The Results of an Acoustic Testing Program, Cape Bridgewater Wind Farm

Prepared for Energy Pacific by Steve Cooper, The Acoustic Group

A Review of this Study and Where It Is Leading

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10 February 2015

Recently Cooper has completed a first of its kind test regarding the acoustical emissions of wind turbines. His is the first study of effects on people that includes a cooperating windfarm operator in conjunction with a researcher that does not work exclusively for windfarms. This study makes three very simple points:

1. There is at least one non-visual, non-audible pathway for wind turbine emissions to reach, enter, and affect some people
2. This is a longitudinal study wherein the subjects record in a diary regularly as a function of time the level of the effects they are experiencing at that time
3. This periodic recording allows for responses as the wind-turbine power changes up and down, changes not known by the subject

The results are presented in a 218 page report augmented by 22 appendices spread over 6 volumes so that every single detail in the study has been documented for all to see and examine. The methods and results are totally transparent. The 22 appendices and the main text exhaustively document everything involved with this study.

Six subjects, 3 couples from different homes are the participants in this study. They do not represent the average resident in the vicinity of a wind farm. Rather, they are self-selected as being particularly sensitive and susceptible to wind farm acoustic emissions, so much so that one couple has abandoned their house. Cooper finds that these six subjects are able to sense attributes of the wind turbine emissions without there being an audible or visual stimulus present. More specifically, he finds that the subject responses correlate with the wind turbine power being generated but not with either the sound or vibration.

Although the very nature of a longitudinal study provides for a finding of cause and effect, some will undoubtedly argue that a correlation does not show cause and effect. In this case they must postulate some other thing like an unknown "force" that simultaneously causes the wind turbine power being generated and symptoms such as nausea, vertigo, and headaches to change up and down together. But that is the kind of "creative" logic it takes to say that this correlation does not represent cause-and-effect. So, rather than making such groundless arguments, perhaps something like an "expert statistical analysis" can be expected "proving" this is not a "valid sample" of the public at large, or proving the study does not do something else it was *never* intended to do.

So it is important to sort out what, by design, this study was intended to do and does do, and what, by design, it was not intended to do and does not do. This study is not in any way a sample of the general population nor is it in any way a sample of the general population in the vicinity of windfarms. According to Cooper's report, this study was intended to address the issue of complaints from residents in the vicinity of Pacific Hydro's Cape Bridgewater Wind Farm. Pacific Hydro requested the conduct of an acoustic study at 3 residential properties to ascertain any identifiable noise impacts of the wind farm operations or certain wind conditions that could relate

to the complaints that had been received. The study was to incorporate three houses that are located between 650 m and 1600 m from the nearest turbine. This research represents a case study at 3 houses, each with one couple, 6 people. This is one sample, and only one sample, of a small group of people who are all self-selected as being very or extremely sensitive to wind turbine acoustic emissions. A similar group could be assembled elsewhere such as in Shirley Wisconsin, USA or Ontario Canada.

This study finds that these 6 people sense the operation of the turbine(s) via other pathways than hearing or seeing, and that the adverse reactions to the operations of the wind turbine(s) correlates directly with the power output of the wind turbine{s} and fairly large changes in power output.

Attempts may be made to obviscate these simple points with such arguments as it cannot be proved that infra-sound is the cause of the discomfort. But that again is a specious argument. The important point here is that something is coming from the wind turbines to affect these people and that something increases or decreases as the power output of the turbine increases or decreases. Denying infra-sound as the agent accomplishes nothing. It really does not matter what the pathway is, whether it is infra-sound or some new form of rays or electro-magnetic field coming off the turbine blades. If the turbines are the cause, then the windfarm is responsible and needs to fix it. Anyone who truly doubts the results should want to replicate this study using *independent*[1] acoustical consultants at some other wind farm, such as Shirley Wisconsin, USA, where there are residents who are self-selected as being very or extremely sensitive to wind turbine acoustic emissions.[2]

Some may ask, this is only 6 people, why is it so important? The answer is that up until now windfarm operators have said there are no known cause and effect relations between windfarm emissions and the response of people living in the vicinity of the windfarm other than those related to visual and/or audible stimuli, and these lead to some flicker which is treated, and "some annoyance with noise." This study proves that there are other pathways that affect some people, at least 6. The windfarm operator simply cannot say there are no known effects and no known people affected. One person affected is a lot more than none; the existence of just one cause-and-effect pathway is a lot more than none. It only takes one example to prove that a broad assertion is not true, and that is the case here. Windfarms will be in the position where they must say: "We may affect some people." And regulators charged with protecting the health and welfare of the citizenry will not be able to say they know of no adverse effects. Rather, if they choose to support the windfarm, they will do so knowing that they may not be protecting the health and welfare of all the citizenry.

http://www.pacifichydro.com.au/pacific-hydro-releases-cape-bridgewater-wind-farm-acoustic-study/

http://www.pacifichydro.com.au/english/our-communities/communities/cape-bridgewater-acoustic-study-report/?language=en

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[1] Independent Consultants are those who have worked for both industry and communities, and or have espoused the need for research to sort out the issues of people reacting to non-audible non-visual stimuli.

[2] Cooper's test shows cause and effect for at least one non-visual, no-audible pathway to affect people. If one only wanted to test for the ability to sense the turning on of wind turbines, and not replicate the cause and effect portion of Cooper's study, this reduced test could be accomplished in one to two months with a cooperative windfarm where there are residents who are self-selected as being very or extremely sensitive to wind turbine acoustic emissions and who also assert that they have this sensing ability. This study, a subset of the full Cooper tests, would only prove, again, that non-visual, non-auditory pathways exist by which wind turbine emissions may affect the body and "signal" the brain.