WestWind Energy Pty Ltd Submission to the Community Affairs Committee.

Parliament of Australia

Senate Community Affairs Committee

Introduction

WestWind Energy Pty Ltd (WestWind) is an Australian company dedicated to the development, construction and operation of wind farms. The company benefits from the shared experience of the WestWind Group in Germany - an established and successful wind farm developer and operator.

WestWind Group is run by engineers with a desire to use their technical skills to improve our environment. WestWind Group in Germany currently owns and / or operates and manages over 140 wind turbines within Germany and also is developing projects in Turkey and Poland.

WestWind has already indentified and secured a number of potential wind farm sites in Australia that are ready for development now and into the future. More information on the sites developed by WestWind can be found at http://www.w-wind.com.au/ .

WestWind was invited by Invest Victoria[1] to establish a business in Victoria. In addition, WestWind was attracted to the State of Victoria primarily because of:

- a supportive planning policy being to '*promote the provision of renewable energy including wind energy facilities...'*
- the Victorian Renewable Energy Target (VRET) scheme[2];
- Victoria's excellent wind resources; and
- Victoria's extensive grid infrastructure.

WestWind currently employs nine staff at its office in Gisborne, Victoria. The company plans to double this number of staff within the next few years once the construction of projects commences.

[1] http://www.invest.vic.gov.au/home

[2] The VRET scheme has concluded and has moved to the Commonwealth's Renewable Energy Target.

Background – Generating electricity by the wind

Wind and Wind Turbines

All renewable energy sources (except tidal and geothermal) and the energy in fossil fuels originate from the sun.

Wind is created as the sun's energy hits the earth and through heating, produces large scale movements of air in the atmosphere in conjunction with the rotation of the earth. Air movements from high to low pressure systems are then influenced by local factors such as topography and distance to the sea.

A wind turbine converts kinetic energy from the air into mechanical energy by the rotor. In modern commercial wind turbines the rotor generally consists of three fibreglass blades.
Mechanical energy is then converted into electricity by the electrical generator. The generator operates on the same principle as the electrical generators in cars and dynamos (small scale) and on a larger scale in hydro-electric and thermal power stations. Wind turbines may also have a gearbox between the rotor and electrical generator to control speed.

Rotor speed can also be controlled through varying the pitch on individual blades. An anemometer and wind vane in conjunction with yaw motors point the wind turbine towards the prevailing wind direction.

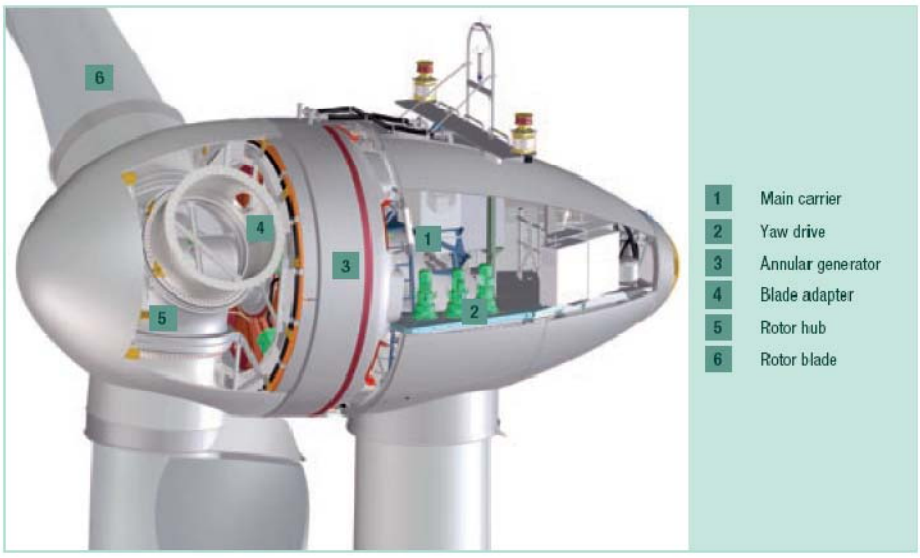

Figure 1 – Enercon E82 3 MW wind turbine[3].

[3] http://www.enercon.de/p/downloads/EN_Productoverview_0710.pdf

There are no external resources used to generate electricity from a wind turbine. There is no water used to generate steam and provide cooling and there is no heat source from the burning of fossil fuels or from nuclear fission.

Once operating there is no processing or transportation of materials, renewable or otherwise, to sustain the generation of electricity. As such there are no wastes or by products associated with the generation of electricity from a wind turbine, other than the emissions from maintenance vehicles. The materials used to manufacture the wind turbine can be recycled when obsolete.

The cost of a typical commercial wind turbine ranges between $4m and $6m installed.

The electrical generators in modern commercial wind turbines commonly generate voltages at around 690 volts DC. Transformers within or near the base of a wind turbine will increase this voltage to either 22 or 32 kilovolts.

Depending on the nature of the local electricity grid these voltages may then typically be increased by a substation to 66, 132, 220 kilovolts or even 500 kilovolts before it enters the national electricity grid alongside other forms of electricity generation.

Substations and transformers bring the voltages in the distribution network back down to supply homes and businesses.

The electricity in the wind turbines and the wires is the same as in the powerlines and homes in any street in the country. A wind turbine does not produce any mysterious or dangerous forces.

Response to the terms of reference

Claims of adverse health impacts living in close proximity to wind farms.

Wind turbines and wind farms do not pose a public health and safety risk[4]. There is no credible evidence whatsoever that would suggest wind turbines and wind farms, which meet Australian and international standards are a risk to public health and safety.

Wind energy is the safest and cleanest of all forms of electricity generation with regard to its manufacture and ongoing operation.[5]

The graphs below illustrate how electricity generated from wind compares to other generation methods with regard to life expectancy as a result of airborne pollution and industrial accidents.

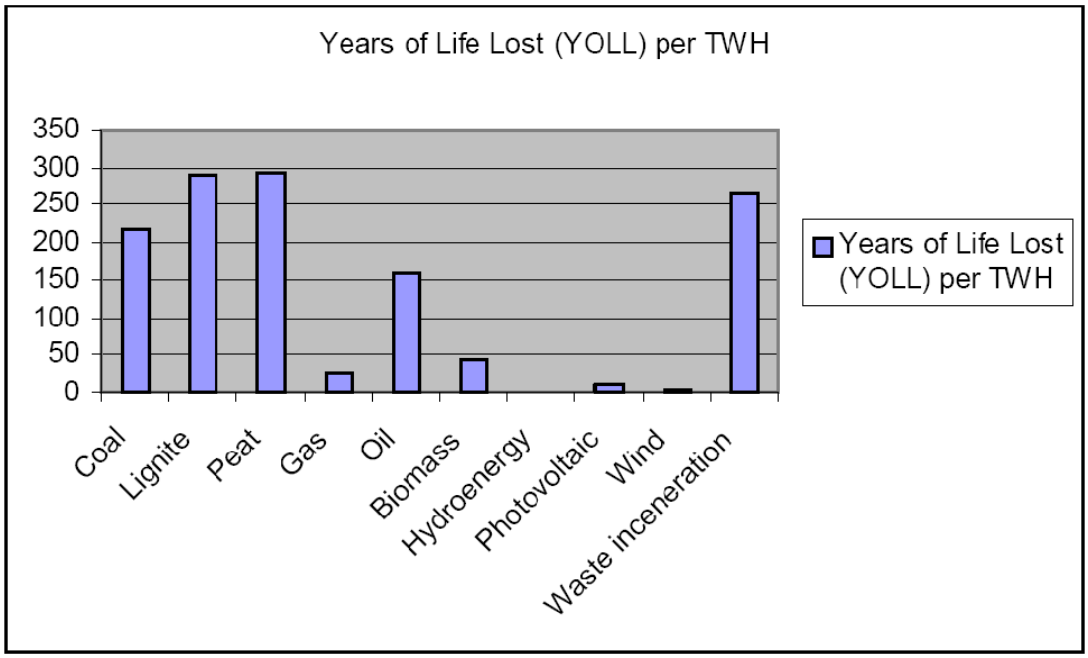

Figure 2 - **Years of Life Lost from acute and chronic air pollution effects per Terawatt hour (CIEMAT, 1998)**[6]

[4] See: National Health and Medical Research Council (2010) *Public Statement Wind Turbines and Health*
State Government of Victoria, Department of Health
http://www.health.vic.gov.au/environment/community/windfarms.htm
Worksafe Victoria (2010) Letter to Nick Winbush, Panel Chair, Berrybank Wind Farm Proposal

[5] World Health Organisation Europe Fourth Ministerial Conference on Environment and Health Budapest, Hungary, 23–25 June 2004 *Energy, sustainable development and health. Background Document.*

[6] Ibid page 45.

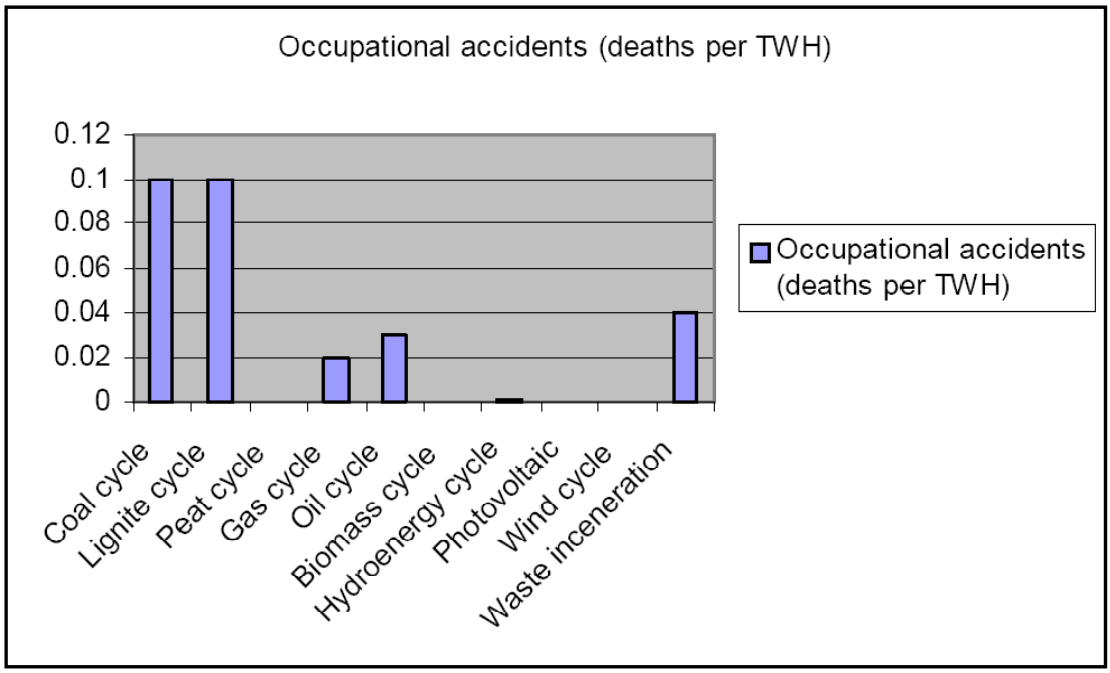

Figure 3 – Occupational Accidents – Deaths per Terawatt Hour (CIEMAT, 1998)[7]

Concerns about the excessive noise and vibrations emitted by wind farms, which are in close proximity to people's homes.

Wind turbine noise

A modern commercial wind turbine has a rated sound level of between 103 to 106 db. At the base of the turbine tower, sound power is reduced to approximately 60 db. Farm dwellings, where the landholders have decided to be part of a wind project, are usually exposed to a sound power level of between 35 db and 45 db.

Ground vibration cannot be considered relevant as it cannot be detected by humans at the base of a tower[8]. A visual inspection of any wind farm would demonstrate the lack of any impact on livestock which often shelter from the wind and sun at the base of wind turbines.

Permitted noise

In Victoria the *Planning and Policy Guidelines for Wind Energy Facilities* ensure that neighbouring dwellings are exposed to no more than 40 dba or 5 dba above the measured background sound level when measured on the outside of a dwelling.

[7] Ibid page 45.
[8] American Wind Energy Association and Canadian Wind Energy Association (2009) *Wind Turbine Sound and Health Effects An Expert Panel Review* page ES-1..

Standards and guidelines used for the assessment of environmental noise from wind farms in Australia and New Zealand are amongst the most stringent and contemporary in the World, with Denmark having a noise limit of 44 db and Illinois USA having a limit of 55 db. [9]

The figure below provides a comparison of sound levels from various land uses.

Table 1: Noise levels compared to a ten turbine wind farm	
Activity	Sound pressure level (dBA*)
Jet aircraft at 250m	105
Noise in a busy office	60
Car travelling at 61kph at 100m	55
Wind farm (10 turbines) at 350m	35–45
Quiet bedroom	35
Background noise in rural area at night	20–40

Figure 4 – Comparable sound power levels[10]

Wind Turbine Syndrome

It is often claimed by Dr. Nina Pierpont and her followers (see figure 5) that infrasound associated with wind turbines can make people living in the vicinity of wind farms sick.

Pierpont's self-published book based on a study of 38 people (selected by her, and many with pre-existing conditions) has been discredited as being an inadequate study with marginal scientific benefit as well as credited for creating a 'nocebo' affect in residents[11] [12].

Pierpont's book also misuses research into the workings of the human ear. The original author of this research Dr Neil Todd has stated, "*Our work does not provide the direct evidence suggested...I do not believe that there is any direct evidence to show that any of the above acoustic-physiological mechanisms are activated by the radiations from wind turbines.*[13]"

[9] Sonus Pty Ltd (2010) *Wind Farms Technical Paper – Environmental Noise* Prepared for the Clean Energy Council.
[10] National Health and Medical Research Council (2010) *Public Statement Wind Turbines and Health* State Government of Victoria, Department of Health page 2.
[11] Leventhall G (2010) *Wind Turbine Syndrome – an appraisal* Windustry 2010
[12] http://www.nhs.uk/news/2009/08August/Pages/Arewindfarmsahealthrisk.aspx
[13] British Wind Energy Association *Wind Turbine Syndrome FAQ's*

Figure 5 - Dr Sarah Laurie - fulltime activist on wind farm and health issues and medical director of the Waubra Foundation.[14]

Pierpont's study and its questionable methods are set to be repeated in Australia by Dr Sarah Laurie, who interviewed 40 rural Australians who showed worrying symptoms after living near wind farms. Dr Laurie is also encouraging those in the vicinity of projects to self-diagnose high blood pressure[15].

It is a shame that such poor study with no scientific rigour is having input into the debate about renewable energy and influencing local and state government policies and misinforming communities and the public along the way.

Infrasound - Facts

Infrasound is generally accepted as sound of a frequency below 20Hz[16]. It is prevalent in the environment from many natural and human sources. Infrasound can be heard by humans at high enough sound power levels.[17]

As mentioned earlier, modern commercial turbines have a rated sound power output of 103 to 106db. In order for infrasound to be audible even to a person with the most sensitive hearing at a

[14] Wind turbine health warning, Portland Observer 10 January 2011
[15] Ibid
[16] Bellhouse G (2004) *Low Frequency Noise and Infrasound from Wind Turbine Generators – A Literature Review* Bell Acoustic Consulting page 35.
[17] Leventhall G in Ibid page 19.

distance of 300m (where no one would ever reside) would require sound power level of at least 140db at 10Hz.[18]

This level of sound power won't be produced by a wind turbine. To hear infrasound at a neighbouring dwelling (or even at the base of the tower) would mean that there would be significant compliance issues with regard to sound power in the normal range.

The fact is that if infrasound can't be heard it can't have an effect on human health.[19] [20]

Infrasound is not an issue for wind turbines and wind farms.

The impact of rural wind farms on property values, employment opportunities and farm income.

Property Values

Concern about property devaluation is not a consideration for land use planning in Victoria. There are many elements that affect the value of land and it remains highly subjective.

A study prepared for the Royal Institute of Charted Surveyors (UK) found that there is evidence to suggest that the 'threat' of a wind farm may have a more significant impact than the actual presence of one[21]. Other studies have also suggested that wind farms do not appear to have negatively affected property values in most cases, but noting that additional research may yield more comprehensive results[22].

An American study of 7500 sales was more conclusive. It found neither the view of the wind facilities nor the distance of the home to those facilities is found to have any consistent, measurable, and statistically significant effect on home sales prices[23].

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[18] Bellhouse G (2004) *Low Frequency Noise and Infrasound from Wind Turbine Generators – A Literature Review* Bell Acoustic Consulting page 5

[19] Ibid page 37.

[20] Howe Gatmeir Chapnik Limited (2006) *Wind Turbines and Infrasound.*

[21] Dent P and Sims S (2007) Department of Real Estate and Construction, Oxford Brookes University, UK *What is the impact of wind farms on house prices?* Study prepared for the Royal Institute of Charted Surveyors.

[22] NSW Department of Lands (2009) *Preliminary Assessment of the impact of wind farms on surrounding land values in Australia*.

[23] Office of Energy Efficiency and Renewable Energy Wind & Hydropower Technologies Program U.S. Department of Energy Washington, D.C (2009) *The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis*

In any event WestWind submits that the development of its project sites will result in a positive economic and social impact and property value is completely irrelevant in land use planning terms.

If property values were to be considered for wind energy projects they must also be considered for all other land use changes which would be undesirable for everyone.

Employment opportunities

Wind energy will result in a dramatic increase in regional investment and employment in Australia. WestWind's projects in the Ballarat area of Victoria will result in over $1.3b in capital investment. The flow on effects of such an investment will be significant. Survey results suggest that for $1m worth of investment in the manufacturing industry: 12 jobs are created; $394,000 in tax revenue is created and $1.24m is generated in added value[24].

Renewable energy provides several times more local jobs per kilowatt hour of electricity generated than coal. The wind industry currently employees in Australia two to three times the number of jobs per year per kilowatt hour of coal power (including associated mining). Job losses from the Australian coal industry from a 25% renewable energy target could be addressed by not replacing a small fraction of workers who retire annually.[25]

The table overleaf indicates that 1 Megawatt of wind power installed and operating for one year supports 9,500 hours of labour or approximately four person-years.[26]

[24] Industry Capability Network (Victoria) *Submission to the Moorabool Wind Farm Planning Panel* 30 March 2010.
[25] Diesendorf M, (2009) *Climate Action – A campaign manual for greenhouse solutions* University of NSW page 52.
[26] Singh, V., Fehrs, J., 2001. *The Work that goes into Renewable Energy*. Renewable Energy Policy, Project Research Report 14, November 2001 page 14.

Project Activity	Occupational Category									TOTAL by Project Activity
	Prof, Tech & Manage (0/1)	Clerical & Sales (2)	Service (3)	Agri, Fishery, Forestry (4)	Process-ing (5)	Mach. Trades (6)	Bench-work (7)	Struc-tural Work (8)	Misc. (9)	
Transportation	20	20							120	160
Blades	400					670	670	670		2,410
Couplings	40					160		10		210
Brakes	60					320		10		390
Monitoring/ Controls	70	50	50		30		270			470
Gearboxes	190	10	10			250	60	80		600
Rotor Hubs	10				80	80				170
Generators	40					190	110	40		380
Towers	100					110	30	550		790
Nacelles	70							380	20	470
Turbines	60							310		370
Development	120									120
Installation								530	530	1,060
Servicing[b]	300		1,600							1,900
TOTAL by Occupation	1,480	60	1,660	0	110	1,780	1,140	2,580	670	**9,500**
TOTAL Person-Years	0.7	0	0.7	0	0.1	0.9	0.6	1.3	0.3	**4.8**[c]

a. Figures derived from a survey to determine labor requirements for a 37.5-MW wind facility.
b. Includes servicing for ten years of operation.
c. Totals for person-years do not add up due to rounding.

Figure 6 - Labour requirements per megawatt in hours[27].

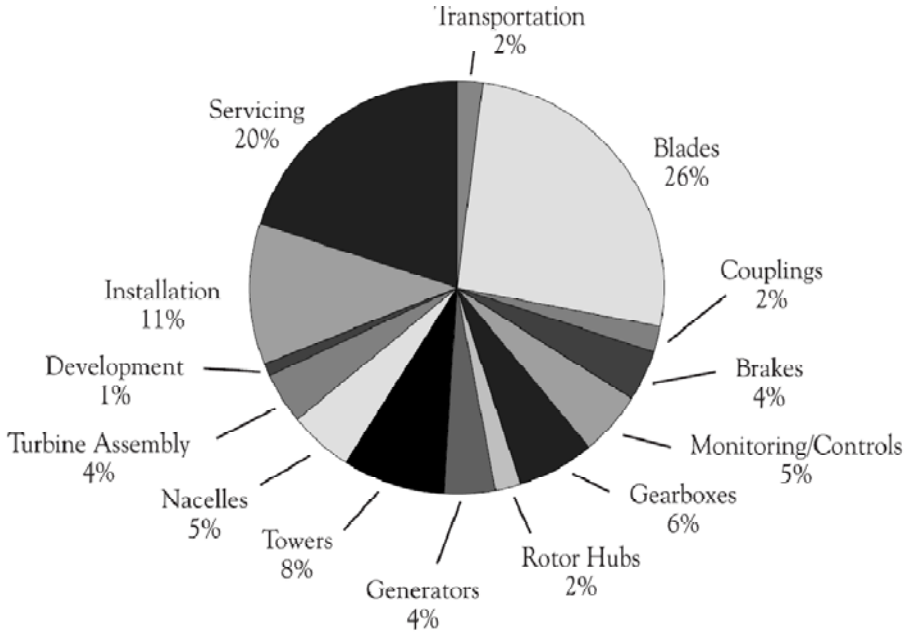

Figure 8 - Labour requirements for wind by activity[28]

[27] Ibid page 15.
[28] Ibid page 16.

The figure above suggests that even if high tech wind turbines are not manufactured in Australia the benefits from servicing, installation, tower construction and blade manufacturing[29] will be significant.

Farm income

Once construction starts on WestWind's approved projects, farm businesses on approximately 11,204 ha of land in the Ballarat region will have an additional non-rainfall dependent farm income of over $1.7m per year for the next 25+ years, indexed to CPI.

This additional farm income will be achieved by hosting wind farms which will occupy well under 1% of the 11,204 ha of land. This in turn is likely to result in further agricultural investment leading to an overall increase in agricultural production.

Local government income

Once operational WestWind's approved projects will generate over $900,000 each year for the next 25+ years (indexed to CPI) which will be shared across two local government areas[30].

Conditions on the planning approvals will ensure that these local governments will not be out of pocket with regard to road upgrades and repairs during construction and decommissioning. It is likely that many of the roads in the vicinity of WestWind's projects will be permanently enhanced at no cost to local government.

Community support

In addition to statutory charges wind farm operators and owners contribute funds to local communities and projects over and above their statutory obligations.

The interface between Commonwealth, state and local planning laws as they pertain to wind farms.

Victoria for almost ten years has had an advanced policy and set of guidelines that facilitated the development of wind farms. While the facilitation policy was helpful the planning process is very slow, overly detailed and inequitable in its requirements compared to other land uses in rural areas.

In Victoria the Minister for Planning decided on projects which are over 30MW capacity as they were determined to be of State Significance. Local government assessed developments which are less than 30 MW capacity. Both processes are effectively the same with differences regarding appeals and how submissions are heard.

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[29] If it were to be re-established in Australia

[30] 25 August 2005, Victoria Government Gazette Order in Council of the *Electricity Industry Act 2000*.

With the recent change in Government the outlook for Victoria's policy setting and approvals process is grim[31].

The Commonwealth has no input into the assessment of wind energy proposals other than its requirements under the *Environment Protection and Biodiversity Conservation Act 1999.* In the view of WestWind this Commonwealth referral and approval process adds unnecessary duplication to the assessment process. The Commonwealth is also preparing a set of national guidelines for the assessment of wind energy facilities but this will not be binding on States and territories.

In our view the approvals process in Australia should be streamlined and simplified to enable a rapid transition to low carbon electricity generation. One way to do this could be a National Code of Practice for Wind Energy Facilities to give the wind industry set standards based on facts. This would create investment certainty and the speed to shift Australia to a low carbon future.

Other relevant matters

Response to submissions made to the committee.

WestWind offers the following points in response to claims made in submissions displayed on the Committee's website.

Impact on aerial spraying

Aircraft can fly between wind turbines to undertake spraying and seeding given the distances between wind turbine rows. We understand that pilots would prefer paddocks that were totally unobstructed by all structures.

Spray planes have been observed flying below the 220 kilovolt power line and between wind turbines at the Waubra Wind Farm.

However, such pilots work for farmers who have decided to host wind turbines which will significantly boost farm income. We do not accept the claims in Submission 2 that there could be an impact on agricultural productivity or any need to compensate operators.

[31] 2010 Victorian Liberal and Nationals Coalition Media Release *Wind Farm Fairness and Certainty Under a Baillieu Government.*

Intermittent supply and ineffective source of electricity.

It is claimed in a number of submissions that wind turbines only produce when the wind is blowing. Obviously, this is the case.

Although a single wind turbine is indeed intermittent, this is not generally true of a system of several wind farms, separated by several hundred kilometres and experiencing different wind regimes. The total output of such a system generally varies smoothly and only rarely experiences a situation where there is no wind at any site. As a result, this system can be made as reliable as a conventional base-load power station by adding a small amount of peak-load plant (say gas turbines or hydro) that is only operated when required.[32]

It should be noted that most of Australia is connected to the national grid other than Western Australia and the Northern Territory.

Wind farms are however sited to ensure maximum exposure to consistent year round wind speeds. It is often claimed that wind turbines only produce power 30% of the time. This is simply not true. The 30 % capacity factor, which is often misquoted, means that a wind turbine or farm is operating at the equivalent of its full rated capacity 30% of the time. The amount of time that a wind farm is generating electricity generally exceeds 95%, which compares favourably with conventional power plants[33].

Increasing costs

Wind is the least expensive of the new renewable sources of energy.[34] It is often claimed that electricity sources from the wind is pushing up electricity costs. This claim is only partly true. It is true that wind farms may need to install new connections to the electricity network to supply power. Currently there is no proactive, strategically planned approach to connecting projects to the grid.

Network Service Providers, who have an obligation to connect wind projects to the grid, are funded on the basis of the value of their assets. As a result expensive, over-engineered and inflationary priced infrastructure assets are often prescribed. Appropriate infrastructure could easily be

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[32] Diesendorf, M (2007) *The Base-Load Fallacy* Institute of Environmental Studies University of New South Wales

[33] Australian Wind Energy Association Fact Sheet 2 *Wind Farming and the Australian Electricity System.*

[34] Diesendorf M, (2009) *Climate Action – A campaign manual for greenhouse solutions* University of NSW page 65.

provided for less outlay. This would ultimately assist in keeping prices lower for the electricity consumers.

Limited competition has also ensured that significant power rests with the electricity retailers. This is also compounded when retailers are also developing renewable energy facilities of their own, or, own existing non-renewable generation assets.

Historically power stations and transmission lines were once funded through energy bills and cross subsidised by the taxpayer. Now it is just through the energy bill.

The following figure provides an indication of the cost of electricity generated by the wind compared to other forms.

Plant Type	Capacity Factor (%)	U.S. Average Levelized Costs (2009 $/megawatthour) for Plants Entering Service in 2016				
		Levelized Capital Cost	Fixed O&M	Variable O&M (including fuel)	Transmission Investment	Total System Levelized Cost
Conventional Coal	85	65.3	3.9	24.3	1.2	94.8
Advanced Coal	85	74.6	7.9	25.7	1.2	109.4
Advanced Coal with CCS	85	92.7	9.2	33.1	1.2	136.2
Natural Gas-fired						
Conventional Combined Cycle	87	17.5	1.9	45.6	1.2	66.1
Advanced Combined Cycle	87	17.9	1.9	42.1	1.2	63.1
Advanced CC with CCS	87	34.6	3.9	49.6	1.2	89.3
Conventional Combustion Turbine	30	45.8	3.7	71.5	3.5	124.5
Advanced Combustion Turbine	30	31.6	5.5	62.9	3.5	103.5
Advanced Nuclear	90	90.1	11.1	11.7	1.0	113.9
Wind	34	83.9	9.6	0.0	3.5	97.0
Wind – Offshore	34	209.3	28.1	0.0	5.9	243.2
Solar PV[1]	25	194.6	12.1	0.0	4.0	210.7
Solar Thermal	18	259.4	46.6	0.0	5.8	311.8
Geothermal	92	79.3	11.9	9.5	1.0	101.7
Biomass	83	55.3	13.7	42.3	1.3	112.5
Hydro	52	74.5	3.8	6.3	1.9	86.4

[1] Costs are expressed in terms of net AC power available to the grid for the installed capacity.

Source: Energy Information Administration, Annual Energy Outlook 2011, December 2010, DOE/EIA-0383(2010)

Figure 9 – Cost range for various technologies in 2016[35].

35. US Energy Information Administration *Levelized Cost of New Generation Resources in the Annual Energy Outlook 2011* http://www.eia.doe.gov/oiaf/aeo/electricity_generation.html

Fire risk from wind turbines

The risk of fire from a wind turbine is extremely low and turbine fires are very rare. Despite this, the risk of fire always exists when electronics and flammable oils and hydraulic fluids exist in the same enclosure.[36]

Distances of over 300 metres [generally 300m to 500m] between wind turbines would allow fire suppression aircraft to operate around a wind farm given the appropriate weather and terrain conditions[37]. Well constructed, all-weather access roads within wind farms can also assist with fire suppression activities, regardless of the cause of the fire.

Wind turbines produce more carbon dioxide than other forms of electricity generation and do not reduce carbon dioxide.

Electricity generated from wind energy has one of the lowest carbon footprints. As with other low carbon technologies, nearly all the emissions occur during the manufacturing and construction phases.[38] For wind power, footprint payback comes quickly. Pacific Hydro's Challicum Hills Wind Farm, generated enough electricity to cover the energy consumed to manufacture, transport, install and maintain the project in the first few months of the wind farm's operation[39].

The contribution of electricity generated by the wind is currently small compared to the total generation in the grid. With suitable wind resources and Government support many countries could generate at least 20% of their electricity by wind by 2020 with Denmark achieving this penetration in 2003[40].

While still currently small in Australia, every megawatt generated from wind is a megawatt that does not need to be produced by other generation, most of which comes from burning fossil fuels.

The type of generation actually displaced (and hence the emissions saved) by wind energy, will vary depending on the geographic location of the wind farm and the time of generation.[41] A typical two megawatt turbine will reduce energy emissions by approximately 6000 tonnes each year.[42]

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[36] Country Fire Authority (2007) *Emergency Management Guidelines for Wind Farms.*
[37] Ibid.
[38] Parliamentary Office of Science and Technology (2006) *Carbon footprint of electricity generation.*
[39] Sustainability Victoria (2007) *Wind Energy Myths and Facts*
[40] Diesendorf, M (2007) *The Base-Load Fallacy* Institute of Environmental Studies University of New South Wales p 65.
[41] Ibid.
[42] Sustainability Victoria (2007) *Wind Energy Myths and Facts*

Government financial support for wind energy developments

This suggestion is a classic example of the level of misinformation surrounding wind energy.

Other than for the odd small community owned project[43], the wind industry is not subsidised by the tax payer. None of WestWind's operations are subsidised by the State or Commonwealth Governments and do not receive a cent of taxpayer money.

The only assistance WestWind expects to receive is through the Renewable Energy Target and the creation of certificates. However, this assistance would only kick in when the price of certificates increases.

What may be of interest to many of the submitters is the following comparison of subsidies.

Support for **fossil fuels** 2005 to 2006	$**1,214-1,989** million
Support for **renewables** 2005 to 2006	$**110-119** million

Figure 10 – Electricity subsidies in Australia 2005 - 2006[44]

There is no such thing as climate change.

Since 1960 the mean temperature in Australia has increased by about 0.7 °C with some areas experiencing a warming of 1.5 to 2 ºC over the last 50 years. [45.] In addition, rainfall distribution has changed with increased rainfall in northern Australia and decreases across much of southern and eastern Australia.[46]

There is greater than 90% certainty that increases in greenhouse gas emissions have caused most of the global warming since the mid-20th century and it is extremely unlikely that the observed warming could be explained by natural causes alone.[47]

Calls for a 2km plus set back between homes and wind turbines.

Many of the submissions call for a separation distance between dwellings and wind turbines of at least 2km. Such a requirement, which has recently been adopted as the Victorian Coalition Government's policy is effectively and conveniently a moratorium on wind farm development.

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[43] Small community projects have received community grants, rather than grants for wind energy.
[44] Riedy C (2007) E*nergy and Transport Subsidies in Australia*. Page 23 Institute for Sustainable Futures, UTS
[45] CSIRO and Bureau of Meteorology (2010) *State of the Climate*
[46] Ibid
[47] Ibid

The proposed setback is a blunt draconian planning tool that does not consider:

- number and the location of turbines
- prevailing wind direction
- topography
- the power rating or size of the turbine and
- the make and model of wind turbines and the rated sound power output.

The setback is not equitable when compared to the setbacks from other land uses which emit high noise levels, lethal gasses[48], dust and odours which are not associated with wind turbines.

This is illustrated in the table below.

Land use	Setback recommended by the Victoria Planning Provisions[49]
Aluminium by electrolysis	2000m
Works producing iron or steel products in amounts exceeding 1,000,000 tonnes a year	1000m
Ammunition, explosives and fireworks production	1000m
Biocides production and storage	1000m
Formaldehyde production	300m
Other petroleum or coal production	500m
Petroleum refinery	2,000m

Figure 11 – Setbacks from a selection of other land uses suggested by the Victoria Planning Provisions.

Impact on wildlife.

Potential impacts on wildlife and native vegetation are carefully assessed during project development and during operation (birds and bats). Wind farms have the ability to make layout changes to avoid environmental values within the site. This cannot be said for some industries who, by their very nature, need to completely remove such values to access resources.

[48] Such as chlorine release from aluminium refinery with a fatality threshold out to 1700m (*Environment Impact Statement* URS Alcan Grove Alumina Refinery Expansion Project).
[49] Clause 52.10 Victoria Planning Provisions

WestWind has spent many millions of dollars on consultant studies to ascertain impact on birds, bats and native vegetation and to ensure that potential impacts are minimised.

The overall impact on flora and fauna is negligible and significantly less than other forms of electricity generation.

Support for wind energy

The vast majority of Australians support the generation of electricity by wind, even when located close to their home. Perception studies continually show that in many Australian and overseas examples that between 60% and 70% of people find wind turbines an attractive element in the landscape[50].

WestWind commissioned consultants to undertake a perception study of residents' attitude towards wind farms in the vicinity of its Lal Lal and Mt Mercer proposals. The study found that 81% of respondents would support a wind farm within 10km of their residents and 68% would support a wind farm within 1km of their residence[51]. Other perceptions studies in the Ararat region found that 82% supported wind farms within 10km of their residence and 71% supported wind farms within 1km of their home[52]. Other international studies have found that after construction there is a reported increase in acceptance of a project.[53]

Wind Farms in the State of Victoria were not a political issue in the last Victorian election. Not one wind farm electorate[54] changed. The spiritual homeland of the Landscape Guardians in the seat of Ripon could only inflict a swing of 1.6 %[55] against the sitting ALP member. A very small swing considering the State-wide swing was 6.8 % against the ALP[56].

Less than 4% of the dwellings within 5km of WestWind's proposed Moorabool Wind Farm objected to it, despite concerted efforts by organised anti-wind energy groups spreading fear and

50 ERM (2008) *Lal Lal Wind Farm – Landscape and Visual Assessment Report.*
[51] Ibid.
[52] Ibid.
[53] Ibid page 18.
[54] Where wind farms are operating or where a number are proposed.
[55] http://www.abc.net.au/elections/vic/2010/guide/ripo.htm
[56] http://www.abc.net.au/elections/vic/2010/

misinformation. Other than in the immediate environs many of the other objections came from as far as Melbourne, Ballarat and north of Kyneton.

This is often the case with submissions to wind farms and associated infrastructure. Some in the local community will object and yet many will object from far and wide on ideological grounds. Anti-wind farm 'community meetings' in local halls will be run by and filled with blow-ins that locals haven't seen before. It would appear that this is also the case in the United Kingdom, where people from Scotland are objecting to wind farms in Cornwall[57]. The same could be said about a number of the overseas submissions to this Committee.

Conclusion

WestWind Energy is employing people, engaging consultants and contractors and spending millions of dollars in developing projects across Australia as the WestWind Group has done in Germany. We expect to invest significantly more once construction begins on our projects.

The natural energy in the wind turns rotor blades which in turn spin an electrical generator. There is no water used to generate steam and provide cooling and there is no heat source from the burning of fossil fuels or from nuclear fission. There is no hole in the ground too big to ever be filled.

Wind energy is the safest and cleanest of all forms of electricity generation. It does not make people sick. It does not produce any mysterious or dangerous forces. Wind turbines are very large structures which can, in certain areas, have an impact on the landscape and the visual amenity experienced by people.

Generally speaking landscape, aircraft safety, communications, effects on local flora and fauna and audible noise and shadow flicker in the immediate vicinity are the only relevant considerations. All of these issues can be adequately addressed through the wind farm design and appropriate assessments. If projects can't adequately address these matters then projects should be altered to comply with standards or refused.

[57] Dent P and Sims S (2007) Department of Real Estate and Construction, Oxford Brookes University, UK *What is the impact of wind farms on house prices?* Study prepared for the Royal Institute of Charted Surveyors.

There is probably no other land use in Australia that has ever been subject to organised opposition which revolves around fear, half truths, selective Google searches, misinformation and hysteria. This well funded organised campaign has led to many people being convinced of impending doom if a wind farm proposal is approved in their local area.

Wind energy will result in a dramatic increase in regional investment and employment across Australia. Farmers are willing project partners in this regional investment. Farmland is not being acquired for wind turbine locations and agricultural pursuits can continue. Communities are and will continue to be supported with this diversification.

Every unit of electricity generated from wind is a unit that does not need to be produced by other generation, most of which comes from fossil fuels. Science says that urgent action is needed to reduce carbon emission. Australians want to do this and we all want to maintain a high standard of living. Generating electricity by the wind will not address all our energy needs but it is a very significant and cost effective step in the right direction.

End of Submission