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To: PUC
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There are many reasons to oppose the construction of an industrial wind energy project in the fertile heartland of the Midwest: 1) Inefficiency, 2) Ineffectiveness, 3) Energy rate hikes, 4) Land devaluation, 5) Impact on wildlife, 6) Road damage, 7) Stray voltage, 8) Waste of taxpayer resources, 9) Permanent Eyesores for future generations, 10) Negative health effects for the citizens of the community. Because of my education and professional experience, I will expound on the health effects on people forced to live near a wind turbine.

I am a registered nurse with a Masters degree in nursing. My 40+ years of practice has included various forms of health promotion and wellness. At the beginning of my career I taught community-based childbirth classes. In 2011 I began a 10-year adventure in teaching at the college level; physical assessment, nutrition and research. Presently I am a certified GAPS practitioner (www.gaps.me), empowering motivated people to regain their health through diet.

More research needs to be conducted in order to ensure the safety and well-being of citizens living in proximity to wind turbines. Research must be as free from bias and center around appropriate questions. The information obtained builds upon previously conducted studies. For example, a study might be done to answer the question, "What does it feel like to live near a wind turbine?" This is referred to as qualitative research, a form of research that produces baseline knowledge with which to build.

From the findings of these types of baseline studies, a followup questions to be explored might be: "Are there measurable factors that contribute to sleeplessness, anxiety, depression, and migraines when living near a wind turbine?" This research could use quantitative methods (numbers) to measure: sound levels, vibration, shadow flicker, etc. and correlate them with the level of physical symptoms.

In order to minimize bias in this research, a representative sample must be obtained. This means that the sample must appropriately represent the people living in the community. The gag order imposed on people who receive payments from wind developers results in the near impossibility of obtaining representative samples. The people most affected by this issue are prohibited from discussing the negative effects of their decisions.

Correlations found in research can provide enough information to build a case for causation. But “Correlation does not prove causation.” Just because the hours of shadow flicker correlate positively with sleeplessness, anxiety and headaches does not prove that these symptoms are caused by it. More research is needed to provide evidence of causation.

Causation requires research evidence of: 1) the strength of the association, 2) consistency of the findings, 3) specificity of the association, 4) Temporal sequence of the association, 5) Biological gradient, 6) Biological plausibility, 7) Coherence, and finally, 8) an experiment. (The Bradford-Hill criteria (J Roy Soc Med 1965:58:295-300))

1. Did anxiety, depression and migraines come with and are gone with placement/removal of wind turbine?
2. Are other populations suffering the same effects as Jane?
3. Does anything else seem to bring about anxiety, depression and migraines for Jane?
4. Were bouts of anxiety, depression, and migraines prior to the placement of the wind turbine?
5. Do the hours of shadow flicker, infrasound, vibration correlate with the intensity of the symptoms.
6. Are these symptoms biologically plausible?
7. Is this finding in accordance with our current knowledge about this phenomenon?
8. Does the removal of the exposure alter the outcome?

The sound, vibration and flicker affects people living near them with the above mentioned symptoms, sleeplessness, anxiety, depression, and migraines. Dr. Pierpont explains the physiological aspect in her book “Wind Turbine Syndrome.” On p. 198 she explains: “Humans are hardwired to exhibit this precise constellation of symptoms when their balance and motion sensors are dysregulated.”

“Balance comes from a combination of signals...clusters of signals from different body organs.” The inner ear (cochlea) transforms mechanical energy to neural signals. The semi-circular canals transduce angular acceleration to neural signals. The otoconia note position through movement sensing hair cells. These respond to low frequency noise. They circumvent the most fundamental process that contributes to a calm state of being – avoiding the fear that comes with the sensation of falling. On p. 203 this physician/researcher explains, “A noise, albeit a loud and distinctive type of noise, sets off a reflex chain of events showing that the vestibular system thinks the body or head is moving, even when it is not. Yes, in normal, healthy adult humans.”

According to Dr. Pierpont, “The normal human vestibular system has a fish- or frog-like sensitivity to low frequency vibration.” Accurate measurements can be taken of the eye muscle response to this low frequency vibration at 100Hz. The response to 100 Hz is found when the person can no longer hear the sound.

Another source of balance perception is the stretch and pressure receptors in the chest and abdomen. These detect the body's orientation to gravity and movement. Wind turbines are “scrambling” people's sense of balance.

Dr. Pierpont suggests that studies begin with the symptoms people experience rather than concentrating on the noise levels. In eight out of the ten families in this study who were forced out of their homes due to close proximity of the wind turbines noted relief of symptoms after leaving. Higher levels of noise, such as traffic noises, did not produced these symptoms. Moving out of one's home is not something that people do without good reason. There are certainly financial considerations as well as sentimental attachments that factor into this huge decision.

As a landowner, taxpayer, and concerned citizen, I feel the role of the PUC is to protect this community and its residents from the negative effects of wind turbine placement. More research needs to be done to ensure the safety and well-being of citizens who may otherwise be thrust into this situation against their will.