Comments Submitted to MassDEP from Experts Regarding the Selective Literature Review of the Wind Science Panel

By Preston Ribnick and Lilli-Ann Green

According to MassDEP over 500 comments were received during the comment period ending March 19, 2012 following the release of the Wind Science Panel findings. The vast majority of the comments were highly critical of the Panel findings. Below please find several examples:

Dr. CD Hanning, BSc, MB, BS, FRCA, MD

"I have nearly 30 years experience in sleep medicine, founding and running one of the largest clinical sleep services in the UK. I have been accepted as an expert in sleep medicine by the UK criminal, civil and family courts. I have over 35 years experience in academic medicine.

For several years, I have been concerned about the effects of wind turbine noise on sleep and health. I have written a detailed major review, based on evidence given at planning inquiries in the UK, which is updated regularly and is made available on the internet as a service to those trying to prevent wind turbines being placed too close to human habitation…I can therefore claim to be at least as well qualified as the medical members of the panel and, as they claim no prior knowledge of wind turbines, considerably more experienced in the matter of wind turbine noise and its effects on sleep and health…

Physicians on the panel…would or should be mindful of the medical precept: 'Primum, non nocere, First, do no harm' and also those of the Hippocratic oath…They would, I hope, be mindful also of the precautionary principle and that absolute certainty may not required in order to take action to prevent harm. To use a legal analogy, the burden of proof should not be the criminal standard, beyond reasonable doubt, but the civil standard, the balance of probability.

I am surprised that a group of people with, generally, no previous experience in a subject, can nevertheless produce a report which claims to be authoritative in only [several] months with only three meetings. My own review lists over 100 references relevant to wind turbine noise, sleep and health, far more than are listed in this report. I conclude that this can only be regarded as a cursory examination of the subject.

In my opinion, the panel has failed in its duty and instead of reviewing the published data objectively with the principles set out above in mind, has adopted an approach which I can best describe as scientific nihilism. If the same "rigor" and "robustness" as they have applied to the literature on wind turbine noise, sleep and health had been applied to the dangers of cigarette smoke, smoking would still be permitted in public buildings.

The onus of proving safety falls on those introducing new forms of pollution, including noise pollution, into the environment. This is particularly the case where there is a clear causal link between the pollution and harm. The relationship between environmental noise and ill health is well established. The panel seems to have taken the opposite view that it is the responsibility of the public to prove harm using the most "rigorous" and "robust" evidence. This is a complete reversal of the normal burden of proof in such matters. They have singularly failed to note that there is no objective evidence that wind turbines are safe at the distances and noise levels permitted under current Massachusetts' guidance. Not a single study, merely conjecture and opinion. Great store seems to have been set by regulations by other jurisdictions but without any critical assessment of how they have been derived. Not one is based on any objective evidence of safety.

The duty of the panel, and the medical members in particular, was not to exonerate wind turbines but to protect the public. It is to be regretted that they have not done so. The report should be rejected."[1]

Dr. Raymond S. Hartman, BA: Princeton University, MS and PhD: MIT

"Dr. Hartman is an economist specializing in microeconomics, econometrics and the study of industrial organization. Since 1977, Dr. Hartman's expertise and experience [in energy markets and regulated industries] have involved regulated industries generally and the markets for electric power and natural gas specifically. Over the past 15 years, Dr. Hartman has participated as testifying or consulting expert in a wide array of matters related to health-care markets generally and, more specifically, markets for medical devices and pharmaceutical products.

The problem with… praise, support and reliance by the Commonwealth (Commissioner Kimmel and Governor Patrick) is that it is based upon the false premise that the Wind Turbine Impact Study has conducted scientific research and offers scientific conclusions. It has not and does not.

- The Wind Turbine Impact Study is not the result of independent scientific research.
- The Wind Turbine Impact Study conducts no primary science, while it grossly misinterprets the real science it purports to review.
- The Wind Turbine Impact Study is not "the best science available to ... make decisions on wind energy."
    - It is not science at all; it is advocacy.
    - It certainly should not be used to "help inform future discussions with the public on wind turbines."
- In fact, the Wind Turbine Impact Study is Junk Science.
    - It would be thrown out of court as Junk Science.
    - It would not be acceptable or publishable in an academic peer-reviewed journal.
- These conclusions are not based upon an antipathy toward wind power, as the Governor seems to insinuate. They are based upon facts, many of which are admitted by the Panel in the Report.

This DEP Report on Wind Turbine Health Impacts does NOT present the facts; it presents a contorted and fallacious summary aimed at drawing false conclusions. Indeed, the Commonwealth's ill-informed support of proposals to site industrial wind turbines under the setback and noise limits put forward by the Panel's Report will cause illness and loss of property values, impacts for which the Commonwealth may find itself liable. It is useful to remember that Big Tobacco felt as if it could claim anything; that no research could ***really*** prove that smoking caused adverse health effects. After decades of avoiding an adverse court ruling, the evidence finally became insurmountable and Big Tobacco paid a very large sum for that liability.

The Commonwealth should stop endangering the health of particular residents. It should stop pretending to be doing science and actually commission real science. Wind-powered energy has a place in the portfolio of generation facilities for the power grid of New England. The inconvenient truth for the DEP and Governor Patrick is that industrial ***wind turbines cannot be sited simply anywhere***. If the Commonwealth wants to sacrifice the health and homes of a subset of its residents in the name of Big Wind, just say so. The guidelines proposed in the DEP Report do just that. However, the Commonwealth should keep in mind that current and continuing research into the negative health effects and lost property values caused by improper siting of industrial wind turbines will demonstrate that the Commonwealth and Big Wind are liable for ruining the health and lives of many of its citizens and destroying the values of the single most important asset of many Commonwealth families – their homes."[2]

Carmen Krogh, BScPharm, Ontario, Canada

"As background, I have held senior executive positions at a teaching hospital, a professional organization and Health Canada (PMRA). I am a former Director of Publications and Editor in Chief of the *Compendium of Pharmaceuticals and Specialties (CPS)*, the book used by physicians, nurses, and health professionals for prescribing information in Canada.

Statements indicating there is no evidence of a "direct" causal link may be accurate but is also an incomplete assessment of the health risks. The indirect pathway of noise annoyance, sleep disturbance and stress leads to consequences (cardiac). When one focuses on "direct" effect one omits consideration of an equally significant part of the health equation ie indirect effects.

During 2011, there has been significant progress in acknowledging the harm that can occur when industrial wind turbines are sited too close to residents. Consideration should be given to recent Australian movements towards a minimum 2 km setback (see Senate slides attached for references). Furthermore in January 2012 the National Health and Medical Research Council reaffirmed their position that authorities are instructed to maintain a precautionary approach for this issue. Social well-being is acknowledged to be a determinant of health: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization [WHO], 1948). Many jurisdictions, including the Canadian federal, provincial, and territorial governments and health office.

I believe we are at the stage where public health officials must acknowledge there are some suffering from exposure to industrial wind turbines. Furthermore it is time to move beyond repetitive literature reviews. There is an urgent need to conduct the research to determine the siting parameters including setback distances and noise levels to ensure protection of health."[3]

Helen Schwiesow Parker, Ph.D. Licensed Clinical Psychologist Past Clinical Supervisory Faculty, University of Virginia Medical School Past Director, Purdue Achievement Center for Children Chilmark, MA

"'Absence of Proof of Health Impacts' is Not the Same as 'Proof of Absence of Health Impacts.' The study is often unclear as to whether there is demonstrated evidence that a potential impact does not exist, or whether conclusive studies have not yet been carried out with respect to that factor. [Is this just a BADLY written report? Unintentionally ambiguous, unclear with unjustified conclusions?] In the absence of clear evidence that a given factor is not a problem, it would seem wise to err on the side of caution with respect to development of potentially problematic wind energy projects....

"The report's ambiguous language about this has already lead to questionable interpretations about the report, such as the Conservation Law Foundation's statement that "This new, independent study advances the state of science and debunks common misunderstandings regarding potential health impacts of wind turbines." The study should make clear that it is a partial literature review that summarizes some existing science and does not advance it. It should be made clear that the study's use of the term "limited epidemiologic evidence" does not imply that these impacts should be ignored, and the current absence of definitive scientific proof that wind turbines directly cause a specific health impact does not necessarily "debunk" contentions that this might be the case.

"In the absence of definitive studies clearly indicating the absence of significant impacts, the Martha's Vineyard Commission suggests that the Commonwealth of Massachusetts...apply the Precautionary Principle, which states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is or is not harmful, the burden of proof that it is not harmful falls on those taking the action....

"For infrasound, the study indicates that 'A possible coupling mechanism between infrasound and the vestibular system . . . has been proposed but is not yet fully understood or sufficiently

explained. Levels of infrasound near wind turbines have been shown to be high enough to be sensed by the OHC [Outer Hair Cells]. However, evidence does not exist to demonstrate the influence of wind turbine-generated infrasound on vestibular mediated effects in the brain.' This does not justify concluding that there is no link; it merely indicates that these robust studies have not been carried out yet. The study suggests that there doesn't appear to be a logical explanation for a possible impact of low energy sound levels on the vestibular systems and concludes that it is not worth carrying out further studies about this issue."[4]

Mariana Alves-Pereira, Associate Professor Faculty of Economics and Management School of Health Sciences Universidade Lusofona Lisbon, Portugal

"[I am] a leading expert on the biological response to low frequency noise exposure… It would seem that a precious and scientifically useful source of information was overlooked - scientific conferences. Perhaps it would have been helpful to the Panel if scientific/ research papers included in conference proceedings had not been excluded. Although papers presented at conferences are not considered to be peer-reviewed, they are subjected to scientific scrutiny and might have provided the Panel with a broader background, potentially useful for carrying out its charge. The Wind Turbine Noise Conference and the International Conference on the Biological Effects of Noise are but two examples of such sources.

Wrong assumptions and flawed study designs

The use of the dBA unit and the focus on human hearing threshold values are justified however, by the assumption that acoustical phenomena are only harmful if perceived by the human being.

Can acoustical phenomena that are not perceived by the human auditory system be detrimental to human health?

Once this question is set forth, results of studies where subjective parameters are the sole outcome become moot.

- *Does an agent of disease have to be perceived by the host for it to have a pathogenic effect on the host?*
- *Does an agent of disease have to cause annoyance in order for it to have a pathogenic effect on the host?*

Clearly the answer is no.

Nevertheless, where acoustical phenomena are concerned, this is an established assumption of a vast number of researchers and scientists who study "health effects" of noise exposure. The idea "*what you can't hear won't hurt you"* is responsible for numerous biased study designs which, in turn, have been leading to inconclusive or invalid results (even if peer-reviewed). This has been true for noise studies whether or not they involve WT, and further justifies the use of the dBA unit.

This wrong assumption which permeates the area of science studying the health effects of noise exposure justifies ignoring that noise-exposure effects are cumulative. As a result, noise-exposure histories (including fetal exposures) which could provide crucial information for establishing dose-responses are not obtained.

Lessons from ILFN-rich occupational environments.

Scientists with expertise in Environmental, Public or Occupational Health are well aware that excessive exposure to physical agents is often first seen in occupational environments. The health effects observed in workers have often been later observed in populations exposed to the same physical agent, but continuously and at a lower level.

"The workplace is a unique environment. (...) Environmentally induced diseases have (...) not uncommonly first been seen in working populations. The appearance of these illnesses may provide a warning to the general population of the toxicity of environmental substances".3

After several readings of this Report, it would seem that the Panel has, at times, misunderstood the distinction between noise and vibration where human health is concerned (p. ES-5, 45, 54).

Lessons learned with VAD bring the possibility of objective clinical data being gathered among populations residing in the vicinity of WT. Moreover, if the agent of disease responsible for the development of VAD in occupational environments had been more thoroughly explored (and understood) perhaps the "Panel's efforts (...) to examine the biological plausibility or basis for the health effects of turbines" (p.ES-3) would have been greatly improved."[5]

Dr. Daniel Shepherd, PhD, MSc, BA

"The impact of environmental factors on health defines the scope of my research practice. I approach the study of noise and health both descriptively and experimentally, and conduct both epidemiological (i.e. in the community) and controlled (i.e. in the laboratory) research. I have published papers on both noise-induced health deficits and the psychoacoustical measurement of human hearing abilities, and have presented data at numerous international conferences on the topic.

While I agree that the panel consists of experts, it is somewhat unfortunate that their expertise lies largely in areas other than noise and health, and this needs to be acknowledged.

In asserting that wind turbine noise has no adverse health effects, the authors are effectively denying that any noise, besides that inflicting noise-induced hearing loss, is a public health issue. That is, if they argue that wind turbine noise does not impact health then they cannot logically argue that other noise impacts health, given current data showing the toxicity of wind turbine noise relative to other sources… This stance diverges from that taken by the world's highest authority on health, the World Health Organization, which asserts that chronic exposure to noise can compromise health and wellbeing, even at low levels…

The panel's assessment of evidence demonstrates that a political, as opposed to a critical approach, has been adopted. First, the reoccurrence of the phrase "there is limited epidemiological evidence" … indicates that there is evidence. Second, there is no limited evidence that wind turbine noise should be considered privileged and benign, incapable of adversely impacting health unlike its road-traffic and aviation counterparts… Note that the limited evidence of road-traffic and aviation noise impacts has grown over time into a large body of evidence showing that these sources of noise do need to be controlled for the public good.

Conclusion: This report says nothing definitive about industrial wind turbine noise and health. As such, this report is of no intrinsic value to guardians of public health.
Recommendation: That a panel of experts in noise and health be convened to consider the impacts of wind turbine noise on public health."[6]

References

[1] Hanning comments
[2] Ray Hartman comments
[3] Krogh comments
[4] Parker comments
[5] Alves-Pereira comments
[6] Shepherd comments