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Burl Haar
Executive Secretary
Minnesota Public Utilities Commission
121 – 7th Place East, Suite 350
St. Paul, MN 55101-2147

RE: In the Matter of the Commission Investigation into Large Wind Energy
 Conversion Systems Permit Conditions on Setbacks and the Minnesota
 Department of Health Environmental Health Division’s White Paper on Public
 Health Impacts of Wind Turbines.
 PUC Docket E-999/CI-09-845

Dear Dr. Haar:

Thank you for the opportunity to submit comments on these important issues. I am submitting this comment for the Minnesota Coalition for Sensible Siting, a coalition of participants and parties in multiple wind dockets before the Commission where setbacks and public health and safety have been an issue.

Request for broader distribution of Notice and Extension of Comment Period

Once again, I note that Notice of this Comment opportunity was deficient, and that the Commission did not issue a broader notice than the one prior. I again request broader distribution of the Notice.

The Notice states that “... the Commission is soliciting comments from interested stakeholders on the existing permit conditions used for permitting LWECs and the MDH white paper.” However, the service lists used were the ones for dockets 04-1616 and 03-869. These dockets are those for “multi-state tracking and trading system for RECs” and “electric utilities subject to Minn. Stat. §216B.1691” respectively, only industry interests are represented. Notice was not provided to those who have intervened or participated in wind dockets.

Broader notice should be provided to all those participating in the many wind dockets before the Commission, not only industry representatives, and the comment period should be extended

accordingly. From the Comments filed thus far, it's reasonable to think that the response would be even better if more people were aware.

Notice should be sent to participants on these dockets and all others:

enXco – Murray County	02-45
Stoneray	05-90
Kenyon Wind	06-1445
High Prairie	06-91; 06-1428; 06-1520
Bent Tree	07-1425; 08-573
Glacial Ridge	07-1073
Wapsipinicon	07-839
New Ulm	09-178
Noble Flat Hill	08-1134
Greenvale	09-722
EcoHarmony West	08-973
Lakeswind	08-1449
Sibley County	08-208
Establishing PUC General Wind Permit Standards	07-1102

Individuals who have raised issues in wind Certificate of Need, Power Purchase Agreement and Siting Dockets are “interested stakeholders” and worthy of being deemed stakeholders.

Minnesota does not benefit from the rushed and shortened process for wind projects

A foreshortened and inadequate state permitting process is being challenged in Wisconsin. The Citizens Utility Board and Wisconsin Industrial Energy Group has challenged the Wisconsin PSC's handling of the Bent Tree Wind Project. Exhibit A, CUB WIEG Petition. Bent Tree Wind Project is a project that is also under review in Minnesota using an unreasonably abbreviated permitting process without a contested case.

Increasing setbacks would address most of the issues presented in the Dept. of Health report

The Minnesota Coalition for Sensible Siting recommends the following setbacks:

- **Major Roads—1000 feet**
- **Township Roads—500 feet**
- **Residences—0.6 mile**
- **Wetlands—5 RD to protect wildlife**

The Dept. of Health Report raises many factors that have an impact on human health

The Dept. of Health's report raises many issues, based upon review of studies cited. Other studies also point out these problems, including the **Community Based Health Study – Ontario Canada**. Exhibit B, Canada Health Survey. This study provides specifics of health issues, noting that “[s]leep disturbance was the most common complaint. Other health complaints

include inner ear problems, mood disturbances, cardiac arrhythmias, and headaches. Several suffered acute hypertensive episodes which are most serious and worrisome.

Nina Pierpoint has written a soon to be released book, *Wind Turbine Syndrome*¹, cited in the Dept. of Health Report. Pierpoint's book is filled with research and documentation of the types of problems noted in the Dept. of Health Report:

The uniformity of the complaints quickly became apparent. It didn't take long to realize the potential for a relationship between these complaints, on the one hand, and *migraine, motion sickness, vertigo, noise and visual and gastrointestinal sensitivity, and anxiety* which, taken together, form a coherent and interconnected neurologic complex in medical practice.

Pierpoint addresses wind industry claims that demonstrated health concerns are psychosomatic:

Responses like these are a pity. They're rubbish. There is nothing "psychosomatic" or malingering about it. The physiologic pathway flows from physical forces (air pressure changes, noise, vibration) to physical sensations (chest pulsations, internal vibration, tinnitus, headache, ear fullness) to brain integration of sensory signals to distortions of brain functioning (sleeplessness, concentration and memory deficits, physical symptoms of anxiety)—not the reverse. Research clearly shows there are precise and definable neurologic connections that explain how distorted sensory signals can derail normal psychological and cognitive function and, in fact, trigger physical symptoms. (It's worth pointing out that our understanding of brain function has progressed by leaps and bounds in the last 25 years, radically changing the landscape of psychology and psychiatry and, of course, neurology. Much of the research on vestibular function, whereon I draw, is even more recent, conducted within just the last 10-15 years.)

Sound of wind turbines is a documented problem, and increased setbacks would offer relief to those living in close proximity to wind turbines. Exhibit C, Testimony of Richard James, Tazewell County Zoning Board of Appeals Hearing, p. 22-103; see also: *The Sound of the Fury: Audio Interpretation of Wind Turbine Flicker*².

Public health impacts must be monitored, baseline established and follow up studies

The Dept. of Health Report is sufficient basis for action. The issues raised by the Dept. of Health Report are typical of those raised elsewhere.

- **Sound** – Sound monitoring of existing sites must be instituted. Monitoring using dB(A) weighted scales are not sufficient, as noted in the Dept. of Health Report, therefore monitoring must include (A), (C) and (G) weighted scales. See e.g., Exhibit D, AEI Wind Turbine Noise Study. "Annoying" low frequency sound from the transformers at the Arrowhead substation, while lower than state regulatory thresholds, was deemed

¹ *Wind Turbine Syndrome*, Dr. Nina Pierpoint, excerpts available online: http://www.windturbinesyndrome.com/?page_id=932

² *The Sound of the Fury: Audio Interpretation of Wind Turbine Flicker*: <http://www.youtube.com/watch?v=14okAICY5fi>

sufficiently annoying to require mitigation. The regulatory standards for sound from wind turbines are inadequate to protect the public, as they are inadequate for protection of the public from substation noise. Minn. R. Ch. 7030.

- **Flicker** – studies should be done of residents experiencing flicker and suffering from various health impacts such as migraines and epilepsy. See e.g., Exhibit E, Harding, Wind Turbines, Flicker and Photosensitive Epilepsy.
- **Public and Worker Safety** – The state must adopt setbacks sufficient to protect the public from turbines that fail, scattering pieces as far as they can be thrown. Exhibit F, Suzlon Turbine Failure; Exhibit G – Failed Turbine Sherman Co. Oregon. OSHA must establish more stringent safety regulations for workers, and Minnesota must incorporate public and worker safety regulation into the permitting process. Exhibit H – Wind Worker Injuries & Deaths.

Local governments adopt ordinances requiring larger setbacks – it's Minnesota's turn

The State of Minnesota should adopt setbacks sufficient to address the public health concerns revealed in the Dept. of Health report.

Murray County, Minnesota has adopted setbacks of 1,000 feet from residences, and 1.1 times the total height for road rights of way, similar to those adopted by Manitowoc County, Wisconsin and others. Exhibit I, Murray County Ordinance (1,000 feet from residences); Exhibit J, Manitowoc County Wind Ordinance (1,300 feet from non-participating residences, same for roads or 3 times full height, whichever is greater); Exhibit K – Calumet County Wind Ordinance; Exhibit L – Ridgeville Wind Ordinance.

Conclusion

The public health impacts of wind turbines can be addressed by increasing setbacks, by increasing the distance between turbines and people, residences (participant and non-participant), schools and businesses, livestock, wildlife and flyways, roads and airports.

Thank you for the opportunity to submit these comments.

Very truly yours,



Carol A. Overland
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