus, everyone will be affected by the introduction of emissions trading.

Common Misconceptions of Cap-&-Trade

The most common misconceptions about the proposed cap and trade are as follows:

- Renewable energy projects create credits (for sale to coal-fired generators);
- Baselines are set for each company and permits awarded accordingly; and
- Each sector has its own cap.

The first of the misconceptions as outlined is the most pervasive. Renewable energy projects such as wind, wave & solar will not create offset certificates for sale to carbon-producing energy generators, rather, renewable energy projects do not have to BUY permits in order to produce energy. This does not mean that the energy produced from these sources will be any cheaper than emission producing technologies either, as they are price takers in the electricity markets of Australia, therefore they will charge the “going rate” for their power. Similarly if as an organisation in (say) manufacturing you create emissions in the process of making your product, buying power from renewable sources will not offset your own liability.

The second and third misconceptions are closely related. The baseline for emissions trading is to be set for the entire nation, across all sectors. Once the permits have been created, if businesses can't get them allocated (and SAHA expect that any allocations will be hotly contested), and if the business is not within a trade exposed export industry, then that business will have to buy permits from the same pool as everyone else. Therefore manufacturers will compete with transport companies and with (fossil fuel) generators for sufficient permits with which to operate their business. The determination of each company's permit requirement is expected to be self managed, and the penalty regime sufficiently stringent as to enforce compliance.

No-one is going to tell you how many permits to buy, or give you any for free.

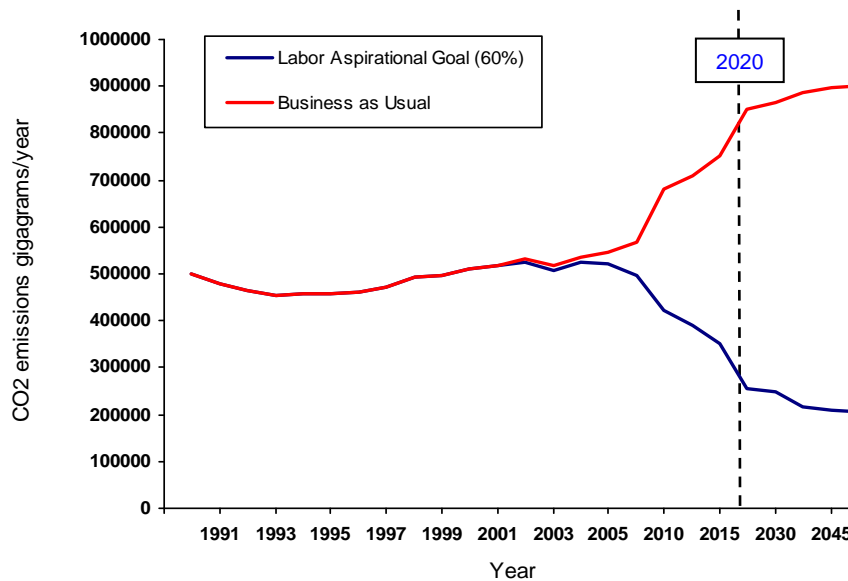
Time Frames and Aspirational Goals

The Labor party headed by Kevin Rudd has committed to implementing an emissions trading scheme by 2010. Under advice from the Business Roundtable on Climate Change, the Labor Government has set a national target to reduce Australia's greenhouse gas emissions by 60% by 2050 (relative to the levels recorded in the year 2000). In addition to this, the Labor Government intends to have set a uniform mandatory renewable energy target and have it in force by the end of 2008. This will set up the nation on the right path to achieve the goal of having 20% of electricity supply (approximately 50,000 GWh or about 3.5 Loy Yang Power Station assets) generated from renewable energy sources by 2020. As a starting point, the Government will allocate \$50 million from the Renewable Energy Fund (of \$500 million) to assist companies seeking to develop geothermal energy with the cost of drilling geothermal production wells.

Based on the Labor Government's goal of a 60% reduction in greenhouse gases from 2000 emissions records, the projections could look similar to the following Figure:

³ ALP policy at this time does not exempt the transport industry from participation, however transport inclusion in the emissions trading scheme will be subject to the modelling outcomes of the Garnaut Report.

Figure 2. Australia's Projected Emissions by 2050 based on a 60% reduction



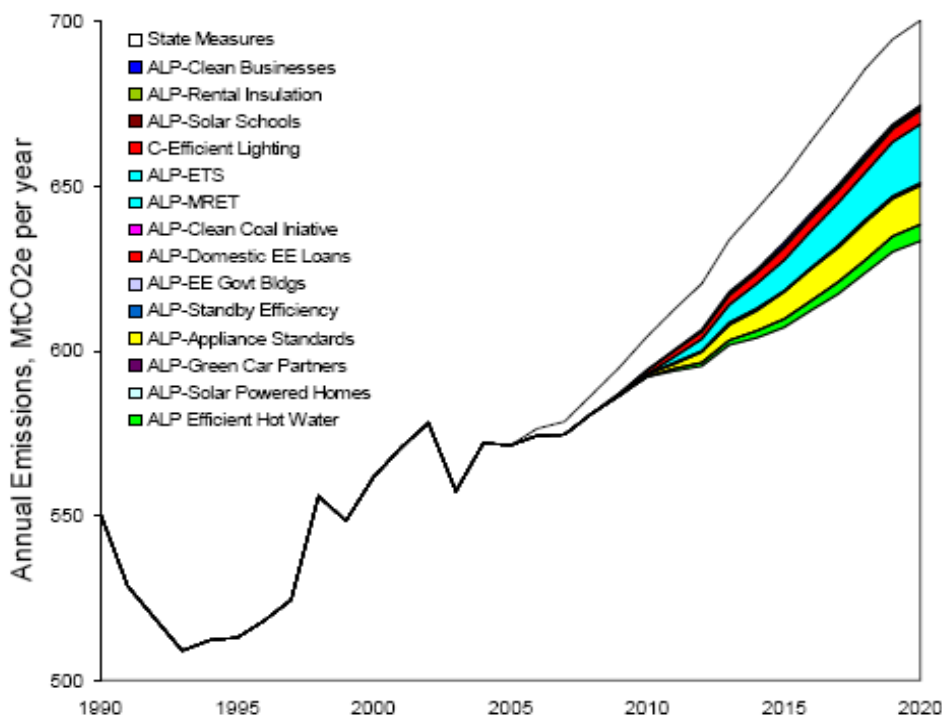
(Numbers extracted from www.ageis.greenhouse.gov.au – Australia's National Greenhouse Accounts: Emissions data)

The Australian Greenhouse Office has projected that *Australia's climate change pollution from energy generation will increase to 146% of 1990 levels, and industrial greenhouse emissions to 153% by 2012.*⁴, as reflected in the business as usual case in Figure 2 above. So, based on these numbers and growth trajectories, dramatic action is needed sooner rather than later to effect a change in the growth of emissions.

The growth trajectories referred to above form the central platform for current debate in Bali - the trajectory of the Labour aspirational target curve in the immediate period, ie to 2020. Australia is under mounting pressure to commit to emissions reductions of between 25% and 40% on 1990 emissions levels by 2020. This is a significant number. The (current) ALP climate platform falls far short of even the 25% reduction target. The Climate Institute assessed the emission reductions under all proposed ALP policies during the recent Federal Election and have ascertained that Australia will still see an increase in emissions. The graphic of policy impacts from the business as usual trajectory is shown at Figure 3 below.

⁴ Climate Action Network Australia - <http://www.cana.net.au/kyoto/template.php?id=3>

Figure 3. Impact of all (current) ALP Emission Reductions Policies by 2020



The cornerstone of the ALP's Climate Policy platform is the sourcing of 20% of all energy from renewable sources by 2020 (the 20% MRET & ETS section in Figure 3 above). This policy platform is being called into question as to achievability, and it is widely believed that regardless of the amount of money thrown at the problem, the solution may be unfeasible.

Putting aside any practical barriers to achieving 20% of generation from renewable sources, the fact still remains that all the above policies combined still result in a 15% increase in emissions on 1990 levels – a far cry from the required 25% to 40% decrease.

The Price of Carbon

How much businesses will have to pay for emission permits depends heavily on the aspirational target set by the Government for future emission reductions. Labor has currently set a long-term goal of a 60% reduction of 2000 emissions by 2050. At this stage no interim targets have been set although they should be announced by mid to late 2008. Thus, costing of permits is difficult to accurately predict. However, based on the targets laid out in the Kyoto Protocol which has an approximate 35% reduction in (BAU) emissions, the cost is estimated to be around AUD20-25⁵ tCO₂e (i.e. \$20 - \$25 per one tonne of carbon emission). This target of 35% is thought to be not high enough to make a significant impact on the overall effects to climate change and a much higher target needs to be set for the long-term. Based on the next phase of anticipated reductions, businesses may be looking at a cost of around AUD65⁶ (i.e. \$65 per one tonne of carbon emission). Such a price will undeniably put a lot of strain on the economy in more ways than one.

SAHA are currently undertaking a study into the impact of (cap and trade) emissions trading on electricity prices in conjunction with Global Energy Decisions, which will be available in January

⁵ The Western Australian Greenhouse and Energy Taskforce predicted, in its December 2006 report, that a carbon price of A\$25/t is likely by 2020, plus the estimated cost of Carbon Capture and Storage lies in the range of US\$25-55/tonne as suggested by ABARE & IEA studies.

⁶ Benchmarked to Phase 2 of the EU ET.

2008. At a minimum however SAHA can confidently predict that the creation of effective “permits to do business” that are required to be purchased by a large number of businesses (900-1000 facilities/businesses are expected to participate in the initial emissions trading market) will create significant inflationary pressure in the economy.

If you are in business of any kind, you need to self assess your exposure to carbon – both the carbon that you produce and the carbon created for your inputs (eg electricity). Business risks could be as simple as quantifying the risk of increased input costs or as complex as having to participate in the emissions trading scheme. At either end of this spectrum it is important that business be aware of the risk, and at least assess their own carbon footprint

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