

10<sup>th</sup> February 2011

## **The Social and Economic Impact of Rural Wind Farms**

### **Western Plains Landscape Guardians Association Submission into the Federal Senate Inquiry**

Dear Sir/Madam,

The Western Plains Landscape Guardians is a volunteer organisation that was established 5 years ago to represent the communities of the 'Western District' of Victoria. In particular the districts between Beaufort and Skipton, west of Ballarat.

We support this inquiry and therefore have made a submission to highlight the immediate attention that is required to address the following:

- Adverse health effects for people living in close proximity to wind farms
- Concern over turbine noise and infrasound emitted by wind farms, which are in close proximity to residential dwellings.
- Local economic impact on farming income, property values, employment opportunities, and exiting of local families.
- Complications and challenges arising from the interface between Federal, State and local planning laws regarding wind farms.
- Lack of Community Consultation and governance throughout all planning stages of wind farm developments and breakdown in community cohesion.

The following pages address the above points in more detail.

Yours sincerely

Western Plains Landscape Guardians Association.

Western Plains Landscape Guardians Association Submission to the Senate Inquiry:

“The Social and Economic Impact Of rural Wind Farms”

**Adverse health effects for people living in close proximity to wind farms**

To date, Government and wind farm developers have ignored current medical research and evidence regarding wind turbine noise. Current planning and policy guidelines are using acoustic/noise standards dated back to 1998 (NZS6808:1998) which are now being recognised as outdated. With the advancement in wind farm technology and equipment, the significant increase in turbine heights, and recognised geographical location and turbine positioning which effects people's health, the 1998 standard is now obsolete.

It is clear that a new acoustic standard for wind farms is required and the adverse health effects on people living in close proximity (within 10km of wind farms) needs to be taken into serious account. Infrasound and human health are issues that are not considered in the planning guidelines. We believe that these serious factors should be addressed as the highest priority.

“Wind turbines such as those currently being constructed in rural areas generate high levels of infrasound noise. This is very low frequency noise (sound waves of less than 20 cycles per second) that you cannot hear. Even though you cannot hear the sound, it is easily detected by the ear at the levels that are produced and can have effects on the body that profoundly disturb some individuals.

The situation is somewhat similar to ultraviolet (UV) light and the eye. We cannot see ultraviolet light but we all understand that it can affect us profoundly, causing sunburn, photokeratitis (also known as snow blindness or welder's flash) and cataracts. For UV light, there are simple ways that the damaging effects can be avoided using sunscreens and eye protection.

For infrasound exposure in your home, there is currently NO WAY TO PROTECT YOURSELF. Although double glazing and door seals will reduce the levels of the sounds you can hear, they have little influence on the infrasound level in the home. Infrasound is a slowly-changing pressure wave, that can only be blocked by completely sealing the house, making it airtight. In practice this cannot be performed due to building codes and the risk of suffocation.

The effects of wind turbine infrasound build up slowly on people. For most, there are no effects while in the vicinity of wind turbines for short periods (such as the workday) and when higher levels of other sounds (i.e. sound you can hear) are present. The problem arises when people try and sleep in their homes in the presence of wind turbine noise. The audible sounds are reduced by the house structure, so the room may be fairly quiet, but the sound becomes dominated by the infrasound that the person cannot hear. The infrasound is detected by the ear and has subtle influences on the body that we are only just beginning to understand. It can cause dysequilibrium (like sea-sickness, but not induced by movement), tinnitus, a sensation of fullness in the ear and worst of all, disturb sleep, probably by stimulation of subconscious neural pathways to the brain. People undergo repeated arousals from sleep (brief partial awakenings that are not remembered) and repeated awakenings when sleeping in such an environment that leave the individual stressed and unrefreshed. Sleep disturbance over a prolonged period is known to be extremely hazardous to health, causing mental changes, high blood pressure, diabetes and increased mortality.

In many cases, these health effects have been significant enough to force people to abandon their homes. In a few cases the homes have been “bought out” by the wind turbine companies (and the owners typically “silenced” by non-disclosure agreements, otherwise known as “gag” orders), but in others the home is abandoned and is difficult to sell to another

family. Properties located in the vicinity of wind turbines are becoming increasingly difficult to sell. Recent epidemiological studies suggest that significant disturbances of sleep and mental health occur for people living in homes up to 5 kilometers away from the wind turbines. This is because infrasound is capable of traveling greater distances than the sound you normally hear (which is why elephants and whales use it to communicate).

The wind turbine companies and most politicians are turning a deaf ear to this problem, and continue to promulgate false and debunked arguments that no problem exists. In this collection of pages we consider in detail some of these issues in which we have scientific expertise.

**(Ref: Wind Turbines are Hazardous to Human Health. Alec N. Salt, Ph.D., [Cochlear Fluids Research Laboratory, Washington University in St. Louis.](#))**

In July 2010, the National Health and Medical Research Council (NHMRC) released its 11 page report entitled “Wind Turbines and Health, a rapid review of the evidence July 2011”. (Rapid Review) This is the only document that Government and developers of wind farms rely on when referring to people’s health and dismissing claims of adverse effects.

The Society for Wind Vigilance (SWV) is an international federation of physicians, engineers and other professionals promoting the development of authoritative wind turbine guidelines to protect the health and safety of communities. The SWV conducted an analysis of the NHMRC ‘Rapid Review’ and referred to it as

“...an incomplete literature review with no original research. The report is biased from the outset as it seeks to support a restricted and preconceived conclusion. The end result is a deficient public health document. NHMRC asserts it “... only uses the best available evidence, in the form of peer reviewed scientific literature, to formulate its recommendations.”

The contents of the “Rapid Review” reveal a different reality. The list of reference omissions is immense.

The “Rapid Review” places an inappropriate level of credence in wind energy industry produced and or sponsored material to support its assertions. To compound this bias the “Rapid Review” selectively cites references which favour the wind energy industry while inexplicitly omitting relevant citations which do not. For example the “Rapid Review” repetitively cites a wind energy association sponsored literature review but neglects to disclose this reference states wind turbine noise, including low frequency noise, may cause annoyance, stress and sleep disturbance. Acknowledged symptoms include distraction, dizziness, eye strain, fatigue, feeling vibration, headache, insomnia, muscle spasm, nausea, nose bleeds, palpitations, pressure in the ears or head, skin burns, stress, tinnitus and tension.

In a Public Statement the NHMRC contradicts these acknowledgements by stating “While a range of effects such as annoyance, anxiety, hearing loss, and interference with sleep, speech and learning have been reported anecdotally, there is no published scientific evidence to support adverse effects of wind turbines on health.”

**(REF: Haste Makes Waste, An Analysis of the NHMRC “Wind Turbines and Health, A rapid review of the evidence July 2010”)**

Dr Nina Pierpont MD, PhD is a world renowned expert on the adverse health effects that wind turbines and their noise have on people. Copied below is an extract from Dr Pierpont’s executive summary of her published book titled “Wind Turbine Syndrome”:

*Wind Turbine Syndrome: A Report on a Natural Experiment*  
Nina Pierpont, MD, PhD

*Executive Summary*

12/20/2009

The core of the book is a scientific report presenting original, primary research on symptomatic people living near large industrial wind turbines (1.5-3 MW) erected since 2004.

These are the findings:

- 1) Wind turbines cause Wind Turbine Syndrome. We know this because people have symptoms when they are close to turbines and the symptoms go away when they are away from turbines. The study families themselves figured out that they had to move away from turbines to be rid of their symptoms, and nine out of ten have moved. Some sold and some abandoned their homes.
- 2) People do not abandon their homes out of “annoyance.” Reported symptoms, such as sleep deprivation, dizziness, and nausea, cannot be dismissed as “annoyances.”
- 3) The symptom cluster is consistent from person to person, hence the term “syndrome.”
- 4) The symptoms are sleep disturbance and deprivation, headache, tinnitus (ringing in ears), ear pressure, dizziness, vertigo (spinning dizziness), nausea, visual blurring, tachycardia (fast heart rate), irritability, problems with concentration and memory, and panic episodes associated with sensations of movement or quivering inside the body that arise while awake or asleep.
- 5) Children are affected as well as adults, especially older adults.
- 6) People with pre-existing migraine disorder, motion sensitivity, or damage to inner ear structures (such as hearing loss from industrial noise exposure) are more susceptible than other people to Wind Turbine Syndrome. These results are statistically significant ( $p < 0.01$ ).
- 7) Wind Turbine Syndrome symptoms are not statistically associated with pre-existing anxiety or other mental health disorders.
- 8) The sample size of 10 families/38 people was large enough for statistical significance with regard to susceptibility or risk factors.
- 9) The susceptibility factors are clues to the pathophysiology of Wind Turbine Syndrome. The symptom complex resembles syndromes caused by vestibular (inner ear balance organ) dysfunction. The proposed mechanism is disturbance to balance and position sense by noise and/or vibration, especially low frequency components of the noise and vibration.
- 10) An extensive review of recent medical literature reveals how balance-related neural signals affect a variety of brain areas and functions, including spatial awareness, spatial memory, spatial problem-solving, fear, anxiety, autonomic functions (like nausea and heart rate), and aversive learning. These known neural relationships provide a robust anatomic and physiologic framework for Wind Turbine Syndrome.
- 11) Medical and technical literature on the resonance of sound or vibration within body cavities (chest, skull, eyes, throat, ears) is reviewed, since study subjects experience these effects.
- 12) Published studies of documented low frequency noise exposure (both experimental and environmental) are reviewed. These demonstrate effects on people similar or identical to Wind Turbine Syndrome. Indeed, one study from Germany in 1996 may indeed be Wind Turbine Syndrome.
- 13) Recent mail-in survey studies of people who live near wind turbines in Sweden and the Netherlands are reviewed. These show that people are severely annoyed at noise from wind turbines at much lower A-weighted noise levels than for traffic, train, or aircraft noise.

14) Published literature documenting the effects of environmental noise on cardiovascular health and children's learning are reviewed. For health reasons, the World Health Organization recommends lower thresholds for nighttime noise than are currently observed in most countries —especially when the noise has low-frequency components.

15) Wind Turbine Syndrome gives a name and medical description to a set of symptoms severe enough to drive people from their homes and establishes medical risk factors for such symptoms. This study and other studies reviewed in the report indicate that safe setbacks will be at least 2 km (1.24 miles) and even longer for larger turbines and in more varied topography. Further research is needed to clarify physical causes and physiologic mechanisms, explore other health effects of living near wind turbines, determine how many people are affected, and investigate effects in special populations, including children. Government funding and moratoria are appropriate.

The book further includes:

A) Full case histories—the words and experiences of all the study subjects (including children), presented in an organized tabular format.

B) The report presented again in non-scientific, layman's language, explaining the medical, technical, and statistical aspects of the study. This section is illustrated.

C) Peer reviews and commentary by scientists and university physicians.

D) Introduction, complete list of scientific and medical references, glossary, and list of abbreviations.

The senate inquiry into the impacts of rural wind farms should give full attention to Dr Pierpont's findings and use this evidence immediately to address the adverse health effects that turbine noise is having on human beings. Enclosed with this submission is a DVD of Dr Pierpont's skype presentation to the Stockyard Hill Wind Farm panel hearing in April 2010. We urge that all Senators view this DVD as most significant evidence of Wind Turbine Syndrome and its adverse health effects.

### **Local economic impact of rural wind farms.**

Much emphasis is placed upon the local economic gain from hosting a wind farm. Government and wind companies heavily promote the financial gain and employment opportunities to entice and encourage support. Wind farm locations are predominately rural areas that welcome financial assistance following many years of drought and hardship. Very little (if any) information or study has been done on the economic downfall and negative effects on an area that hosts a wind farm.

To date, Acciona –the wind company that owns and operates Waubra wind farm has purchased 7 properties in that small district. Locals report that this could be as high as 11. (ref: <http://www.thecourier.com.au/news/local/news/general/waubra-wind-farm-buys-more-properties/2000865.aspx> ) Acciona's reasons for the purchases have been that dwellings have been too close to excessive turbine noise and visual impact. This is hard to verify due to secrecy clauses of contracts between both parties, a common requirement from wind companies.

In a small district, the exiting of 7 families is huge on both social and economic levels. Only one of these 7 properties has come back on the market and to date, has not sold. Waubra is located in the Victorian Pyrenees Shire which is a predominately rural farming/agricultural region. The entire shire comprises of only approx 7,200 people. Agriculture makes up 25.2% of employment in the Pyrenees Shire; it is the single most important leading industry of employment in the region. Agriculture/farming is the main industry within the wind farm site. (Ref: [www.grampianspyreneespcp.org.au](http://www.grampianspyreneespcp.org.au) ) The loss of seven families impacts greatly on local agricultural employment, the local State primary school which only has 25 students, and other services like the school bus, and local contractors.

Only a select group benefit from financial gain with wind farms. The wind companies, the energy providers, the construction contractors –all of which are not local to that rural area, and then the

participating landowners. Neighbouring non-participating landowners receive no financial gain, in fact are subjected to much loss in devaluation of property, restriction in some agricultural business operations and if fighting for a fairer outcome, may have legal and other expenses. It is a known fact that non-participating landowners that have been contesting neighbouring wind developments, have spent up to tens of thousands of dollars in legal advice and administrating local support groups.

See below email regarding devaluation of property:

----- Original Message -----

**Subject:** RE: Wind farm affect on land values

Dear

I have been a Licensed Estate Agent for 30 years, specialising in the sale of Rural property, essentially all over Australia, with an emphasis on Victoria and the Riverina. I have held senior Management positions with the largest Rural real estate Companies in Australia. In recent years the growth of activity and the actuality of wind towers throughout the Victorian rural landscape have been significant. Challicum Hills, Coddington, and Mt Mitchell have all emerged as large scale wind farms, located on the tops of the low hill country, interrupting the landscape for many kilometres. Of significant importance, is the negative effect on the value of adjoining lands where wind towers have been erected. Visually, the towers are seen by the majority of the market as repulsive. Audibly, the towers effect the stillness a property enjoys, in particular the resonating tones in the night, invading serenity of the adjoining lands. A proliferation of wind towers adjacent to a property has the same effect as high voltage power lines, rubbish tips, piggeries, hatcheries, and sewerage treatment plants, in that, if buyers are given a choice, they choose not to be near any of these impediments to value. The ultimate effect is that the number of buyers willing to endure these structures is significantly less than if the structures were not there. This logically has a detrimental effect on the final price of the adjoining lands. Experts assess the loss of value to be in excess of 30%, and sometimes up to half.

My personal experience is that when an enquiry (potential buyer) becomes aware of the presence of wind towers, or the possibility of wind towers in the immediate district of a property advertised for sale, the "fall out" of buyers is major. Very few go on to inspect the property, and even fewer consider a purchase. On the remote chance they wish to purchase, they seek a significant reduction in the price.

There is absolutely no doubt, that the value of lands adjacent to wind towers falls significantly in value. The ambience of a rural property is important, and oftentimes, the sole reason why a purchaser selects a particular area or district. The imposition of wind towers, destroys this ambience forever.

It is estimated that approximately \$25 million of devalued agricultural land will result in the Stockyard Hill Wind Farm development. Restrictions in agricultural business operations due to wind farms include aerial spraying and road side stock grazing during construction phases.

The short term financial gain for a select few is no comparison or substitute for the long term loss to the local area subjected to a wind farm development.

### **Complications and challenges arising from the interface between Federal, State and local planning laws regarding wind farms.**

There are many flaws within the planning guidelines and policies concerning wind farm developments across the board. State wind farm planning policies differ between States and in some cases (Stockyard Hill Wind Farm) both State and Federal Governments' are involved, complicating and extending the planning process considerably. There are no over-arching Federal guidelines for wind farms, nor an independent body monitoring the planning process and adherence to policies.

Section 13(a) of the Planning and Environment Act 1987 provides that the municipal Council is the responsible authority for administration of a planning scheme unless a scheme provides to the contrary. The Minister for Planning is the responsible authority

for a wind energy facility 30MW or greater in all Victorian planning schemes. It is grossly inadequate that a municipal council is then burdened with the final overseeing and compliance regulations of a wind farm, without having input into the planning process.

A list of updates to the wind energy guidelines were released in September 2009. These updates did not involve community consultation of the Pyrenees Shire or local council input even though they host an operating wind farm and were going through the planning process of a proposed facility. The updates do not include a change to the outdated noise standards (still complying with 1998 standard), poor community consultation requirements, flora and fauna surveys only have to cover a period of 12 months regardless of climate and environmental changes and challenges (e.g. drought), and there is still no acknowledgement to human health and residential proximity to turbines.

(ref: [http://www.dse.vic.gov.au/CA256F310024B628/0/E33D037506AB7BBCCA25763500166DD8/\\$File/List+of+changes.pdf](http://www.dse.vic.gov.au/CA256F310024B628/0/E33D037506AB7BBCCA25763500166DD8/$File/List+of+changes.pdf) )

The Western Plains Landscape Guardians Association from the Pyrenees shire found it incredibly difficult to get help and support (regarding the Waubra and Stockyard Hill wind farms) due to the complexities of State, Federal and local Government involvement. We were unable to obtain help from the local Council as they were not involved in the planning process. The local member for Ripon, Joe Helper refused to meet with the non-participating and concerned local community as he publically stated he supported wind farms and would not entertain the idea of stopping proposals. And all attempts to meeting with Federal Ministers were futile.

### **Policy and Planning Guidelines fail the community**

- Non-existent Government support for rural communities voicing concerns about wind farm developments
- No formal bodies to represent and advise community concerns
- No independent wind-farm watch dog to supervise and monitor
- Pre-application consultation is not a formal statutory requirement of the planning process.

### **Lack of Community Consultation and governance throughout all planning stages of wind farm developments cause a breakdown in community cohesion**

The lack of community consultation in the planning process of wind facilities is alarming and is the beginning of the breakdown of many rural communities. This requires urgent attention.

Pre-application consultation with the community and key stakeholders provides an opportunity for information gathering and exchange. Pre-application consultation is not a formal statutory requirement of the planning process, however it offers benefits for proponents and interested parties alike. After a planning permit application is lodged, there are statutory requirements to notify the public of a proposal. It is only then that the public can learn of the development (years later) and usually have a month or two to object and voice concern at the planning panel hearing.

Rural communities rely heavily upon community cohesion and connectedness. Without it, we wouldn't survive. It is well documented that rural communities tend to demonstrate strong internal networks, often through necessity. It is also well documented and reported in the media of the long term division that wind farms create due to the unfairness of the planning process, the inequitable financial gain of only a select few, the helplessness that non-participating neighbours feel as they have no avenues of a fair hearing, the threat of adverse health effects, and the lack of independent information available regarding wind energy and wind facilities in Australia.

The community connectedness in the Pyrenees Shire is fragile. The approval of many wind farms and more proposed, is creating long term damage to its' local cohesion.

- The Pyrenees Shire ranks 5th out of 79 in the most disadvantaged socio-economic municipalities in Victoria.

- Life expectancy for men and women in the Grampians Pyrenees region is markedly lower than the rest of Victoria
- Depression is ranked in the top 7 diseases contributing to the disability burden in the Grampians Pyrenees region.  
(Ref: [www.Grampianspyreneespccp.org.au/Aboutus/index.aspx](http://www.Grampianspyreneespccp.org.au/Aboutus/index.aspx) )
- Mental health disorders have been described as the strongest risk factor for suicide across all ages.
- Suicide rates have consistently been found to be higher in rural than metropolitan areas  
(ref: [www.mja.com.au/public/issues/181\\_07\\_041004/cal10801\\_fm.pdf](http://www.mja.com.au/public/issues/181_07_041004/cal10801_fm.pdf) )
- Social inclusion is a determinant of mental health and wellbeing that is integrally linked to health promotion, particularly through the action areas of building healthy public policy, creating supportive environments and strengthening community action.  
(Ref: Pyrenees Shire Municipal Public Health and Wellbeing Plan 2009-2013. [www.pyrenees.vic.gov.au](http://www.pyrenees.vic.gov.au) )

No where in the Stockyard Hill Community Consultation report identifies the fragility of the state of the Pyrenees Shire (socio-economic status, health status) or the challenges and special circumstances that may be encountered when dealing with a rural farming community.

It's important to note that Socom Pty Ltd was engaged to prepare the community consultation strategy *after* SHWF Pty Ltd approached landowners to negotiate potential turbine sites on Stockyard Hill.

Western Plains Landscape Guardians believe that within the community consultation plan, the following issues must be addressed and responded to:

Evidence provided to confirm total number of residential dwellings and/or properties purchased, as part of mitigation measures.
Numbers required to weigh up local families leaving versus wind facility workforce residing short term and associated socio-economic damage.
Visual Amenity: Offer alternate and constructive mitigation other than visual screening by revegetation to all neighbouring properties within 10km boundary of wind farm.
Written guarantee that property will not be devalued due to any aspect of the wind farm. Included in guarantee is compensation if decrease evident.
Written guarantee that noise and/or infrasound will not negatively effect the health of any resident or person working or living within the wind farm vicinity. Assure any associated medical costs will be met by the proponent.

Conduct an <b>independent</b> community feedback program to refine and improve current strategies. Also assess current and potential community connectedness issues.
Work constructively with concerns of neighbouring residents. Remove turbines that pose a risk to their health and wellbeing or interfere/restrict their business operations in the planning stages.
Invest in an independent mental health program appropriate to that rural area to counteract the community break down and rebuild the local cohesion. Service should be free and confidential. Devise and implement a community mental health strategy for the life of the wind farm.

Conduct a secondary, **independent** landowner feedback survey: evaluate current satisfaction levels and specifically report of any stakeholders wishing to void their contract with a wind company.

We believe these actions would assist in fairer outcomes for the entire community exposed to wind farm developments, provide a more transparent planning process and gather input from more locals rather than beaurocrats.

The inquiry into the Social and Economic Impact of Rural Wind Farms is the first of its kind in Australia. Please address the serious points mentioned in this submission and take immediate action regarding the concerns and flaws in the existing planning guideline and policies. Unfortunately for some, the damage is done but we can change the outcome for many future proposals to be fairer and safer for all.

Western Plains Landscape Guardians Association.