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WHAT YOU CAN'T HEAR WON'T HURT YOU – OR WILL IT

Wind turbines not only generate electricity but also noise *annoyance* and *silent* infrasound.

Infrasound (inaudible sound <20Hz) and low frequency noise (inaudible sound <160Hz) are common phenomena and occur where large masses are in motion. This happens in nature with wind, storms, earthquakes and ocean waves for instance, and many animals including elephants, whales, koalas and reptiles use infrasound to communicate on their own private channels over vast distances. Whales communicate with one another across entire oceans.

Research (*Martin 2024*) in North Queensland by wildlife biologist, Roger Martin, has found that infrasound & low frequency noise (ILFN) generated from wind turbines can cause koalas to abandon high quality habitat and it masks long range contact calls, therefore decreasing their breeding success.

Place-bound animals such as horses, cattle, sheep, dogs, and pets on properties near wind farms have also shown changes in behaviour, including signs of stress, conception difficulties and adverse neonatal outcomes. On a property near a wind farm development in Goderich, Ontario, Canada, farmers observed health problems with their livestock which began shortly after the turbines were commissioned. The cattle were reported to exhibit unusually aggressive and erratic behaviour, “*including cows kicking their newborn calves, prolapse birthing, weight loss, a high incidence of mastitis, calves being deformed at birth, and a high incidence of stillbirth*”. It is therefore important to note that ILFN symptoms observed in farm animals and native fauna **cannot** be attributed to a “*nocebo effect*”, one that is supposedly perceived by humans – as government authorities and their mendacious consultants would have us believe.

An expert on ILFN, Bruce Rapley PhD, explains in his latest book '*Conversations for a Small Planet - Volume 3: Biological Consequences of Low-Frequency Sound*', the origins of infrasound:

In the early 1960s, a Russian born French scientist by the name of Vladimir Gavreau started investigating why people felt ill in certain buildings, commonly referred to as '*sick building syndrome*'. He concluded that it was infrasound, which was to become a consuming interest for the remainder of his life. What he had discovered was that low-frequency sound, often because of internal structural resonance, was a widespread phenomenon. So really, he had stumbled onto what has become a common problem, frequently because of heating, venting and air-conditioning systems - HVAC.

Gavreau reasoned that if low-frequency sound could adversely affect people, perhaps there was a potential military application for it as a weapon. Thereafter followed much research and speculation, fuelled by a hungry media. And so it was that much misinformation was published, and after his death, much disinformation. But indeed, a real infrasound weapon in the form of a low-frequency sound generator was developed by the British military, and it was suspended underneath a helicopter which was then flown over a rioting crowd in Northern Ireland, during the time of '*The Troubles*'. When it was switched on, immediately about one-third of the crowd collapsed with epileptiform attacks. The weapon was subsequently banned by the Second Geneva Convention 1976, and never used again.

Gavreau died as a result of his own infrasound experiments. He died of empyema caused by vibrating his internal abdominal organs against their suspensory connective tissue leading to septicaemia. Sadly, twenty-four hours after he died, so did his lab assistant who was working with him at the time. Upon their deaths, the military confiscated all papers and equipment, never to be seen or heard of since.

Modern society has greatly increased its generation through technology and industry, including industrial wind farms. Opening the window of a car traveling at 100km/hr for example exposes the passengers to acute levels of infrasound as high as 125dBz. This increase in exposure to infrasound is historically unanticipated and has led to a growing concern among the public regarding its safety. This concern has been compounded by a wide spectrum of complaints, which have been reported worldwide among populations exposed to infrasound, especially between individuals who are exposed to chronically high levels due to occupational conditions or by residing near industrial sources such as natural gas compressor stations, sewage pumping stations, industrial air conditioners and other power plants, like wind farms.

Thousands of people from around the world have lived near wind farms for twenty years or more. They have found the noise *annoying* and quite loud at times, but it hasn't until recently made them feel ill or caused prolonged sleep deprivation. It has taken some time to realise the problems are a result of **re-powering**. That's when small wind turbines are replaced with bigger, more efficient models and now those same people are complaining to government and wind farm proponents. The standard response from government bodies such as the German Environment Agency is that the infrasound is drowned out by the background noise. In other words, a perfectly normal noise level arises from which it is no longer possible to filter out the unique features of infrasound over 700 metres or so.

Infrasound is also measured in the Free State of Bavaria, however, to identify possible explosions from nuclear weapons. Here the Federal Institute for Geosciences and Natural Resources (BGR), operates a measuring station on behalf of the German Government. Because wind farms could affect the measurements, back in 2004 the BGR team led by Dr Lars Caranna examined infrasound emissions from a small single turbine. They found that every time the blade passed the tower it produced an infrasound signature, which is referred to as blade pass harmonics, that emerge from the background noise with a distinctly higher acoustic pressure or energy, if you like. For bigger wind turbines, the scientist's made a model calculation based on a 5MW turbine. **They found that an infrasound signal would be generated beyond 20klm.** Far more than the background noise projection of 700 meters nominated by The German Environment Agency.

So how can this huge difference be explained. It is customary in acoustics to focus on bands. In other words, a group of frequencies, whereby the peaks are evened out and not on individual frequencies. So, an averaged reading is normally recorded, and this protocol is what government and wind farm proponents have been relying on until recently. **This would appear to be a deliberate ploy to ignore the infrasound peaks created by turbine blade pass harmonics.**

This is significant. Unembellished data is now being called upon by the regulatory authorities. Here in Australia exhibition of the Jupiter wind farm Environmental Impact Statement (EIS) was initially rejected by the NSW Department of Planning & Environment (DPE) on advice from the Federal Administrative Appeals Tribunal (AAT). The AAT in December 2017 directed that: There is a well-established pathway from *annoyance* to adverse health outcomes; A significant proportion of wind farm noise is in the low-frequency range; humans are more sensitive to ILFN and it can therefore cause greater *annoyance* than higher frequency sound; Even if it is not audible, ILFN may have other effects on the human body which are not

mediated by hearing but also not fully understood; **Noise measurement using dB(a) is an inadequate measure of relevant wind farm noise and wind farm noise measurement should not average noise over time and frequencies; Wind farm low frequency noise can be greater indoors than outdoors at a dwelling.** Thus, an acoustical graph flattened to such a degree can no longer provide wind farm proponents or government with the argument that infrasound and low frequency noise from wind farms is swallowed up by background noise.

Not only was the AAT critical of government methodology having the vast majority of studies from wind farms not accurately measuring the presence of infrasound & low frequency-noise (ILFN), but the World Health Organisation (WHO) also supports these findings. This failure by public health authorities and governments worldwide to monitor the impact of ILFN on exposed individuals by continuing to ignore the *'precautionary principle'*, impedes the proper interpretation of results, which is not consistent with the WHO report "*Guidelines for Community Noise*" that states: "*When prominent low-frequency components are present, noise measure based on A-weighting (averaging) is inappropriate, and it should be noted that a large proportion of low-frequency components in noise may considerably increase the adverse effects on health*", and among these problems are "*sleep disturbance, cardiovascular effects, tinnitus, aggressive behaviour, hormonal responses (stress hormones) and their consequences on human metabolism, and immune system problems*". **The WHO also cites sleep disturbance from environmental noise at 40dB(a) as having adverse health impacts.**

ILFN has a very long wavelength (almost flat) compared to audible sound, which enables infrasound by means of reflection, refraction, and diffraction to pass through and around different obstacles such as buildings and terrain. The long wavelength also allows infrasound to maintain energy, remaining relatively stable after travelling very long distances. For this reason, common noise barriers are usually ineffective against it.

It is also common for infrasound to generate high energetic standing waves inside rooms of houses. This kind of resonance sometimes leads to an increase of levels of up to 25dBz higher than the measured level outside the house and why complaints are more often about indoor disturbance instead of outdoor. For example, while some outdoor measurements may read 80dBz at the same time in a nearby bedroom over 100dBz can be present. This could explain why the resident neighbours of the Bald Hills windfarm, who "*had disturbed sleep hundreds of times after the wind farm began operation*" would seek relief by sleeping in their cars at the local beach. Fortunately for them in 2022 the Victorian Supreme Court awarded in their favour, albeit after they had abandoned their homes. This is not uncommon,

as many people living near wind farms get sick, so sick that they abandon (as in shut the door and leave) their homes. Nobody wants to buy their acoustically toxic homes. The lucky ones get quietly bought out by the wind developers, who steadfastly refuse to acknowledge that *'Wind Turbine Syndrome'* exists (and yet the wind developers thoughtfully include a confidentiality clause in the sales agreement, forbidding their victims from discussing the matter further).

'What you can't hear, won't hurt you'. There is no scientific evidence to support this statement, but there is a colossal amount of scientific evidence indicating otherwise:

Infrasound has also been linked to how the brain deals with stress management. A team led by Professor Simone Kuhn at the Max Planck Institute has speculated that we are not able to defend ourselves against high levels of infrasound because what we consciously hear can be assessed and if necessary, ignored. But things that are only perceived subconsciously generate stress and perhaps even fear.

At present, infrasound and low frequency noise are agents of a disease that goes unchecked. Vibroacoustic disease (VAD) is a whole-body pathology that develops in individuals chronically exposed to ILFN. Since VAD is caused by ILFN and explained through Mecha-transduction pathways, it is not surprising why it is taking so long to be fully understood. It was first identified by Portuguese scientist, Dr Nuno A. Castelo Branco in the 1980s as a result of an autopsy of an aircraft worker at OGMA, Alverca do Ribatejo, near Lisbon. His research into the disease followed for the next 25 years and he found that chronic exposure to ILFN causes thickening of cardiovascular tissue (findings more recently confirmed by the WHO) and respiratory structures leading to stroke, decreased cognitive skills and many other medical disorders.

Berlin researcher, Dr Ursula Bellut-Staeck has been studying the effects of infrasound on microcirculation and endothelial cells since 2004, and her research suggests that all organisms react to ILFN, and she has recently said *"that due to the extremely low frequencies the new larger turbines are emitting, we may have a huge, previously unrecognised threat to the entire biodiversity on our hands from ILFN generated by wind turbines."*

There is also plenty of evidence regarding the damaging effect of infrasound on the heart. Another German research team led by Professor Christian-Fredrich Vahl at Mainz University Medical Centre conducted experiments on the exposure of heart tissue to infrasound. Every test revealed that infrasound did have a distinct effect on heart muscle tissue and a clear reduction in heart muscle strength. Professor Vahl went on to add that *"whether we hear it or not, every form of energy has physical effects and infrasound is particularly dangerous, because we don't hear it"*. They concluded their research with the following footnote: *"As medical researchers, it is strongly recommended that infrasound levels generated by wind farms do not approach pathological levels. It is the recommendation by this research group to*

set the level of infrasound no higher than 80dBz (20dBz below the critical value of 100dBz) as the maximally tolerated limit for chronic exposure”.

As Sydney based naturopath Phillip Alexander so eloquently put it in a letter to the editor of the Apsley Advocate, 14 September 2022 – “*The stronger the heart the more blood it can pump uphill against gravity, to the brain. The more the brain is suffused with blood, oxygen, and nutrients the stronger, more functional, and resistant to stress it is*” - that makes perfect sense to me.

Insomnia, nausea, heart problems, perception disorders, VAD, endothelial dysfunction, stress, fear, mood swings, depression, epilepsy, burn out, nosebleed in the middle of night, and fight or flight response. These are some of the disease symptoms that can be caused by ILFN. Doctors believe 10 and 30% of people react to it and that more people are affected by it the longer they are exposed to it. And that means it could impact on tens of thousands of people in rural Australia alone, not to mention the hundreds of thousands of place-bound farm animals such as horses, cattle, sheep, dogs, and pets on properties, and the distress caused to native fauna in National Parks near wind farms that have shown changes in behaviour, including serious signs of uncharacteristic stress, conception difficulties and adverse neonatal outcomes. Given the research, a correlation of stress in humans, livestock and fauna would seem to be a reasonable hypothesis, and particularly to when potential commercial production losses are considered due to unappealing tough eating, dark cutting meat – ‘*a dark cutter*’. Nevertheless, the mass experiment with wind power on a scale that beggar’s belief, continues to carpet forever increasing acres of valuable productive agricultural land throughout Australia.

The 6-7MW wind turbines that are proposed for the New England REZ are new generation and no one really knows exactly what amplitude of infrasound they will be emitting. Data is still only available on much smaller turbines in the 2-3MW range that transmit averaged (a flattened graph ignoring blade pass harmonics/peaks with an A-weighting amplitude expressed as dBa) outdoor readings of 50-60 dB(a).

We do know however, the larger the turbines the lower and lower the frequencies are getting, reaching as low as 0.25Hz. This makes infrasound far more problematic and dangerous than previously thought, and with lower frequencies come higher sound pressure energy levels or amplitude if you like.

So modelling, probability and common sense would suggest that a **6-7MW turbine will exceed the critical health threshold amplitude (80dBz) of chronic exposure set by the Mainz University Research Centre on infrasound beyond 20klms**, which will present as a deleterious health problem to any human or animal living in a 20klm radius and more of a 6-7MW wind turbine. My understanding is that would encompass most localities, villages, townships including the cities of Armidale and Tamworth across the NEREZ.

With knowledge comes responsibility and the time has come to take a more active position against this ruthless and futile violation of rural Australia. There are sensible baseload energy alternatives to this unparalleled travesty that will deliver dispatchable power 24/7 without any risk to our well-being, the entire biodiversity, or to the security of this nation.

“Energy security is national security.

It Is our gift to peace and prosperity on earth”.

Ian McDonald, 