

The Wind Turbine Health Impact Study is Junk Science*

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* Wind Turbine Health Impact Study: Report of Independent Expert Panel, January 2012, prepared for: Massachusetts Department of Environmental Protection, Massachusetts Department of Public Health.

** I am a Shelburne resident, living in the Patten District. I have a BA from Princeton University and a Masters and PhD from MIT. All of my degrees are in mathematical economics. I have been a member (Associate Professor) of the faculties of MIT, Boston University and University of California, Berkeley. I have published more than 100 peer-reviewed articles and contract research using statistical and mathematical models, methods and data. I am currently President and Director of Greylock McKinnon Associates, an economic consulting firm specializing in analysis in support of litigation. Indeed, I regularly have testified as an expert witness on behalf of the Massachusetts Attorney General's office in a variety of matters, including the 1995-1996 tobacco litigation (the result of which the Commonwealth received billions of dollars in settlement from "Big Tobacco"); litigation against large drug companies for defrauding the Massachusetts Medicaid program (2008-2011); the restructuring of the electric power industry (1990s); and a variety of utility rate cases (2000s). Over the past 40 years, I have reviewed and responded to hundreds of "Expert Reports" like "The Wind Turbine Health Impact Study."

Junk Science: What Is It?

“Junk science is faulty scientific data and analysis used *to advance special interests and hidden agendas.*”

General Examples

“**Government regulators** may use junk science to expand their regulatory authority, increase their budgets or advance the political agenda of elected officials.”

“**Businesses** may use junk science to bad-mouth competitors’ products, make bogus claims about their own products, or to promote political or social change that would increase sales and profits.”

“**Politicians** may use junk science to curry favor with special interest groups, to be politically correct or to advance their own personal political beliefs.”

Junk Science: What Is It?

Specific Real-World Examples

The Tobacco Research Institute

- It was funded by the big tobacco companies.
- It produced “scientific research” for 50 years or more “demonstrating” that smoking was good, or at least not bad, for people.
- Over time, as doctors and patients complained that smoking caused lung cancers and cardiovascular diseases, the Tobacco Research Institute produced more “scientific research” demonstrating that something else caused the disease.
 - ⇒ **The “research” was Junk Science.**
 - ⇒ **It was untrue, manipulated and unreliable.**
 - ⇒ **The “research” caused disease and death.**

Asbestos Manufacturers

- Asbestos was used for decades in shipbuilding, construction and a variety of other trades.
- Those workers installing and working with asbestos were told for decades that research demonstrated that the workers were safe.
- Workers were not safe.
- Asbestos caused innumerable cases of cancer - mesothelioma.
- The asbestos manufacturers put forward research “demonstrating” that the cancers were not caused by the asbestos.
 - ⇒ **The “research” was Junk Science.**
 - ⇒ **It was untrue, manipulated and unreliable.**

Manufacturers of DDT

- DDT was first used as a pesticide in the 1940s.
- It was claimed to be a successful and safe pesticide.
- The US government began banning DDT for particular uses in the 1960s.
- It was banned outright in 1972.
 - ⇒ **The original “research” was Junk Science.**
 - ⇒ **It ignored the health and environmental risks of DDT.**

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Deval Patrick sponsored and defends the study which “found no scientific evidence or medical studies to prove that living near a wind turbine has adverse impacts on people’s health, though it acknowledged further study is needed to look at health impacts stemming from ‘annoyance’ for residents who live near turbines.”¹

The conclusions reached by the study are utterly and profoundly dishonest.

The study is labeled a “Report of Independent Expert Panel.”

- The panel was not independent.
- Several “experts” have pro-wind industry connections.²
- The Panel is no more qualified or expert than the substantial number of opponents, including Dr. Pierpont and myself.

The Panel relies primarily on an inexplicably small number (4) of published research papers, out of 100s that are available.

- Two Swedish research papers, one Dutch research paper and one New Zealand Research paper.
- The Panel dismisses for unsupported reasons all the other studies.
- In statistical modeling, this is called “cherry picking” – choosing only those studies that support a desired conclusion.

The sizes of the wind turbines studied are quite small.

- The turbines studied were only 164-213 feet tall.
- These are much smaller than those proposed for Mount Massaemet which are nearly 500 feet tall.
- **Noise effects increase with the size of the turbine blades.**

1/ State Capitol Briefs, Afternoon Edition, Thursday, January 19, 2012, State House News Service.

2/ For one important example, I understand that Dr. James Manwell’s Wind Energy Center is heavily funded by the Commonwealth. I believe that it is therefore impossible for him to offer a neutral opinion on the health effects of industrial wind turbine installations, given the Commonwealth’s obvious infatuation with wind energy.

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The data, models and statistical analyses in these papers are flawed, in ways explicitly noted by the Panel.

- The Panel notes: “The peer-reviewed papers have weaknesses, including the cross sectional designs and sometimes quite low response rates (p. 28).”
- The Panel further notes: “The model from which this conclusion was drawn, however, imposed a linear relation on the association between noise level category and annoyance. But ... it appeared that the relation might not be linear (p. 18).”
- In statistical modeling, the imposition of a linear relationship when it is invalid is called specification bias.
 - ⇒ When present, the model and analysis are wrong.
 - ⇒ The studies introduce a multiplicity of other possible factors, all of which interfere with properly analyzing and estimating the impact of the primary factor upon health – turbine noise.

The Panel mentions but ignores the findings of the most recent analysis by the authors of two of their chosen studies (the Swedish studies). This most recent study contradicts the Panel’s conclusions as follows:³

- “A more intricate statistical model of the association between turbine noise levels and annoyance that used the data from both Swedish studies ... **suggested a significant association between noise levels and annoyance even after considering other factors.**”
- Why didn’t the Panel consider this third study by the same authors, which used better analytic and statistical methods?
 - ⇒ This exclusion is unprofessional, unscientific and outright dishonest.
 - ⇒ This is Junk Science.

^{3/} As noted explicitly by the Panel at page 19.

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The Panel identifies the preferred type of study – time-series analyses, looking at families and households before and after the industrial turbines are put into operation => “A Before-and-After Study.”

- The Panel notes “Cross-sectional studies [which the Panel uses] lack the ability to determine the temporality of cause and effect; in the case of these kinds of studies, we cannot know whether the annoyance level was present before the wind turbines were operational from a cross sectional study design.”
- Why didn’t the Panel look at time-series experiences that have occurred in New England – Maine, Vermont, and Massachusetts?⁴
- This is the most natural set of experiments to be done and is easily available.
- Is the reason because they knew what such experiments would find – that Industrial Wind Turbines cause sleep problems and severe annoyance, leading to health problems?

The Panel does admit to finding the following:

- “Wind turbines can produce unwanted sound (referred to as noise) during operation (p. ES-4)”
- “The whooshing that is heard is NOT infrasound ... [It] is at higher frequency ... It is important to note then that when a complaint is tied to the **thumping or whooshing** that is being heard, the complaint may not be about ILFN at all even if the complaint mentions low frequency noise. Kamperman et al. (2008) state that, ‘It is not clear to us whether **the complaints about ‘low frequency’ noise are about the audible low frequency part of the ‘swoosh-boom’ sound, the once-per-second amplitude modulation ... of the ‘swoosh-boom’ sound, or some combination of the two** (p. 13).”⁵
- “Most epidemiologic literature on human response to wind turbines relates to self-reported ‘annoyance’ ... (p. ES-5).”
- “A very loud wind turbine could cause disrupted sleep, particularly in vulnerable populations, at a certain distance, while a very quiet wind turbine would not likely disrupt even the lightest of sleepers at that same distance (p. ES-6).”

4/ I understand that the ISO-NE seasonal-claimed capability spreadsheet identifies the following industrial wind turbine (IWT) sites which could have been used for “Before-and-After” studies: 19 IWT projects in Massachusetts; 9 IWT projects in Maine, including Mars Hill which is outside the ISO-NE area and so is not listed on the ISO’s spreadsheet; 3 IWT projects in Rhode Island; 2 IWT projects in New Hampshire; and 2 IWT projects in Vermont.

5/ Emphasis added. These are precisely the sounds described by Neil Anderson from Falmouth.

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The Panel however concludes that there is insufficient evidence that industrial wind turbines will have any effects upon residents near the installation. It states:

- “There is *limited evidence* from epidemiologic studies suggesting an association between noise from wind turbines and sleep disruption. In other words, *it is possible* that noise from some wind turbines can cause sleep disruption. ... But there is not enough evidence to provide particular sound-pressure thresholds at which wind turbines cause sleep disruption (p. ES-5 and ES-6).”
- “Whether annoyance from wind turbines leads to sleep issues or stress has not been sufficiently quantified. While not based on evidence of wind turbines, there is evidence that sleep disruption *can adversely affect mood, cognitive functioning, and overall sense of health and well-being* (p. ES-6).”
- “There is *insufficient evidence* that the noise from wind turbines is *directly* (i.e., *independent from an effect on annoyance or sleep*) causing health problems or disease (p. ES-6).”

Reflect closely on this language.

- Noise causes annoyance and disrupts sleep.
- Annoyance and sleep disruption causes stress and disease states.
- While the evidence demonstrates that industrial wind turbines cause annoyance and disrupt sleep, the Panel finds *it is insufficient or an indirect cause*.
- **Do you believe that assertion?**

**The Panel’s Report and conclusions
are JUNK SCIENCE.**

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What does this mean for Shelburne?

- There **will** be wind turbine noise.
- Prepare yourself for the “‘swoosh-boom’ sound, the once-per-second amplitude modulation ... of the ‘swoosh-boom’ sound, or some combination of the two.”⁶
- This noise **will** disrupt the sleep of an unknown number of Shelburne and Buckland residents.
- This noise **will** cause low-to-severe cases of “annoyance,” every day, every hour, every minute for an unknown number of residents.
- The non-stop annoyance and sleep disruption **will** cause stress and disease states for an unknown number of residents.
- This noise **will** affect many Shelburne residents in precisely the same fashion as has been found in Falmouth, Vinalhaven and across New England.
- Are you ready to be guinea pigs for an experiment in which we suffer the possible consequences while outside developers make hundreds of millions of dollars in subsidies, and then leave town?

6/ See the Impact Study, p. 13, cited above.