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Presentation to the
Legislative Energy
Commission
October 19, 2017

WIND TURBINE SITING IN MINNESOTA



10/19/2017

A Report for the Legislative Energy Commission

SF1906/HF 2170

- 10 times total height setback between a turbine & a home
- 1640 feet - minimum distance to property line
- MN Department of Health to investigate complaints
- Buyout





Minnesotans are sick and have left their homes due to the operation of large industrial wind turbines.

The State has known about the problems since at least 2009 and has done nothing to protect rural residents or resolve complaints.

Public Utilities Commission has wind developers decide their own setback distance between their turbines and homes based on their modelled “compliance” with MPCA’s M.R 7030

According to the MPCA, M.R. 7030:

- Not designed to work with wind turbines
- Should not be used for wind turbines
- Do not have a testing protocol that works well for wind turbines.

PUC requested & received advice on an audible noise limit for wind turbines. They ignored it.



Assessing Sound Emissions
from Proposed Wind Farms &
Measuring the Performance of
Completed Projects

NARUC Grants & Research

NARUC

October 2011

The National
Association
of Regulatory
Utility
Commissioners

A report for the Minnesota PUC
Funded by the U.S. Department of Energy

*It would be advisable
for any new project to
...maintain a mean
sound level of 40 dBA
or less*

10/13/2011 David M. Hessler

<http://www.naruc.org/Grants/Documents/Final%20full%20MN%20SERCAT%20rep%20with%20NARUC%20cover%20Hessler.pdf>

PUC requested & received *Public Health Impacts of Wind Turbines*. PUC promised to address LFN. They did not.

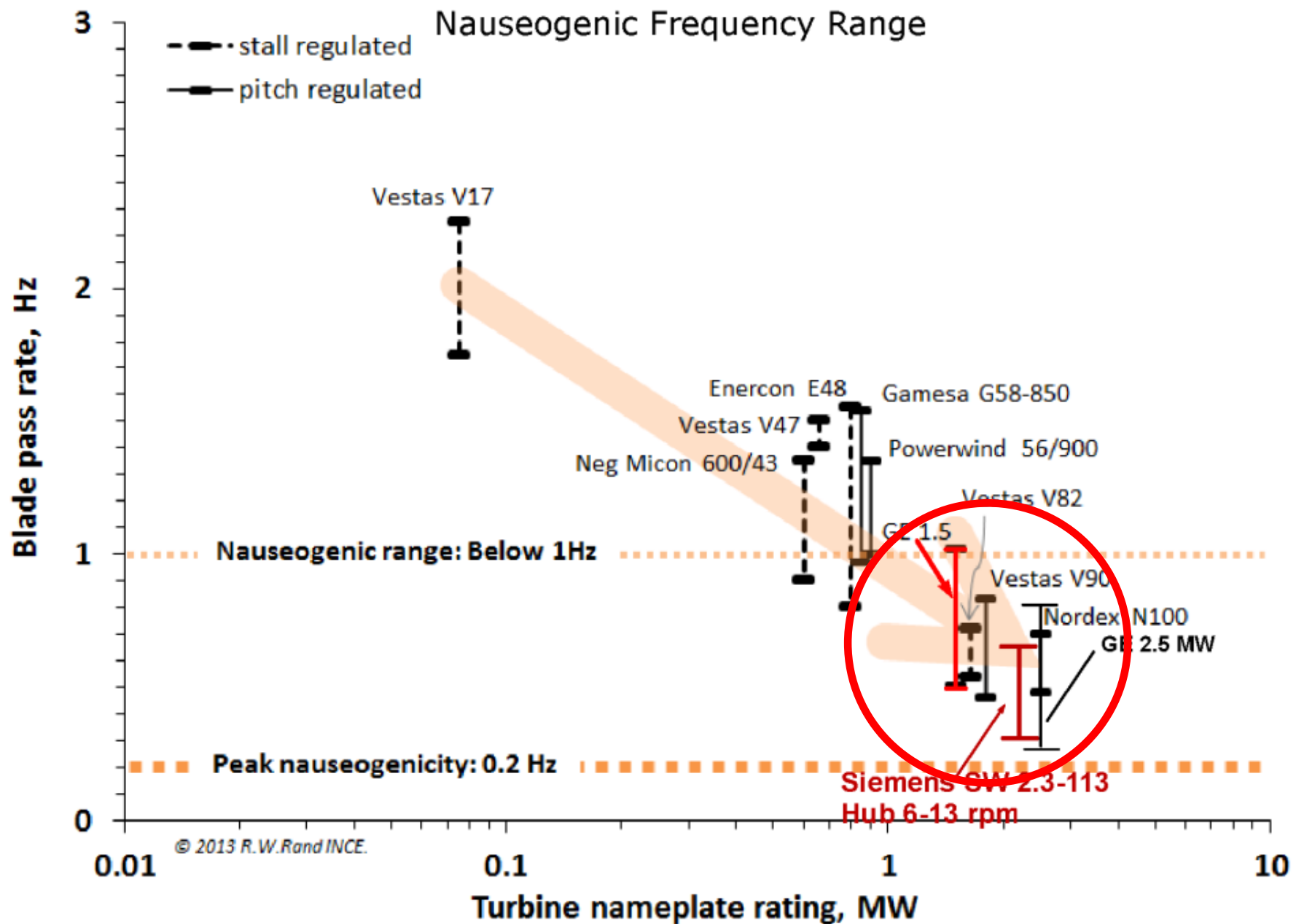
“Low Frequency noise is primarily a problem...in...homes, especially at night.”

**Recommendation:
“...evaluate the low frequency noise component”**

**Public Health Impacts of Wind Turbines
Minnesota Department of Health
May 22, 2009**



Proximity of Blade Passage Frequency to Nauseogenic Frequency Range



“We are deferential to our sister agencies who regulate noise – both the Department of Health and the Pollution Control Agency.” 1/20/2016



“I know that they take into account scientific peer-reviewed information. If you have that information, I would encourage you to take it to them. They can determine whether it is appropriate to revise the standards we follow and the protocol.”

~ Chair Beverly Heydinger, Minnesota Public Utilities Commission

“...The current understanding of wind turbine noise and its potential effects is insufficient to support rule making....”

~ MPCA Commissioner John Linc-Stine; 9/12/2016; DOC ID 20169-124844-01)

PUC General Permit Setbacks

Issue	PUC General Permit Setback Minimums
Homes	500 feet + distance to meet state noise standard.
Noise Standard	750 – 1500 ft typically required to meet state noise standard. (Minnesota Rules Chapter 7030).

The State knows so little about wind turbine noise that they cannot even enter into rulemaking.



But they issue site permits using wind turbine noise as the sole factor for the setback to a home.

Audible Noise

Wide agreement 40 dB(A) limit

However:

- 1. Not a good measurement protocol to determine if it is met.**
- 2. Judge Cornelius Moriarty ruled Falmouth, Massachusetts turbines a nuisance at 40 dB(A); ordered permanent shut down in July 2017.**
- 3. Wind industry routinely “adjusts” turbines during noise studies in order to show compliance.**
- 4. More recent data suggests 35 dB(A)**

Low Frequency Noise/ Infrasound

No existing LFN-based siting standards

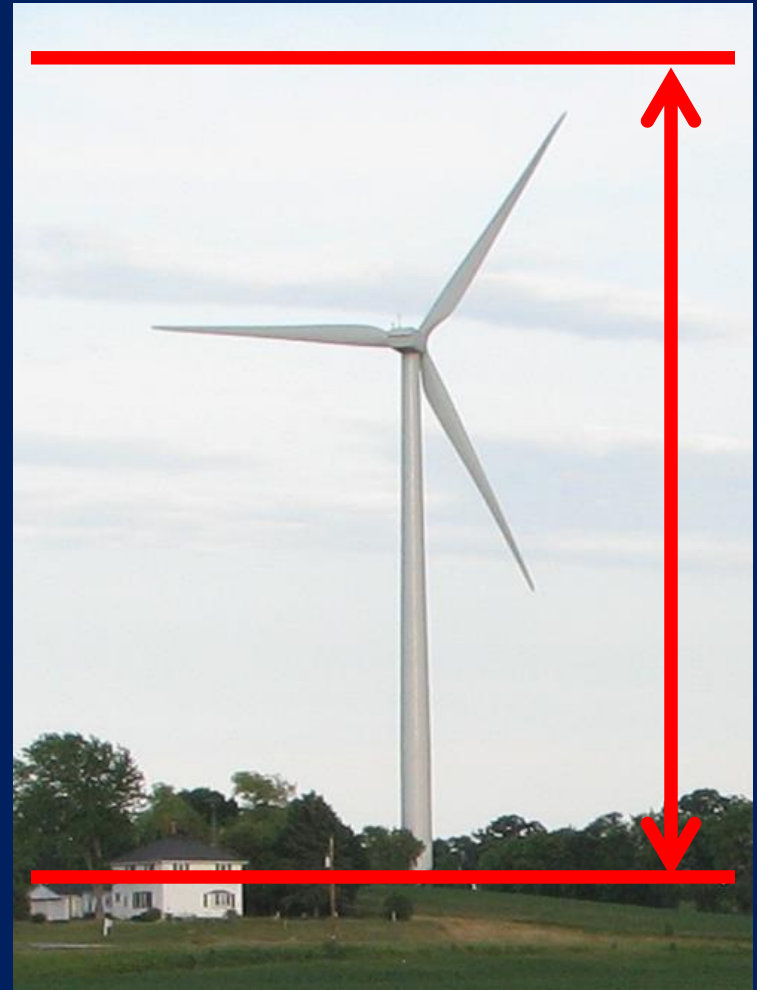
- 1. Possible to write siting standard based on ISO 9996: 1996. Mechanical vibration and shock — Disturbance to human activity and performance**
- 2. MPCA recommended not using any type of noise standard - difficult to write , interpret, and administer.**
- 3. Wind industry routinely “adjusts” turbines during noise studies in order to show “compliance.”**

Distance Standard

10 H withstood court examination

SF1906/HF 2170

1. Easy to interpret & administer.
2. Regulatory certainty.
3. Much more difficult for wind industry to game.
4. However, probably still not far enough to protect human health.



At least 1640 feet from property lines



MDH to investigate unresolved noise & health complaints

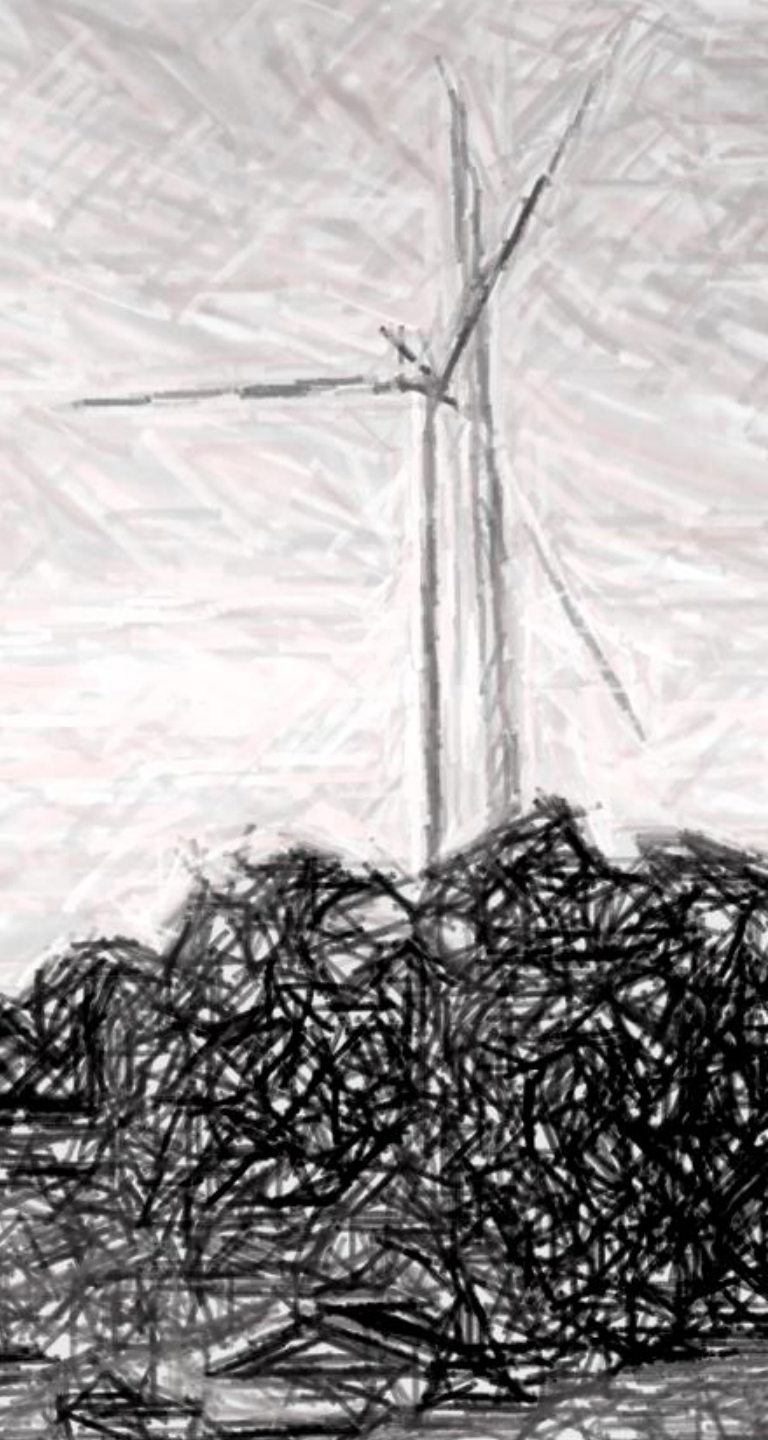
“I am adversely affected by the windmills surrounding my house.” I am experiencing “...progressing migraines [and have] moved my bedroom to the basement....” “I never thought I would have to leave the home that I love.” “Why...?” ~Resident in Grand Meadow wind project

Because of progressing migraines. I see and hear windmills first thing in the morning, all day, and the last thing I see and hear at night. I am supposed to get real. My body doesn't need this added stress. So what options are left for me? My first option to try is to surround



“The noise level at your home is below the 50 dB(A) required by the site permit and Minnesota Rules.”

~Xcel’s response to complaint at Grand Meadow wind project



When the turbines are operating, I sleep more soundly in my car at a truck stop than in my house.

~ Bernie Hagen

Alliant Energy's Bent Tree Wind (08-573)

Citizens' experience –

Wind developers routinely provide false, misleading and incomplete information. The PUC issues permits anyway using standards that aren't for wind turbines. Citizens who are harmed have no recourse.

It is time for the legislature to take action - SF1906/HF 2170



Ruthton, Minnesota

Wind
developer told
the PUC this is
a red tailed
hawk's nest.

(AWA Goodhue 08-1233)

