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To: [NDE](#)
Subject: Response to NDF 2020 - 2040 Consultation
Date: 15 November 2019 15:38:12
Attachments: [Appendix B.pdf](#)
[NDF Response v. final \(15-Nov-2019\).docx](#)

Dear Sir/Madam

Please see attached response to the NDF 2020 - 2040 consultation.

Please confirm receipt of this email.

Yours sincerely

Carol Jarrett

National Development Framework 2020 - 2040 Consultation Response

Policies 10 and 14

1. **Not Fit for Purpose:** The 'Assessment of onshore wind and solar energy in Wales' by ARUP is an embarrassment to the Government and an insult to the people having to comment upon it. It is strewn with fundamental factual errors, for example, see the 'Centres of Population' map (*Stage 2, Appendix D*), how can this be so wrong? Llanidloes has moved to Merthyr Tydfil, indeed nowhere seems to be where it should be. It suggests ARUP has no knowledge or understanding of Wales and hasn't bothered to find out. It begs the question as to whether this whole exercise is pre-determined, a tick box exercise to comply with the requirement to consult with the public. In its current state the consultation documentation is not fit for purpose and should be withdrawn to allow for it to be reconsidered and amended with the aim of providing a factually correct evidence base which transparently shows the approach adopted and how such sweeping recommendations have been formulated.
2. **Incomplete Assessment:** The NDF states ***'These technologies (onshore large-scale wind and solar) are viable and deliverable, and have the greatest ability to make positive contributions to our renewable energy targets in the short to medium term'***. How do we know these have *'the greatest ability to make positive contributions'*? There is no evidence to support this statement because the assessment is silent on the future potential of off shore wind generation and all the other technologies which should be in the mix. For example, ***The Future Potential for Offshore Wind in Wales, December 2018¹*** sets out the case for offshore wind in Wales (P. 4):
 - *The improved economics of offshore wind power makes this a highly competitive energy technology and a 'low regrets' option for policy makers.*
 - *The UK has signalled a commitment to offshore wind through confirmed government auctions that could help reach the industry target of 30 GW installed capacity by 2030. A longer-term target of 50 GW by 2050 has also been advocated.*
 - *Particularly in the absence of a clear route to market for onshore renewables and the lack of cost competitiveness of marine energy technologies, offshore wind power could be vital to meeting Wales' renewable energy, decarbonisation, and well-being goals.*
 - *An additional 2 GW of offshore wind power could be delivered by just 2-3 projects in Wales, if site extensions and new site leases can be secured in Welsh waters and grid connected in Wales. **Taking total offshore wind capacity to 2.8 GW could meet nearly all (68%) of Wales' 70% renewable energy target by 2030.***
 - *Given the competitive landscape for new developments up to 2030, extending the lifetime of existing operational wind farms can support meeting the 2030 target. Importantly, new offshore wind developments can build a pipeline to meet long-term targets up to 2050.*
 - *Typical investment of ~£3-4 bn per project across its lifetime can also bring considerable economic benefits to Welsh businesses and communities.*

In addition, ***The Welsh National Marine Plan November 2019²***, states (p. 96-97); *'Offshore wind energy is a proven and strategically important energy technology and the costs of deployment are decreasing rapidly, making this a viable and attractive renewable energy option for Wales, with considerable scope Welsh National Marine Plan for further large-scale offshore wind activity. Offshore wind has significant potential to contribute to renewable energy targets during the lifetime of this Plan'.*

¹ <https://gov.wales/sites/default/files/publications/2019-07/future-potential-for-offshore-wind.pdf>

² https://gov.wales/sites/default/files/publications/2019-11/welsh-national-marine-plan_5.pdf

It is clear that there are other solutions which have the potential to meet nearly all of Wales' 70% renewable energy target by 2030, it is also a fact that Wales is a net exporter of energy so why would a Government choose to aggressively attack the heritage, landscape, economy, health and wellbeing of rural of Wales when alternatives are available?

3. **NDF - Unachievable Overarching Outcomes:** There are 11 outcomes which are described as overarching ambitions which can be achieved through the NDF and other development plans if they are: **'focussed on the long-term and provides quality development in the right places for the right reasons. These outcomes are inter-related, and will improve places and well-being across Wales.'** (page 18).

Policies 10 and 14 are in direct conflict with this overarching outcome, the Welsh Government has already demonstrated how the approach outlined in the NDF will work in practice i.e. the Minister has over ruled Powys Local Authority and her own Inspector to approved the Hendy Wind Farm which is **a development in the wrong place, for the wrong reasons** (although we are not really sure what her reasons were). It's certainly **not a quality development** as records of the unlawful activity during the erection of a single turbine (which to date has never generated electricity) and the subsequent flouting of planning law shows. It has diminished a beloved ancient historic landscape, polluted the land and watercourses, destroyed any sense of well-being and fractured the community for generations to come. So we already know this outcome will not be achieved in practice.

The NDF does not explain how renewable energy projects provide environmental benefits (page 41). The destruction and damage to the environment and ecology caused by the erection of just a single turbine (so far) at the Hendy Wind Farm, demonstrates the lack of concern by the responsible authorities e.g. concrete slurry clearly seen leaking from lorries onto the common and leeching into the source of the river Edw, removal of hedges (without planning permission), proposed felling of the starling roost, the starling is red listed i.e. a bird of high conservation concern, and yet no one in authority cares. I will leave it to others far more knowledgeable than myself to explain to you why wind turbines are neither 'green' nor 'clean'.

Policies 10 and 14 provide no indication as to how blanketing rural Wales with 250m high turbines and acres of solar panels, **'will improve places and well-being across Wales'** (page 18). By its own admission *'there is a presumption in favour of development for these schemes and an associated acceptance of landscape change'*. The NDF gives no evidence about the value of the landscapes of Wales yet proposes industrialisation and destruction on a scale never before seen. The visibility maps published in the *'Assessment of on-shore wind and solar energy potential in Wales'* by the Welsh Government gives a conservative estimation of the visual damage that would be caused. In reality the visual damage would affect most of Wales, see CPRW *'Zones of Theoretical Visibility in Powys'*³.

The NDF offers no explanation as to how rural people are to exist, leave alone improve their well-being in this alien landscape. There is no indication as to the numbers of people whose livelihoods, wellbeing and health, both short and long term will be destroyed and I can only assume it's because no one cares. The First Minister in his Forward to the NDF says *'it is difficult to imagine how the world might look in 2040'*, however, the NDF paints a very clear picture of how Wales, at least, will look in 2040, the

³ <http://www.brecon-and-radnor-cprw.wales/wp-content/uploads/2019/09/WG-NDF-12-80m-ZTVs-NPs-AONBs-NTs-Powys-v1.0-20190826.pdf>

dystopian future his government is visiting upon current and future generations in Wales without considering all alternative options is entirely disproportionate and in my view unlawful.

The draft NDF has an urban centric focus to the detriment of rural places and the wellbeing of rural residents. The proposal inevitably increases inequality, with rural dwellers facing loss of livelihood especially from tourism, housing blight, ill health resulting from low frequency noise and infra sound emitted by industrial turbines, loss of environmental amenity, destruction of eco systems, birds, bats etc. contamination of water courses and flooding from hills full of concrete. Taken to its full conclusion this draft NDF will render large areas of rural Wales uninhabitable, I am already aware of two homes in the immediate area that have been abandoned due to wind turbine noise. This NDF conjures up similarities with the 'Highland Clearances' and is surely unlawful when other options are available and have not been considered

Circumvention of Local Democracy: The goals outlined in the Wellbeing of Future Generations Act (2015)⁴ clearly recognise the importance of communities and culture to health and feelings of wellbeing. However, the NDF makes clear that no environmental, landscape, heritage, amenity, health or wellbeing need is likely to weigh substantially against any wind or solar application. This has been evidenced by the Ministerial decision to approve the Hendy Windfarm despite the evidence of harm and contrary to the decisions of the Local Authority and her own inspector both of whom visited the site and undertook extensive investigations. The NDF traffic light system appears to override planning law and seems to me to prejudge environmental impact and to predetermine applications in the identified priority areas, people will have no say and will be a secondary consideration which in my view is unlawful and contrary to the Wellbeing of Future Generations Act (2015).

4. **NDF Development Objectives in Conflict with Policy:** The NDF identifies areas it will develop to achieve eleven outcomes the first of which states: '**A Wales where people live in connected, inclusive and healthy places**' (page 18). This is in direct conflict with policy 10 (page 38), the disproportionate extent of the 'priority areas' for large scale wind and solar development will result in rural areas which will no longer be 'healthy' places to live, indeed, given the proposed size of these turbines it is incomprehensible that anyone will be able to exist amongst them. The size of turbine and scale of land take, more than 1/5 of the land mass of Wales, of what is proposed will inevitably result in the health and well-being of the majority population of Wales being compromised by exposure to low frequency noise and infra sound. Turbine size has increased to unimaginable industrial proportions over recent years and the NDF now suggests large scale wind development using turbines of up to 250m high. The sound profile emitted turbines of this size constitutes much greater low frequency noise and infra sound, neither of which is addressed within the ETSU-R-97 assessment, and poses a threat to human and animal health on a scale never before experienced in Wales.
5. **Low Frequency Noise and Infra Sound:** The detrimental health effects of exposure low frequency noise (LFN) and infra sound have been known for nearly 40 years. In 1982 NASA research into Low Frequency Noise; '*Guide to the Evaluation of Human Exposure to Noise from Large Wind Turbines*'⁵ revealed that even with windows shut, houses do not stop LFN sound energy. Measured levels inside the home are significantly higher than predicted within the LFN range, the house acts like a drum for LFN and generated many complaints especially because the noise levels were higher inside the homes than outside. Susceptible people experience a range of symptoms including motion-sickness-like symptoms.

⁴ <https://futuregenerations.wales/about-us/future-generations-act/>

⁵ <https://www.windturbinesyndrome.com/wp-content/uploads/2012/11/NASA-study-of-wind-turbine-noise-1982-from-Owen-Black.pdf>

Low frequency noise has long been known to be a public health and health and safety issue, in 2001 a Defence Technical Information Centre Compilation Part Notice, ADP014113 (*appendix B*) states; *'On the basis of our 20 years of research on the effects of low frequency noise (LFN including infrasound), our team has learnt to regard LFN as an agent of disease (not just a pollutant), and to search for objective clinical indicators of LFN-exposure. LFN impinges upon an individual and it is irrelevant whether or not such acoustic phenomena are heard, or even perceived by the individual. X-rays are a perfect analogy: merely at a different frequency of electromagnetic radiation (or light), x-rays are not seen or perceived by the individual. Yet undue exposure to x-rays is a well-known health hazard. We propose that LFN be treated as x-rays'*

'Long-term exposure to LFN can cause Vibroacoustic Disease (VAD): a systemic pathology, characterized by whole-body proliferation of the extra-cellular matrix. VAD has been identified in military and civilian pilots and aircrews, aeronautical mechanics and technicians. VAD is a whole-body pathology, simultaneously compromising several organs systems.

'The most serious situations occur where LFN generation is continuous, and no possibility of "quiet" time (or recovery period) exists. Such is the case of ships, submarines, tanks, space vehicles, and long-haul aircraft. Often, personnel must remain within an LFN environment, usually an already confined space, for months at a time'.

The following outlines a timeline of knowledge of the adverse effects on health and wellbeing:

1987: Wind industry told that dB(A) was unsuitable to measure LFN emissions from wind turbines.

They were informed how to predict annoyance from LFN emissions from wind turbines at the Wind power '87 Conference and Kelley⁶ explains how to measure LFN emissions from wind farms. The Wind Industry knew that dB(A) filter cuts out all the LFN and is therefore unsuitable and G-weighted scales should be used because it is better correlated with noise, annoyance, vibration and pulsations⁷.

1996: The Noise Working Group produced ESTU-R-7 Guidelines for assessing wind turbine noise. The Noise standard document produced by the Noise Working Group makes it plain that its purpose is to create guidelines that will promote the development of the wind industry by not placing *"unreasonable restrictions on wind farm development or adding unduly to the costs and administrative burdens on wind farm developers or local authorities."* ETSU avoids measuring LFN from wind turbines. The sampling and filtering protocols in ETSU remove the dominant LFN component of the noise emissions from wind turbines.

2009: Sixty years of World Health Organisation research shows sleep deprivation, caused by noise, is a serious adverse health effect. They write: "Sleep is a biological necessity and disturbed sleep is associated with a number of adverse impacts on health.... (and) is viewed as a health problem in itself (environmental insomnia), (as) it also leads to further consequences for health and well-being⁸.

2014: Ontario Council enacts new by-law including infrasound from wind farms. Under the bylaw, if a resident complains about infrasound, the municipality hires an engineer qualified to take the measurements before laying a charge. If a company is found guilty – can range from \$500 to \$10,000 per offence and could exceed \$100,000 if the offense continues. The municipality recoups the cost of the specialized testing under the bylaw.

2014: US Wind farm declared 'Hazard to Human Health' The Brown County Board of Health declared the Shirley-Wisconsin wind farm a " ... Human Health Hazard for all people (residents, workers, visitors,

⁶ <https://www.nrel.gov/docs/legosti/old/3261.pdf>

⁷ <https://www.nrel.gov/docs/legosti/old/3261.pdf>

⁸ http://www.euro.who.int/_data/assets/pdf_file/0017/43316/E92845.pdf

and sensitive passersby) who are exposed to Infrasound/Low Frequency Noise and other emissions potentially harmful to human health.”

2014 - Infrasonic wind turbine signature in homes. Private noise testing was happening inside people's homes because they were suffering. However, this was happening without the co-operation of the wind turbine operators. They refuse to provide on-off testing to demonstrate that the turbines are causing the infrasonic pulses inside their homes or provide hub-height wind speed data to determine wind shear. One such study was underway at Waterloo South Australia when a cable fault allowed de facto on-off testing to be conducted. They demonstrate that the 'wind turbine signature' of the pulses created by the blades passing the tower is only evident when turbines are operational.

2014: Sleep deprivation by wind turbine noise: a dose-response relationship identified. Danish study concludes that noise from wind turbines increases the risk of annoyance and disturbed sleep in exposed subjects in a dose-dependent relationship. The higher the dose or exposure to LFN and infrasound, the worse the disruption to sleep.

The World Health Organization advises: *‘The noise emitted from wind turbines has other characteristics, including the repetitive nature of the sound of the rotating blades and atmospheric influence leading to a variability of amplitude modulation, which can be a source of above average annoyance (Schäffer et al., 2016). This differentiates it from noise from other sources and has not always been properly characterized. Standard methods of measuring sound, most commonly including A-weighting, may not capture the low-frequency sound and amplitude modulation characteristic of wind turbine noise (Council of Canadian Academies, 2015)’⁹.*

‘Based on all these factors, it may be concluded that the acoustical description of wind turbine noise by means of L_{aeq} or L_{night} may be a poor characterization of wind turbine noise and may limit the ability to observe associations between wind turbine noise and health outcomes’¹⁰.

Despite the World Health Organisations findings and recommendations and the long-standing evidence shown above there has been, and there remains much resistance to the measurement of low frequency noise from the Wind Industry presumably because it would result in much larger setbacks as LFN is not easily attenuated and travels much greater distances. Evidence from a Freedom of Information request (see Appendix B) shows an example of suppression of a recommendation to tighten current noise regulations on wind turbines in order to protect residents from noise. So why have Governments not required full spectrum acoustic measurement to be carried out at operating wind turbines inside and outside houses/homes and why have standards been written to preclude any requirements for any such testing?

The Independent Noise Working Group, Package 10 (P.10) found that ‘... that the IoA through its wind turbine noise working groups has consistently operated for the benefit of the wind industry to the detriment of local communities. These activities arguably contravene both the IoA Code of Ethics and that of the Engineering Council. The effect has been to both obfuscate and hide problems related to wind turbine noise....’ Contrary to what the wind industry wishes us to believe, there are many up to date peer reviewed and published articles on adverse health effects related to industrial scale wind energy projects which are situated too close to our homes¹¹.

⁹ http://www.euro.who.int/_data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf

¹⁰ http://www.euro.who.int/_data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf

¹¹ https://www.heatonharris.com/sites/www.heatonharris.com/files/2019-01/inwg_wp10_nov_2015_final.pdf

In 1987 the Wind industry was told that dB(A) was unsuitable to measure LFN emissions from wind turbines and have vigorously fought any attempt to remedy this ever since. There has been decades of deception and suppression of evidence of the harmful health effects of low frequency noise and infra sound. The Independent Noise Working Group, *'Two Decades of Deception'* identified in 2015 (P.8) that; *'By the 1990s it will have become apparent to the wind industry that the existing BS4142 noise guidance and limits as applied to most industrial noise sources could have become a serious constraint on the deployment of onshore wind power..... In addition, the same industry has consistently denied any ill health effects from wind turbine noise or the presence of harmful levels of low frequency noise. However, the overwhelming evidence that has emerged over the last few years has shown these denials to be proved wrong and misleading'*¹².

'Biomedical engineer Dr Mariana Alves-Pereira recently studied the impact of ILFN from wind turbines in Ireland, 'Infrasound and low-frequency noise – does it affect Human Health? (23 January 2018)', concluding that noise regulations need updating to reflect noise levels that endanger human health. On the [Engineers Ireland website](http://www.engineersireland.ie)¹³, a search for 'infrasound' or 'low-frequency noise' yields zero results. A search on 'noise', however, **yields 44 results**. Why is it that ***infrasound and low frequency noise (ILFN)*** is still such a taboo subject?'¹⁴

The graph above illustrates that in this environment, the human being would perceive through the ear an overall A-weighted pressure-level of approximately 34 dBA (Tot – red bar), while being concomitantly exposed to an overall acoustic pressure-level of approximately 74 dBLin (Tot – grey bar).

Home 1: A-weighting, 1/3 octave bands (0.5-4000 Hz), 10-minute average – Red Channel

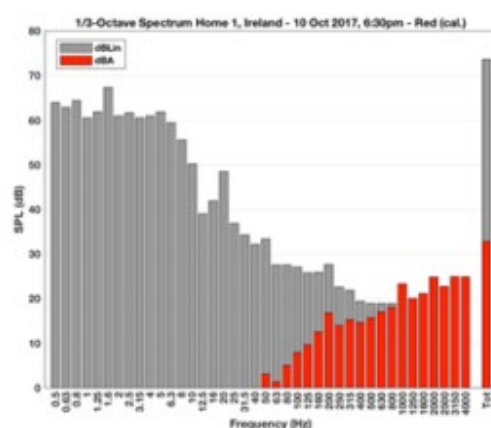


Fig 4: Data covers a 10-minute interval analysed between 0.5-4000 Hz, in 1/3-octave bands, as recorded in Home 1, on 10 October 2017, at 18:30 (red microphone, i.e. inside child's bedroom-2).

The red bars are A-weighted values, while the gray bars indicate the acoustic energy that is, *de facto* present, in dBLin. In this environment, the human being would perceive through the ear an overall A-weighted pressure-level of approximately 34 dBA (Tot – red bar), while being concomitantly exposed to an overall acoustic pressure-level of approximately 74 dBLin (Tot – grey bar).

'Public health officials and agencies should fulfil their job descriptions by becoming aware of the limitations of current noise guidelines and regulations. Alternatives exist to gather the acoustic information relevant to the protection of human populations, in both occupational and residential

¹² https://www.heatonharris.com/sites/www.heatonharris.com/files/2019-01/inwg_wp10_nov_2015_final.pdf

¹³ <http://www.engineersireland.ie/home.aspx>

¹⁴ <http://www.engineersjournal.ie/2018/01/23/ilfn-infrasound-low-frequency-noise-turbine-health/>

*settings. Noise regulations and guidelines need urgent updating in order to appropriately reflect ILFN levels that are dangerous to human health'*¹⁵

The scale of the issue of low frequency noise is made very clear in the above graph, the majority of the sound pressure is in the low frequency range (grey bars) 74dB whilst officially the noise is measured at 34Db. This perhaps provides an explanation as to why there has been decades of deception and suppression of evidence of the harmful health effects of low frequency noise and infrasound. No wonder tinnitus is often the first symptom of health issues caused by low frequency noise and infrasound, the pressure waves which are unmeasured and totally ignored are off the scale!

Public Health Wales

The Public Health Wales Website states: *'With more and more wind turbines being sited in Wales, there is a need to consider the associated public health implications. Despite reports from Local Authorities that wind turbines are generally compliant with current guidelines, noise related complaints from residents living near turbines continue to be received'.*

It is unclear what action Public Health Wales are taking to research this issue, this maybe because it is seen as affecting only 'a few' rural people however the draft NDF raises the prospect of the whole population of Wales being exposed to low frequency noise and infrasound 24/7, except when the wind doesn't blow of course.

Evidence from currently operating wind turbines in Powys

Powys Local Authority holds no evidence from the monitoring or evaluation of the impacts upon health and well-being of currently operating wind turbines specifically:

- The Powys Well-being assessment states: *'There has been no research on the specific location of renewable installations within Powys, the data provided is only based on a Powys wide dataset. Extensive work has been undertaken as part of the Local Development Plan (LDP) 2011 2016 process to identify the best locations for renewable technology, however this data is for future installations and not existing',* (Well-being Assessment 2017, Environment Key Findings).

A recent Freedom of Information request to Powys Local Authority revealed:

- There have been numerous complaints about noise from wind turbines in Powys, supporting the fact that ETSU-R-97 is not fit for purpose.
- Complaints about low frequency noise are not separately identified.
- There is no record as to whether the noise complaint has been resolved to the complainant's satisfaction.

In terms of efforts to understand turbine noise problems in the County and in order to prevent further/future turbine noise issues it is reported that:

- The planning process does not routinely require raw noise data from wind developers to validate it and confirm/ensure compliance with regulations. Noise prediction reports from developers are accepted at face value.
- The cumulative data from wind turbine noise complaints is not routinely collated to identify any trends and common factors these in noise complaints e.g. turbine make and model, topography, verification of distance from residential properties pre-decision, raw noise data supplied by applicant etc.
- Development management/ and the Planning Committee are not made aware of the incidence of complaints about noise from wind turbines.

¹⁵ <http://www.engineersjournal.ie/2018/01/23/ilfn-infrasound-low-frequency-noise-turbine-health/>

Powys Local Authority is not monitoring the health and well-being effects of wind turbines on its residents and despite approving industrial size turbines with their consequent increased low frequency noise and infra sound emissions, I have been advised personally that the Authority cannot afford the equipment to scientifically measure for such noise.

The Authority seems to be unaware of the number of people who are already suffering the effects of wind turbine noise (of any description) and those who are now suffering health issues. Without this evidence it is difficult to understand how the Authority can expand on-shore wind development on a robust evidence base that best protects the health and well-being of residents. The approach is cavalier and, in my view, negligent.

People all over Wales are already suffering diminished health and wellbeing I personally know of two properties locally that have been abandoned and people re-located because their lives were destroyed wind turbine noise, one of which was low frequency noise.

Within the context of the draft NDF the issue of exposing the population of Wales and beyond (because remember, Low frequency noise and infrasound travel unattenuated for many, many miles and penetrate buildings) to Low frequency noise and infrasound with no measures in place for the protection of people and animals is negligent. This issue alone should make any responsible Government think again because what is currently proposed is disproportionate and to knowingly expose the population of Wales to low frequency noise and infra sound with no measures in place for protection of the population they are supposed to serve, whether in urban or rural areas, is unthinkable and could be compared to a war crime in my view. The precautionary principle must apply there is now too much mounting evidence to any longer believe those with vested interests without challenge or question.

6. **Powys LDP:** At great expense to the public purse and the time and energy of many Powys residents the Powys Local Development Plan went through an exhaustive public inquiry the outcome of which provided for search areas for solar developments, however, based upon an expensive assessment exercise undertaken by AECOM it was identified that there were no areas suitable for wind development left in Powys, consequently there are no search areas for wind generation in the Powys LDP. It is therefore something of a mystery how ARUP have now found vast areas of Powys, including nearly the whole of Radnorshire to be suitable for wind? Something is very wrong here and as Powys resident with local knowledge I don't think it's the LDP. As already stated, the ARUP report is not fit for purpose and smacks of providing the 'right' answer for the commissioner regardless of evidence to the contrary provided in the LDP, they can't both be right what is going on?
7. **Local Economy in Conflict with Local and National Policy:** Under the heading of 'well-being' and 'A Prosperous Wales', the Powys Local Authority states '*Promoting Powys as a tourism destination will support existing businesses, generate new business opportunities and create jobs*'. Research shows that in the main tourists visit Wales for the unspoilt landscape and peace and tranquillity our hills, ancient woodland and lakes. Tourism is the largest employment sector of the local economy in Powys. Clearly there is a major disconnect between the aspirations of the Local Authority, the Well-being of Future Generations Act and the proposed NDF which seems set upon creating an alien landscape devoid of all those things which attract people to live and holiday in the county. The spurious claim that wind farms contribute to the local economy is another of those oft repeated myths that seem to become accepted as fact by distant Governments with no supporting evidence. Experience here in Powys seems to show there may be some fleeting local benefit during the construction phase, but beyond that there is nothing, the local economy does not benefit. The proposals in the draft NDF if implemented,

would destroy the current economy, (who wants to sit birdwatching amongst 250m turbines), and with no suggestions as to how people are going to make a livelihood in Powys in this dystopian future suggests that the Welsh Government sees no future for Powys beyond energy production in a barren wasteland to support the rest of the UK and beyond.

8. **Conclusion:** This draft NDF is deeply flawed and needs to be withdrawn in order that an inclusive National debate on the future Wales can take place in accordance with the requirement of the Well-being of Future Generations Act. The wholesale destruction of Wales cannot be allowed to happen on the premise of reducing global emissions by 0.002% it is not going to save the world or even make any useful contribution; it will however make the wind industry and their distant shareholders very rich and in doing so the poor people of Wales even poorer in every possible way this neither moral nor acceptable.

End

Carol Jarrett

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New Evidence Shows that Government Suppressed Expert Advice to Lower Wind Turbine Noise Limits Intended to Protect Residents

Summary

New evidence released by the Dept. of Energy and Climate Change under a Freedom of Information request shows that Government suppressed a recommendation by its own acoustics consultants to tighten current noise regulations on wind turbines in order to protect local residents from night time noise. This does little credit to the Department, and must be corrected immediately.

Introduction

In 2006 the Government published a crucial report on wind turbine noise and its effects on nearby residents by Hayes McKenzie Partnership (HMP)¹. This study has been used to support the view that there is no reason to revise existing Government wind farm noise guidelines, nor that there are any health ramifications of turbine noise at neighbouring dwellings.

Mr Mike Hulme of the Den Brook Judicial Review Group, a group of local residents opposing a wind turbine development close to their houses in Devon, submitted a Freedom of Information (FOI) request asking to see all draft versions of this study.

The Government, that is the Department of Energy and Climate Change (DECC), refused the request, claiming that it was not in the public interest for these to be released.

Mr Hulme appealed against this decision, and the appeal was upheld by the Information Commissioner². Consequently the Government has been obliged to release earlier drafts of the HMP report.

The drafts reveal that the final published report silently removed earlier recommendations that:

1. the night time wind turbine noise limit should be reduced from 43dB to 38dB, and,
2. in the event that the turbine noise has a discernible beating character, the limit should be further reduced to 33dB.

The Department of Energy and Climate Change (DECC) had sought to suppress the drafts, claiming that it was not in the public interest for these to be released. However, the Information Commissioner overruled DECC. The Commissioner's report says:

the Commissioner is conscious that climate change and the need to seek safe and viable alternatives to fossil fuels are major political issues. Therefore, the Commissioner believes that disclosure of this information could be used to feed into the debate with regard to what role wind farms should have in seeking to reduce the UK's carbon emissions and how that should be balanced with regard to the

potential effect that wind farms could have on people's health.³

Revised Noise Recommendation Dropped

The HMP study involved taking noise measurements at houses neighbouring three different wind farms (Askam, Bears Down and Blaen Bowi). The study revealed that complaints were due to the presence of aerodynamic modulation (the beating swish-swish signature noise of turbines), greater than originally foreseen by the authors of the existing noise guidelines (ETSU-R-97), which date from 1996. Aerodynamic modulation is particularly important at night since it can result in wind farm noise levels that are audible inside neighbouring houses and can cause complaints of sleep disturbance.

The drafts obtained under the FOI request show that the report recommendations originally included the following paragraph, which was removed in the final version:

To reduce the potential for such situations with future wind turbines, it is recommended that consideration be given to a revision of the night-time absolute noise criterion proposed within ETSU-R-97 and the development of an assessment methodology to take account of periods when high levels of aerodynamic modulation are found at a neighbouring receptor location.

The third draft includes some comments by an official whose name has been redacted in the released version. The anonymous official's response to this paragraph was:

What will the impact of this be? Are we saying that this is the situation for all wind farms, just these [ie. the three wind farms in the HMP study], a % only for people with sensitive hearing, a problem with older turbines – I think we need a sense of the scale of this and the impact.

It is difficult to avoid the conclusion that the official was avoiding the commonsense interpretation of the HMP recommendation, namely that there was sufficient ground for a blanket recommendation to prevent any future wind turbines from causing noise disturbance, and seeking specious reasons for removing this measure.

Suggestion of 5dB Penalty for AM character removed

The draft report also recommends that if the characteristic beating noise of turbines is particularly intrusive at night times then it may be appropriate to lower the permitted noise limit by 5dB. This is described as adding a 5dB penalty to the limit. The quantification of this penalty was also removed in the final version of the report.

The following section was included in the draft report:

However, during the night-time periods when high levels of modulation have been measured, it may be appropriate to apply a 5 dB penalty to the incident noise from the wind farms. This would bring the assessed rated noise levels associated with the three wind farms at which measurements have been made to lie between 41.2 – 44.8 dB LA90. For Sites 1 & 2, the assessed level of wind farm noise, even with the application of this penalty, would result in the wind farm noise meeting the requirements for night-time operation outlined with ETSU-R-97. It is clear from the occupants of the dwellings at Sites 1 & 2 that such a situation would still be considered unacceptable.

The final report replaced this entire section with:

However during the night-time periods when high levels of modulation have been measured, it may be appropriate to apply a penalty to the incident noise from the wind farms.

Reference to WHO Guidelines and Reducing ETSU-R-97 Limit Removed

Also removed from the final report was the suggestion that the ETSU-R-97 limits be reduced to accord with World Health Organisation sleep disturbance limits.⁴ Similarly, a discussion that points out that the existing ETSU-R-97 night time turbine noise limits can result in indoor night-time noise levels significantly higher than those in the absence of a wind farm has also been dropped from the final report.⁵

All suggestions present in the drafts that the existing ETSU-R-97 limits should be revised were removed from the final report.⁶

Furthermore, the Government issued a statement following the publication of the HMP report instructing local authorities to continue to follow the ETSU-R-97 guidelines.⁷ DECC have reiterated this position as recently as 1 October 2009 in their response to a call by Environment Protection UK to revise ETSU-R-97.⁸

Health Comment Removed

Although the original purpose of the study was to examine the potential health effects of wind farm noise, the Information Commissioner's report notes that it is not a statutory duty of DECC (or its predecessor departments, BERR and the DTI) to set noise policy or noise limits.⁹ This responsibility resides with DEFRA.¹⁰ However, DECC is charged with removing barriers to the expansion of wind farms in the UK and takes upon itself responsibility to ensure that the wind farm noise guidance known as ETSU-R-97 is up-to-date and robust.¹¹

DECC stated that HMP, an independent acoustics consultancy, albeit with no expertise in the area of public health, was commissioned to carry out the study into the potential health effects of wind farm noise because there were no DTI staff with relevant expertise to do this work.¹²

Mr Hulme, in arguing that the drafts should be released, quoted the then Minister for Energy in a House of Commons debate of 5 July 2007, in which he relied on the findings of the HMP report to support his statement that there is 'no evidence of adverse health effects from wind turbines'. Mr Hulme argued that the public were entitled to know on what basis the Minister for Energy could make such a confident assertion.¹³

The Information Commissioner accepted Mr Hulme's point and added that disclosure of the report drafts would increase public confidence if it was revealed a careful drafting and review process had occurred or alternatively if it was revealed that the drafts were not subjected to adequate scrutiny then it could be argued that it would be in the public interest to disclose the drafts in order to reveal these failures.¹⁴

None of the released information includes evidence that scrutiny by health experts was carried out, nor does it provide comments indicating a peer review process. Indeed, the only input appears to be the anonymous official's comments on the released draft, which are particularly negative about a reference to health effects. The HMP study noted that audible wind turbine noise within a bedroom resulted in the occupants finding it difficult to return to sleep if woken during the night. The draft report observed:

A difficulty in returning to sleep will result in tiredness the next day and all the associated descriptions of ill-health which might be associated with a lack of sleep.

This remark was removed, after the following response from the anonymous official:

This sentence is dangerous and could be read that wind farms cause ill-health which is not the intention. We need the report to stick to the facts that LFN is below the guidelines but that once woken by a car there may be problems getting back to sleep for those with sensitive hearing as result of the windfarm – something like that.

This is a remarkable statement and demonstrates the conflict of the roles adopted within the DTI, and now DECC, of promoting wind farm development while also having responsibility for the wind farm noise guidance policy intended to protect local residents.

Government Emails Deleted

The Government contract with HMP required three drafts of the report to be produced. No reason is available as to why three drafts were required: a reasonable assumption would be that Government officials wished to comment on and have the chance to ensure the content was appropriate and clear.

In addition to the FOI request for sight of the draft reports, Mr Hulme's FOI request also asked for copies of correspondence relating to revisions of the report. Although this request was originally refused in August

2007, DECC released 8 emails in January 2009 which it stated represented the complete set of relevant emails available at that time.

DECC officials informed the Information Commissioner that it is not Government policy to keep a record of all emails that are created or received. Because of changes in Government department structures in recent years, three different departments have been involved in this FOI request. The three departments - DTI, BERR and DECC – all automatically delete emails over 12 months old, on a rolling basis, unless the official writing or receiving the emails considers the content is of value, in which case he or she must manually save the email to a separate electronic filing system. Because of this policy, DECC informed the Information Commissioner's that further correspondence in relation to revisions of the report may have existed at the time of the project but had not been saved.¹⁵

None of the eight released emails contains any comments by the DTI on the content of the drafts or requests for revisions.

Importance of the Released Information

The recommendation that the indicative Government wind farm night time noise limits should be reduced substantially was made to the DTI in 2006. It is striking, and reprehensible, that this recommendation has only come to light more than three years later, and after a contested FOI request.

In this time, further consents for wind farms have been granted, with the night time noise limits set at levels which Government's own appointed acoustic experts had clearly stated would not protect the sleep amenity of nearby neighbours.

Furthermore, much time at public inquiries has been devoted to debating noise conditions to prevent nuisance from amplitude modulation noise. Had the information removed from the draft reports submitted to the DTI in 2006 been available to these Inquiries different outcomes would have resulted, and public amenity been more adequately protected.

In Mr Hulme's case, the Public Inquiry into the proposed wind farm at Den Brook closed on 26th October 2009, just one day before being notified this information was to be released to him. This extended delay prevented him from using the information at the inquiry into the wind farm, noise from which is expected to erode the existing tranquillity of his property.

Recommendations

It is a matter of urgency that Government should re-commission a wholly independent review of the noise guidelines for wind turbines, taking into account those matters raised in the drafts of the HMP study, with the aim of replacing ETSU-R-97, which is now discredited.

Government is responsible for a number of inadequate noise conditions in wind turbine planning consents, and these consents are arguably unsound, and should be re-determined.

Footnotes

¹ The Hayes McKenzie report published by the DTI can be found at <http://www.berr.gov.uk/energy/sources/renewables/explained/wind/onshore-offshore/page31267.html>

² The Information Commissioners decision can be read at http://www.ico.gov.uk/upload/documents/decisionnotices/2009/fer_0184885.pdf

³ Paragraph 87

⁴ The text relating to the WHO guidance in the drafts which is not in the final report is :

'If one takes the guidance within the WHO for the protection against sleep disturbance of 30dB LAeq, and apply a 5 dB correction for the presence of high levels of [aerodynamic] modulation within the incident noise, then this gives rise to an internal noise criterion of 25dB LAeq. Based upon the measured building attenuation performances at Site 1 & 2, then an external level between 35 – 40dB LAeq (33-38 dB LA90) would provide sufficient protection to neighbouring occupants to minimise the risk of disturbance from the modulation of aerodynamic noise.'

⁵ The text relating to the ETSU-R-97 night time limit in the drafts which is not in the final report is :

Furthermore, the basis of the ETSU-R-97 external night-time guidelines is to protect the processes of sleep with an internal noise level limit not to exceed 35 dB LAeq. Such an internal noise level could be anywhere between 5 – 10 dB higher than the existing internal noise environment within an occupied bedroom at night, i.e. clearly audible to the average listener who is awake.

The measured external noise levels during the high modulation conditions ranged between 36 – 40 dB LA90. If an incident noise is not subject to high levels of amplitude modulation, then internal noise levels will range between 20 – 30 dB LA90, (for a 10 – 15 dB insertion loss from outside to inside). However, if the noise does contain a high level of modulation, then the "rated" internal level will range between 25 – 35 dB LA90,r, equivalent to 27 – 37 dB LAeq, r. In the worst case a reduction in the external criterion level by 7 dB would ensure that 30 dB LAeq,r is not exceeded with windows open.

The current ETSU-R-97 Night-time Absolute Noise Criterion is a level of 43 dB LA90, equivalent to 45 dB LAeq. A reduction of 7 dB(A), to 38 dB LAeq (36 dB LA90) will, on the basis of the measurements, give rise to an internal noise environment of less than 30 dB LAeq, with windows open and with a 5 dB acoustic feature correction for high levels of aerodynamic modulation. Actual internal noise levels will range up to 25 dB LAeq, which is close to the unoccupied internal noise levels within the dwellings. Even so, with windows open and during periods of high aerodynamic modulation, there is still the potential for this noise to be heard but at a greatly reduced level. With windows closed, it should be expected that wind farm noise is likely to be reduced to close to inaudibility for a majority of the time.

⁶ An example of text, related to revision downwards of the ETSU-R-97 night time limit, which was removed from the final report is : 'The analysis

of the external and internal noise levels indicates that it may be appropriate to re-visit the issue of the absolute night-time noise criterion specified within ETSU-R-97. To provide protection to wind farm neighbours, it would seem appropriate to reduce the absolute noise criterion for periods when background noise levels are low. In the absence of high levels of modulation, then a level of 38 dB LA90 (40 dB LAeq) will reduce levels to an internal noise level which lies around or below 30 dB LAeq with windows open for ventilation. In the presence of high levels of aerodynamic modulation of the incident noise, then a correction for the presence of the noise should be considered. `

⁷ <http://www.berr.gov.uk/files/file35592.pdf>

⁸ <http://www.environmental-protection.org.uk/news/detail/?id=2300>

⁹ Paragraph 69 Information Commissioner's decision

¹⁰ Paragraph 62 Information Commissioner's decision

¹¹ Paragraph 62 Information Commissioner's decision

¹² Paragraph 58 Information Commissioner's decision

¹³ Paragraph 84 Information Commissioner's decision

¹⁴ Paragraph 85 Information Commissioner's decision

¹⁵ Paragraph 45 Information Commissioners decision