Wind Turbines

As Maine and the nation explore energy alternatives to imported oil we are faced with a number of questions concerning the consequences of implementing these alternatives. Wind Turbines Neuro-Acoustical Issues provides information on issues related to Wind Turbines, including what protections currently exist within Maine law, what kind and levels of noise to expect, health effects, health benefits, and more.

October, 2009 Wisconsin Public Service Commission's Analysis of Wind Turbines and Health Issues (PDF)

Are wind turbines health hazards?

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DORA ANNE MILLS June 21, 2009

Recently, questions have been raised about possible health effects from the noise produced by wind turbines.

After reviewing the medical and public health literature and conducting interviews with experts, I have developed some conclusions to these questions.

• Are there health effects from noise generated by wind turbines?

Noise generated by wind turbines can produce a low-frequency repetitive swishing sound that by some reports can be very annoying.

There are claims that turbines also generate very low-frequency noise outside the range of hearing that is alleged to cause health effects.

In my reading of peer-reviewed medical and public health literature, mostly from Europe and Canada, I found no evidence of adverse health effects from the noise generated by wind turbines except for those associated with annoyances from the audible noises.

These effects, however, are mitigated or disappear with proper placement of the turbines from nearby residences.

So, although the noise qualities are different, it seems as though what was found to be true of airports and highways is true of wind turbines: It is primarily a matter of distance.

However, there is no one proper distance for all wind turbines.

Research indicates that a number of factors determine proper placement, including the height of the wind turbine, the surrounding topography, wind conditions, and wind direction.

As with airports, annoyance levels are difficult to assess and vary from person to person.

Careful measurements of different noise frequencies in a variety of weather conditions should assure proper placement of wind turbines that protect against annoyances and resulting effects.

• Does Maine law assure proper placement of wind turbines from residences?

Maine Department of Environmental Protection rules recognize that excessive noise can degrade the health and welfare of nearby neighbors. The rules set noise limits based on the type of development in the area and as measured at the boundary of the property owned by the developer. These rules serve to ensure that a turbine is located at a sufficient distance from homes so there are not annoying levels of noise.

Maine DEP, using professional noise experts, evaluates proposed wind turbine developments using measurements of high and low frequency noise and requires wind farms to demonstrate compliance with enforceable noise limits.

A number of states and countries have no such noise regulations, and of those that have them, Maine's compare very favorably in the protections they offer.

• What are the health benefits from wind turbines?

Generating energy from wind turbines means less energy generated from foreign oil and coal, both being major contributors to global warming, pollution, and resulting diseases and deaths due to heart disease, cancer, asthma, and other lung diseases.

Maine's highest-in-the-nation rates of asthma and cancer are thought to be at least partially due to pollution from our dependence on fossil fuels.

According to the Maine DEP, if Maine generated 5 percent of its electricity from wind power, there would be significant pollution cuts, including annual amounts of almost a half-million tons of carbon dioxide, about 250 tons of sulfur dioxide, and about 150 tons of nitrogen oxide.

• What about a moratorium on wind turbine projects?

In researching and reading several dozen papers and other sources of information I do not find evidence to support a moratorium on wind turbine projects.

The articles cited by those who are in favor of a moratorium are primarily either from non-peer-reviewed journals (though some are labeled as "peer-reviewed") or are misinterpreted analyses from peer-reviewed journals.

If there is any evidence for a moratorium, it is most likely on the further use of fossil fuels, given their known and common ill effects on the health of our population.

Wind turbines play an important role in a vision of Maine generating energy that harnesses our own clean resources and improves the overall health of Maine. However, like any source of noise, proper placement away from residences is important.

Maine DEP regulations and current testing protocols serve to properly place turbines, and when combined with community input, can help us achieve the vision of a healthier Maine.