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4th April, 2014

Mr David Locke
Assistant Commissioner
ACNC
Sent via email to david.locke@acnc.gov.au

Dear Mr Locke,

Re your proposed revocation of "health promotion charity" classification for the Waubra Foundation

Background

You wrote to the Waubra Foundation on 13th February, 2014 indicating that you intend to revoke our classification as a "health promotion charity" and that certain tax concessional consequences may follow, which we assume refers to the DGR status which the ATO issued us with in 2011, and which was further considered and maintained by the ATO after a separate complaint earlier in 2013. You subsequently granted the Foundation a further extension of time to respond.

The definition of a health promotion charity in the relevant ACNC legislation as quoted in your letter is an "***institution whose principal activity is to promote the prevention or control of diseases in human beings***". We note that you accept that the Waubra Foundation is such an institution.

Indeed that is precisely why the Waubra Foundation was established, ***to promote the prevention or control of the many diseases already known and established by medical and acoustic research to be directly caused by exposure to sound energy***, with a particular interest in infrasound and low frequency noise. There were other diseases less well understood which required further research, and greater awareness of their important findings. Two of those diseases are what has become known as "wind turbine syndrome" (WTS) but is more accurately described as "infrasound and low frequency noise syndrome" (ILFNS) and "vibroacoustic disease" VAD. The existence of these two diseases appears to be disputed by you because of "insufficient evidence" and it appears you assume that these are the only two diseases we seek to prevent.

Mr Mitchell's engineering background meant he was well aware that rotating machinery could generate sound and vibration energy, long known to engineers to have the potential to harm people, hence the deliberate inclusion of other noise sources in the Objectives of the Foundation from its inception in March/April 2010. Mr Mitchell's long standing interest and senior involvement in philanthropic medical research institutions such as the Stroke Foundation (as Chairman) and the Florey Neurosciences Institute (as a Governor) meant he was well aware of the important social and public health benefit of well conducted multidisciplinary medical research. It was clear to him that more research was required.

Another key stimulus to establish the Waubra Foundation was the failure of government health authorities, planning authorities, and noise pollution regulatory authorities as well as consultant acousticians working for the noise polluters to respond adequately to protect people's health, when serious health problems were being publicly reported by residents living near noise polluting developments.

We note that the health problems reported to result from environmental noise (which includes infrasound and low frequency noise) were clearly previously known to both federal and state Australian government health authorities, because of the En Health Committee report in 2004 (http://waubrafoundation.org.au/resources/health-effects-environmental-noise-other-than-hearing-loss/ and because of Dr David Iser's report on the adverse health impacts resulting from the Toora Wind Project to the Victorian Government Ministers, also in 2004 (http://waubrafoundation.org.au/resources/dr-david-iser-2004-conducts-first-survey-patients-living-near-wind-project/). Dr Iser and the En Health Committee report both specifically mention sleep deprivation and stress related symptoms and diseases, which our own field work has subsequently confirmed.

Interestingly the assertions that "there is insufficient evidence that WTS (ILFNS) or VAD exist" and that they are "not currently accepted by most medical authorities" are precisely the complaints against our organization raised by Senator Richard Di Natale, although you have assured us that this request for us to "show cause" is not related to Senator Di Natale's complaint.

With respect to WTS/ILFNS or VAD specifically we simply ask you as the ACNC's representative, to consider when did a disease wait to be either "sufficiently documented by research" or "accepted by most medical authorities" to "exist"? The Waubra Foundation exists to prevent suffering and to increase knowledge about the clinical problems being reported by residents living and working near ILFN sources. Research will help to increase knowledge about the diseases being directly caused by ILFN sources, of which WTS/ILFNS and WTS are a subset, as well as how to prevent them.

HIV / AIDS is a good historical example.

First come the patients with the new symptoms, illnesses and diseases associated with severe immune suppression, then comes the pressure for research, which is eventually conducted and published, and finally comes the official and quite often reluctant acceptance of the existence of the disease many years later, even after treatment and prevention strategies have been devised. Official authorities including medical authorities are sometimes very late to admit there is a problem, for reasons which have much more to do with ignorance, power, politics, religion and ideology than science, professional integrity and compassion.

In the case of the range of symptoms resulting from exposure to infrasound and low frequency noise, which more recently have been called "wind turbine syndrome" but which are more accurately described as "infrasound and low frequency noise syndrome"; these symptoms have been known to and documented and researched by acousticians for at least forty years, according to the detailed historical article by American Acoustician Rick James (see http://waubrafoundation.org.au/resources/james-r-warning-signs-that-were-not-heard/) and it is only comparatively recently in the last ten years that numerous health practitioners and researchers have started to document these same health problems. This information was all provided in detail to the ACNC previously.

In the case of VAD, there is a large body of credible, peer reviewed published research conducted over the last three decades which clearly establishes the existence of serious pathology directly caused by exposure to infrasound and low frequency noise, regardless of the source of the sound energy. The pathological conditions were documented first in Portuguese aviation workers, and like much of scientific discovery resulted from the careful observations by Portuguese pathologist Dr Nuno Castelo Branco. He was responsible for the health of those aviation industry workers and noticed there were some unusual symptoms, illnesses and diseases being identified in and reported by these people. He and his co researchers particularly Professor Mariana Alves Pereira have clearly established the existence of an important disease with their subsequent research in animals and humans. I will refer in more detail to their work later.

As with WTS/ILFNS, the tardiness of the medical authorities around the world to accept the existence of VAD has much to do with power and politics, and in no way reflects on the credibility of the science, or the existence of the disease. The growing trend of senior managers being made personally liable for failing to maintain a safe workplace in some jurisdictions and workplaces, including in the military, is starting to focus more attention on this important clinical condition, attention which is long overdue.

Litigation such as that in the Portuguese Superiour Court which ordered wind turbines to be pulled down because of a diagnosis of worsening VAD in nearby residents, and compensation for affected aviation workers including airline hostesses will undoubtedly increase recognition of the clinical features of this disease.

I note that we have already provided a significant volume of information to ACNC officers previously to explain what we do, as well as relevant research, and cooperated fully with all requests for information in a timely fashion. I also note that the Australian Taxation Office initially granted us charity status after a thorough review of our activities, and that this status was unchanged after a previous complaint lodged by unknown parties to the ATO.

The problem

The problem seems to be that in your opinion:

1. there is insufficient evidence of a causal connection between symptoms and proximity to wind farms,
2. there is insufficient evidence that "WTS" or "VAD" are recognized as human diseases:
3. the health problems being reported by residents do not constitute a "disease".

With respect to point number 2, whether or not medical and government authorities officially recognize diseases and the timing of their recognition is irrelevant to the existence of those diseases and as previously stated has more to do with power, influence, ideology and politics rather than science, professional integrity and compassion. Powerful and vested interests can do much to thwart the recognition of serious health problems, and indeed this has occurred with the slow recognition of the seriousness of the range of symptoms and diseases including WTS/ILFN and VAD known to science to be directly caused by IFLN.

Your argument that health problems being reported by residents do not constitute a "disease" is not supported by the diagnoses of their doctors, who are suggesting they leave their homes because of the diseases their patients are reporting which are clearly being caused by exposure to the sound energy. It is not supported by the existing scientific evidence, which has been accepted in various jurisdictions around the world including Australia in the Cherry Tree case in Victoria where the acceptance of the reported symptoms and environmental sleep disorder was made clear.

The scientific and clinical evidence presented in local court cases has resulted in wind turbines being removed (Portugal, VAD) or ordered turned off at night (Falmouth, USA) because of the symptoms and diseases directly caused by the ILFN, documented by experts in the field, presented in court proceedings and accepted by the relevant judicial authorities. Your argument is additionally also not supported by the behaviour of the wind developers and other noise polluters, in silencing sick people when they buy out their properties, or when they prevent wind turbine hosts from speaking publicly about the serious health problems they and their families have.

What is the evidence for a direct causal link between ILFN exposure and symptoms?

You have stated that there is "*no scientifically rigorous credible or authoritative research*" that you have been able to find "*that establishes a causal connection between the symptoms suffered by some people and their proximity to wind farms*".

This statement is incorrect, and has been for many years. Acousticians working with the wind industry and other noise polluters are very well aware of this.

Causal connection – Kelley / NASA from the 1980's

The Kelley / NASA research from the 1980's, known to, but buried by the wind industry and its favourite acousticians for nearly thirty years, is precisely the research which established a direct causal relationship between impulsive wind turbine generated infrasound and low frequency noise and the symptoms in nearby residents including sleep disturbance, stress and "annoyance" symptoms.

I specifically brought this research to the attention of the ACNC in the material we submitted previously, and repeatedly emphasized its importance. However I will outline again just how important this research is.

A major research project was conducted by two branches of NASA and approximately fifteen other major US research institutions and wind turbine manufacturers and was funded by the US Government Department of Energy, in the 1980's. This major US research initiative was led by Dr Neil Kelley, Principal Scientist at the Solar Energy Research Institute (SERI) whose recent comments in the media and to independent acousticians working in this area indicate that his research is highly relevant to the impacts of the modern upwind bladed wind turbines, despite the predictable wind industry denials to the contrary.

The impacts / symptoms on humans from the same sorts of physical forces are the same, even if the wind turbine design is different. This is demonstrated by the replication of the symptoms of "annoyance" in volunteers in a laboratory situation where the wind turbine sound energy was artificially reproduced, and is further supported by other research conducted by eminent NASA researcher and acoustician Harvey Hubbard, which found similar sound energy doses and frequencies generated the same symptoms from different noise sources – namely military aircraft flying over homes which then resonated with the sound energy they emitted. The human dose response results were similar.

The fact that the wind industry globally subsequently changed their design from downwind bladed to upwind bladed wind turbines as a result of this extensive US research suggests that the wind industry were well aware of its importance. Unfortunately, instead of supporting the ongoing measurement of the full spectrum of sound energy, and implementation of the health protective noise pollution regulations suggested by Kelley et al, a decision was then made by acousticians working with the wind industry not to measure the very sound frequencies below 200 Hz, which the Kelley research established were directly causing the symptoms and adverse health effects.

Instead these acousticians who "helped" their respective governments write wind turbine noise pollution guidelines, conveniently omitted the accurate measurement of these frequencies below 200 Hz. **As a result, the health protective evidence based chronic exposure guidelines for wind turbine generated impulsive infrasound and low frequency noise established by Dr Neil Kelley's team have never been implemented**.

It is very concerning that this eminent, relevant and credible NASA and US government research was ignored by the NHMRC in their recent literature review. They were certainly made directly aware of it. Perhaps it had something to do with the revelations about the conflict of interest issues of some members of the NHMRC panel revealed by Senator Madigan in Senate Estimates questioning (http://waubrafoundation.org.au/resources/nhmrc-ceo-prof-anderson-questioned-about-draft-review-by-senate/ and by Senator Chris Back in a subsequent speech in the Federal Senate (http://waubrafoundation.org.au/resources/senator-chris-back-questions-evidence-from-vested-interests-at-planning-review-hearings/).

Causal connection – Salt et al and the neurophysiological pathways showing direct causation

A very recent article summarizing the work of Professor Alec Salt's team has just been published in Acoustics Today, the major publication of American acousticians. The article by Salt and Lichtenhan clearly describes their work meticulously investigating and documenting the neurophysiological pathways demonstrating a

direct causal relationship between infrasound and both Meniere's disease type physiological changes called "endolymphatic hydrops" in guinea pigs.

In other words, using an infrasound stimulus Salt et al have induced the pathophysiological condition which is identical to that reported by residents living near sources of infrasound, with symptoms of tinnitus, vertigo, nausea and fullness in the ear. Professor Salt is even suggesting a surgical intervention to assist people who are troubled significantly by these symptoms, as many people are. The surgical intervention is the installation of ventilation tubes, or "grommets" which has been a successful treatment for some people with Meniere's disease which presents with identical clinical symptoms.

There is also another physiological mechanism, which Salt et al have shown induces an alerting response, also known as the "fight flight response". This is precisely what people around the world are reporting is waking them up repeatedly and repetitively night after night when they are exposed to this sound energy, regardless of the source, be it wind turbines, CSG field compressors, coal mining noise or gas fired power station noise emissions.

This is therefore unequivocal animal study scientific evidence that the direct causal neurophysiological pathways exist, are known, and are consistent with the symptoms and consequent diseases reported by residents around the world when exposed to infrasound and low frequency noise sources, including horizontal axis wind turbines, and large compressors and pumps used in machinery for extraction of coal, CSG, or for energy production (gas fired power stations).

Professor Salt has some very pointed comments about the behaviour of those professional associations who deny the obvious health problems resulting from infrasound and low frequency noise, and about the usage of the "nocebo effect" in these circumstances. These comments are directly relevant to both the complaint made about the Waubra Foundation by Senator Di Natale, and to the matters you are considering with respect to our status as a health promotion charity. Please include Professor Salt's paper in your considerations. I have attached it, but it is also available at the following:
http://waubrafoundation.org.au/resources/salt-n-lichtenhan-j-t-how-does-wind-turbine-noise-affect-people/

Direct Causal Link - Case Series Crossover evidence

Further evidence suggestive of a direct causal relationship between the sound energy and the adverse health effects is abundantly clear to the residents living with these noise impacts if they are severely impacted, because the symptoms go away when there is no sound and vibration energy being emitted – ie when they are not exposed. Sometimes this is when the noise source is off for whatever reason, or the residents / workers get away, have a break from the sound and vibration, and sleep disturbance, and start feeling much better with cessation of many of their symptoms almost immediately.

This comparative exposure has been documented by American scientist and Paediatrician Dr Nina Pierpont, MD PhD in her landmark study published in 2009, submitted to the first Federal Senate inquiry. Her study is downloadable at the following link and is included as part of this submission to you. Please ensure the whole document submitted by Dr Pierpont is read, including the raw data (http://waubrafoundation.org.au/resources/dr-nina-pierpont-submission-australian-senate-inquiry/) and please also read the reviews by her peers particularly in the disciplines of otoneurology, epidemiology and paediatric neurology.

This clinical scenario is analogous to exposure to a toxin or an allergen – there is clearly a dose response relationship, and individual susceptibilities, with symptoms being directly related to exposure in those affected. Indeed this precise study design, known as "crossover" is used in pharmacoepidemiology to determine sensitivities to different drugs, and in food challenges conducted in people with food allergies. It is one of the strongest forms of epidemiological evidence to demonstrate direct causation, because people are their own controls, and it is possible to ensure that the only variable which changes is the exposure dose to the toxin / drug / food. Further details about this study design are available here:
http://smm.sagepub.com/content/18/1/53.abstract

In some instances people have been so adversely impacted by the infrasound and low frequency environmental noise from wind turbines and other sources listed previously that they have moved out of their homes, sometimes permanently, providing information about their health and symptoms when they were exposed, compared to when they were not exposed, unless they have been silenced with a gag clause in a property buy out or "good neighbour" agreement. In many instances people come and go from their homes, depending on the severity of the impacts as well as their access to affordable alternative accommodation.

People do not leave their homes for no reason. Nor do they do it because they have been "scared". They do it because they feel very unwell, in a wide variety of ways entirely consistent with exhaustion and chronic stress, or because they cannot sleep, or because they are in that unfortunate group in the population who develop the symptoms of "wind turbine syndrome" which can also occur in people exposed to other sources of infrasound and low frequency noise. As Dr Nina Pierpont pointed out in Ontario in 2010 after listening to Rick James' lecture about other sources of sound energy causing the same symptoms, it is perhaps more appropriately named "infrasound and low frequency noise and vibration syndrome".

In other circumstances cabling faults have meant that the whole wind development was not operating for prolonged periods (eg a week in mid 2013 at Waterloo in South Australia) and that sort of crossover comparative exposure data has been invaluable evidence of a direct causal relationship between operating wind turbines and the symptoms these residents are experiencing. Mary Morris, the author of the only Australian study included in the latest NHMRC Literature Review, is also the author of a small cross over case series which details what happened to people's symptoms during the week the turbines were off at Waterloo. The findings were predictable based on what is already known – people noticed they slept much better, and the symptoms which they had noted were correlating with exposure to operating wind turbines disappeared, only to return again when the turbines were turned back on again.

"Direct" vs "Indirect" effects are irrelevant semantics

You go on to quote from the heavily criticized and now out of date 2010 NHMRC "all too Rapid Review" which stated "*There are no direct pathological effects from wind farms and that any potential impact on humans can be minimized by following existing planning guidelines*". The wording of this NHMRC statement is curious, and suggests that the unidentified authors and peer reviewers of that document were well aware that there are "indirect" pathological effects.

As Emeritus Professor Alun Evans and others have noted, ***this distinction between direct and indirect is irrelevant with respect to public health concerns***. It is also irrelevant to those people who are affected by the symptoms directly caused by the impact of the sound energy on them. Please read Professor Evans' letter to the AMA in response to their recent position statement, and his review article accompanying the letter. It forms part of our submission to you. (http://waubrafoundation.org.au/resources/evans-prof-emeritus-alun-dismiss-any-adverse-effects-absurd-view-mounting-evidence/)

Global Responses to the AMA's recent position statement denying the science and the suffering

Please read our own detailed open letter to the AMA and all the documents which are listed as links in that open letter. They are all available at the following weblink: http://waubrafoundation.org.au/resources/ama-statement-responses-concerned-professionals-citizens-impacted-residents/ . The letter and all the documents it links to are also part of our submission to you.

Please include all the other letters and their attachments sent to the AMA from health practitioners including otoneurologist Dr Hakan Enbom, Professor Robert McMurtry, Dr Jay Tibbetts, Dr Sandy Reider, Dr Gary Hopkins, as well as those from the impacted residents and well informed concerned citizens around the world, available at that same weblink above, as part of this submission to the ACNC for us to show cause as to why you should not revoke our status as a health promotion charity. The suffering and resultant diseases evident in these letters are precisely what we are trying to prevent.

"Environmental Sleep Disorder" and downstream diseases

Is sleep disturbance a "direct adverse health effect", leading to pathology and a range of diseases and illnesses and accidents if it is chronic and results in exhaustion, such as residents living near infrasound and low frequency noise emitters consistently report as the number one health problem? Does it lead to other diseases if an environmental sleep disorder is not prevented with health protective management of noise pollution?

These are precisely the many diseases the Waubra Foundation seeks to prevent with much better knowledge, resulting in evidence based noise pollution guidelines including ILFN, which are properly and transparently regulated and enforced. Currently we have what Senator John Madigan describes as "systemic regulatory failure" with respect to regulation of health damaging disease inducing noise pollution and this is directly resulting in serious illness and resultant home abandonment for an increasing number of rural residents.

Clinically it is certainly accepted that sleep is essential for the maintenance of good mental and physical health, and there is an increasing body of peer reviewed published research across a range of clinical disciplines, which is showing just how damaging sleep deprivation can be for the maintenance of health and the prevention of diseases. There is a wealth of clinical research, supported by sleep physicians' clinical experiences and bodies such as the Australian Sleep Health Foundation headed by Professor David Hillman, which argue that severe and chronic sleep disturbance (regardless of the cause) does indeed have serious and direct pathological effects.

A recent article "*Cardiovascular effects of environmental noise exposure*" by Munzel et al just published in the European Heart Journal is just one of many journal articles detailing the known connections between noise, sleep and health, and is attached for your consideration. Unfortunately because of the extremely narrow criteria of the recent 2014 NHMRC literature review on wind turbine health issues it would probably not have been included, despite its obvious relevance. The abstract states:

> *"The role of noise as an environmental pollutant and its impact on health are being increasingly recognized. Beyond its effects on the auditory system, noise causes annoyance and disturbs sleep, and it impairs cognitive performance. Furthermore, evidence from epidemiologic studies demonstrates that environmental noise is associated with an increased incidence of arterial hypertension, myocardial infarction, and stroke.*
>
> *Both observational and experimental studies indicate that in particular night-time noise can cause disruptions of sleep structure, vegetative arousals (e.g. increases of blood pressure and heart rate) and increases in stress hormone levels and oxidative stress, which in turn may result in endothelial dysfunction and arterial hypertension. This review focuses on the cardiovascular consequences of environmental noise exposure and stresses the importance of noise mitigation strategies for public health."*

Legally, the two VCAT Tribunal members hearing the Cherry Tree case in Victoria in 2013 agreed that sleep disturbance was a direct and adverse effect on health from exposure to wind turbine noise, and they chastised the Infigen wind developer employee David Griffin for leaving out of his Tribunal evidence the extensive records of residents complaints of repetitive and recurrent sleep disturbance at their NSW wind development called Capital Wind Development.

These complaints from the residents, in their hundreds, had all been ignored by the wind developer. Nor was anything done by the responsible authorities in health, planning and noise pollution in the NSW Government to reduce the noise pollution, despite their official awareness of it following an audit of wind turbine noise at Cullerin, Capital and Woodlawn, commissioned by the NSW Department of Planning in 2012.

The residents adversely impacted include particularly vulnerable children, frail elderly or chronically ill citizens who have been particularly badly affected. One of the local doctors at Bungendore has publicly denied there

is a problem, much to the distress of these residents, despite seeing some of them professionally and being well aware of their clinical problems. Unfortunately this denial of obvious and known health problems resulting from exposure to environmental noise from wind turbines by local medical practitioners is not an isolated incident.

The dismissal of sleep disturbance and deprivation and its obvious serious adverse health consequences by wind developers is not confined to Infigen and other wind developers in Australia, but extends to government health, planning and noise pollution regulatory authorities and departments. All relevant and responsible state and federal government departments have been repeatedly advised of these serious health problems and diseases both by impacted residents and by the Waubra Foundation, and all have failed to act to protect public health despite these explicit warnings over many years.

We note however that Justice Muse, from Falmouth in the USA, issued an injunction in December 2013 to immediately order the wind turbines in Falmouth turned off at night, to prevent "irreparable harm to physical and psychological health". Please consider that judgment as part of this submission, accessible from the following weblink: http://waubrafoundation.org.au/resources/us-judge-rules-wind-turbine-neighbours-suffer-irreparable-harm/ together with the letter from the Falmouth Psychiatrist Dr William Hallstein to the Falmouth Board of Health: http://waubrafoundation.org.au/resources/hallstein-w-falmouth-wind-turbines-sleep-deprivation-psychiatrist-weighs/ which clearly outlines the well known consequences of chronic sleep deprivation, even for those people in robust health.

There is a recognized sleep disorder called an "environmental sleep disorder" which is listed in the World Health Organisation's Night Noise guidelines for Europe, 2009. The quote below was included in the material sent to the ACNC. It states:

> "*Sleep disorders are described and classified in the International Classification of Sleep Disorders (ICSD) (American Academy of Sleep Medicine, 2005). When sleep is permanently disturbed and becomes a sleep disorder, it is classified in the ICSD 2005 as "environmental sleep disorder". Environmental sleep disorder (of which noise-induced sleep disturbance is an example) is a sleep disturbance due to a disturbing environmental factor that causes a complaint of either insomnia or daytime fatigue and somnolence. Secondary deficits may result, including deficits in concentration, attention and cognitive performance, reduced vigilance, daytime fatigue, malaise, depressed mood and irritability.*

Environmental sleep disorder is the commonest direct adverse health effect described by residents living near sources of infrasound and low frequency noise particularly in quiet rural environments. The noise sources include wind turbines, turbines used in gas fired power stations, mining (open cut and underground) and field compressors used in CSG extraction.

Environmental sleep disorder and its downstream diseases is also the commonest adverse health consequence from night time environmental infrasound and low frequency noise pollution, which the Waubra Foundation particularly seeks to prevent. Tightly targeted multidisciplinary research leading to a better understanding of the specific doses and frequencies of sound and vibration energy which are directly causing the sleep disturbance, and improved noise pollution regulations and active enforcement of those improved regulations will help to achieve this important and long overdue public health measure for residents impacted by some forms of environmental noise.

The Waubra Foundation has been actively progressing discussions about this required research with national and international researchers in acoustics, sleep medicine and related fields since early 2011, and **we are delighted that the recently released NHMRC draft information statement has acknowledged this research is a priority**. The reasons we have made this our priority are obvious – it is the commonest reported health problem, and the downstream health consequences and diseases resulting from insufficient good quality sleep are well known to be detrimental to physical and mental health and wellbeing.

The consequences of chronic sleep deprivation involve a multitude of diseases which result from impaired immunity (cancer and infections), cardiovascular disease, diabetes, and mental health disorders, just to name a few. The cardiovascular disease connection with insufficient sleep was been made with a relatively recent large meta analysis by Professor Capuccio et al from Warwick University in the UK, which the Foundation submitted to the first Federal Senate Inquiry in February 2011, and which was part of the material previously submitted to the ACNC. In case you were not aware, a meta analysis is at the peak of the hierarchy of peer reviewed published clinical evidence. That review is also available here: http://waubrafoundation.org.au/resources/sleep-duration-predicts-cardiovascular-outcomes/

Clinical and Acoustic Acceptance of the symptoms of "Wind Turbine Syndrome"

As I have pointed out, comparative exposure information was specifically gathered and used by American Scientist and Paediatrician Dr Nina Pierpont in her study, which successfully identified the risk factors for developing a specific pattern of symptoms in response to exposure to wind turbine noise, which she named "Wind Turbine Syndrome". This value of this aspect of Dr Pierpont's work in identifying susceptibility factors has even been grudgingly acknowledged by British wind industry Acoustician Professor Geoffrey Leventhall.

Professor Leventhall has also admitted that the symptoms themselves have been "known to me for years" but Leventhall, who is not medically trained, has instead later attributed them to "stress" from environmental noise. However more recently Leventhall has attributed them to the "nocebo effect" rather than his previous assessment that they were due to noise exposure. Interestingly the nocebo nonsense is only applied to those suffering symptoms from exposure to wind turbine noise and not to people with identical impacts, symptoms and diseases from other sources of infrasound and low frequency noise.

This unfortunate abrogation of professional integrity and ethical behaviour is not based in an objective evaluation of the scientific evidence, but is consistent with an increasingly strident and indefensible "product defence" strategy being conducted by the wind industry, its professional advisors, and also by its supporters in the ranks of public health.

Increasingly Leventhall's acoustical colleagues internationally (even including some who work with wind turbine developers) are distancing themselves from this increasingly indefensible position. Perhaps the litigation against an acoustician in the USA (Mark Bastach) for professional negligence has something to do with the increasing recognition of a serious and growing public health problem, which the acoustics profession can no longer afford to ignore. Nor can they continue to dismiss as mere "annoyance" which to some noise engineers and EPA employees can include life threatening severe depression.

Independently of Dr Pierpont, otoneurologists and Ear Nose and Throat specialists working in Sweden, the UK and the USA have confirmed the existence of a constellation of symptoms being reported by their patients which are associated with exposure to wind turbine noise, in either peer reviewed published articles, or in legal statements for court hearings. Most recently the Irish Deputy Chief Health Officer has confirmed the constellation of symptoms and used the phrase "wind turbine syndrome" as has an eminent US ENT surgeon Steve Rauch, from Harvard.

The government funded study conducted by researchers led by Professor Phillip Bigelow at the University of Waterloo in Ontario has also found that sleep disturbance and inner ear symptoms such as vertigo and tinnitus are associated with exposure to wind turbine noise, with a dose response relationship emerging from their data, and researcher Clare Paller has also chosen to use the descriptor "wind turbine syndrome" as these symptoms are part of the constellation of symptoms identified and described by Dr Nina Pierpont.

The previously mentioned important work of Professor Alec Salt and his colleagues has demonstrated an animal model explanation for the physiology of how the inner ear reacts to a stimulus of infrasound and low frequency noise, and in particular has demonstrated how sensitive the inner ear is to these very low frequencies where there is minimal background noise, similar to quiet rural environments. This helps to explain why wind turbine noise in very quiet rural environments can be perceived by residents 10km away, when they cannot see the turbines.

The failure of the NHMRC to include the Kelley research or to properly evaluate Dr Nina Pierpont's research, together with the exclusion of 40 years of acoustics research relating to the known adverse health impacts from infrasound and low frequency noise in either of the NHMRC literature reviews is a reflection on the poor quality of the NHMRC's work and limited understanding of the issues in this area, rather than the quality of the NASA/SERI research by Dr Kelley's team or the quality of the research by Dr Pierpont. The comments about conflict of interest issues with some of the NHMRC hand picked "experts" are therefore extremely relevant.

Vibroacoustic disease and damage to health from vibration

Australian and international standards governing exposures to whole body vibration have been established, **in order to protect health, and prevent diseases.** This connection between exposure to vibration and symptoms and diseases is not new, especially in the field of occupational exposure to vibration. Female helicopter pilots in the US Military are restricted from flying certain helicopters at times when there is a chance of pregnancy, because of the known risk of teratogenic damage to a fetus. (http://waubrafoundation.org.au/resources/effects-vibration-embryonic-development-maturity-usa-army-aeromedical-research/

Concerns about vibration and ILFN being involved in observed animal fetal deaths and congenital abnormalities near existing wind developments have been raised in the USA by biologist Dr Lynne Knuth (see the letter from the World Council for Nature publicizing this research as well as that of others with respect to animal impacts: http://waubrafoundation.org.au/resources/world-council-for-nature-wcfn-windfarms-vertebrates-and-reproduction/)

With respect to the existence of the specific pathology described by Dr Nuno Castelo Branco and Professor Mariana Alves Pereira, there is a large body of human pathological and animal experimental research spanning 30 years of research collaboration, for which these researchers were awarded a public health medal in Portugal. Some of that research is listed in this review article: http://waubrafoundation.org.au/resources/vibroacoustic-disease-biological-effects-infrasound-alves-periera-castelo-branco/

There are particular concerns about ILFN induced diseases in military personnel, because of the ILFN rich environment in which they work. These were documented by Dr Nuno Castelo Branco here: http://waubrafoundation.org.au/resources/castelo-branco-n-low-frequency-noise-major-risk-factor-military-operations/

Subsequent researchers in Taiwan have identified identical pathology in Taiwanese aviation workers, with clear evidence of a dose response relationship, indicative of a direct causal relationship. This Taiwanese research was published in an international peer reviewed journal. (http://waubrafoundation.org.au/resources/effect-low-frequency-noise-echocardiographic-parameter-ea-ratio-chao-et-al-2/)

Clinical indicators of vibroacoustic disease have also been described in residents living near industrial wind turbines in Germany and Ontario as well as Portugal. It is clearly not "just a Portuguese disease" as sociologist and wind turbine advocate Professor Simon Chapman has claimed. (http://waubrafoundation.org.au/resources/windwahn-story/)

Legally, in Portugal there have been cases of compensation awarded to airline stewards who developed occupational Vibroacoustic disease, and more recently a superior Portuguese court ordered wind turbines to be pulled down because of proven vibroacoustic disease in nearby residents. The residents' horses also showed the same characteristic tissue pathology of thickened collagen. (http://waubrafoundation.org.au/resources/follow-up-study-family-exposed-low-frequency-noise/ and http://waubrafoundation.org.au/resources/low-frequency-noise-presentation/)

NHMRC Literature Reviews (2010 and 2014) and Serious Conflicts of Interest Issues

Perhaps the now known serious conflicts of interest of the two then unnamed peer reviewers of the 2010 Rapid Review (Professor Geoffrey Leventhall and Professor Simon Chapman) had something to do with the fact that they could not "find" the important Kelley research from the 1980's despite it being well known to the wind industry, and did not appear to have read Dr Nina Pierpont's study or understood its clinical importance. Neither of these peer reviewers were medically trained, and the identity of the author or authors of the Rapid Review is unknown, so perhaps this is unsurprising.

Professor Leventhall does extensive consulting work for the wind industry, and Professor Simon Chapman is a sociologist, who has helped a major product manufacturer (VESTAS) deny the harm to human health its products cause with a global campaign called "Act on Facts" – harm from "annoyance" from wind turbine noise which an employee of the same company (Erik Sloth) admitted to an Australian Wind Energy Conference in 2004. (http://waubrafoundation.org.au/2014/public-statement-home-abandonment-due-environmental-noise-pollution/)

As previously mentioned, there are serious concerns being raised in Federal Parliament in the Senate by both DLP Senator John Madigan and Senator Chris Back and others in the Federal Government about the NHMRC's mismanagement of conflict of interest issues in the recently released literature review and draft information statement.

We agree that it was inappropriate for the NHMRC to have chosen the sole acoustician on that NHMRC panel to be so closely financially connected with the wind industry, and for the NHMRC and the acoustician to fail to disclose those extensive and significant financial interests to the general public, especially after being specifically warned about these conflicts by a number of different people including the Waubra Foundation immediately after the composition of the panel was announced. Furthermore work performed by this acoustician has resulted in significant underreporting of the predicted noise levels at Waterloo wind development, which is one of the worst in Australia in terms of the distance of acoustic adverse sleep and health impacts, and the proportion of the population of local residents who are impacted. Senator Back has also raised other concerns about subsequent financial conflicts of interest which occurred during the period of the NHMRC consultations about the most recent literature review.

We also agree with Senator Madigan that the conduct of the Climate and Health Alliance in helping a product manufacturer (VESTAS) deny the harm its product causes (Act on Facts campaign) means that the President of the Climate and Health Alliance is now also compromised. Dr Liz Hanna is the President of the Climate and Health Alliance, and was another member of the NHMRC Literature Review Panel. She is also a key member of another public health lobby group called the Public Health Association, which have also been quick to adopt the "nocebo" nonsense promoted by Professor Simon Chapman.

The PHAA is yet another public health advocacy organizations to neglect rural residents badly impacted by environmental noise from coal mining, gas fired power stations, CSG and wind turbines, and they have developed a website which eminent acoustician Professor Colin Hansen has recently described to them as misleading, and promoting the interests of the wind industry, rather than protecting public health from noise pollution. Despite being clearly advised of the misleading nature of the information on their website so far the PHAA have refused to remove it. (http://waubrafoundation.org.au/resources/emeritus-prof-colin-hansen-errors-public-health-association-australia-media-release/)

Concluding remarks

The reason the Waubra Foundation was established was to ensure the gaps in current knowledge were addressed with targeted multidisciplinary research, which would assist with safer planning and noise pollution regulations. There is no doubt the gaps in knowledge exist, and there is not doubt there is not yet widespread awareness amongst state health authorities and medical groups of the two specific conditions called "wind

turbine syndrome" or more appropriately named "infrasound and low frequency noise syndrome" and "vibroacoustic disease".

However there is equally no doubt that these two diseases exist and are increasingly being described by other clinicians and researchers unconnected with the original researchers. **The hallmark of credible science is the ability to replicate results**, and that is happening increasingly around the world with increasing awareness of the health problems associated with chronic exposure to infrasound, low frequency noise and vibration.

Contrary to Senator Di Natale's assertions, the Foundation has not called for a moratorium on all wind turbine development, nor have we called for a moratorium on any other noise polluting developments. Also contrary to Senator Di Natale's assertions that we have not put forward any research proposals, the Waubra Foundation has been advocating for full spectrum acoustic measurements with concurrent physiological monitoring of sleep, blood pressure, heart rate and cortisol inside the homes of residents reporting the symptoms and diseases which they report are affected by wind turbine noise exposure for some years.

Finding the Kelley research buried since the 1980's has shown us that we were right to suspect that infrasound and low frequency noise were directly causing the reported symptoms, and that amplification of that sound energy in some homes is an issue. It was previously clear to us that the wind industry had knowledge of this direct causal link, and now it is clear what research was known to them, but not known to the wider community and in particular the health authorities.

The task is now to determine precisely which frequencies at which doses are damaging health via sleep disturbance, inducing a physiological stress response, or other mechanisms such as inducing the vestibular disorder symptoms of "wind turbine syndrome" being reported by many residents and an increasing number of health practitioners. Long term exposure levels to ILFN for prevention of VAD are also required.

In the case of noise / sound and vibration energy, it is well accepted that excessive noise can cause both sleep deprivation and also a physiological and psychological stress reaction, both of which can be damaging to long term health. This is not a "new" concept or a "new" disease but it does explain much of the deterioration in people's health with chronic exposure to excessive levels of infrasound, low frequency noise and the audible noise captured by measuring with a dBA filter. That is why the World Health Organisation (WHO) has specified levels such as a 30 dBA audible sound level inside a bedroom, in order for people to be able to sleep. The WHO do not recommend an indoor noise limit of 40 dBA, as the Public Health Association of Australia have been recently claiming on their website.

From our inception we have sought to better understand the range of symptoms and diseases which people living near industrial infrasound, low frequency noise and vibration sources have been reporting – symptoms which are well known to many acousticians, and a small number of medical practitioners including rural general practitioners, some rural sleep physicians, occupational physicians and ear nose and throat doctors internationally.

We have then shared that knowledge, and educated others as best we can, with our extremely limited resources. Our work is a threat to those with significant financial interests in noise polluting facilities and industries, which have tried to hide the evidence of direct causation of damage to health from these lower frequencies for many years, particularly by silencing sick and desperate people when their properties are bought by the noise polluter.

We are delighted that the Federal Government, specifically the Prime Minister Tony Abbott, the Health Minister Peter Dutton, and now the Assistant Health Minister Senator Fiona Nash, have committed to ensuring the multidisciplinary research is carried out. This is precisely the research we were suggesting was required nearly three years ago, and which the 2011 Federal Senate inquiry into the Social and Economic Impact of Rural Wind Farms, Chaired by Greens Senator Rachel Siewert, recommended in June 2011, "as a priority".

Our website is full of the research papers, senate inquiry testimony, first hand adverse health event reports from residents, letters from concerned health, science and acoustics researchers and professionals and politicians with direct knowledge of the health problems the residents are reporting.

Our expertise in this field is known internationally, and respected by those who are experts in relevant fields of acoustics, psychology, medicine and neurophysiology who have an understanding of the severity of the adverse health impacts. Some of those experts gave evidence to the second Federal Senate Inquiry instigated by Senators Madigan and Xenophon, and actively supported by Senator Chris Back, in November 2012.

We invite you therefore to carefully consider ***all*** the information and resources in our website – a small portion of which has already been forwarded to your staff, which was detailed in a lengthy submission, as well as all the information referred to or attached to this submission. If you have particular queries, I am happy to answer them, or organize a suitable expert from the relevant discipline in Australia or internationally to do so.

As I am sure you can imagine, there are many individuals and corporations for whom noise pollution generally, and wind turbine noise pollution specifically, is an inconvenient truth. The Foundation has been under constant attack since it was founded from those with a vested interest of some sort, who do not wish this research to be conducted, and who are more concerned about financial or ideological issues than the protection of the health of vulnerable rural and urban residents whose health is adversely impacted by exposure to health damaging excessive sound and vibration energy. Unfortunately some of those who have a vested interest include politicians, and members of the medical and acoustics professions and in the ranks of public health academics in Australia.

We would welcome the opportunity to ensure that you and relevant other senior ACNC staff hear the stories of those we seek to help first hand, ***in their homes***, including those forced from their homes because of the adverse health effects they have experienced, so that you can truly appreciate how serious the adverse health impacts are, at a range of different noise polluting developments – not just wind turbines. We also suggest that you speak directly to the health practitioners who have treated these people, and the local and international health, science and acoustics researchers. We are happy to facilitate that contact.

If however you decide that your determination is that the scientifically established and judicially accepted health problems caused by exposure to excessive infrasound and low frequency noise "do not exist", we look forward to ensuring that whichever judicial authority hears the case on our appeal is invited to consider the evidence first hand for themselves, from the many sick residents, as well as the experts in their respective fields including Professor Mariana Alves Pereira, Dr Nina Pierpont, Professor Alec Salt, Professor Alun Evans, Dr Malcolm Swinbanks, Professor Colin Hansen and others who have worked extensively in this area nationally and internationally. There are many experts who I am sure would be delighted to assist the court or Tribunal to determine the truth, as well as to help the Waubra Foundation.

In particular we also look forward to calling members of the public health advocacy organizations and current and former members of the the Greens in Federal Parliament including Senators Bob Brown, Rachel Siewert, Christine Milne and Richard Di Natale to give evidence under oath in a court about their direct knowledge of both the range of noise associated health problems which people living near CSG field compressors, coal mines and wind turbines have advised them of, and we also look forward to full financial disclosure of funding from sources to organizations and individuals which could indicate a significant financial conflict of interest in this matter with respect to wind turbine noise specifically.

Yours sincerely,

Sarah Laurie, CEO Waubra Foundation
Bachelor of Medicine, Bachelor of Surgery (Flinders University, 1995)