I write to object based on the detrimental health effects this application will probably have on its turbine neighbours, based on my own experiences and the 5 reasons listed below.

The effects of Infrasound and Low Frequency Noise (ILFN) are cumulative, and individuals are affected by ILFN in different timescales, but the bottom line is that if you have a life threatening ailment, or are susceptible to one, and live near a wind turbine, then you chances of recovery are greatly diminished, whether you have signed a ‘non disclosure’ agreement or not.

‘Cancer Clusters’ and ‘Heart Seizure Hotspots’ are now being observed around wind farms. There truly are “Nae pockets in a shroud”.

Your pets, livestock and local wildlife could also be seriously affected.

Reported serious adverse health impacts are real and serious and have nothing to do with an alleged nocebo effect.  People do not voluntarily abandon their homes for no reason.  Noise polluters do not buy up properties and silence former owners and wind turbine hosts from speaking out about adverse health impacts because of a nocebo effect.

It is good to see that more and more journalists are "waking up" and are starting to understand the science, the evidence, and the severity of the suffering, and are less prepared to just repeat wind industry propaganda including that generated by government health authorities, without more critical examination.

For the Enercon E48 turbines at Ark Hill, my symptoms are worse at wind speeds above 12mph - which equates to when the power coefficient of the turbines start to decline.

Should this application be allowed, in the interests of public health, please ensure that ILFN monitoring before and after turbine erection is a required condition.

With regard to subsidy payments, this Jan 15 2015 article applies equally to the UK

<http://stopthesethings.com/2015/01/15/parker-gallant-wind-power-outfits-christmas-bonanza-in-ontario/>

1. THE LINK BETWEEN VIBRO ACOUSTIC DISEASE (VAD) AND WIND FARM SYNDROME (WTS)

The peak frequencies emitted by wind turbines are below 5 Hz.

VAD is an acknowledged medical disease caused primarily by the frequencies of Infrasound (0 - 20Hz) and Low Frequency Noise (20 - 500Hz).

These frequencies are commonly grouped together as ILFN (0 - 500Hz). [1]

Respiratory pathology induced by ILFN is not a novel subject given that in the 1960's, within the context of U.S. and U.S.S.R. Space Programs, its existence was being reported. [2]

Central nervous system disorders in workers exposed to ILFN were first observed 25 years ago among aircraft technicians. Concurrently, respiratory pathology was identified in these workers, and later reproduced in ILFN-exposed animal models. [3]

In 1987, the first autopsy of a deceased VAD patient was performed. The extent of ILFN induced damage was overwhelming, and the information obtained is, guiding many of the associated and ongoing research projects. [4]

In both human and animal models, ILFN exposure causes thickening of cardiovascular structures.

Pericardial thickening with no inflammatory process, and in the absence of diastolic dysfunction, is the hallmark of VAD.

Depressions, increased irritability and aggressiveness, a tendency for isolation, and decreased cognitive skills are all part of the clinical picture of VAD.

In VAD, the end-product of collagen and elastin growth is reinforcement of structural integrity. This is seen in blood vessels, cardiac structures, trachea, lung, and kidney of both VAD patients and ILFN-exposed animals.  This means that blood vessels can become thicker, thus impeding the normal blood flow. Within the cardiac structures, the parietal pericardium and the mitral and aortic valves also become thickened

When echocardiography, brain MRI or histological studies are performed, structural changes can be identified, all consistently show significant changes in VAD patients and ILFN-exposed animals.

Wind Turbines are known to emit a broad spectrum of ILFN frequencies, with peak frequencies at below 5Hz.

In Portugal ILFN has been extensively researched, and occupational VAD symptoms have been  grouped according to length of exposure during work hours.

Those living and working near wind turbines are obviously exposed to Infrasound 24/7.  Exposure at night can often result in considerably sleep deprivation.

The detrimental health effects of sleep deprivation are well recognised medically.

The Hayes Mackenzie 2006 report which is often quoted by Government and Council officials gives a time to symptom chart for VAD. [5]  The chart is shown below, and is based on occupational exposure to noise (ILFN).

VAD symptoms

Stage 1 (Mild) 1-4 yrs:  Slight mood swings; Indigestion; Heart burn; Mouth/throat infections; Bronchitis.

Stage 2 (Moderate) 4-10 yrs: Chest pain; Definite mood swings; Back pain; Fatigue; Fungal, viral & parasitic infections; Inflammation of stomach lining; Pain and blood in urine; Conjunctivitis; Allergies.

Stage 3 Severe (10 + yrs):  Psychiatric disturbances; Haemorrhages of nasal, digestive & conjunctive mucosa; Varicose veins & haemorrhoids (piles); Duodenal ulcers; spastic colitis; Decrease in visual acuity; Headaches; Severe joint pain; Intense muscular pain; Neurological disturbances.

Among the most serious consequences of untreated VAD are rage-reactions, epilepsy, and suicide.

As a rough calculation, without considering sleep deprivation, the time of symptom appearance for ILFN induced WTS should be the VAD time, reduced by a factor of around 4.2 (turbine neighbours who live and work near turbines, 24hrs x 7days x 48working weeks = 8064 hrs exposure per yr, assuming 4 weeks holiday away from turbines; occupational exposure, 8hrs x 5days x 48weeks = 1920 hrs exposure per yr.  8064 divided by 1920 = 4.2).

Thus a 4yr VAD symptom exposure would manifest in 1yr for a WTS exposure, and a 10 year VAD symptom in 2.5yrs for WTS, which indeed appears to be the case.

IFLN induced WTS

Less than 1 yr:  Headaches; Dizziness; Sleep deprivation; Haemorrhoids; Umbilical hernia; High blood pressure; Fatigue; Tinnitus; Vertigo; Poor concentration & memory; Slight mood swings.

1-4 yrs: Nausea/‘seasickness”; Panic attacks; Annoyance, anger & aggression; Increased agitation of those with Autistic Spectrum Disorder and ADD/ADHD; Increased blood sugar levels.

4-10 yrs:  Thickening of pericardium and blood vessel walls plus other soft tissue damage.

Many other chronic health problems are thought to be created or accelerated, probably by infrasound-induced increased levels of cortisol (which lowers our immune system).

On 5 Sept 2014, the Waubra Foundation wrote to NSW Planning Assessment Commission regarding the Gullen Range Wind Development [6]. This letter contains much important information regarding ILFN.

The facts are clear:

 1. Wind turbines emit ILFN, and can do so even when the blades are not turning.

 2. ILFN is harmful to humans and other life forms, and can kill.

 3. In the interests of Public Health, the Scottish Government and local Councils should immediately impose a condition on turbine applications that ILFN is measured before and after turbine erection.

 4. ILFN monitoring should be a mandatory tool that is used to assess any reported health effects from turbines.

References

1.  <http://www.ncbi.nlm.nih.gov/pubmed/17014895>

2.  <http://www.ncbi.nlm.nih.gov/pubmed/17315094>

3.  <http://www.ncbi.nlm.nih.gov/pubmed/16969569>

4.  <http://www.ncbi.nlm.nih.gov/pubmed/15273020>

5. [http://www.hayesmckenzie.co.uk/downloads/LF%20and%20Infrasound%20Noise%20Immission%20from%20Wind%20Farms%20and%20the%20Potential%20for%20Vibro%20Acoustic%20Disease%20-%20Malcolm%20D%20Hayes.pdf](http://www.hayesmckenzie.co.uk/downloads/LF%2525252525252525252525252525252520and%2525252525252525252525252525252520Infrasound%2525252525252525252525252525252520Noise%2525252525252525252525252525252520Immission%2525252525252525252525252525252520from%2525252525252525252525252525252520Wind%2525252525252525252525252525252520Farms%2525252525252525252525252525252520and%2525252525252525252525252525252520the%2525252525252525252525252525252520Potential%2525252525252525252525252525252520for%2525252525252525252525252525252520Vibro%2525252525252525252525252525252520Acoustic%2525252525252525252525252525252520Disease%2525252525252525252525252525252520-%2525252525252525252525252525252520Malcolm%2525252525252525252525252525252520D%2525252525252525252525252525252520Hayes.pdf)

6. <http://waubrafoundation.org.au/wp-content/uploads/2014/09/GRWF_WF_Submission_to_PAC_Final_Sept_2014.pdf>

2. INFRASOUND BULLET POINTS

1. People with a blocked or anatomically small helicotrema (a narrow pathway in the cochlea of the ear) have an increased sensitivity to Infrasound and Low Frequency Noise (ILFN), as are those who are susceptible to car/sea/motion sickness.
2. The main resonant frequencies of a person’s internal organs are below 5 Hz.  The peak frequencies emitted by turbines are below 5 Hz. Earth’s resonance frequency is 7.83 hertz, exactly the same as the alpha waves of our brain (which controls our creativity, performance, stress, anxiety and immune system).
3. The frequencies to which the various brain areas respond vary from 3 to 50 Hz, such as: touch 9 Hz; coordination 10 Hz; sound 15 Hz; subconscious thought 20 Hz; visual images 25 Hz.
4. What specific frequency do: 6-7 Hz ringing in ears, increased blood pulse, fatigue, tightening in the chest; 6.6 Hz causes depression in most people; 8.6 - 9.8 Hz tingling sensations / sleep inducing; 10.8 Hz causes riotous behaviour; mixed 17 & 70 Hz harmful biological effects.
5. Some people are sensitive to ILFN out to 30km from a turbine(s).
6. ILFN frequencies between 3 and 12 Hz cause Rapid Eye Movement (REM) sleep disruption and general sleep deprivation. This in turn can: increase mood swings (happy/violent); inhibit or modify dreams; make people depressed and/or apathetic. The detrimental health effects of sleep deprivation are well documented.
7. ILFN exposure can cause the body to secrete cortisol which increases blood pressure and blood sugar levels, and has an immunosuppressive action. A suppressed immune system will allow existing health problems to accelerate and make it easier for new ones to be created.  The effects are worse if exposed to ILFN during sleep hours.
8. Our bodies try to protect vital organs from ILFN bombardment by laying down extra collagen, causing a thickening of the pericardium and blood vessel walls for instance, which will also increase the likelihood life threatening health problems.
9. The wavelength of ILFN at 1Hz is 340mtrs. 5Hz is therefore 68mtrs. The basic calculation for room wall dimension resonance is half the wavelength, but remember: an attic could extend the whole length of a house, thus if a house is 14 mtrs long, wall resonance could be caused by ILFN at around 12Hz; internal walls can be very thin and not form part of the house foundations; diagonal room measurement is also important. All this may help explain why infrasound is often more noticeable in the smallest room – usually the cludgie (loo; often has an outside wall).
10. Temperature inversion (temperature rising with height before cooling – usually around dawn and dusk) can cause sound which would normally dissipate into higher atmosphere to be refracted down.  The curve of this sound usually comes back to ground level at about 5km distance from the turbine.  If ILFN follows this pattern, it will join the other ‘ground hugging’ infrasound, increasing the potential danger.  ILFN does similarly bounce off cloud base etc.
11. Audible sound is emitted from turbines in a ‘butterfly wing’ shape, with minimal noise directly downwind, upwind, right or left.  Larger forewings are downwind.  Infrasound may do the same.
12. Turbines can emit ILFN even when the blades are not turning.  A gentle breeze can cause the tower and/or blades to resonate.
13. Many people who believe they are suffering adverse health effects from wind turbines are hesitant to report their symptoms due to the manner in which their claims have often been discounted or ignored by the wind industry and government officials (Hansard, 2009, pp.G-516, G-547).  Experts contend that the quantity, consistency, and ubiquity of the complaints constitute epidemiological evidence of a strong link between turbine noise, ill health, and disruption of sleep (BMJ2012; 344:e 1527).
14. Individuals should not have to prove the effect, only perceive it.  Self reporting is an important tool in the process.
15. The World Health Organisation (WHO) considers a sleep journal as a valid tool for documenting sleep disturbance.
16. On 21 Jan 2013, the State of Wisconsin (USA) imposed a moratorium on industrial turbines until further health research is conducted.
17. On 7 Nov 2013, a Falmouth judge (USA) ordered local turbines to cease operating between 7pm and 7am and all day Sunday in order to avoid “irreparable physical and psychological harm” to local residents.

Over-exposure to ILFN can cause short/long term memory loss, skin problems, and weaken the immune system.

3. RECENT USES OF DIRECTED ILFN

The use of directed ILFN is a known weapon and interrogation aid. It is an untraceable murder weapon, as it leaves no evidence of its use on the victim.

ILFN becomes particularly deadly during the early morning sleep hours. This is when the body normally produces the lowest levels of Cortisol. Artificially stimulating Cortisol production during this time disrupts the body’s’ normal Cortisol production in the worst possible way. In effect, the sleeping body perceives infrasound as a threat and elevates Cortisol production to cope. Since one is asleep, the Cortisol is not used, and remains in the body, damaging life-essential body functions.

Prolonged Cortisol production in our bodies eventually causes death. [1]

I understand that some of the recent uses of directed ILFN are:

1. Greenham Common, UK. 1984 (mostly women).

In the summer of 1984, more than 2,000 British troops suddenly pulled back, leaving the fence unguarded.

Peace activist Kim Besley recalls that as curious women approached the gate, they “started experiencing odd health effects: swollen tongues, changed heartbeats, immobility, feelings of terror, pains in the upper body.”

Besley found her 30-year-old daughter too ill to stand. Other symptoms typical of electromagnetic exposure included skin burns, severe headaches, drowsiness, post-menopausal menstrual bleeding and menstruation at abnormal times. Besley’s daughter’s cycle changed to 14 days and took a year to return to normal.

Two late-term spontaneous miscarriages, impaired speech, and an apparent circulatory failure prompted the women to begin monitoring for a directed-energy beam, Using an EMR meter, they measured beams sweeping their camp at 100-times normal background levels. [2]

2. Iraq (2003 to present)

Very Low Frequency (VLF) weapons include the dozens of “poppers” and “domes” deployed in Iraq, which can be dialed to “long wave” frequencies capable of traveling great distances through the ground or intervening structures. As air force Lt Col. Peter L. Hays, Director of the Institute for National Security Studies reveals, “Transmission of long wavelength sound creates biophysical effects; nausea, loss of bowels, disorientation, vomiting, potential internal organ damage or death may occur.”

Lt Col Hays calls VLF weapons “superior” because their directed energy beams do not lose their hurtful properties when traveling through air to tissue. A French weapon radiating at 7 hertz “made the people in range sick for hours.”

Such variable effects have been known scientifically since 1963, when electromagnetics researchers Dr. Robert Beck found that exposure to certain frequencies sparks riotous behaviour, while other frequency beams can cause a sense of well-being—or deep depression.

The recovery rate from directed ILFN exposure among US troops (they tend to ‘lose the plot’, wander off and go AWOL) “seems to be about a day or so, whereas the locals are not getting over it in less than a week or more on average.” [2]

3. O2 plus the 2012 Olympics. London.

Long Range Accoustic Devices (LRAD) have been photographed at the O2, and were installed on the Thames during the 2012 Olympics. There is little doubt that these “communication devices” can also utilise ILFN for “crowd dispersement”. [3]

4. Gaza (ongoing)

There are several reports of ILFN weapons (LRADs) being used by the Israel against Palestinians in Gaza. “The combination of low frequencies at high intensities can create discrepancies in the inputs to the brain. Basically the brain receives a signal that your body has lost balance. You feel like you are tilting even when you are not. The discrepancies can cause headaches and nausea”…it “simulates seasickness”. [4]

5. Fukushima 2011

Directed ILFN at around 2.5 Hz can cause earth tremors, earthquakes, landslides, and will increase lightning (particularly in clouds formed on sprayed bevy metals) . Watch the 7 min video here [5]. Since 2011 US military presence in Japan has increased considerably.

[1] http://www.darkgovernment.com/news/infrasound-stress-inducing-weapons/

[2] <http://www.jimstonefreelance.com/beammed.html>

[3] <http://motherboard.vice.com/read/a-history-of-using-sound-as-a-weapon>

[4] <http://www.multistalkervictims.org/catchcanada/literature/brochure/CATCH/Scream_Article.pdf>

[5] <http://www.geoengineeringwatch.org/was-haarp-a-factor-in-the-fukushima-earthquake/>

4. ARK HILL WIND TURBINES - ONE YEAR ON

(8 x 80m Enercon E48 turbines. Mar 2013 – 4 April 2014)

I live at Arniefoul which is 5km East of the Ark Hill wind turbines and 1.6km West of the proposed Govals wind turbines (6 x 87m turbines). The prevailing wind is from the West.

Ark Hill was commissioned on 5 March 2013 and at that time I started to have continuous headaches with some light-headedness and tinnitus. Further to this, I also started to suffer frequent sleep disturbance. When I awoke I could often hear the whooshing of the turbine blades. Assuming it was the audible sound that was disturbing me, I moved my bed further away from the window and slept with the window closed. This made no difference to my sleep deprivation – usually being woken at around 3am until 5am. With the window closed I rarely hear the turbine noise, but I can sometimes feel their rhythm and therefore deduce that it is an inaudible noise (Low Frequency Noise and Infrasound) that is causing the lack of sleep.

In June 2013 I had two dizzy spells when out walking on the hills surrounding Arniefoul. It was at this time I noticed a correlation between the turbines, the wind direction and the above symptoms. My tinnitus became constant and on some nights extremely loud.

My symptoms appear to be worse when there is a Southerly wind. The Ark Hill turbines rotate clockwise and therefore it is probably an emission during the down stroke that creates the harmful effects. This suggests it may have little to do with the supporting structure and therefore an ‘upwind’ or ‘downwind’ design of turbine will make little difference.

Surprisingly, the prevailing Westerly wind seems to cause slightly less symptoms than a Southerly wind. Turbine noise, however, is most audible when there is little prevailing wind at ground level and at treetop level, but sufficient wind at turbine blade area to turn the blades at a critical speed. In similar conditions to these, when there is an Easterly wind we can easily hear traffic on the A90, 5km to our East, even though there is the huge bund of the Sidlaw Hills between us.

A North or East wind causes slightly less symptoms again, although should the Govals wind turbines be erected, I expect to suffer greatly from those turbines during these wind directions.

January and February 2014 were particularly bad months with predominately Southerly and Westerly winds causing much sleep deprivation, loud tinnitus, lack of concentration and irritability.

On 9 February 2014, I started recording my blood pressure morning and evening. It fluctuates considerably with a recorded high of 185/105. On 28 March for instance, after several days of Easterly wind, it was at a more ‘acceptable’ 140/83. There appear to be correlations between wind, atmospheric and weather conditions.

Whilst my body may be building some form of resistance to the turbine noises (audible and inaudible) I also believe it is getting more sensitive in certain ways. I sometimes get my “turbine headache” out to at least 10km from the turbines. Also, I have recently noticed I need to clear my ears more frequently, similar to going up in an airplane or scuba diving.

From 6 – 12 March we stayed near Tarfside, Glen Esk (currently no turbines near there). All my symptoms reduced noticeably, with my blood pressure reaching a low of 136/81.

An obvious option is to sell my property and move (where to?). My work is in the local area and therefore this is not really a business option. Nor is it an emotional option since my family has enjoyed being at Arniefoul for nearly a century.

 I have heard of landowners with turbines who now regret having turbines on their land, yet are unable to speak out due to ‘non disclosure clauses’ in their contracts with developers. Also, I suspect that there are many people living near wind turbines who suffer similar conditions to mine but who remain silent for fear of property devaluation, tenancy or employment concerns, and the like.

I am sure that should the Govals and Frawney (5 x 80m, same make as Ark Hill and West Knock Farm, Buchan) wind turbines be erected, with Forfar and Letham being on the down-wind side, there will be people with similar sensitivity as myself who will suffer. Children are thought to be more sensitive to turbine noises than adults.

People sometimes say that I look well considering the symptoms I describe. I am reluctant to take drugs/medication, with their own potential side effects, when I do not believe they are treating the root cause. I have always made considerable efforts to maintain a high level of fitness.

I understand that:

* Low frequency noise and Infrasound (such as emitted by wind turbines) are sound waves that are felt by the body rather than heard, probably by the utricle. Depending upon the amplitude or intensity, it produces feelings of extreme discomfort, a feeling that the body is vibrating. Depending upon the frequency and intensity, infrasound can keep you awake, or induce sleep. Therefore, it can cause sleep deprivation.
* Infrasound induces stress and causes the body to secrete the hormone Cortisol. This effect is a medically recognised danger of long-term infrasound exposure.
* Cortisol, plays a vital role in preparing our body for stressful “fight or flight” episodes. It increases blood pressure and blood sugar levels, and has an immunosuppressive action that provides needed alertness and energy during stressful experiences. However, during long term stress, or if Cortisol production is prolonged, its effects on the human body can become severe. A weakened or suppressed immune system will allow existing health problems to accelerate, and make it easier for new ones to be created.
* Exposure to infrasound during early sleep hours can be particularly harmful. This is when the body normally produces the lowest levels of Cortisol. This might explain my 3am awakening and subsequent wakefulness. Artificially stimulating Cortisol production during sleep means that the Cortisol is not used and remains in the body, potentially damaging essential body functions.
* A sound wave in air is a sequence of pressure changes. A sound wave in a liquid or solid is more like a vibration. This helps explain how Low Frequency Noise and Infrasound travel great distances and easily pass through solid walls, and can set up vibrations or resonances in rooms and body cavities.

There is well-documented and peer-reviewed evidence of the detrimental health effects that turbine emissions have on humans. It is unethical to expose people to something already suspected of being harmful.

Where is the ‘Duty of Care’?

Andrew Vivers

Arniefoul, Glamis, DD8 1UD

4 April 2014

Email from a Glamis Community Councillor - Received 5 April 2014

Dear Andrew

I am very surprised you suffer thus from the wind farm as we live closer and never notice such symptoms. Perhaps your tinitus is from your army career, as my tinitus is from my many youthful days loading on the grouse moor. If I was that ill i would not publicise the fact - what do you hope to achieve by such a leaflet?

I am delighted Juliet is not mentioned in your catalogue of ailments, but you should have included a mention of your deteriorating mental state.

I suggest you should simply sell up and move, as the Govals wind farm will surely be much closer to you than Arkhill wind farm

Kind regards    John

*(note: John is a* ***‘****renewables****’*** *energy consultant, ex director of Ark Hill Wind Farm, ex factor of Strathmore Estates [25% ownership of Ark Hill], and a Glamis Community Councillor)*

Addendum 14/4/14

A major achievement of distributing the above "Ark Hill - One Year On" leaflet, was that an acoustics engineer has come to stay for two nights.

I understand that:

1. There appears to be a correlation between my being woken and subsequent wakefulness, and peaks in low infrasound frequencies up to 3Hz.
2. The peak frequencies emitted by turbines are typically less that 5Hz. Our UK legislation on this matter, ETSU-R-97, is totally inadequate since it is only concerned with 'audible' noise, ie. above 20Hz (few people can hear sounds below 20Hz).
3. The fact that we can not hear a sound does not make it any less harmful.
4. Audible sound attenuates (decreases in energy/volume) at a rate of minus 6 decibels (dB) per doubling of distance from the source. Infrasound attenuates at minus 3dB per doubling of distance, out to about 50km (which is probably why our Ministry of Defense has opposed wind turbine applications within 50 km of the Eskdalemuir Seismic Array). Also, infrasound tends to have more of a ground hugging nature and does not readily dissipate into the high atmosphere. This helps explain why the effects of infrasound are noticed at much greater distances than audible sound.
5. For humans, the annoyance threshold for audible sound is around 2dB. Interestingly, the annoyance factor does not then increase with increasing volume/energy.
6. Turbines can emit infrasound even if the blade is not turning. A gently breeze can cause the tower and/or blades to resonate and emit infrasound.
7. Depending on various factors, a single turbine can emit as much infrasound as a large wind factory. Ark Hill (8 turbines) for instance, was at times comparable to a 100+ turbine wind factory.
* The fact that ‘industrial’ sized turbines emit Infrasound/Low Frequency Noise (ILFN) can not be disputed.
* The fact that ILFN is harmful to humans can not be disputed.
* There is ample peer-reviewed evidence from around the world that "proves beyond reasonable doubt" that wind turbine neighbours experience detrimental health effects.
* The logical conclusion is that the ILFN emissions from turbines are causing the ill health, however, even if it is not, turbines should be dismantled until the cause is found and rectified.
* The wind industry make claims similar to: 'Turbines are not known to cause harm to humans'. The above information must cast considerable doubt on their claims. Also, their statements are certainly not the same as saying "Turbines are known not to cause harm to humans"

It is unethical to expose people to something already suspected of being harmful. I ask again, "Where is the 'Duty of Care'"?

3. WIND TURBINE SYNDROME (Excerpts from letters to my MSP)

Letter dated 27 April 2014

Health concerns in Scotland are ignored because of a sentence, a mere aside in a bracket.

We are told by Angus Council that current Scottish Government guidance states ‘there is “NO EVIDENCE”of turbine health effects arising from infrasound or low frequency noise generated by the wind turbines that were tested.’ [1]. This quote is from a bracketed sentence in that link which gives no direct reference to the actual Hayes Mackenzie 2006 report from which it took the information; a report that is EIGHT years old and during which time turbines in Scotland have grown considerably in number, height and capacity.

Reports of ill-health associated with turbines are now prolific around the world.

The Hayes Mackenzie 2006 powerpoint presentation ‘Low Frequency and Infrasound Noise Immission (sic) from Wind Farms and the potential for Vibro-Acoustic disease’ [2] shows that Infrasound and Low Frequency Noise (ILFN) are emitted by turbines; it states that ILFN can be harmful to humans (known as Vibroacoustic Disease or VAD) and gives a time/symptom chart; it then concludes that it is ‘”UNLIKELY” that symptoms will result through induced internal body vibration from incident wind farm noise.’

This is definitely not the same as the Scottish Government quote above. “UNLIKELY” is not “NO EVIDENCE”.

I ask : are measurements independently and continuously taken of ILFN emissions by turbines in Scotland. Are they correlated with reported health effects?

Are we to understand that turbines in Scotland do not affect the local population, yet they do elsewhere in the world?

This report also states: Dr Mariana Alves-Pereira, in discussion with Dr Amanda Harry in the UK and Dr Nina Pierpont in the US, is now looking into the low- frequency noise and infrasound produced by industrial wind turbines to determine whether they too can cause VAD. Dr Alves-Pereira's initial assessment, based on noise measurements taken inside and outside the homes of wind turbine neighbours, is that turbines are indeed a likely cause of VAD. Dr Pierpont named the effect as Wind Turbine Syndrome (WTS).

With regard to the VAD chart, the report makes a comparison between aircraft technicians, who may experience high levels of ILFN for short periods during their working day, and wind turbine neighbours who experience constant or intermittent and variable ILFN (the tower and/or blades can resonate and emit ILFN even when the blades are not turning). Added to this must be the additional factor for those who live and try to sleep near wind turbines, is that ILFN exposure, which disrupts sleep via repetitive physiological stress and wakening, will do damage to health via sleep deprivation and chronic stress (both of which are well-established in clinical medicine and in the research literature, as harmful).

The report did not produce a WTS chart which would have shown a reduced time of symptom appearance for turbine neighbours. See note 1.

WTS and peer-reviewed reports of the detrimental health effects of turbines have been ignored for up to 20 years, based on an inaccurate quote and an old document that was not directly considering industrial wind turbines.

In another 2006 report by Hayes Mackenzie for the DTI, titled ‘Measurement of Low

Frequency Noise at Three UK Wind Farms’ [3] from which the powerpoint presentation is taken, the only conclusions it makes (pages 2, 46 & 66), are based on one sentence from the World Health Organisation (WHO) document ‘Community Noise’ (para 7.1.4 page 64) dated 1995, which itself is not directly concerning wind turbines. That WHO report is nearly TWENTY years old!!

The recommendations (page 68) do not appear to have been acted upon. Also see note 2.

I urge you to read this very informative article [4].

As I mentioned in my 4 April letter, ILFN causes the body to secrete cortisol which has an immunosuppressive action. A suppressed immune system will allow existing health problems to accelerate and make it easier for new ones to be created.!

I also understand that our bodies try to protect vital organs from ILFN bombardment by laying down extra collagen, causing a thickening of the pericardium and blood vessel walls for instance, which will also increase the likelihood life threatening effects.

ILFN should be added to the list of ‘Silent Killers’. Not everyone gets cancer - that doesn’t make it any less real.

Scotland’s wind energy policy is a slower, but no less effective version of the Highland Clearances of 1746 onwards. Properties are “sterilised” (Angus Council words) or banned from occupancy (Ark Hill); people are forced to relocate or possibly succumb to WTS and probable early death; and our turbine covered hills and glens are becoming desolate places where few people wish to visit or live.

May I refer you to the Kelley research from the 1980's which proved that wind turbine generated impulsive infrasound and low frequency noise from a single down bladed wind turbine directly caused ‘annoyance’ symptoms at levels of sound energy which could not be heard. Also, Professor Salt's research shows some of the neuropsychological pathways involved [5].

Thank you for your continued interest and action. It is greatly appreciated by many thousands of people in Scotland and around the world, who for various reasons are unable to sell their property or relocate and are therefore forced to succumb to the detrimental health effects of WTS as a result of our futile energy policies, inaccurate quotations and outdated documentation.

Note 1. As a rough calculation (without considering sleep deprivation), the time of symptom appearance for WTS should be the VAD time reduced by a factor of around 4.2 (turbine neighbours who live and work near turbines, 24hrs x 7days x 48working weeks = 8064 hrs exposure per yr, assuming 4 weeks holiday away from turbines; technicians, 8hrs x 5days x 48weeks = 1920 hrs exposure per yr. 8064 divided by 1920 = 4.2). Thus a 4yr VAD symptom exposure would manifest in 1yr for a WTS exposure, and a 10 year VAD symptom in 2.5yrs for WTS, which indeed appears to be the case!

Note 2. Similarly, one wonders why ETSU-R-97 (The Assessment and Rating of Noise from Wind Farms) uses 35dBA L90 for all turbine locations when it is commonly accepted that typical daytime background noise levels are around 18 to 20dBA L90 in remote rural areas, 30 to 40dBA L90 in ‘typical’ or ‘quite’ suburban areas, and 50 to 60dBA L90 for busy urban areas. Night time levels would be much lower.

1. http:// [www.scotland.gov.uk/Resource/0044/00440315.pdf](http://www.scotland.gov.uk/Resource/0044/00440315.pdf)

2. http://www.hayesmckenzie.co.uk/downloads/LF%20and%20Infrasound %20Noise%20Immission%20from%20Wind%20Farms%20and%20the%20Potential%20for%20Vibro%20Acoustic%20Disease%20-%20Malcolm%20D%20Hayes.pdf

3. http://www.hayesmckenzie.co.uk/downloads/ Measurement%20of%20Low%20Frequency%20Noise%20at%20Three%20UK%20Wind%20Farms.pdf

4. <http://blogs.telegraph.co.uk/news/>jamesdelingpole/100248760/wind-farm-noise-a-government-cover-up/

5. http://waubrafoundation.org.au/2013/explicit-warning-notice/ and http:// www.windturbinesyndrome.com/2014/medical-school-research-team- confirms-wind-turbine-infrasound-can-produce-wind-turbine-syndrome- usa/?var=cna

Letter dated 8 July 2014

Thank you for your letter of 29 May and for sight of Derek Mackay's letter.

He makes the assumption that a moratorium would lead to a resumption of this policy without any changes. I argue that the moratorium could lead to a cessation of this policy, or at least to a resumption with much tighter conditions and health protection which would include Infrasound (ILFN) monitoring.

Whilst the Scottish Government may chose to be unaware of "a peer reviewed, proven, widely experienced dose-response link between wind turbine operation and health impacts", may I refer him to: http://waubrafoundation.org.au/resources/wind-turbine- noise-adverse-health-effects-june-2014/.

He makes reference to my "particular situation". I can assure him that there are many people around Scotland and the world who are suffering similar symptoms as myself but he may not have heard of them because:

* they are too ill or already dead
* they have not been give access to all relevant information, or have not yet made the connection between their deteriorating health and turbine emissions
* if they have made the connection, they are unwilling to make a complaint due to employment, tenancy, property devaluation or other concerns, and indeed maybe their fear of being ridiculed
* if they have made the connection and voiced concerns and complaints, they have given up due to the manner in which their claims have often been discounted or ignored by the wind industry and government officials (Hansard, 2009, pp.G-516, G-547). Experts contend that the quantity, consistency, and ubiquity of the complaints constitute epidemiological evidence of a strong link between turbine noise, ill health, and disruption of sleep (BMJ2012; 344:e 1527)

As I have mentioned before, I am not complaining about the audible noise from the Ark Hill turbines.

I am seriously complaining about the effects of the infrasound (ILFN) emissions from these turbines - which is not audible. These effects are cumulative, and therefore any visiting officer is unlikely to notice any effects.

The only way for any type of assessment of ILFN is to use good quality ILFN measuring equipment. As you will read in the addendum to my 'Ark Hill - One Year On' (attached), an acoustics expert came here in early April with suitable monitoring equipment and showed a direct time correlation with my being woken and subsequent wakefulness, and infrasound peaks at 3 Hz.

A second monitoring box was placed much closer to the turbines and I am confident that the infrasound came from the turbines and not from some other anomaly that has only occurred since the turbines were erected. Please also see my 'Bullet Points' (attached).

The facts are clear:

1. Wind turbines emit ILFN, and can do so even when the blades are not turning.
2. ILFN is harmful to humans and other life forms, and can kill.
3. In the interests of Public Health, the Scottish Government and local Councils should impose a condition on turbine applications that ILFN is measured before and after turbine erection (for a period of a few weeks/months).
4. ILFN measurement should be a mandatory tool that is used to assess any reported health effects from turbines. This could show a direct time correlation between symptom and ILFN peaks.

I hope this is of interest and that the correct action will be taken to protect public health.