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**Submission to the House of Representatives Standing
Committee on Industry and Resources**

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

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Executive Summary

The push for large-scale industrial wind power installations is being fuelled by an anxious public looking for a 'quick-fix' to the problems posed by climate change. This push is taking place in an information vacuum, because the general public does not have access to balanced information about the benefits and drawbacks of industrial wind power.

In this submission, we provide evidence that despite the claims of its promoters, industrial wind energy is an inferior option for Australia's renewable energy mix. Our evidence encompasses these broad themes:

- The limitations of industrial wind to displace fossil fuel electricity generation and its subsequent limited ability to "save" greenhouse gas emissions;
- The problem of connecting a variable, intermittent electricity source (wind) to the electricity grid;
- The misleading promotion of wind energy by the wind industry and its supporters;
- The negative effects of wind farm proposals and developments on rural communities; and
- Recommendation for more appropriate uses of wind energy, and practical strategies for energy efficiencies to reduce greenhouse emissions.

The lack of balanced information about wind energy stems largely from industrial wind proponents who make exaggerated claim about its benefits, for example the number of homes that a wind farm will 'power'; the amount of greenhouse gases that a wind farm will 'prevent the production of'; and the ability of wind energy to meet our growing energy consumption.

Furthermore, although the National Electricity Management and Marketing Company(NEMMCO) has highlighted the serious technical problems involved with connecting an erratic power supply like large-scale industrial wind power to the grid, the wind industry arrogantly dismisses these concerns as 'myths'.

Meanwhile, the wind industry says that the Government is stifling investment in the industry and demands that consumers be forced to increase their share of the bill for its dubious product by increasing the MRET scheme so that more cash can flow to the industry, even though it is unable to demonstrate that its product actually displaces coal-fired power generation.

In the midst of all this are the hapless communities who have been targeted by the industrial wind developers with their unwanted turbines. There is a disturbingly

similar pattern to the way almost all wind farm developers behave, including a failure to consult local communities in a meaningful way and take notice of their concerns. Industrial wind energy proponents completely deny the existence of any adverse impacts on communities targeted for industrial wind plants. Across Australia, communities are being severely disrupted and individuals face substantial losses, without compensation, as a result of having wind farms proposed or approved for their areas. Ordinary people are being forced into spending large amounts of time and energy to defend their life's investments against wind farms, whose greenhouse gas benefits are largely hypothetical.

Wind farm developers deliberately compound the problems they create for rural communities by signing up some landholders to "secret" deals, a recipe for division in these inter-dependant communities. Even if the wind farm does not go ahead, the social fabric of the community is torn.

Industrial wind farms have no place close to residential areas. Industrial wind developers do not propose their turbines for rural and rural residential areas because they are inherently windy sites. The attraction of these sites is that they are close to existing transmission lines, and plugging into existing infrastructure reduces their start-up costs. Sensible, National guidelines for the siting of wind turbines away from people's homes and areas of cultural and natural significance would overcome many of the problems that current wind industry practice creates for rural communities.

There are a number of viable, and better, renewable alternatives to industrial wind power. These include small scale wind generation such as those installed in small communities to reduce reliance on diesel generators. Other sources of power, such as geothermal and solar thermal, that are able – or have the potential – to replace base load coal-fired power generation should be given priority for funding and support over industrial wind power.

We support energy efficiency measures that would reduce the demand for electricity. These include government support for geo-thermal heating and cooling in all new government buildings, government rebates for geo-thermal heating in domestic homes, and mandating improved building standards.

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1 Introduction

Climate change, global warming and carbon emissions are hot topics. Open any newspaper, turn on the TV, listen to the radio and it is there, constantly. A frightened public is looking to Governments, both State and Federal, to miraculously provide a painless, quick-fix to the problem of global warming.

Unfortunately, many people have been misled into believing that the solution is easy – just erect a few big windmills to replace our dependence on coal. Television advertisements for an energy retailer show happy power workers plucking a coal-fired power station off the landscape and replacing it with three wind turbines. At a mass rally in support of climate change action in Sydney late last year, models of wind turbines were carried aloft by well-meaning, but ill-informed protesters. Peruse any internet discussion board and you will find plenty of people with the strongly held belief that wind energy is all good and coal energy is all bad and must be done away with immediately.

The myth that our fossil-fuel based economy can simply be transformed, by the flick of a switch, to source its energy needs only from wind is perpetuated by those who have a vested interest in the expansion of industrial wind-power. These are the wind industry developers looking for a quick profit, organized environmental groups who see green symbolism in spinning turbines, a slack media looking for an easy-to-understand “visual” to illustrate the complexity of climate change, and State governments seeking ways to demonstrate their green credentials to a worried constituency.

The push for industrial wind installations is taking place in an information vacuum: a misinformed general public are sold on the glowing benefits of wind energy without having access to balanced information about its many shortcomings.

Communities like ours, who face the prospect of a wind-farm being built in their residential neighbourhood, are caught in the front line of this industry-led wind rush. We have been forced to battle wind-industry developers, green lobby groups, the media and a misinformed public. We have, amongst other things, been labeled ‘selfish NIMBY’s’, been accused of being in cahoots with the coal and nuclear industries, and tagged as ‘climate change sceptics’.

Even worse, our communities have been torn apart by speculators who have set neighbour against neighbour using the ‘divide and rule’ philosophy and signing up some landholders to secret, “commercial-in-confidence” contracts.

We are all just ordinary people who have been forced to fight protect to our homes (and in some cases our livelihoods), and our local environment from being transformed from a peaceful rural residential area into an industrial zone. We have become the ‘test-cases’ – and have been told that we should willingly, and without

compensation, be sacrificed for the “greater good”. The “greater good” is largely symbolic gesture – the erection of industrial wind-turbines whose primary value is not the generation of electricity, but rather as a salve to a collective conscience pricked by human-led climate change.

2 Our story – Molonglo Ridge

The Molonglo Ridge is located to the south east of the City of Queanbeyan, and is visible from Parliament House. Most particularly, it is visible from around a thousand rural residential homes on both sides of the ridge and from many parts of Queanbeyan and Canberra, and is surrounded by wildlife reserves, can be seen from the historic London Bridge homestead, and is next to the Googong Dam reserve and catchment. The Molonglo Ridge is protected by local planning laws that prohibit any construction on the ridgeline. In short, it is the least desirable place to locate an industrial power generation facility.

In November 2004, a Spanish energy generation company EHN (now named Acciona Energy) announced that they had plans to construct a 60 turbine industrial wind installation on the Molonglo Ridge. Although their plans had been in development for several years and they had already signed up a single landowner to host the 120 metre tall turbines, it was not until November 2004 that the developer sought to inform the affected local communities of their plans.

At four meetings held by the developer in December 2004, the overwhelming response from the community was opposition to the industrial wind farm proposal. Faced with a cashed up, speculative developer, the communities on both sides of the ridge united and formed the Molonglo Landscape Guardians (MLG). Our aim is to prevent the inappropriate development on the Molonglo Ridge and to inform the community about the project.

Subsequent consultation with the developer, Acciona, has been completely inadequate and thoroughly divisive. There has been no meaningful communication from the developer since March 2005. Their website has not been updated since that time¹ and the only public statements they make are “studies are continuing” Then, in July 2006 it was reported in the media that the project was “on hold indefinitely”². Since then, nothing. By any measure, this is reprehensible behaviour by the developer – they blew into our community uninvited, created anxiety and division, and now remain mute on the subject, seemingly content to just sit there keeping their options open at our expense.

We now know that a lack of meaningful consultation and a corrosive pattern of dividing communities is a consistent feature of wind farm developments across the continent. It appears to be a deliberate strategy on behalf of the Industrial Wind

¹ <www.molonglowindenergy.com.au>

² <www.abc.net.au/news/newsitems/200607/s1693519.htm>

industry. As such, it should be a matter of urgent concern for all levels of government that inter-dependent rural communities are being torn asunder by this mercenary industry.

The MLG took an early decision that as a local, grassroots organization, we are not resourced to fight the battle to “disprove” the case for wind energy. In fact, to do so would be contrary to the views of our membership who are supportive of research and development of renewable energy resources, including appropriately sited and implemented wind energy installations. However, the research we have undertaken as part of our campaign has led us to question current wind energy practice and the claims made by the industrial wind industry and its supporters about its ability to displace carbon emissions from coal-fired power generation.

Like many other communities across the continent our main focus has been to challenge the imposition of an unwanted industrial wind energy development in our neighbourhoods. By keeping the debate focused on individual developments, we have unwittingly allowed the Industrial Wind Industry and their supporters to successfully narrow the debate down to one of aesthetics and “bird kills”. In fact, the wind industry is relaxed about these criticisms and keeps the kettle boiling on them – they can, after all, be batted away as “NIMBYism”. Although these concerns are legitimate, the debate should and must be broader than this – the Industrial Wind Industry’s dubious claims about the value and usefulness of their product must be challenged and tested. Importantly, it should not be left to under-resourced communities and individuals to do this work.

We simply want to protect our local environment while encouraging a broader, informed debate about the worth of Industrial Wind to do what it says it will do – displace coal fired power generation and reduce CO² emissions. We welcome this inquiry process as a way of casting the disinfectant of sunlight on the current state of the wind energy sector. Our hope is that one of the recommendations of this inquiry process will be that an education program is developed to assist the wider community assess the relative worth of all renewable energy options, especially high profile wind energy, free from the spin of the self-interested wind industry speculators.

3 Who is really pushing the wind energy barrow?

According to a recent survey commissioned by AUSWind³, “Australians are open minded about wind farms and the positive effect an expansion of their use would have on the environment”.

In this survey, the responses to the statements “I think the government should look at setting up more wind farms in Australia” and “Wind energy is a good alternative energy source” were 77% and 74% in the affirmative, respectively. Responses like

³ *Wind Industry Study (NF5370)*, AC Neilson, prepared for AUSWind, October 2006. (www.auswind.org/auswea/downloads/mediareleases/AuswindEnergyReporhandout201006.ppt)

these reflect the lack of information available to the general population to help inform their opinions. The results would probably have been quite different if the respondents were also told that:

- Wind turbines operate at an average of less than 30% installed capacity;
- Wind energy is an intermittent power source that only displaces other forms of low-impact energy such as hydro and gas, not coal⁴;
- Electricity generated by wind turbines does not respond to demand, but is a response to the weather (i.e. the wind blowing, and blowing at the right speed);
- Wind farm operators earn a valuable Renewable Energy Certificate (REC) for every megawatt that they dribble into the grid, regardless of when that electricity is generated and whether that power is used or required.

With the benefit of this information, it is likely that respondents to the AC Nielson survey would be less equivocal in their support of wind energy as a useful response to curbing CO² emissions.

4 Limitations of Industrial Wind Power

Industrial wind developers invariably present their proposals in the most advantageous light, and present the perceived benefits – the amount of power generated and the (largely hypothetical) CO² savings – out of context.

Wind- power generation and uptake

When Acciona Energy first announced its plans for the Molonglo Ridge industrial wind farm, it claimed it would “be capable of servicing the electricity needs of 45,000 homes”⁵. Other wind farm developers make similar claims about other wind farms.

These claims mislead the public into believing that 45,000 homes will be supplied entirely by the local wind farm each and every day. However, there is a significant difference between being “capable” of servicing the electricity needs and actually servicing the needs.

The 45,000 home figure is calculated by dividing the total installed generating capacity by average household KWh usage. The problem with this calculation is that it includes electricity generated by the wind turbines at a time of a time of low electricity demand when there is already enough baseload generation available, such as the early hours of the morning.

It is not possible to simply shut off a coal-fired power station when the wind blows and electricity from a wind-farm comes on line. Because of this, gas and hydro

⁴ *Air power will only blow hot and cold as state seeks grid boost*, The Age, 5 August 2006

⁵ Community Newsletter No. 1, EHN (Oceania) Limited, November 2004

generators are displaced from the grid in favour of wind, while coal generators keep ticking away. The National Electricity Marketing and Management Company (NEMMCO) has confirmed that, where wind-farms are contributing to the grid in times of reduced demand, gas and hydro are the first to be displaced⁶.

There are also many times when there is peak demand and the wind is not blowing (or blowing too much, or it is over 40°C and the turbines must be shut down for safety reasons) and wind energy is contributing little or nothing to meet demand.

At best, all that wind energy can ever do is optimistically dump power into the grid. Whether this electricity is required at the time is entirely co-incidental.

Lack of greenhouse gas savings

Similarly, the developers of the Molonglo Ridge proposal claim that once operational, it “could avoid the production of over 245,000 tonnes of greenhouse gas emissions per year”. To most people, this figures sound very impressive. However, Acciona have failed to point out that, because wind energy is unreliable, their energy production requires 90% back up from other (mostly coal) generating sources.

Once the “savings” figure is put into context of greenhouse emissions from other sources such as transport, agriculture and other forms of power generation, its insignificance becomes apparent.

This is not to suggest that we should do nothing about greenhouse gas emissions, but wind energy does not offer much “bang for the buck”. The inability of industrial wind farms to respond to demand and produce electricity when it is needed means that it will not replace any polluting coal fired power stations. That other forms of power generation (primarily coal) have to provide back up capacity means that wind energy puts any purported greenhouse gas “savings” into the realms of the hypothetical. Furthermore, if wind-farm operators were required to include the cost of providing this 90% back up into the cost of wind energy, their product would be seen for the inefficient, expensive option it really is. As it stands, this hidden cost of wind energy is born by other electricity generators, and, ultimately, by the consumer.

Certain proponents of wind energy will argue that a combination of wind and gas can displace coal. However, assertions such as those promoted by well-known wind-industry proponent, Dr Mark Diesendorf, that geographically dispersed wind generation can substitute for reliable, base load coal fired power generation are as yet untested. Dr Diesendorf himself concedes the proviso that “nevertheless, it may require some additional back-up”⁷. In other words, wind can surge in and out of the grid depending on uncontrollable climatic conditions and another form of electricity generation can compensate, all without cost to the wind energy generator.

⁶ *Ibid*, The Age, 5 August 2006

⁷ Diesendorf, M (2007) *The Base Load Fallacy*, fact sheet no. 16, <www.energyscience.org.au>

Wind's inability to meet growing demand

The wind industry is careful not to put any of their output in the context of actual electricity demand. In New South Wales alone, energy consumption is growing at approximately 4% pa, requiring additional 300 megawatts of electricity annually. Assuming that the wind co-operates and blows exactly when the extra energy is needed, it would require the building of hundreds of additional wind-turbines in New South Wales each and every year to meet this extra demand.

The critical growth in demand is for peak load generation, currently increasing at 2.6% pa⁸. NEMMCO attributes this increase in peak load demand to reverse cycle air conditioning units which are all switched on when the weather heats up on the hottest summer days. Unfortunately, this is exactly when wind energy goes out of the mix as turbines are shut down when the temperature reaches 40°C to protect electrical instruments⁹. In eastern Australia, hot summer temperatures, particularly inland, are generally accompanied by still days. At the very time that additional generating capacity is required, wind energy goes missing.

5 The problems of incorporating an intermittent source to the national grid

Inclusion of wind on the grid compromises the security of supply, grid infrastructure, and the efficiency with which other generators can operate.

The grid is not a 'battery' - electricity cannot be 'stored' in the grid

One of the technical problems facing wind energy is the problem of incorporating this highly variable and intermittent generation source into the national grid. The wind industry dismisses this important failing by saying there is "plenty" of back up capacity.

In making such assertions, AUSWind relies on the fact that the overwhelming proportion of the general public does not know how the electricity grid operates and will not question their assertions. For example, according to AUSWind, the national electricity grid is "effectively a huge battery into which electricity is injected to supply the load (demand) from across its length and breadth"¹⁰. This implies that electricity that is put into the grid – including highly variable wind output – is being stored for future use.

The national electricity grid is, in fact, is an extensive, electrical circuit that stretches the length of the east coast of Australia from north Queensland to Tasmania

⁸ *Renewable Energy*, Les Hoskings (NEMMCO), Vital Issues Seminar, Parliament of Australia, 27 February 2006

⁹ *Wind-turbine fire at South Australian Wind Plant*, Sunday Mail, 12 February 2006

¹⁰ *The Baseload Power Myth*, AUSWEA, March 2007

<www.auswind.org/auswea/downloads/factsheets/TheBaseLoadPowerMyth.pdf>

(Basslink) and through to South Australia (Murraylink). Rather than acting as a “huge battery”, the grid is carefully managed to respond to demand:

Electricity cannot be stored for future use, so supply must vary dynamically with changing demand.¹¹

Managing the grid

Electricity travels along the grid at close to the speed of light. The grid requires close management to keep the speed (or frequency or pulse) constant to avoid damaging the transmission line. The incorporation of a highly variable, intermittent electricity source, such as Industrial Wind, creates technical problems for the managers of the grid. These problems are:

- Issues around the variability of output from wind generators
- Uncertainty in managing transmission lines in terms of synchronizing the pulse from wind generation into the more stable pulse from coal-fired power generation.

Power consumption is not constant. Generators that provide power have adjustable generation so that if demand drops or rises slightly, the steam valves in the turbines can be slightly turned up or down to adjust to demand and to keep the rate of the pulse going to meet that demand. When there are large increases in demand, peak load generators – usually gas or hydro – are brought on line to address the increase in demand, and are dropped off as demand decreases.

Attaching wind to the system creates problems because it is not possible vary the generation speed (or force) of the electricity coming out of a wind turbine. Quite simply, we cannot command the wind to blow at the right speed and at the right time. Therefore, all the regulation of the pulse of the power grid falls back to the coal fired generators. This cost is borne by the coal-fired part of the generating system while wind takes advantage of generating flat out when it can.

Compounding this problem is that wind strength is highly variable – flat out to nothing within minutes. Other electricity generators have to compensate for the fluctuating wind energy by keeping generating capacity in spinning reserve, a cost that is not worn by the wind generator but other generating sectors, and ultimately the consumer. In terms of CO² emissions, coal-fired generation is still emitting the same amount of greenhouse emissions even though it is not generating electricity at full capacity. Therefore, over any given cycle it emits more CO² per megawatt hour than it would without the wind.

The other area of major concern is with the large inter-connectors on transmission lines. These have defined limits as to how much power can be put across the lines –

¹¹ *An introduction to Australia's Energy Market*, NEMMCO, 2005, p.5

too much power going too fast will trip the lines. Regulators are incorporated to stop the lines tripping. Generators close to connection points along the transmission lines are the controllers of the flow of power. If wind generation is one of those generation sources, the ability to control the speed lessens because it is not possible to control the speed of the wind. Therefore, it is necessary to have some other form of power generation close to the connection point as the moderator of the flows of electricity.

Synchronising output

The speed and frequency of the grid must always match the total consumption. All generators have to be in synch with other generators. NEMMCO have reported that incorporating large scale, variable wind into the stable, coal-fired grid causes varying power flows¹². To facilitate those varying flows, some generators that would normally be achieving a better output are slowed down to accommodate variable wind speed. The cost of this inefficiency is borne by the coal fired generator, not the wind generator. Perhaps this is why some fossil-fuel generators – e.g. Stanwell Corporation, AGL Limited – have established wind farms; to recover some of these costs through the generation and sale of Renewable Energy Certificates (RECs) and the sale of expensive wind power to energy retailers.

6 The role of MRET

The wind industry claims that government policy is killing their industry and that to avoid this, the government must act to increase subsidies to the renewable energy sector. Despite these claims of impending doom under the current regime, wind farm speculators continue to push for approval of their developments. Why?

The motivation for seeking approval for their developments now is not borne out of a concern for the environment, but a speculative, financial imperative. To move for approval now with the expectation that the Mandatory Renewable Energy Target (MRET) will be raised has the additional advantage that there will be a lower cost of connecting to the national grid when the industrial wind farm gets built. In effect, proponents who ‘get in early’ with their grid connections, will have a free ride as the inevitable cost of grid upgrades will be borne by later developers (see Section 8 of this submission).

Fueling this “wind rush” mentality is the lure of the MRET scheme and the guaranteed income that can be generated by producing Renewable Energy Certificates (REC).

The existing MRET scheme is a blunt instrument. It does not distinguish between renewable energy technologies that can actually displace highly polluting fossil-fuel electricity generation and wind-energy which does not respond to demand and requires 90% back up from other electricity generators. In its current form, the

¹² *Renewable Energy*, Les Hoskings (NEMMCO), Vital Issues Seminar, Parliament of Australia, 27 February 2006.

MRET allows wind farms to generate a REC for every megawatt of electricity they put into the grid, regardless of when it is created. For example, a megawatt of electricity generated by a wind turbine at 3am is rarely required because there is (usually) excess electricity in the grid from baseload coal-fired power. The fact that the electricity generated by the wind turbine is not needed is of no consequence in the equation – a REC is created. This REC has a value of around \$40 and can be sold by the wind farm operator, thus the opportunistic dumping of wind energy into the grid is rewarded regardless of whether or not the electricity is required.

In this way, the MRET is propping up the otherwise unviable wind generator at the expense of other renewable energy sources which can respond to demand and therefore can actually displace fossil fuel electricity generation.

According to the *Explanatory Memorandum to the Renewable Energy (Electricity) Bill 2004*, by 2010 the MRET scheme is intended to result in greenhouse gas emission abatement of around 6.6 million tonnes per annum and contribute 10 per cent of the total greenhouse abatement measures designed to achieve Australia's 108 per cent emissions target¹³. However, the significant proportion of RECs generated by inefficient, intermittent and unscheduled wind energy (approximately 20% of the REC pool¹⁴) cannot be guaranteed to have resulted in any greenhouse gas abatement since wind energy does not displace coal fired electricity generation.

The Molonglo Landscape Guardians would support an increase in the MRET *only* if the scheme is significantly revised and restricted to renewable energy generation that can unequivocally demonstrate that it has resulted in a reduction of greenhouse gas emissions through the displacement of electricity generated by burning fossil fuels. Some wind energy generation would qualify, but when it is dumping unwanted electricity into the grid at times of low demand, its operators would not be rewarded with a REC.

Similarly, any Carbon Trading Scheme that may be implemented in future must discern between those forms of electricity generation which have resulted in a real and accountable reduction of greenhouse emissions by displacing coal, diesel or gas electricity generation.

7 Impact of industrial wind farms on residential communities

Wind Industry denies impacts

It is our contention that the wind industry is fully aware of the impacts that industrial wind-plants have on people living in the areas surrounding a wind farm. However,

¹³ *Bills Digest 109, 2005-06: Renewable Energy (Electricity) Amendment Bill 2006*, Parliamentary Library, Parliament of Australia, 27 March 2006
<www.aph.gov.au/library/pubs/bd/2005-06/06bd109.htm>

¹⁴ *Ibid*, Parliamentary Library, Parliament of Australia, 27 March 2006

rather than act responsibly by accepting their industry's negative effects and developing strategies to deal with them, they instead deny they exist.

There is currently NO COMPENSATION for any negative effects suffered by neighbours of a wind farm.

The effect most frequently complained of is noise from turbines and spinning blades. Reduction in property values are also a concern and result from the combined negative effects of noise, diminished landscape values and industrialization of the landscape.

Noise

The wind industry and its supporters flatly deny that wind farms are noisy and instead claim that noise is not a problem. Yet the complaints from residents living near wind farms continue.

Reports from people living next to Australian wind farms are consistent in their complaints about unacceptable noise from modern wind turbines. Reports of unacceptable noise from wind farm installations in Toora (Victoria)¹⁵, Crookwell (NSW)¹⁶, and the Atherton Tablelands¹⁷ (Queensland) have been documented. Even landholders hosting wind turbines on their land and receiving financial compensation confirm they are noisy.¹⁸ The wind industry says these cases are exceptions to the rule. One noisy wind-plant might be an exception, two might be coincidence, but three is starting to look like a trend.

It is outside the scope of this inquiry to consider the problem of turbine noise. However, the noise problem must be considered as part of the negative impacts on nearby communities and brought into the equation about the appropriateness of the technology. A discussion paper which canvasses recent research in this area is attached as Appendix A.

Property values

When wind farm proponents claim that there is no evidence that wind farms in Australia affect property values, they are relying on the findings of a qualitative study, 'Social Economics and Tourism' undertaken by Sinclair Knight Mertz, a consulting firm employed by wind-farm developers to assist in preparation of environmental impact assessments¹⁹. The study found that, for highly sought after properties along Salmon Beach, Australia closer than 200 meters from wind turbines, the general consensus among local real estate agents is that "property prices next to generators

¹⁵ *Residents rail against the wind*, Courier-Mail, 4 October, 2004

¹⁶ *Anger rides the wind*, The Land, 19 May 2005

¹⁷ *Ibid*, Courier-Mail, 4 October, 2004

¹⁸ *Not happy in hindsight*, Monaro Post, 9 May 2007 (attached as Appendix B)

¹⁹ *Social Economics and Tourism*. Sinclair Knight Mertz, Environmental Effects Statement Supplement for the Pacific Hydro Limited Portland Wind Energy Project Volume C 2001

have stayed the same or increased after installation.” However, the study concluded that:

“...while properties with wind turbines on them may increase in value, other properties may be adversely affected if within sight or audible distance of the wind turbines”.

In other words, every landowner in the vicinity of the wind turbine suffers apart from the few landholders who actually host turbines on their land (and receive an income from the activity). To cite this damning report as “proof” of their claim to the contrary is, unfortunately, typical of wind industry spin.

Real cases of loss of property value exist and have been reported. When Stanwell Corporation constructed a 12 turbine wind farm at Toora in South Gippsland, local residents, Kath and Terry Hurst were told by Stanwell that they would not be disturbed by the wind farm. Stanwell built two 50m turbines 750m and 810 m from the Hurst's house. However, the Hursts reported that they had trouble sleeping at night due to noise, and then when they decided to move, were unable to sell their property.²⁰ Mr Hurst said that while the local property market was booming, they lost money selling their house. A rates notice issued after the wind farm was built showed that the property dropped in value.²¹

Bruce Richards, managing director of PBE Real Estate in South Gippsland, said that it was nearly impossible to sell a property within one kilometre of a wind turbine or a proposed wind turbine.²² The Hursts wrote to Stanwell Corporation in 2003 asking for compensation for the mental, physical and financial trauma they received as a result of the Toora wind farm being constructed next to their home. They received no reply from Stanwell.

Wind industry proponents will claim that people who oppose wind farms do so only because they are jealous of the financial gains made by ‘host’ landowners. This fails to take into account that many wind farms are now proposed for relatively affluent areas close to cities, rather than remote rural locations. People in these areas value lifestyle more than a supplementary income from wind-turbines.

An approved but not constructed wind farm proposed for Taralga, near Goulburn has already affecting property values. Goulburn real estate agent, Graeme Welsh, said his experience was that properties within view of the proposed wind farm at Taralga were hard to sell.²³

"We get a lot of people from Sydney wanting to buy hobby farms or retirement blocks around Taralga and Crookwell", he said. "A majority have

²⁰ *Ibid*, Courier-Mail, 4 October, 2004

²¹ *How a dream was blown away*, The Age, 5 May 2003

²² *Ibid*, Courier-Mail, 4 October, 2004

²³ *Ibid*, The Land, 19 May 2005

told us they're not interested in looking at anything near an existing or proposed wind turbine. They're coming out here to get away from man-made structures"²⁴.

A National Code for the Location of Industrial Wind Plants

The reality is that poorly sited wind-farms have devastating impacts on local communities, the landscape, environmentally sensitive areas, wildlife, heritage conservation areas and water conservation. A proper consultation process, in place of the current "tick-the-box" consultation approach favoured by the wind industry is urgently needed. This would ensure that negative impacts are properly considered and mitigated. Rural communities would not be disenfranchised from the process and left with Hobson's choice of giving up their lives to fight the proposal versus simply giving up.

Our views on the consultation process for the Molonglo Ridge wind plant were detailed in our submission to the Australian Greenhouse Office's discussion paper on National Code for the Location of Wind Farms (May 2006).²⁵

We consider that finalisation of a National Code for the Location of Wind-Farms, in consultation with community representatives, is an urgent priority. Furthermore, we consider that all current wind-plant proposals should be put on-hold until the National Code is in place.

8 Is there a right place for wind turbines?

What really decides the siting of Industrial Wind?

The MLG believes that industrial wind farms have no place near people's homes. However, the absence of sensible planning guidelines for the siting of industrial wind installations that would keep them well away from human settlements means that any rural or rural residential community within striking distance of a transmission line is at risk of being picked off by a wind energy speculator.

Proximity to the grid

The assertion by the wind industry that defining factor in the choice of site for any particular wind energy development is that there is a good wind resource is not correct. In fact, the proximity of a site to a transmission line is the over-riding factor that makes a site "suitable".

Wind developers pretend that this is some happy coincidence – a good wind resource and an existing transmission line. In fact, many of the best sites in terms of wind resource are not near an existing transmission line, so are disregarded. Quite simply, the industrial wind developer does not want to incur the cost of building a

²⁴ *Squalls of dissent ruffle the wind harvesters*, Sydney Morning Herald, 14 June 2005

²⁵ <www.greenhouse.gov.au/renewable/publications/wind-discussionpaper.html>

transmission line. Instead, to cut costs they intend to piggy back on the existing infrastructure. This was described in by Simon Grosse in The Canberra Times as:

Windy sites tend to be some distance from suitable connection points to our national grid. Distribution and transmission companies have no obligation or incentive to provide those connections for power generators. Nor can they spread the costs of these connections across all power generators because the Australian Competition and Consumer Commission and state energy regulators do not allow it...

... The intermittent nature of wind energy generation also imposes costs on distributors who have to invest in infrastructure - called power conditioners - to manage that input. As the quantum of variable wind energy available to the grid increases, that cost increases...

Existing wind farms got in relatively cheaply because their impact on the grid was relatively minor, but Tasmanian and SA grid managers are now facing increasing costs of power conditioning as wind energy supply increases in those states...

... That is part of the motivation for wind farm developers to push for approval now, to get in as early as possible at lower cost. In the medium term, they expect the MRET to be raised, enabling a guaranteed market for their product for years, despite its higher cost. If they get subsidised connections to the grid, then all the better for the bottom line.²⁶

This deliberate strategy of looking for an existing transmission line as the main priority is problematic because transmission lines are invariably near human settlements. In the case of the Molonglo Ridge proposal, the fact that the site is surrounded by rural residential development of 1000 homes was ignored by the developer. A ridge and a nearby transmission line were the crucial factors that made the site "suitable".

The portability of inefficient industrial wind gives it an unfair advantage over other forms of renewable energy generation such as Geothermal "hot rocks" or tidal power generation. These renewable energy sources have true potential to displace coal-fired generation yet are put at a distinct disadvantage because the operators of those power plants will incur the cost of building a transmission line to get the electricity they generate into the grid. In the case of geothermal, the current exploration site in the Cooper Basin is hundreds of kilometers from the national power grid. The prohibitive cost of building a transmission line is factored into the cost of providing that power source while inefficient industrial wind enjoys a free ride.

9 Alternatives to large-scale industrial wind-plants

The thrust of our group's opposition to wind farms is towards poorly located, large scale, industrial wind plants. Contrary to what industrial wind developers and their

²⁶ *Getting in on ground floor more about positioning than pioneering*; Simon Grose, The Canberra Times, Wednesday, 17 May 2006 < http://canberra.yourguide.com.au/detail.asp?story_id=480723 >

supporters say about us, this does not mean that we are opposed to all forms of wind energy. We believe that there is a place for small scale wind energy installations over a local grid network (i.e. not the national grid) and micro installations that are independent of any grid network.

According to our research²⁷, wind turbines have a greater acceptance where the local community derives a direct benefit from the installation and the electricity it generates. For example, the township of Denham is 850 km north of Perth and gets its electricity from a wind/diesel installation. Previously, this remote community was previously reliant exclusively on diesel fuel for its electricity generation.

Commencing the project in 1998, Western Power contracted Powercorp to erect an Enercon E-30 wind turbine. The wind turbine subsequently supplied 20 per cent of the town's electricity requirements, saving around 150,000 litres of diesel each year. The success of this project led Western Power to work towards displacing more diesel generation with increased wind generation. This was very challenging as wind-diesel systems typically accommodate only about 10 to 20 per cent of wind capacity. Moreover, managing fluctuations in the wind has always been the greatest obstacle to providing a dependable electricity supply from wind energy. Wind turbine output can be highly variable, so enough diesel generators must always be running to supply the town's demand if the wind subsides²⁸.

A further two Enercon E-30 wind turbines were installed in late 1999 to form the Denham wind farmwind. Denham's electricity is generated by three wind turbines with one low load diesel system incorporating a boiler grid interface system and an advanced computer control system.

The Australian-designed intelligent computer control system will use the low load diesel system to help smooth out the variable output of the wind farm. The low load diesel system will provide the necessary system spinning reserve coverage of the wind farm and will absorb excess power from the grid when necessary using the boiler grid interface system²⁹.

According to the Western Power's 2004-05 Annual Report, one third of Denham's 4.7 GWh of electricity is generated by the three turbines³⁰.

The electricity generated by this power plant is used by customers over a limited geographical area, thus the input to the local grid by the fluctuating wind resource can be managed due to the design of the system. This is the reverse of the situation on the

²⁷ The source of this information is the Industrial Wind Industry body, AUSWind. In our experience, AUSWind, like the individual Wind Energy companies it represents, has a history of overstating the benefits of wind energy and community acceptance of their installations. Hence, further independent research may need to be undertaken to test the assertion that communities in Western Australia, Flinders Island and King Island fully accept their local wind installations.

²⁸ <www.greenhouse.gov.au/renewable/recp/wind/pubs/wind1.pdf>

²⁹ <www.greenhouse.gov.au/renewable/recp/wind/pubs/wind1.pdf>

³⁰ <www.westernpower.com.au/documents/annualReports/annual_report_2005/Operational_Report.pdf>

National Electricity Grid where the system is compromised by the retro-fitting of Industrial Wind Turbines into the network.

The incorporation of wind into diesel powered local networks has a number of measurable and actual benefits:

- It directly displaces a large proportion of fossil fuel (diesel) as the fuel source for electricity generation;
- The amount of fossil fuel displaced can be easily quantified and can be audited;
- Once installed, it is a cheaper form of electricity than diesel because there is less reliance on expensive diesel fuel;
- Less reliance on diesel fuel will reduce number of tanker deliveries, hence a reduction of heavy road traffic on remote and rural roads.

There are currently a handful of wind/diesel installations on the Australian mainland and Bass Strait islands. A further rollout of this technology that incorporates the computer control system to other remote communities and settlements which currently rely on diesel-only generation (or have no electricity at all) would provide immediate benefit to those communities and their local environment. Various forms of small scale wind turbines suitable for cyclone prone areas are available. Small scale, wind/diesel technology also has the potential to enhance the lives of citizens in developing countries, particularly our near neighbours in the Pacific who are reliant upon imports of expensive fuels to generate their electricity.

10 Other renewable energy sources

The MLG supports the further development and investigation of other forms of renewable energy. In particular, we believe that some forms such as Geothermal (Hot Rocks) and Solar Thermal may offer real alternatives to coal fired power generation as a baseload source of electricity.

Other forms of renewable energy still in their infancy, such as tidal and wave power generation, offer greater advantages than intermittent and unpredictable wind. In the case of tidal power, even though this is classified as intermittent, the times when it is available to generate power can be accurately predicted. We can predict tides to the minute for a hundred years into the future, and as long as the moon is in the sky above, this predictability will continue. Therefore, although it is “intermittent”, it can be incorporated into the generation mix as its intermittency is predictable and compensating generation sources can be scheduled well in advance.

These technologies face some structural disadvantages. The prime locations for these sources of generation are far from the existing grid. In the case of geothermal, current exploration is in the Cooper Basin, hundreds of kilometers from the nearest grid connection point. The massive tides of the Kimberly region make it highly suitable for

tidal power generation, but again it is in a remote location far from an existing power grid.

11 Strategies for reducing demand

The cheapest and fastest strategy to reduce greenhouse emissions is energy efficiency in the home and industry. Not only can savings be made to the amount of electricity generated, but these strategies can prolong the life of the electricity grid by delaying the need to upgrade transmission lines.

The MLG supports the Federal Government's initiative to phase out incandescent light bulbs. This initiative will cut greenhouse emissions by 4 million tonnes per annum by 2015³¹. We note that this is 16.3 times the purported (and largely hypothetical) annual greenhouse emission savings from the Molonglo Wind farm. The obvious advantage of the incandescent light bulb phase out is that the savings from the reduced energy consumption goes into the pocket of the householder or business owner, not into the pockets of a wind farm speculator.

We believe that there are other practical strategies that governments at all levels can support that will result in a reduction in demand for electricity and reduce greenhouse emissions.

Geothermal heating and cooling

The MLG supports the use of other technologies to displace energy hungry applications. For example, Geothermal heating and cooling has potential to decrease growth in demand for peak electricity generation, currently forecast to increase at 2.6% pa. According to NEMMCO, most of this growth is due to the use of reverse cycle air conditioners³². The use of geothermal heating and cooling could cut this demand significantly.

To encourage the uptake of this technology, Governments at both Federal and State level could mandate the inclusion of geothermal heating and cooling systems in all new government buildings, including schools and public housing. In the case of public housing, it would have the double benefit of reducing the costs of home heating and cooling for people on low incomes who typically live in public housing. An example of this technology is available for inspection at the Geoscience Australia building, Cnr Jerrabomberra Ave and Hindmarsh Drive, Symonston, ACT.

The upfront cost of this technology is high and could be prohibitive for many home builders. However, when amortized over the lifespan of a building (approx 30-50 years), it is a very economical form of heating and cooling, and is virtually pollution and emission free. The MLG supports the inclusion of this technology in the

³¹ < www.environment.gov.au/minister/env/2007/pubs/mr20feb07.pdf >

³² *Renewable Energy*, Les Hoskings (NEMMCO), Vital Issues Seminar, Parliament of Australia, 27 February 2006

greenhouse loan or rebate schemes that are currently in place to encourage the installation solar panels on private homes.

Improved building standards

Significant energy saving can be made by improving building standards nationally. Building standards that mandate the best use of solar orientation, building insulation, glazing and cladding standards, would improve the energy consumption while adding marginally to the cost of building a home or commercial premises during the construction phase or major renovation.

Building approval is primarily the bailiwick of Local Government, but State Legislation can be introduced that is enacted in the local planning approval process.

Consumer subsidies in the form of RECs and Green Energy schemes ultimately end up in the hands of large corporate shareholders and do little to encourage energy efficiency. It would be a better use of available capital if subsidies were made directly to the community in the form of increased up-front subsidies or rebates to home-owners for greenhouse abatement measures to be built into new homes, or retro-fitted into existing homes. For example, for solar hot water, increased insulation, double glazing, energy efficient lighting, and geothermal heating. There would be no need for ongoing government subsidies since home-owners would be rewarded by a perpetual reduction in power bills. This would be a win-win situation since consumers would use less electricity and save money while the need to festoon the countryside with inefficient wind-towers would be negated.