

Wind Turbine Study For Low Frequency Sound

On December 28, 2012 a report #122412-1 was released regarding readings of low frequency sound and infrasound from the Shirley Wind Project in Brown County. Here is some background of why the study was conducted, who conducted the study, and the preliminary recommendations from the consultants conducting the study (excerpts from the report):

Clean Wisconsin is a nonprofit environmental advocacy organization that works to protect air and water and to promote clean energy. As such the organization is generally supportive of wind projects. Clean Wisconsin was retained by the Wisconsin Public Service (PSC) to provide independent review of a proposed wind farm called the Highlands Project to be located in St. Croix County, Wis. (WI PSC Docket 2535-CE-100). Clean Wisconsin in turn retained Hessler Associates, Inc. (HAI) to provide technical assistance.

During the course of the hearings (in the Highlands Project case) attorneys representing groups opposed to the Highlands project presented witnesses that lived near or within the Shirley Wind project (near Denmark in Brown County, Wis.) The Shirley wind project is made up of eight Nordex 100 wind turbines that is one of the turbines being considered for the Highlands project. These witnesses testified that they and their children have suffered severe adverse effects to the point that they have abandoned their homes near the Shirley project. They attribute their problems to the arrival of the wind turbines. David Hessler, while testifying for Clean

Wisconsin, suggested that a sound measurements survey be made at the Shirley project to investigate low frequency noise (LFN) and infrasound (0-20 Hz) in particular.

Partial funding was authorized by the PSC to conduct a survey at Shirley and permission for home entry was granted by the three homeowners. The proposed test plan called for the wind farm owner, Duke Power, to cooperate fully in supplying operational data and by turning off the units for short intervals so that the true ON/OFF impact of turbine emissions could be documented. Duke Power declined this request due to the cost of lost generation, and the homeowners withdrew their permission at the last moment because no invited experts on their behalf were available to attend the survey.

Clean Wisconsin, their consultants and attorneys for other groups all cooperated and persisted and the survey was rescheduled for December 4 thru 7, 2012. Four acoustical consulting firms would cooperate and jointly conduct and/or observe the survey. Channel Islands Acoustics (ChIA) has derived modest income while Hessler Associates has derived significant income from wind turbine development projects. Rand Acoustics is almost exclusively retained by opponents of wind projects. Schomer and Associates have worked about equally for both proponents and opponents of wind turbine projects. However, all of the firms are pro-wind if proper siting limits for noise are considered in the project design.

The measurement survey was conducted on schedule and this report is organized to include four Appendices A thru D where each firm (named above) submitted

on each of their own letterheads a report summarizing their findings. Based on this body of work, a consensus is to be formed where possible to report or opine on the following:

- Measured LFN and infrasound documentation;
- Observations of the four investigators on perception of LFN and infrasound both outside and inside the three residences;
- Observations of the four investigators on any health effects suffered during and after the 3 to 4 day exposure;
- Recommendations with two choices to the PSC for the proposed Highlands project;
- Recommendations to the PSC for the existing Shirley project.

*The report gives details of the measurements and the observations of all four consulting firms. However, it is significant that all four firms came to an agreement on a recommendation for **additional study on “an urgent priority basis” (the consultants’ terms), specifically:***

- A comprehensive literature search far beyond the search performed here under time constraints;
- A retest at Shirley to determine the decay rate of ultra low frequency wind turbine sound with distance with a more portable system for measuring simultaneously at the three homes and at other locations;
- A Threshold of Perception test with participating and non-participating Shirley residents.

{Executive Director Richard J. Stadelman’s comments follow:}

It is significant that this report was prepared by four acoustical consultants with differing backgrounds and relationships with the wind turbines, in part with funding from PSC to a non-profit organization (Clean Wisconsin) who coordinated the survey who is generally pro-alternative energy such as wind turbines. It is also significant that all four consultants agreed upon the recommendation on an “urgent priority basis” for more study on the impact of low frequency sound and infrasound from wind turbines.

Several towns in the area of the Shirley project and in towns in nearby counties where additional wind turbines similar to the Shirley project have been proposed, have been pushing for this type of additional health study to determine the impact of such low frequency sound and infrasound on humans living near these types of turbines. Two towns in Manitowoc County asked the WTA board of directors to consider adoption of a resolution in support of asking the PSC for a moratorium on permitting and installation of any additional large wind turbines pending the completion of a sound survey and health study as recommended by the consultants in the report.

The WTA Board of Directors on Monday, January 21, 2013, adopted such a resolution with the following resolved clause:

Now Therefore, Be It Resolved, by the Board of Directors of the Wisconsin Towns Association that the Wisconsin Public Service Commission and the State of Wisconsin enact a moratorium to stop the permitting and installation of industrial wind turbines until further studies are done, solutions are found, and the State’s wind siting rule (PSC 128) is modified to implement standards that address ultra low frequency sound and infrasound from

wind turbines that will protect the health and safety of residents.

The Wisconsin Towns Association has expressed concern since PSC 128 was released about two years ago that the setback distances from non-participating residences of only 1,250 feet was too low. In addition this report of four acoustical consultants has recommended additional study be conducted on an “urgent priority basis.” Wisconsin Towns Association is not opposed to alternative energy, including wind turbines. However, serious health concerns have been raised by individuals and supported by this report that warrant further study. We are urging the PSC to stop permitting the installation of large industrial wind turbines until such studies can be completed.