TESTIMONY OF MARK SCHMIDT
Champaign County
IN OPPOSITION TO Sub. H. B. 114
To revise the provisions governing renewable energy, energy efficiency, and peak demand reduction and to alter funding allocations under the Home Energy Assistance Program.

Chairman Balderson, Vice Chairman Jordan, Ranking Member O'Brien and members of the Committee, I am here to speak against any revision of the setbacks for industrial wind turbines that would measure the distance from my home rather than my property line. I also object to any proposed reduction of the current 1,125-foot setback from property lines.

Hello, my name is Mark Schmidt. I am an associate professor of anatomy and physiology at Clark State Community College in Springfield, Ohio. My wife and I reside with our three children on the north side of Urbana in the area that will be impacted by the proposed wind farm. I am concerned with the proposed amendment that will modify existing setback restrictions. My concern relates directly to the impact of low frequency sound and infrasound caused by the blades of the wind turbines and the potential deleterious effects, these waves pose for my family and the families of our neighbors.

When considering sound waves there are two things to take into consideration, the frequency of the wave and the amplitude of the wave. The frequency of the wave is measured from the peak of one wave to the peak of the next following wave and the amplitude is measured from the peak of the wave to the base of that wave. The frequency of the wave determines the "sound" of the wave while the amplitude is how loud that sound will be and can be thought of as the intensity of the wave or the amount of energy that the wave carries.

The blades of large-scale wind turbines move a lot of air as the tips of the blades can move at speeds over 150mph while in rotation and cover over an acre of ground. That means the waves that they produce will inherently have a lot of amplitude and intensity, this is a fact of physics and it is undisputable. When you move air in waves, sound is created. Now, if the period of the sound wave is long enough, as it is with the turbine blades, that sound may not be audible to the human ear, however that does not mean that is does not exist, nor that it has no affect on the human body. Leaseholders waive their right to claims related to these sound waves.

Just like when a pebble is dropped into a pond the wave that is created will move across the body of water until it strikes an object and then the energy from the wave will try to create a sympathetic wave or oscillation in the obstruction. The same thing happens with the sound waves created by the wind turbine blades as they move out from the source and create vibrations in the obstructions they meet.

Since the adult human body is on average 60% water, with the lungs, heart and brain being 70-75% water, vibrations are easily created within the soft tissues. These

vibrations within the tissues will have varying effects on the humans experiencing them, ranging from no noted effect, to nausea, dizziness, vertigo, headaches, repetitive sleep disturbance and feelings of extreme anxiety. The severity of symptoms is related to the sensitivity of the individual, the proximity to the source and the duration of exposure. Just like some people are sensitive to motion or sea sickness, individuals who are susceptible to sickness as a result of these waves could have very similar feelings sitting at their own kitchen table or in their own living room.

The inherent nature of low frequency waves make it very easy for them to penetrate the walls of a home and while people who experience motion sickness could stop the car or get off the boat, people who live next to and amongst wind farms of this type would have no respite. Their only recourse would be to suffer the effects or leave their home. You have testimony submitted from David and Rose Enz whose family abandoned their home in Wisconsin for this reason.

Often the effects of these low frequency sound waves are discounted due to the fact that they cannot be heard, but again that is a factor of their frequency and not their amplitude. Tsunamis are low frequency waves that have high amplitude and we can easily see the effects when their energy is transmitted into an obstruction.

Measuring and rating these waves in and around residential areas is inherently difficult, as many things will affect the intensity of the waves, such as temperature, density of the air (humidity), strength and direction of the wind as well as topography and structure of inhabitant's homes. The fact that the mechanical energy of the blades from these turbines is transferred into sound waves is indisputable. The fact that the energy from these waves will have an effect on the soft tissue of a human is indisputable, the only thing that can be done is to make wise informed decisions about how to best mitigate those effects.

I ask this committee to do their best to protect the rights and health of existing property and homeowners in the Urbana area, and, if anything, consider extending the property setback, not decreasing them. Thank you.