

**Submission to the House of Representatives Standing Committee inquiry
into developing Australia's non-fossil fuel energy industry.**

This submission has three objectives: -

1. To make brief comment on some basic economic and energy fundamentals pertaining to reducing greenhouse gases and the renewable energy sector.
2. To identify some issues in vital need of factual clarification by this Committee in order to resolve the current state of dispute between opposing vested interests and their respective publicity campaigns.
3. To provide information and references illustrating the extent of such disputes particularly in relation to wind energy that must be resolved to the satisfaction of the Australian Government and general public.

This submission comprises the following commentary; anecdotal experiences; quote references and has attached related supportive independent and media reports.

Points noted as "Queries" are those that I believe require particular scrutiny by the Committee in order to establish some truths; uninhibited by any considerations of environmental "political" correctness; to ensure that Australia's limited economic resources are not misdirected in addressing the challenge of climate change and reducing greenhouse gas (GHG) emissions.

1. Basic Assumptions

a) Objective:

That viable renewable energy sources are to be developed resulting in a reduction in emissions of greenhouse gases (GHG) from fossil fuel energy sources; predominantly coal.

b) Premise:

That whatever renewable technologies are incorporated must have the effect of actually reducing the amounts of GHG that emit from the chimneys of Australia's coal fired power stations. Anything short of this result means that technology is a waste of financial resources.

c) Economic assumption:

The argument against any given strategy to reduce GHG emissions that it will cause an increase in electricity costs to industry and the general consumer is largely irrelevant; it is the amount to which the cost of power will rise in relation to the actual reductions in GHG achieved for that increase in cost which is relevant.

It does not matter whether Australia develops nuclear power; clean coal technology; thousands of windfarms; new hydro schemes; a broad solar strategy; geothermal power plants; solar hot water services on every house; wave power; tidal power etc there will be a substantial investment cost that will ultimately be paid for by the electricity consumers of Australia. i.e. "The Economy"

Ironically even a national strategy of reducing overall energy consumption through energy efficiencies and utilising mass small scale power production on an individual basis (household and commercial solar/wind/methane/biofuel) would also result in higher per unit grid electricity costs because the privatised fossil fuel energy sector will have in their operating contracts provisions guaranteeing minimum levels of output. Impact on those minimum levels then the companies will need to be rebated.

However the fundamental truth is that the Australian economy cannot finance all options at all levels; and so it is incumbent upon government (this committee) to identify where best to direct the investment of our economy's not unlimited financial resources for the greatest effect in the short, medium and long terms.

To devote resources to any "underachiever" in the renewable energy field at the exclusion or limitation of a greater "achiever", albeit that the latter might be an emerging technology and not regarded as "mature"; would be a great mistake.

The arguments that any strategy or technology is justified as "at least doing something" or "being seen to be doing something" is a nonsense if the benefit in actual reductions in GHG from the system is marginal when compared to the cost of implementing the "something".

d) Renewable Technology Assessment

The assessment of the relative values of renewable technologies needs to take into account considerations of, but not limited to: -

- Cost of establishment of facilities
- Amount of reliable power generated by facilities
- Impact on the operations of the furnaces of coal fired power stations
- Suitability of a technology for the power to be utilised as "Base Load"
- Whether a technology is "stand alone" or must be utilised in conjunction with other forms of generation.
- If not "stand alone" generation whether it is suitable with both "fast-start" generation back-up and "slow-start" generation back-up.
- Return in actual reductions in GHG emissions for dollars invested
- Site specific technology (i.e. Areas not connected with the national grid)
- The existence of any collateral social; economic and environmental costs associated with the deployment of any technology.
- The relative economic benefits to the Australian economy of the various technologies. (i.e. All else being equal does one technology provide for greater jobs growth and export potential than another?)

2. Renewable Energy Technologies and Associated Issues.

a) Geothermal: The "utopian" technology.

Positives: -

- Completely clean in operation
- Continuous and abundant supply
- Inexhaustible.
- Variety of potential locations
- Reliable and available as "on demand" base load power at all times day & night.
- Virtually void of negative environmental impacts after construction
- Limited operational impact on surrounding region (visual; noise; smell etc)

Negatives/Queries: -

- Is geothermal infrastructure of the scale required to reduce Australia's GHG emissions in the period required by the demands of climate change too expensive for the economy to establish?
- Will the negative economic impact of substantially substituting the coal power industry by the geothermal power industry be too great?

b) Solar: The "sunburnt country" technology.

Positives: -

- Clean in operation
- Abundant supply
- Inexhaustible.
- Suitable types of solar options for use in all of Australia; rural and urban.
- Can be utilised at all scales from domestic household use through to huge solar power facilities of thousands of hectares.
- Industrial scale facilities can be located in regions of high solar reliability and a high degree of predictability.
- Broad range of technology types including new generation solar panels; photovoltaic; parabolic/trough solar collectors; solar assisted hot water systems etc.
- Virtually void of negative environmental impacts after construction
- Limited operational impact on surrounding region (visual; noise; smell etc)
- Significant manufacturing and export potential of new technologies.

Negatives: -

- Only available through daylight hours.
- Some intermittency in output levels due to localised weather conditions
- Currently limited technology potential for night mass solar energy storage other than through the collective benefit of solar assisted domestic hot water services.
- Cannot be relied on as "stand alone" power so must operate in conjunction with alternate base load energy sources.

c) Tidal & Wave Power: The "seachange" technology.

Positives: -

- Clean in operation
- Continuous and abundant supply
- Inexhaustible.
- Potential locations on virtually all of the Australian coast
- Reliable and mostly available as "on demand" base load power day & night.
- Limited operational impact on surrounding region (visual; noise; smell etc)
- Significant manufacturing and export potential of new technologies.

Negatives/Queries: -

- Is power generation able to reliably supply power to a geographic region or the grid in general without base load back-up?
- Will the power supply have any inherent intermittency particularly wave energy and to a lesser degree tidal energy during the short periods of tidal change?

- What is the potential for negative impacts on the marine environment in construction and operation?
- What negatives exist for other existing coastal uses such as boating, commercial and recreational?

d) Wind: The “disputed” technology.

Positives: -

- Clean in operation
- Abundant supply
- Inexhaustible
- Unlimited potential locations.
- Well suited to operation in conjunction with fast-start generators (e.g. diesel) in locations remote from the electricity grid.

Negatives: -

- Highly intermittent in operation and level of output due to the constant fluctuations of wind speeds over any period.
- Limited predictability in supply of the wind resource; particularly in the drop of supply i.e. the timing of the passing of a weather system and associated wind speeds.
- Requires constant base load back-up.
- Inefficient when operating in conjunction with slow-start generators.
- Significant negative operational impacts due to visual and noise imposts on surrounding region particularly when located in a populated area.
- Negative social/economic impacts when located in a populated area
- Negative social/economic impacts when located in areas of significant landscapes
- Significant negative environmental impacts to birds and bats after construction
- Limitations in grid capability to accept large input.

Queries: -

- Does/will wind energy into the Australian grid actually reduce the amount of coal required by the furnaces of the coal fired power plants and therefore reduce the amount of GHG emissions?
- Wind Energy Facilities (WEFs) are expensive; Victorian government target of \$2 billion of installations. Do any or all other strategies/technologies provide for greater actual reductions in GHG emissions for a comparable investment?
- Do the Wind Industry figures of power output versus cost input sustain robust scrutiny or are they simply an exaggerated sales/PR pitch?

3. Relevant References

- a) “Wind farms don't live up to the hype that they are an environmental saviour and a serious alternate energy source....they should not be allowed to get away with the exaggerated claims. Their claims are fraudulent.” — Senator **Peter McGauran, Australian Senate** *{If this is so then it needs to be ascertained once and for all – IL}*
- b) “Wind farms are an experiment, we won't know if they work until we build them”. David Young former CEO of the Sustainable Energy Authority of Victoria (SEAV) at the Bald Hills panel hearing.

- c) "We have no way of measuring the impact of wind farms on the La Trobe Valley generators".
Meagan Wheatley of Sustainable Energy Authority of Victoria at the Yaloak panel hearing.
- d) "I wouldn't be against them [large wind turbines] if they actually worked."
"Wind farms are only good for making politicians look proactive".
Professor James Lovelock, (Leading scientist on climate change) 60 Minutes, September 2004.
- e) "Reductions in fossil fuel consumption had not been measured empirically and it would be very difficult to do so". Meagan Wheatley, SEAV, 'Tradewinds' Forum December 2004.
- f) "Marginal benefits from additional wind power would be low, but not negative. The amount of wind capacity would have to rise dramatically in order to have an impact on the spinning reserve, and even the most ambitious plans for wind do not even approach this level." Independent report 'SPINNING RESERVE IN ELECTRICITY MARKETS – Implications on Fuel Consumption and Greenhouse Emissions' (Business Outlook and Evaluation) for Department of Sustainability and Environment November 2004. {Attached}
- g) Q: Given the number of turbines now in Victoria and South Australia has there been any measured reduction in coal consumption?
A: "No we are unable to ascertain that." Tricia Phelan, Environment Victoria.
(Public meeting 27 July 2006 at Foster, Victoria)
- h) Q: Considering the way electricity is bought and sold on the energy market isn't it most likely that one unit of wind power will replace one unit of either gas or hydro power rather than a unit of coal power?
A: "Um well the national grid and electricity marketing is a very complex process and certainly there is going to be a need for some changes in this process to make it work better"
Tricia Phelan, Environment Victoria. (Public meeting 27 July 2006 at Foster, Victoria)
- i) **Tim Flannery:** Radio National, broadcast 21 January 2007
(<http://www.abc.net.au/rn/nationalinterest/stories/2007/1815637.htm#transcript>)
Tim Flannery: Part of the problem with this too, is when we introduced the intermittent sources such as wind and solar, coal is a very bad partner for them because the old coal plants that I've looked at like up in Port Augusta in South Australia, take two days to crank down and to crank back up, whereas wind speeds may drop and come back over an hour. So gas is a fantastic partner, you have small, responsive natural gas base-load plants that work very well with wind.
Peter Mares: You can fire up as you need them?
Tim Flannery: That's right, but **coal is a terrible partner for the renewables**, so there's quite a fundamental conflict here that we need to look at in terms of our grid, and to try to get the right mix happening, get a very responsive, smart grid. This needs a lot of work, we actually need to go back to basics and say 'What will the grid look like? How will we regulate it? How will those various partners work together?'
- j) I once contacted a friend of a friend who is an operations manager at a Latrobe Valley power station (Name withheld from this submission) and asked about the impact lots of wind energy will have on coal consumption. He confirmed what I'd previously been told; when I asked if I could quote him he exclaimed "I can't possibly say anything about this publicly; I am in the coal power industry and we cannot say anything negative about any renewables!"
{This person or someone similar should be compelled to answer at this inquiry. – IL}

- k) The larger the share of wind power in a particular grid, the more standby power will have to be available in that grid. — World Wind Energy Association
- l) The main success of Danish involvement in wind power would appear to be the foundation of an industry producing wind mills. — Norwegian Water Resources and Energy Association
- m) The negative effects of wind energy use are as much underestimated as its contribution to the statistics is overestimated. — Darmstadt (Germany) Manifesto
- n) The irreparable ecological damage, loss of amenity and distressing divisions within communities caused by commercial wind turbines far outweigh any benefit of their insignificant and unreliable contribution to our energy needs. — Angela Kelly, Country Guardian, U.K.

CONCLUSION

The Wind Industry and the Victorian Government have over recent years attested to the great value that WEFs can make in supplying reliable, economical renewable energy and reducing the GHG emissions from conventional fossil fuel powered suppliers. The Victorian Wind Energy Guidelines were a collaborative effort by the Bracks government and the Australian Wind Energy Association.

I am not an electrical engineer but each one I have spoken to says that the claims are exaggerated at best and an erroneous “furphy” at worst. Attached are some reports and media coverage also sceptical of both the real benefits in emissions reductions and the true motivations of the Wind Industry and some state governments.

The debate is clouded by environmental political correctness; I once spoke with the then Planning Minister in Victoria Mary Delahunty on ABC talk-back radio seeking clarification about aspects of a preliminary landscape assessment produced on behalf of a wind energy company. Her opening statement to me was “Ian I am sorry to hear that you are opposed to renewable energy”. The quote above from a conversation with a La Trobe Valley power station manager that “I am in the coal power industry and we cannot say anything negative about any renewables!” is further evidence to me that the public and governments are not free to learn the full truth from both sides.

The current general mindset on climate change; GHG reductions and renewable energy is such that any speculation of a renewable’s value is some form of heresy; such a mindset leaves Australia and its economy open to exploitation by domestic and overseas corporate interests in a persona of “green overalls”.

I am told that the Victorian government: -

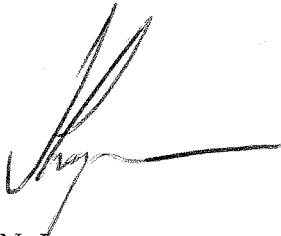
- Created a \$2 billion VRET subsidy that will flow mainly to the wind industry.
- Suppressed a report by Ernst & Young discussing the economics of wind.
- Suppressed a business impact assessment by the Victorian Competition and Efficiency Commission on the multi-billion dollar subsidy.
- Suppressed for two years an independent panel report into a WEF application in Victoria due to reservations expressed by the panel into aspects of the Victorian government Wind Energy Guidelines.

I urge this Committee to seek copies of the above reports from the Victorian Government for consideration in this inquiry.

I also understand that if the Victorian government subsidy was be used to give away 600,000 free solar hot water systems it would create jobs for Victorians, reduce energy bills and reduce emissions by a greater degree than the wind turbines.

What are the other similar economic equations relating to technologies and strategies and their respective rankings?

What I seek with this submission is that this Committee of Inquiry establishes on behalf of the majority of Australians who do not have the formal qualifications to determine absolutely for themselves the fact from the fiction; the vested interest from the environmental and economic reality of what strategy or technology does warrant the support of the Australian economy in its efforts to reduce greenhouse gas emissions while providing the base load power required to sustain Australia's economy into the future.



Ian N. Lyon

4/11/06
10/11/06

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Encl:

1. "Spinning Reserves in the Electricity Market" – Business Outlook & Evaluation (Nov. 2004)
2. "Regulatory Subsidies to Renewable Energy in Victoria" – Institute of Public Affairs (Feb. 2006)
3. "A Problem with Wind Power" = Eric Rosenbloom (2004)
4. "A guide to calculating greenhouse benefits of WEFs" – extract from the Victorian government Wind Energy Guidelines.
5. Critique of "Clean Energy Futures for Australia" – Ted Trainer, UNSW. (2004)
6. Article by Russell Broadbent MHR. (30 Dec 2005)
7. Two papers on health impacts of WEFs
8. Various newspaper articles.