

THE AUSTRALIAN GREENHOUSE STORY

(In 7 papers)

Paper No. 6 – **But There's More**

In 2004, the world emitted about 7 billion tonnes of carbon. A fair mid-range estimate would see this increase to about 14 billion tonnes a year by 2054 under 'business as usual' condition. These figures demonstrate that a huge problem exists in that the world want business to continue as usual because by and large financial results for over a decade have been excellent. However global warming is worsening at a very rapid rate. This in turn, in Australia, is causing increasing alarm and also disagreement within the community and an inability to agree on possible solutions. As a result Australia is currently making no headway at all in solving the problem.

Perhaps we should change the approach and forget about reducing carbon in the atmosphere, at least for the time being. Instead, we should consider concentrating on preventing its increase over the next 50 years? This is not a new idea, it originated at Princeton University last year, the work of Robert Socolow and Stephen Pacala. The change in focus and a reduction in the size of at least the immediate problem, may help in our search for solutions by bringing that problem to a level we can comprehend.

Using some of the commonly suggested means for GHG emission reduction let us consider what this would require (worldwide):-

- **Wind Energy** – about 7 million additional wind turbines each producing about 2 megawatts which are situated in 'best available' wind generating sites; or
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- **Solar Energy** – about 35 million acres of photovoltaic cells situated in 'best available' solar energy gathering sites; or
- **Nuclear Energy** – about 3090 new nuclear power stations (currently 441 exist) which would also create a 700% increase in nuclear waste although the site conditions might be a little bit less demanding; or
- **Geosequestration (CCS)** – about 24,500 projects of approximately the same size as the Seipol project currently operating in the North Sea and conducted by the Norwegian oil company Statoil. (Seipol removes CO₂ from LNG on site and is consequently far less costly than CCS applied to coal fired energy production).[A similar project on a much larger scale is proposed at Barrow Island off the West Australian coast]

Any one of these would be the 'price' to be paid worldwide to retain the present level of GHG emissions based on current technology. Australia's share might be attainable; but conditions apply:-

- There would need to be an almost immediate start on the process because the requirements increase with each year we

remain idle and infrastructure for increased emissions is being built into the system daily.

- An immediate start is also needed because new GHG production once undertaken is, in a sense, irreversible due to the extremely lengthy period CO₂ remains in the atmosphere.
- The possible solutions are not likely to be universally applicable and/or universally acceptable.
- The task of maintaining the status quo for a further 50 years (after the initial period), let alone achieving any reduction in carbon levels, would be an even greater task than is envisaged for the initial 50 year period.

However there are positive aspects. It is fair to assume, under reasonable conditions, that technology will improve and could improve rapidly. If we could underpin a 'no increase' policy with an emissions trading market producing a reasonably acceptable and relatively stable increase in the cost of electricity, incentives should result that, in turn, would provide the necessary funding for a range of emission reduction projects.

What is clear from the estimates for providing a 'no increase' policy is that the very size of each of the means suggested leads to a conclusion that there must be diversity in their provision. We certainly need to introduce 'new' energy sources that do not emit carbon. We also need to remove as much carbon as possible from existing energy sources during their use and prevent carbon entering the atmosphere. But as well as these we need to start the long process of reducing our dependence on, and over-use, of energy from whatever source. This in turn, it is suggested, necessitates a clear and

comprehensive explanation by government to business and business organisations, trade unions and people at large that pulls no punches. An understanding of the enormity of the problem by the general public is long overdue if their co-operation is to be earned.

To make that point clear, there should be no mistaking our present predicament. The comprehensive ice core climate records we now have go back for four full glacial cycles and they show we are rapidly approaching the temperature peaks of the last interglacial. At the same time, CO₂ once it enters the atmosphere takes a long time to leave and consequently to turn conditions around becomes exceptionally difficult the longer the remedial processes are delayed. The world isn't yet approaching the peaks of the Eocene but far less than they are quite enough to cause massive damage on a continuing basis.

Sea levels of course are by no means the only problem that global warming is creating. Consider for a moment the impact that will be caused if monsoonal patterns start to change and, in consequence, the ability of about half the world's farmers to farm successfully is drastically reduced. Consider the changes already occurring in our neighbourhood to ocean currents and the resultant effects this is having on our weather.

But these are only the direct results. It is lack of food and water that will create refugees in huge numbers and bloodshed as people battled for possession of dwindling resources in an effort to stay alive.

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