

Vortex makes the case for a moratorium in the UK on rural planning permission for industrial wind turbines within 2 km of non participating residential dwellings, pending full clinical evaluation and conclusions of the health hazards:-

The health hazards posed by commercial wind powered electricity generating turbines, such as are being proposed for Poplar Lane, Woore are slowly becoming accepted and understood. It should be said, however, that many conclusions are disputed and ignored by the wind industry and the governments that are advocating the widespread use of wind turbines. There is however a significant, necessary and growing trend towards caution.

Clinical medical studies are beginning to suggest that sounds that are audible to the human ear may not be the sole cause for concern - even that "infrasound" or "low frequency" noise pollution may represent the major portion of potential health hazards. Such "inaudible" noise pollution is apparently not being analysed by the wind turbine industry and it certainly is not accounted for by the noise regulation that has been written solely for the wind industry ETSU-R-97.

In late 2003 and early 2004, reports of work have been made public by Dr Amanda Harry (Cornwall)("People demonstrated a range of symptoms from headaches, migraines, nausea, dizziness, palpitations and tinnitus to sleep disturbance, stress, anxiety and depression. These symptoms had a knock-on effect in their daily lives, causing poor concentration, irritability and an inability to cope") and Dr Bridget Osborne (Wales)("There is a public perception that wind power is 'green' and has no detrimental effect on the environment. However, these turbines make low frequency noises that can be as damaging as high-frequency noises.") More extensive recent works are in the public domain by Dr. Nina Pierpont (USA), Dr Eja Pederson (Sweden), Barbara Frey & Peter Haddon (UK) and Dr Mariana Alves-Pereira (Portugal) and all conclude that there is an unacceptable risk to human health when commercial wind turbines are located within 2-3 km of residences. This conclusion is also supported by the UK Noise Association.

Dr Osborne of the Royal College of General Practitioners has published a paper detailing a "marked" increase in depression among local people. A report by Dr Geoff Leventhall, a fellow of the Institute of Physics and Institute of Acoustics, endorses these findings: "Low frequency noise causes extreme distress to a number of people who are sensitive to its effects."

In terms of physiological health, a team of physicians has been examining health hazards in New England and the Maritimes and is working on a research paper looking at the adverse effects of wind turbine noise on human health; good progress with this is being made. They have documented, from basic clinical research studies, endocrinological effects of offending noise in children and adults. This represents the early pathophysiology leading to the documented increased incidence of ischemic heart disease and other cardiovascular complications and potentially even more far reaching implications in children

Some aspects have already been published by the World Health Organization. The WHO has also disseminated some Community Guidelines for health effects of noise. The Health Council of the Netherlands has also made available some findings on long term health aspects. Evidence is also coming from Sweden which indicates that wind turbine noise is impacting on human health because of interference with night time restoration processes.

While some of this research patchy, and will surely be disputed by the wind industry, it represents a quantum leap forward in clinical assessment of potential dangers - however, "potential" can imply various shades of probability, and time factors may be somewhat fluid; unduly assertive conclusions would be contrary to rigorous scientific study. Necessarily, there is very little long term data yet available on wind turbines and causality requires proof, not assumption.

In the absence of compelling reasons to gamble with health hazards, public health costs and quality of life, probable threats to human health **must** be avoided and possible threats to human health **should** be avoided. It should be noted that risk management normally places a very low threshold on acceptable risk where human health outcomes may be negatively influenced.

Again this constitutes a call for caution.

Vortex is incapable of putting a "cost" on human suffering; (we recommend that the diaries of Gail and Yvonne as well as Jane Davis' story are read by all involved with any decision making)

nevertheless, the economic costs can be examined.. External costs (defined as those actually incurred in relation to health and the environment) are quantifiable (but not built into the cost of the electricity to the consumer) and are borne by the community at large. Such costs include specifically occupational disease and accidents, as well as the effects of pollution on human health, animal husbandry, crop yields, buildings, etc.

The air (and water) pollution of fossil-fuel power production is widely accepted as having a negative impact; it should not be an unacceptable leap of faith to consider that the noise (and visual) pollution of wind-powered power production should be treated with respect. "In comparison to other pollutants, the control of environmental noise has been hampered by insufficient knowledge of its effects on humans... as well as a lack of defined criteria." (World Health Organization, 1999)

This aspect has traditionally been demonstrated by imposing a "set-back" between the industrial turbines and residential property. Such set-backs have shown a consistent trend towards increase and whereas ~500m was in the past a guide line used by the wind turbine industry in their proposals, many authorities are now looking at significantly increased figures (as in Germany 2km and California 2 miles - both areas with significant experience) or as in Denmark, who no longer permit onshore wind plants and France who do not to allow them in rural locations.

From Retexo-RISP GmbH which is engaged in "marketing innovative, viable, new technology to overcome damage to the environment and improve life for today and the future" in Thuringan, Germany:

"Description of location [of wind farms]: The location under consideration should first of all be wind-intensive during the whole year. /.../ Buildings, particularly **housing, should not be nearer than 2 km to the wind farm.**"

From Riverside County California:

"LU 15.9 Restrict the placement of wind turbines within 2 miles of residential development unless the applicant supplies documentation that the machine(s) will not produce low frequency impulsive noise."

The World Health Organization, Guidelines for Community Noise, 6.1, has reached two relevant conclusions:

"f. Municipalities should develop low-noise implementation plans."

"g. Cost-effectiveness and cost-benefit analyses should be considered as potential instruments when making management decisions."

Conclusion

The only possible conclusion from the above, is that that commercial wind turbines should not be located close to peoples homes because of the unacceptable risk to the health and well being of the local residents. Until the evidence is in it would seem that a total moratorium in rural England is the wise course of action - however, a practical compromise would be to have a legal minimum set back distance of 2 km from non participating residences.

Links to all of the work referred to herein can be found on our web site
www.vortex.uk.net