

Submission No:10.....

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To: Committee, ISR (REPS)
Subject: Inquiry into the development of the non-fossil fuel energy industry in Australia:

**Parliament of Australia House of Representatives
Inquiry into the development of the non-fossil fuel energy industry in Australia:
Case study into selected non-renewable energy sectors**

Submission

It is encouraging for me as a member of the general public that the House is conducting a comparative study into selected renewable energies. I hope that the study will put into terms comprehensible to a lay person the merits and downsides for Australia of the energies nominated. To this end I am submitting observations on the two things that I, as a lay person, hope might come out of the Inquiry.

1. A comprehensive and reliable summary of alternative

My first hope is that more comprehensive and reliable summary information on the merits and downsides of the selected alternative technologies might become available, both for policy makers who are charged with energy policy for the future and for individuals who might be contemplating installing their own alternative energies..

On the basis of my reading and of a series of expert presentations to the Southern Highlands and Tablelands chapter of Engineers Australia (to which links may be found at <http://www.engineersaustralia.org.au/index.cfm?8D3518CF-D20C-219F-5472-9D5442F042C9>) summary information of a comparative nature on the selected technologies for Australia is far from being available in a coherent and reliable form.

The confusing and contradictory nature of the summary information available is hardly surprising. Only a few of the technologies appear to be anywhere near commercial application; some indeed such as hydrogen appear to have little commercial likelihood within our lifetimes. Some of the technologies would require large scale economies and hence distribution grids for their application; others could be suitable for small scale and local development. Some of the technologies might hold possibilities for base-load power stations (few seem to hold prospects for motive energy); others could be suitable to supply energy on demand (with or without improved storage technologies).

The confusion is exacerbated by the fact that many costings of alternatives have been based on overseas research and development whose relevance to Australia may be limited, given our limited technical expertise and venture capital and an energy pricing regime that does not currently cover the external costs (such as related to greenhouse and other emissions) of energy use (including combustion) and which is highly uncertain, given that neither major political party appears committed to regimes that might capture the costs of greenhouse and other emissions within a defined future. The confusion is further exacerbated by the often lack of distinction drawn between 'renewable' and other alternative energies (such as coal liquefaction and gasification) and the emphasis often placed on greenhouse and not other emissions.

My reading on the merits and demerits of alternative energies has been limited. On the matter of potential costs in particular it appears to me that a great deal of what has been published is optimistic

rather than realistic. Indeed, much of what I have seen appears to rest on blind faith and/or boosterism. The only rigorous attempt that I know of put current prices on wind, solar and geothermal alternatives is in Mark Diesendorf's *Greenhouse Solutions with Sustainable Energy* (UNSW Press, 2007), eg pp 125, 157, 164-5 and 243). I would note however that a more comprehensive comparison by my colleague Graeme Sanders, couched in terms of comparisons with a reference range of prices, will shortly be available on the website www.canwin.org.au.

2 Information on technologies for an immediate future

My second hope is that the Inquiry might bring the focus of the debate about alternative energies back to technologies that should be available in Australia for our immediate future.

Currently the public debate about alternative energies for Australia has focused on technologies that might be commercially feasible, particularly for base-load electricity generation, in maybe 25-30 years' time. Given the long lead times needed to develop both expertise and funding for base-load power stations it is appropriate for Australia to be thinking about technologies such as clean coal and nuclear reactors – as well as geo-thermal and solar thermal alternatives, so that we might put in place a strategy in place for replacing existing coal-fired power generators as they reach the end of their commercial lives.

However, we need to be thinking also about technologies that are commercially available now, or might soon be, that could enable smaller scale and more rapid increments to be added to our energy supply. I see two especial reasons for this

Firstly, while Australia's demand for energy is growing rapidly, the future trajectory of our demand curve is very uncertain, not least because of the probability that the world has passed 'peak oil' and needs for more electricity as one likely substitute (gas and maybe bio-fuels could be others) for the oil that currently accounts for a third of our energy needs. Because of this uncertainty it is hard to foretell the potential effects for us of putative emissions trading schemes or other means of managing demand. Given the large capital requirements of at least base-load power stations these uncertainties raise considerable investments risks (a reason no doubt why most base-load power stations have been built by the public sector). If investment doesn't match demand, erratic power supplies and prices will be a consequence of power supplies leading or lagging behind demand. *Smaller increments to our energy supply could reduce pressure on capital, allow for a quicker matching of energy supply and demand, and enable more localised responses to energy needs (such as local and private inputs into power grids).*

Secondly, globally demands for energy are rising even more rapidly in some less developed countries. Currently, Australia's response to this is to churn out more [dirty] coal as well as uranium oxide. This is hardly an enlightened response. Our energy exports do little for the emerging energy needs of the smallest and poorest of our neighbouring economies. They also do little for global greenhouse gas concentrations historically caused by the wealth of affluent nations. On the basis of Minister Campbell's media release of 23 May 2006 which put our [domestic] greenhouse emissions for 2004-5 as 'only 1.4% of global emissions' (the Prime Minister gave 1.6% to Parliament on 6 February 2007), the potential emissions of Australia's black coal exports in that year contributed a further 2.0% to global emissions (a total of 3.4% puts our emissions on par with those of Germany, the European Community's largest emitter). *An overseas aid program aimed at transferring small scale and rapidly established simple alternative energies to our poorest neighbours would be considerably to our economic as well as political benefit.*

Conclusion

Australia needs alternative energy technologies now and not in a generation's time. The Intergovernmental Panel in Climate Change (IPCC) should leave us in no doubt that continued burning of hydrocarbons, especially of fossil fuels, threatens the future of our species. Without alternative

energies now Australia cannot do our part to start addressing this at a time when global energy demand is accelerating.

It is regrettable that Australia, which was amongst the first countries to acknowledge the implications of human-induced climate change and which was amongst the progenitors of both the IPCC and the Kyoto Protocol in the 1980s, should have lost so much impetus in its alternative energy sector. However, regrets alone will not address the consequences quickly. We need alternatives energies now.

I suggest that two central questions for the Inquiry should be

- what might Australia be able to achieve nationally, say within the term of a single Parliament in the development of alternative energy technologies for its own and its neighbours emerging energy needs? And
- what more can our Governments do directly and indirectly, by way of research, seed money and ongoing assistance for venture capital, to get commercial developments of alternative energy onto the ground .

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