



The Waubra Foundation.

30th March, 2017

Re Proposed Rye Park Wind Power Facility

The Waubra Foundation has repeatedly warned planning, health and noise pollution regulatory authorities, politicians, and relevant others about the serious health problems being reported in residents and workers living and working near industrial wind power facilities in Australia. These same problems have been reported for years, internationally. No state planning authority in Australia, including the NSW PAC, can claim that they did not know about the harmful adverse health effects being reported by residents living and working near industrial scale wind turbines.

Our first widely distributed warning was nearly six years ago, in June 2011, called the Explicit Cautionary Notice.¹ This document was based on the best available field knowledge at the time, and was drafted by the then Medical Director and now CEO, former rural General Practitioner Sarah Laurie, former Victorian Supreme Court Judge Justice Clive Tadgell, and Mr Peter Mitchell, Engineer, and Founding Chairman of the Foundation.

As industrial wind power facilities increase in power generation capacity and size with larger more powerful turbines, these serious adverse health impacts will predictably worsen and extend out to greater distances, especially if the inter turbine separation distances are not sufficient to prevent turbulence, which leads to additional generation of sound and vibration as a byproduct.²

Since the Explicit Cautionary Notice was issued and widely distributed in mid 2011, symptoms have been regularly reported out to ten km and even further from existing 3 MW turbines in South Australia at Waterloo. The same serious noise induced health problems including stress symptoms and sleep disturbance and resultant home abandonments have been reported since 2003 when the Toora wind power facility started up in South Gippsland, Victoria. Local Rural General Practitioner Dr David Iser first studied the problems occurring in his patients in 2003/4, and advised Victorian Government Ministers of the results of his modest population survey, some six years prior to the formation of the Waubra Foundation.³ In NSW, long suffering residents from Capital and Cullerin have reported problems to NSW based authorities for over six years, with no effective relief from their suffering.

In some instances these symptom reports have been independently corroborated by independent acoustic measurements demonstrating excessive levels of low frequency noise, and acoustic characteristics known to directly cause physiological stress ("annoyance") symptoms including sleep disturbance such as amplitude modulation, by numerous researchers including Professor Colin Hansen and his team from Adelaide University.⁴

¹ <http://waubrafoundation.org.au/about/explicit-cautionary-notice/>

² <http://waubrafoundation.org.au/resources/mitchell-p-wind-turbine-separation-distances-matter/>

³ <http://waubrafoundation.org.au/resources/dr-david-iser-2004-conducts-first-survey-patients-living-near-wind-project/>

⁴ <http://waubrafoundation.org.au/resources/hansen-zajamsek-hansen-noise-monitoring-waterloo-wind-farm/>

Other field research conducted in Australia by community based researchers (Morris, 2013)⁵ and acoustician Steven Cooper at Pacific Hydro's Cape Bridgewater Wind Power facility in Victoria⁶ which compared symptoms when wind turbines were shut down to symptoms when wind turbines are operating via the use of detailed diaries kept by residents, has clearly confirmed that wind power operations correlate with symptoms which engineers call "annoyance" – the most common of which is sleep disturbance.

The NHMRC have since commissioned research, led by Sleep Physiologist Associate Professor Peter Catchside from Flinders University, to investigate the sleep disturbance being reported by residents living near industrial wind power facilities.⁷

As the NHMRC and Health authorities including Chief Medical and Health Officers in Australia well know, repeated sleep disturbance, regardless of the cause, predictably leads to serious adverse health effects which are well known to clinical medicine, and undisputed by health authorities such as the Centre for Disease Control in the USA.⁸ This is what the CDC has to say about the consequences of insufficient sleep:

"Sleep is increasingly recognized as important to public health, with sleep insufficiency linked to motor vehicle crashes, industrial disasters, and medical and other occupational errors.⁴ Unintentionally falling asleep, nodding off while driving, and having difficulty performing daily tasks because of sleepiness all may contribute to these hazardous outcomes. Persons experiencing sleep insufficiency are also more likely to suffer from chronic diseases such as hypertension, diabetes, depression, and obesity, as well as from cancer, increased mortality, and reduced quality of life and productivity."

These adverse health effects which result directly from insufficient sleep from repeated sleep disturbance and their serious public health consequences are well known to entities such as Australia's Sleep Health Foundation and have been recently published in the Medical Journal of Australia.⁹ The specific adverse health effects from excessive night time noise in Europe have been clearly set out in the WHO's 2009 publication Night Noise Guidelines for Europe.¹⁰

The adverse health effects resulting from chronic sleep deprivation are not disputed by the paid medical expert generally used in Australia by the wind industry – Professor Gary Wittert. What Professor Wittert disputes is that wind turbine noise causes the reported sleep disturbance.

Instead, Professor Wittert continues to assert that a placebo effect causes the sleep disturbance and other symptoms, despite the mounting acoustic evidence of excessive low frequency noise inside people's homes near wind power facilities around the world (eg Shirley Wind Farm in the USA, Cape Bridgewater in Victoria, Australia, Waterloo, South Australia). Another known acoustic trigger for the symptoms being reported by nearby residents is the presence of amplitude modulation, known to cause sleep disturbance and other symptoms of physiological stress induced by noise and vibration, (which engineers call "annoyance") in laboratory studies. Amplitude modulation has been regularly measured and recorded at multiple Australian wind power facilities, and is occurring at the same time as serious disabling symptoms are being reported.

⁵ <http://waubrafoundation.org.au/resources/morris-m-waterloo-case-series-preliminary-report/>

⁶ <http://waubrafoundation.org.au/resources/cooper-s-acoustic-group-results-cape-bridgewater-acoustic-investigation/>

⁷ <https://www.nhmrc.gov.au/media/releases/2016/nhmrc-awards-funding-wind-farms-and-human-health>

⁸ <https://www.cdc.gov/features/dssleep/>

⁹ https://www.sleephealthfoundation.org.au/files/MJA%20Supplement/MJA_Supplement_final.pdf

¹⁰ http://www.euro.who.int/data/assets/pdf_file/0017/43316/E92845.pdf

Professor Wittert chooses to dismiss or ignore the clinical concerns of his medical colleagues such as Dr Wayne Spring, Sleep Physician in Ballarat, who has evaluated the sleep of many wind turbine noise affected residents in Western Victoria.¹¹

Unlike Dr Spring, Professor Wittert has never clinically assessed or provided clinical care to someone reporting adverse health effects they attribute to wind turbine noise, so has no relevant clinical experience in this particular specialized and relatively new field of medicine. Moreover, as Professor Wittert has been paid on numerous occasions to provide expert medical evidence on behalf of wind power developers (Acciona, Energy Australia, Trustpower) he now has an obvious financial conflict of interest,¹² and his advice cannot therefore be considered independent.

The Australian Federal Government has signed and ratified seven UN Conventions and Covenants, six of which enshrine the right to attain the best physical and mental health possible. These are fundamental human rights that the state planning and noise pollution regulatory authorities currently choose to ignore with respect to the prevention of known and predictable short and longer term health damage resulting directly from repeated sleep disturbance from wind turbines as well as other sources of pulsing, low frequency, amplitude modulated industrial noise.¹³

The current, criminally inadequate, noise pollution regulations for industrial noise do not protect rural residents. Instead, they guarantee sleep disturbance and progressive low frequency noise sensitization, with the most badly affected being those who are most vulnerable to stress and sleep disturbance, such as babies and children, the elderly, the disabled, and those with chronic physical and mental health conditions.

Low frequency noise sensitization has been specifically mentioned as a problem known to them by two health authorities – Queensland, and Victoria (in the context of coal seam gas and wind turbines respectively). The specific source of the low frequency noise is immaterial – it is the pulsing nature and amplitude modulation character of the noise that appears to be important for directly inducing the physiological stress responses. Once sensitized, people's brains will automatically react to the sound's characteristics whether they are awake or asleep, and if continually exposed to the sound their thresholds for activation of the physiological stress response will steadily decrease. This elicitation of sensitization via the acoustic startle reflex has been demonstrated in animal studies¹⁴ but is equally relevant to the human response to pulsing industrial sound.

Sleep disturbance and low frequency noise sensitization as well as characteristic annoyance/physiological stress symptoms consistent with activation of the "acoustic startle reflex" have been reported to the Waubra Foundation by residents living near coal seam gas field compressors, coal mines, gold mines, coal fired power stations, gas fired power stations and urban sources including data centres as well as industrial wind turbines. Once characteristic symptom is the report of "waking up suddenly at night in an anxious frightened panicked state".

The Waubra Foundation has funded field research that captured an episode of "acoustic startle reflex" near a wind power development in NSW at Taralga. The data was collected from a NSW resident who lives at Lithgow and has become sensitized to low frequency noise from a coal fired power station and an extractor fan from an underground coal mine.

This person noticed they and their spouse had severe acute physiological reactions just driving past wind turbines at Taralga, on their way between Lithgow and Canberra. The field research involved them voluntarily

¹¹ <http://waubrafoundation.org.au/resources/sleep-physician-dr-wayne-j-spring-calls-for-noise-assessment/>

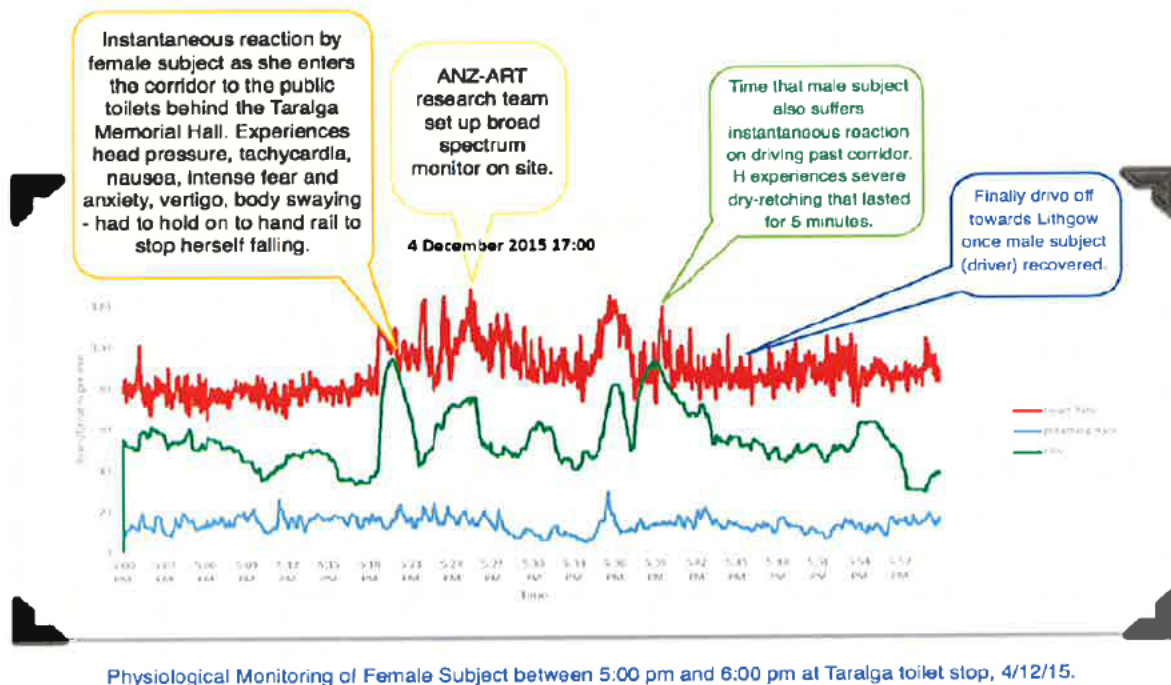
¹² <https://www.racp.edu.au/docs/default-source/default-document-library/icmie-coi-disclosure-authors-sign-updated.pdf>

¹³ <https://www.humanrights.gov.au/chart-related-rights-and-articles-human-rights-instruments-human-rights-your-fingertips-human-rights>

¹⁴ <http://bmcneurosci.biomedcentral.com/articles/10.1186/1471-2202-12-30>

going back to the site to see if the symptoms recurred, whilst in the company of acoustic field researchers, and wearing physiological monitoring equipment (an FDA approved Zephyr Biopatch).

Expert Evidence of Dr. Bruce Rapley.



9.31. The graph above shows the heart rate in red, the heart rate variability in green and respiration rate in blue. The annotations make the waypoints clear.

This physiological evidence of a sudden episode of severe physiological stress with sudden onset has been presented internationally at conferences. The data confirms the longstanding advice of the Foundation to the public and authorities that the sound is directly causing physiological stress responses that are not under conscious control, and therefore cannot be due to a placebo effect ie cannot be caused by "scaremongering".

The acoustic startle reflex is a simple neural reflex that is hard wired into the primitive part of the brain and is colloquially known as the "fight flight" response. When the acoustic stimulus is combined with other stimuli such as vestibular and tactile stimuli, the results are synergistic and result in an even stronger physiological response which is not under conscious control¹⁵.

These serious human rights abuses to rural Australians living near sources of pulsing industrial noise including wind turbines occur in the context of already having a lack of access to health care in comparison to their city counterparts, and significantly poorer mental and physical health indicators. It is totally unacceptable to further increase the risk of serious health damage to rural Australians because of the failure to protect the community with evidence based noise pollution and planning regulations.

As one of the court appointed NSW Land and Environment Court acoustic experts Steven Cooper has pointed out repeatedly, the current NSW noise pollution guidelines relating to wind turbine noise are not based on any empirical studies under Australian conditions relating to wind turbine noise. It is completely unacceptable to use traffic noise studies in Europe as a proxy and to ignore the frequencies not captured by the usage of the dBA filter (ie excluding infrasound and low frequency noise) when the characteristics of wind turbine noise, including particularly the frequent presence of amplitude modulation, as well as intrusive pulsing low frequency noise, is so different to traffic noise, and when the background noise environment in many parts of rural Australia is so much quieter than Europe.

¹⁵ <https://www.ncbi.nlm.nih.gov/pubmed/11835980>

Individual planning authorities that approve wind power or other industrial facilities which will not and cannot operate in a manner which will not disturb the sleep and therefore damage the health of neighbours, including vulnerable citizens such as babies and young children, the elderly, the chronically ill and the disabled, are therefore party to the harm which is being caused through state noise pollution and planning regulations which are currently inadequate and are clearly operating as a "licence to harm".

You each need to be aware that if approved, the harm which will result to the surrounding community members near Rye Park is predictable, measurable, and actionable via noise nuisance litigation. Noise nuisance litigation is currently before the Irish High Court, where the wind power developer Enercon has admitted liability for noise nuisance to seven Irish families, some of whom had to abandon their homes. The issue of Punitive Damages is being considered by the Irish High Court in hearings next month.¹⁶

Australian residents are currently taking advantage of the new more affordable acoustic technology (one example of which is SAM Scribe Mk 2, developed by Atkinson and Rapley)¹⁷ in order to accurately measure and record the soundscape they are exposed to in a way which preserves the legal chain of evidence and which permits the gathering of pre and post construction acoustic data to help them protect their human and legal rights.

If the Rye Park industrial wind turbine facility is approved, residents of Rye Park and surrounding areas will instigate the collection of full spectrum noise data using equipment such as the SAM Scribe M2 and this will provide the evidence and grounds for noise nuisance litigation proceedings. And I know there is one such machine in the district at this moment.

On that note, I trust that the current hosts and those who have signed neighbour agreements with Trust Power know what they are doing and have considered the risks and implications of doing so. What they have essentially done is sign a business agreement with a foreign company, and like any business agreement the liabilities of that partnership must be determined and considered, and a clear exit strategy formulated, prior to signing any contract. However, in the case of hosting wind turbines, there is no exit strategy. The consequences of the signing of that contract must be accepted, and responsibility taken for any impacts that result from that legal agreement.

I suspect that this is the first time many hosts who are in attendance today have heard this information, which is startling considering they have signed an agreement which allows a multinational company to determine the extent of noise, audible and inaudible, and 'annoyance' that they will be exposed to for many decades to come.

I trust that the hosts have done their due diligence on the business contract they have entered into and spoken with people who are currently living near operating industrial wind turbines to understand the potential health impacts of living near wind turbines. The potential impacts are many and varied, and hosts cannot be insulated from the significance of the impacts by the money they receive for the experiment they have signed their families up to be involved in.

I truly believe that the hosts and neighbours who have signed contracts with any wind developer are taking a massive gamble with their families health, and have committed their families to a lifelong experiment, guinea pigs as it were, whilst ever they reside near operating wind turbines. And they have also committed their neighbours and those living in the vicinity of wind turbines to an experiment, the results of which are in the best case uncertain and in the worst case a social and health disaster for Rye Park.

I suspect this hall in which we sit today represents, for many in here, a place of happy memories. Committee meetings of community groups, post funeral celebrations of the lives of residents of this district, Miss Boorowa competitions, debutant balls, weddings and public meetings. The list goes on.

¹⁶ <http://www.farmersjournal.ie/wind-company-admits-nuisance-damage-to-neighbours-246465>

¹⁷ <http://en.friends-against-wind.org/health/sam-scribe-mk2>

However, I have never known people to gather in this place in a forum of such opposing, counterproductive, destructive and divisive opinion.

There is no other issue in a rural community that is as insidious and divisive as a proposal to build and operate an industrial wind turbine facility. It tears it apart, creating irreparable damage to relationships between neighbours, friends, business colleagues and family members.

I myself have planted trees, sat on community committees, played sport, shared beers, attended weddings and funerals, and conducted business with proposed hosts and supporters of this wind turbine proposal. Now I stand here in complete opposition to these friends and members of the community with whom I have shared so much.

If the news was all good, then we wouldn't be here today, however the news isn't all good and the concerns of so many residents of the Rye Park and Boorowa area is a clear indication that the Rye Park industrial wind turbine proposal does not have the social license to justify its approval, nor carries a guarantee that no harm will come to the health of individuals living near operating turbines at Rye Park.

Committee, I appreciate your time today, and I trust that you appreciate the enormity of the decision that is in your hands, the responsibility you have to the people of Rye Park to protect them from harm, and the likely consequences regarding the health of the Rye Park community of an approval of this wind turbine facility.

Charlie Arnott

Waubra Foundation Director.

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