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**Noise**

**Session 3aNSa: Wind Turbine Noise I**

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**3aNSa1. Activities of the Acoustical Society of America's subcommittee on wind turbine noise and some studies being done**

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This paper will document the activities of the Acoustical Society of America's (ASA's) subcommittee (of the Panel on Public Policy) on Wind Turbine Noise, including what technical committees are represented, what special sessions will be held in the future, and the goal to generate a policy statement on the topic. The author, who is Chair of this subcommittee, will also describe what other current studies are or have been done in Massachusetts (in the United States) and, if applicable, elsewhere.

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## **ASA SUBCOMMITTEE ON WIND TURBINE NOISE**

### **Purpose of the Panel on Public Policy**

The Acoustical Society of America (ASA) has, among its efforts in External Affairs, a Panel on Public Policy (PoPP), whose direction and purpose is to identify subjects within acoustics which are of interest to the public at the present time, and to determine whether or not the ASA wants to endorse a position. The positions are to be founded upon findings primarily within the literature. Therefore, at the present time (2013), the PoPP has statements regarding National Parks and classrooms. A subcommittee has been formed to consider the topic of Wind Turbine Noise.

### **Purpose and Composition of the Subcommittee on Wind Turbine Noise**

In keeping with the purpose of the PoPP, the purpose of the subcommittee on Wind Turbine Noise is to review the subject, which is of current interest, with differing views for the industry (turbine manufacturers, owners, and operators), and for the community in which they have been placed. The objective of the subcommittee is to consider whether or not the ASA should have a policy on Wind Turbine Noise, and if so, what it should be.

Since effects have been described in several subdivisions of acoustics, members of the relevant technical committees will be involved. The technical committees will include Noise (NS), Architectural Acoustics (AA), Structural Acoustics (SA), Underwater Acoustics (UA), Physiological and Psychological Acoustics (PP), and Animal Bioacoustics (AB).

### **Activities of the Subcommittee on Wind Turbine Noise**

For the immediate near future (the next several ASA meetings), the Subcommittee of PoPP on Wind Turbine Noise will both meet as a committee, and will sponsor technical sessions on the topic. The subcommittee will meet at 1:30 pm on Wednesday (as it did in Kansas City), for the Montreal, San Francisco, and Providence meetings. In addition, there will be special sessions on the topic at the same meetings. The special session in Montreal is this one.

Some of the technical concerns which will be considered by the subcommittee are such things as 1) What kinds of effects are there on humans and/or other animals which have been identified by communities surrounding wind turbines?, 2) What kind of measurement describes the observed effects?, and 3) Since wind turbine installations are often in rural areas, are fixed sound level or signal-to-noise ratio more appropriate for describing and/or mitigating the effects of these installations on the surrounding observers.

Other papers in this session will address some of the above questions. The people who participate in this activity have the opportunity to "do it right" with respect to the science. Since infrasound has been identified as a concern of low blade passage frequency wind turbines, it is expected that there will be a way to quantify this so that it can be mitigated, preferably through design.

## **OTHER CURRENT AND/OR RECENT ACTIVITIES ABOUT WIND TURBINE NOISE**

There are a number of activities on a fairly large scale being conducted currently of the noise generated by wind turbines and/or its effects on the surrounding population. For example, in the Commonwealth of Massachusetts in the United States of America, where the author resides, a fairly large study of twelve (12) operating turbines is being conducted by the Massachusetts Clean Energy Center. The study was solicited after Sheryl Grace, of Boston University, did a literature review of wind turbine noise for the Massachusetts Department of Health as an independent consultant. The winning team (November, 2012) was Resource Systems Group of Vermont, in collaboration with Epsilon Associates of Massachusetts and Northeast Wind, as subcontractors. The work is current (winter, 2012-13).

There is also a large study in Canada which is ongoing, having started also in calendar year 2012. In addition to the research activities, there are a number of Standards activities also ongoing in the Acoustical Society of America which have to do with wind turbines, including their vibration.

## **SUMMARY**

The topic of wind turbine noise is current and controversial. In response to the situation, the Panel on Public Policy of the Acoustical Society of America has formed a subcommittee to determine whether it is appropriate to have a public statement from the Society. If it is, the committee members are to put forth a statement which can be given to the press after vote of the committee and the Society's Executive Committee. All aspects of acoustics have been invited to participate, and, in addition, technical sessions are being held at semi-annual meetings of the ASA to consider and debate the data and the concerns.

## **REFERENCES**

Ellenbogen, Jeffrey M, Grace, Sheryl, Heiger-Bernays, Wendy, Manwell, James, Mills, Dora, Sullivan, Kimberly, and Weisskopf, Marc, "Wind Turbine Health Impact Study: Report of Independent Expert Panel", Prepared for Massachusetts Department of Environmental Protection, and Massachusetts Department of Public Health, January, 2012.  
Massachusetts Clean Energy Center information is on their website: [massceec.com](http://massceec.com).