



Overview of Problems with Massachusetts State Agencies and the Process Utilized Regarding the Health and Safety of MA Citizens and Adverse Health Impacts of Wind Turbines

The following overview documents have been developed to demonstrate the problems with the Massachusetts Department of Environmental Protection (MassDEP) and the Massachusetts Department of Public Health (MDPH) Wind Science Panel process, the findings of the panel and subsequent actions taken by MassDEP.

1. The MassDEP and MDPH Panel process
2. Comparison with the National Academy of Sciences protocol
3. Expert comments about the panel findings
4. Overview of recent communication and Public Records Requests with MassDEP and MDPH



Myths and Facts: Literature Review of MassDEP Wind Science Panel Process

- Myth:** The panel convened by MA Department of Environmental Protection (MassDEP) was independent.
- Fact:** **The panel was chosen to advance a political agenda and members are not unbiased.** ^{(1)(2) (3)} In a meeting on 9/8/12 with top level officials of MassDEP and MA DPH, a group of 11 Wind Wise ~ Massachusetts (WWMA) members from across MA were told that all panel members were carefully vetted and all were unbiased concerning wind energy. The MassDEP website at one point in time showed the falsehood of this assertion. ⁽⁴⁾
- Myth:** The process DEP and the panel took was of high standards.
- Fact:** **The panel was chosen by MassDEP under questionable circumstances, they met in complete secret, no member of the public was in attendance at the panel meetings, the panel did not release minutes of their meetings, the panel did not release working drafts of their so-called independent report.** ^{(5) (6) (7)}
- Myth:** The panel followed the scope of their mission and worked on behalf of the citizens of MA to uncover the truth about health impacts.
- Fact:** **Even though the scope of the panel included site visits to interview victims, the panel chose to not visit any wind turbine sites. They did not visit people living in the proximity of wind turbines who are experiencing adverse health impacts and who invited them for an interview and even to live in their homes in Falmouth, MA. Two members of the panel released a second so-called report. This was not part of the panel scope and should be rejected outright.** ⁽⁸⁾
- Myth:** The panel reviewed and seriously considered all valid scientific materials available at the time including all documents submitted to MassDEP by the public.
- Fact:** **Panel members reviewed a cherry-picked selection of materials. Peer reviewed literature and reports by experts worldwide found in the more than 200 documents submitted by volunteers are not found in the references of the literature review submitted to MassDEP by the panel. In fact, the panel never received the documents on a CD-ROM mailed to MassDEP.** ⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾
- Myth:** The panel reviewed and seriously considered all documents submitted to MassDEP from people experiencing adverse health impacts who live in the proximity to wind turbines.
- Fact:** **WWMA submitted 83 documents from five locations in MA and from locations around the world documenting adverse health event reports that establish a clear pattern of symptoms and ample evidence that wind turbines cause serious health problems in nearby residents.** ^{(9) (12)} According to the Harvard trained epidemiologist, Carl Phillips, PhD, in an article submitted to MassDEP, *"The attempts to deny the evidence cannot be seen as honest scientific disagreement, and represent either gross incompetence or intentional bias."* ⁽¹³⁾

Myth: The panel issued a final report.

Fact: The panel was charged with the MassDEP scope document to issue a draft report. ⁽⁸⁾ Therefore this literature review draft document should not be utilized by any persons as a final report.

Myth: The public is satisfied with the findings of the panel.

Fact: Following the panel findings, the Falmouth Board of Health has formally asked for a rigorous and independent health study to take place⁽¹⁴⁾ which is what the public has been asking for since 6/2/10. ⁽¹⁵⁾ Over 500 comments were submitted to the MassDEP following the release of the panel findings. Most were highly critical of the panel's findings.

References

(1) Mills, Dora. Wind science panel member email obtained by the FOI act "there are no firm statements I could find from non-industry sources stating there are no adverse health effects from wind turbines." 2/11/09

(2) Mills, Dora. "Wind Turbine Neuro-Acoustical Issues." 6/09 Report for Maine CDC/DHHS. "I found no evidence in peer-reviewed medical and public health literature of adverse health effects from the kinds of noise and vibrations heard by wind turbines"

(3) Manwell, James. "Policy Options for Renewable Energy Incentives." 2002 presentation promoting wind energy and the proliferation of wind turbines.

(4) MassDEP website.

(5) WWMA letter to MassDEP. 9-19-11. Points to flaws of panel process.

(6) WWMA letter to MassDEP. 9-30-11. Points to flaws of panel process.

(7) WWMA letter to MassDEP. 10-28-11. Points to flaws of panel process.

(8) MassDEP Wind Turbine Panel Scope of Work. Calls for panel to conduct site visits, and "evaluate and discuss information from peer reviewed scientific studies, other reports, popular media, and public comments...on the nature and type of health complaints commonly reported by individuals who reside near existing wind farms."

(9) WWMA catalogue of documents provided to panel. Shows listing of over 200 documents mailed to MassDEP for the panel to review.

(10) www.mass.gov/dep/energy/wind/comments.htm#note MassDEP website link. Shows that a small selection of materials submitted to MassDEP was actually shared with panel members

(11) References used in panel members literature review. Shows a small selection of documents submitted by WWMA were used in the literature review

(12) Letter from MA DEP. 10-3-12. States that the text of the more than 70 letters from MA citizens and people around the world submitted by WWMA was not provided to the panel members.

(13) Phillips, Carl. *"Properly Interpreting the Epidemiologic Evidence about the Health Effects of Industrial Wind Turbines on Nearby Residents."*

(14) Falmouth Board of Health Letter to MA DPH. 6-14-12.

(15) Letter from MA citizens to the Commissioner of MA DPH. 6-2-10.



Night and Day: MassDEP Wind Science Panel Compared to the National Academy of Sciences

According to a February 1, 2012 presentation by MassDEP "Panelists worked independently and followed a process similar to the National Academy of Sciences protocol"¹

In reviewing the MassDEP Wind Science Panel approach of the National Academy of Sciences (NAS) review process, it is discovered that MassDEP had:

- No "checks and balances" in the committee selection or review process
- No rigorous balancing of the interests of the committee
- Little attention to selecting members of diverse backgrounds
- Demonstrated conflicts of various Panel members
- No public airing of committee conflicts at the first meeting
- No public meetings or public hearings
- No public involvement other than comments at the beginning of process
- No communication with members of the public living in the proximity of wind turbines and who report adverse health impacts
- No posting or access to Panel's materials
- No posting of brief summaries of Panel meetings

The National Academy of Sciences, Checks and Balances:²

"Checks and balances are applied at every step in the study process to protect the integrity of reports and to maintain public confidence in them." For example, in the "committee selection and approval" process, "A committee is not finally approved until a thorough balance and conflict of interest discussion is held at the first meeting, and any issues raised in that discussion or by the public are investigated and addressed." In the NAS process, "all provisional committee members are screened in writing and in a confidential group discussion about possible conflicts of interest". Such a "conflict of interest" is "any financial or other interest which conflicts with the service of the individual because it could significantly impair the individual's objectivity..." and "no individual can be appointed to serve...if the individual has a conflict of interest that is relevant to the functions to be performed". After a series of reviews of potential committee members "at several levels", the NAS provisional committee list is posted for public comment on their website and the applicants complete background information and conflict of interest disclosure forms, discussing these at the first committee meeting. Only then is the committee formally approved.

MassDEP, Checks and Balances:

By contrast the MassDEP "Expert Panel" selection process was conducted in secret and members of the Panel were chosen by MassDEP and MDPH. MassDEP stated that "no member of the panel expressed a particular position about wind turbines and health."³ Numerous challenges were made to MassDEP's assertion and issues were raised regarding the "independence" and "bias" of several of the committee members by Wind Wise – Massachusetts.⁴ No forms signed by committee members attesting to "no conflicts" were made public, DEP stated at one point that no documents were signed.⁵ In addition, it can be argued that James Manwell, as founder and head of the UMass Wind Center, served on the committee as a representative of an organization or interest group, something that is explicitly not sanctioned on National Academy committees.⁶

The National Academy of Sciences, Balancing of Interests:

The NAS approach draws strength from bringing together diverse disciplines and backgrounds who conceive new ways of thinking about a problem. The goal “is to ensure that the relevant points of view are...reasonably balanced so that the committee can carry out its charge objectively and credibly”. Committee members “are expected to have points of view” but these should be balanced “in a way deemed appropriate for the task”. An important element of the process is that “each committee member has the right to issue a dissenting opinion to the report if he or she disagrees with the consensus of the other members”.

MassDEP, Balancing of Interests:

The MassDEP Panel focused on the engineering aspects of wind turbines and the measurement of sound. The Panel had no such “balanced” composition, and lost credibility due to the selection process. A Panel member stated in a public forum that the members of the Panel reached consensus on all points.⁷ Given the complexity and controversy regarding wind studies, such an agreement speaks loudly to the lack of balance on this Panel.

The National Academy of Sciences, Public Statements and Positions:

Among the areas of interest are “public statements and positions” (relevant articles, testimony, speeches, etc. and a brief description of relevant positions or any organizations or groups with which you are closely identified or associated), “research support” (including sources of funding, equipment, facilities etc), and “relevant organizational affiliations” (and relevant remunerated or volunteer non-business relationships). The importance of this review process assures that the committee “should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the committee simply because of the existence of conflicting interests.

MassDEP, Public Statements and Positions:

Despite repeated requests to the Commissioners of DEP and DPH, and to their staff involved in this project, there was no public screening of the Panel members. When the “final” list of committee members was announced, a formal letter of complaint was filed with the MassDEP and MDPH Commissioners regarding the blatant bias of several panel members.⁸ The challenge to the membership of the Panel was dismissed by MassDEP because the panel was chosen,⁹ but at the National Academies “committee members continue to be screened for conflict of interest throughout the life of the committee”.

The National Academy of Sciences, Committee Meetings, Information Gathering, and Deliberations:

The NAS process, study committees gather information through meetings that are open to the public and announced in advance through the NAS website. The submission of information by outside parties is encouraged, and “In all cases, efforts are made to solicit input from individuals who have been directly involved in, or who have special knowledge of the problem under consideration.”

MassDEP, Committee Meetings, Information Gathering, and Deliberations:

A comprehensive study of the public health and safety impacts to Massachusetts citizens in relation to the siting of wind turbines was initially proposed by members of WWMA who demanded transparency and openness of process of the Panel’s review of wind concerns.¹⁰ In particular, public meetings open to attendance by the public were to be announced in advance, and submission of relevant information to the work of the Panel should have been accepted during the many months the panel deliberated, not just during a pre-review period as was the case with the Panel. Through meetings with MassDEP and MDPH staff overseeing the Panel review, WWMA particularly emphasized the absolute need for the Panel to include members of the “wind neighbor” public in their discussions, especially impacted neighbors of Newburport, Falmouth, and other wind turbine neighborhoods.¹¹ The panel did not include people impacted. The MassDEP scope document called for a site visit.¹² In yet another breach with NAS procedures, the Panel did not meet with – or solicit information from - “individuals who have been directly involved in, or who have special knowledge of the problem under consideration.”

The National Academy of Sciences, Open Meetings and Disclosure to Public:
In the NAS process and “in accordance with federal law”, “information-gathering meetings of the committee are open to the public”, and written materials provided to the committee “are maintained in a public access file that is available for examination”. The public is provided with brief summaries of the committee meetings that include the list of committee members present.

MassDEP, Open Meetings and Disclosure to Public:

After great efforts of MA citizens, MassDEP posted a limited amount of the materials submitted to the Panel during the limited submission period prior to the Panel’s deliberations. No further materials have been made public. No public meetings were held. An Oct. 6, 2011 letter from MassDEP states that there will be no open meetings.¹³ No summaries or minutes have been made public. In response to a public records request, MassDEP has stated they want to charge the public in excess of \$18,000 for documents that relate to the Panel and its proceedings.¹⁴

The National Academy of Sciences, Final Report Review:

In order to assure the quality and objectivity of a study, all NAS reports “must undergo a rigorous, independent external review” by (recruited) experts “whose comments are provided anonymously to the committee members”, making the identity of these reviews public after the report is thoroughly reviewed and released. The final NAS report “is structured to ensure that each report addresses its approved study charge and does not go beyond it” and that the report “is impartial and objective”.

MassDEP, Final Report Review:

MassDEP claims that the Panel report is a final report although in the fall of 2011 they told WWMA the Panel would issue a draft report.¹⁵ MassDEP did hold hearings and a public comment period which closed on March 19, 2012, one year ago. To date, MassDEP claims that they are reviewing the over 500 comments received.¹⁶ The vast majority are highly critical of the Panel findings. The public expects that MassDEP will issue a final report that follows the mission of the MassDEP to protect the health, safety and well-being of MA citizens.

The National Academy of Sciences, Goals:

NAS research methodology is to impart knowledge and advance understanding of important topics using a rigorous impartial investigation process in an open and transparent environment.

MassDEP, Goals:

The MassDEP faithfully replicated the same methodology utilized by the American Wind Energy Association (AWEA) and the Canadian Wind Energy Association (CWEA) in a 2009 white paper.¹⁷ The AWEA/CWEA hired seven individuals from various backgrounds to conduct a highly selective and limited literature search on the same topic as the MassDEP study. MassDEP hired seven individuals in complete secrecy from various backgrounds, some with established pro-wind bias. The AWEA/CWEA White Paper reported a series of findings/conclusions. The MassDEP Panel reported similar findings/conclusions. The driving goal of the MassDEP report was confirmed when the MassDEP Commissioner issued a press release announcing the key panel findings that used misleading language to the average person.¹⁸ The AWEA/CWEA issued similar press releases for their white paper.

The truth is as clear and it is simple: The Goal of the MassDEP panel report was to advance a political agenda of the Patrick Administration to deploy a vast number of land based industrial wind turbines in Massachusetts. Throughout the Commonwealth people living near wind turbines are becoming sick with the same set of symptoms. MassDEP sponsored and is disseminating its panel report to blunt rising local opposition to siting wind turbines in close proximity to people.

References

- ¹ https://docs.google.com/viewer?a=v&q=cache:Q-o0WNlW4p0J:www.umass.edu/windenergy/downloads/mwwg/Wind_Panel_Presentation-Feb_1_2012-McDevitt.pptx+massdep+wind+turbine+comment+mcdevitt&hl=en&gl=us&pid=bl&srcid=ADGEEsijn1Fs0enleCc-hRTcSnmO5uycerGMMGNzXsWIboQOpPz1C5RnYFN-_qwyFslbaeOh3ryCy_LRJD1tcjPGHcy6_hCOYCIeIaQT19Wao2cH6AXcbhTbn4sZn9qKxD4dj3lpq5Yc&sig=AHIEtbSqS--TaTWSOn28WZNnU4ntr_2BA, PowerPoint Presentation by A. McDevitt, former Deputy Director of MassDEP, accessed March 21, 2013.
- ² <http://www.nationalacademies.org/nrc/studycommitteprocess.pdf>, "Our Study Process: Ensuring Independent, Objective Advice" published by The National Academies, accessed March 21, 2013.
- ³ October 6, 2011 letter to WWMA from MassDEP and MDPH.
- ⁴ Letter to MassDEP and MDPH from WWMA
- ⁵ Letter to WWMA from MassDEP
- ⁶ James Manwell - UMass
- ⁷ Meeting in Fairhaven, MA – audiotape of meeting proceedings
- ⁸ Letter to MassDEP and MDPH by WWMA
- ⁹ Letter to WWMA by MassDEP and MDPH
- ¹⁰ 6-2-10 Letter to Commissioner of MDPH
- ¹¹ Letter to MassDEP and MDPH from WWMA
- ¹² MassDEP website - scope document
- ¹³ 10-6-11 Letter to WWMA from MassDEP and MDPH
- ¹⁴ Letter to WWMA EC member from MassDEP
- ¹⁵ Letter to MassDEP and MDPH confirming information at meeting held with WWMA
- ¹⁶ MassDEP website
- ¹⁷ AWEA/CWEA white paper
- ¹⁸ MassDEP press release



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

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 be 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 Hartman comments

³ Krogh comments

⁴ Parker comments

⁵ Alves-Pereira comments

⁶ Shepherd comments



Summary of Communication and Public Records Requests with MassDEP Following the Release of the Findings of the MassDEP Wind Science Panel and Communication with Panel Members

MassDEP claims that the panel reviewed the over 200 documents submitted by WWMA prior to writing their findings. A communication with MassDEP states that a phone call made to a staff member of the third party agency who worked with the panel. The staff member said the panel received the documents.¹

Fact: MassDEP Wind Science Panel member revealed that the MassDEP panel NEVER received the actual documents contained on the CD-ROM.² Furthermore, evidence from a MassDEP email points to the fact that the over 200 documents were never sent to the third party managing the panel process and therefore the panel never reviewed the evidence submitted by MA volunteers who spent months of their life working on this project.³ The documents contained peer-reviewed scientific articles, conference papers, white papers, reports, and 83 personal stories and documents from MA citizens and people around the world who are experiencing adverse health impacts and live in the proximity to wind turbines.⁴ Since the panel did not receive all information provided by the public, the panel findings are not valid.

MassDEP claims they posted online all documents emailed and mailed at the beginning of the panel's meetings and prior to the end of the public comment period, July 21, 2011, including over 200 documents submitted on a CD-ROM by Wind Wise – Massachusetts (WWMA). MassDEP claims this was achieved through a link to the WWMA website.⁵

Fact: WWMA never posted all of the documents online, only a catalogue listing of the titles of the over 200 documents.

MassDEP communicated that they will charge the public \$15998.13 (and possibly more) for documents related to the panel, how the panel was chosen, meetings of the panel, drafts of the panel findings, and communications with MassDEP and MDPH. MassDEP states these documents will be heavily redacted.⁶

Fact: MassDEP did not follow the protocols of the National Academy of Sciences. The panel members were chosen in secret. All meetings were held in secret with no public participation. No meeting minutes or account of any proceedings have been released. No drafts of panel finds have been released.^{7,8} The process and results should be free public information.

MassDEP is still reviewing the over 500 documents with over 4,700 pages that were submitted as comments after the panel released their findings. The comment period ended on March 19, 2012.⁹

Fact: The vast majority of the over 500 comments and 4,600 pages are highly critical of the panel's findings. A CD-ROM of the comments was obtained by a

public records request to MassDEP, however to date MassDEP has not posted the highly critical comments on its website.

MassDEP has received a letter from WWMA regarding new research including three new peer-reviewed articles that have been published since the panel issued its findings. WWMA asked for a response from MassDEP.¹⁰

Fact: WWMA has received no response to date from MassDEP even though the letter clearly asks MassDEP to clarify where they are in the review process.

MassDEP stated that a final report would be issued once they reviewed the comments submitted by the cut off date of March 19, 2012.¹¹

Fact: There are numerous citizens in MA who are being adversely impacted by wind turbines and they are still waiting for the MassDEP to issue their final report that must reflect their mission of protecting the health, safety and well-being of MA citizens. It is two years later and there is still no final report. Research conducted has found there are at least 21 locations around MA where people living in the proximity to wind turbines are reporting adverse health impacts.¹²

MassDEP statements imply the panel process was rigorous and appropriately conducted.

Fact: A MassDEP Wind Science Panel member has stated, the Donahue Institute was “terrible”, the panel only met in person three times and that the whole process was “not rigorous enough”. The panel members never received the over 200 documents submitted by volunteers in MA. The documents included peer-reviewed scientific and medical articles and reports as well as other documents stipulated by the MassDEP Scope document and were submitted on a CD-ROM and confirmed received by MassDEP. The panel member further stated: the Donahue Institute “could never get a site visit organized” even though Falmouth is a mere 45 minutes from Boston and there are over 50 families who have formally complained that they are experiencing adverse health impacts.¹³

References

¹ 3-14-13 Letter from MassDEP to MA citizen

² 12-10-13 Memo to WHB following conversation with MA citizen

³ 3-21-13 Letter to MassDEP from MA citizen

⁴ Cover letter with package mailed to MassDEP from MA citizen

⁵ 3-11-13 Letter to MA citizen from MassDEP

⁶ 12-14-12 Letter to MA citizen from MassDEP

⁷ 9-19-11 Letter to MassDEP from MA citizen

⁸ 9-30-11 Letter to MassDEP from MA citizen

⁹ 12-14-12 Letter to MA citizen from MassDEP

¹⁰ 12-24-12 Letter to MassDEP from WWMA EC

¹¹ MassDEP website

¹² Map graphic

¹³ 12-10-13 Memo, Op Cit